Bulletin: General Catalog Issue 2001-2002

Portland State University

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# ACADEMIC CALENDAR

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</thead>
<tbody>
<tr>
<td><strong>International admission application</strong></td>
<td>March 1</td>
<td>July 1, 2001</td>
<td>Sept. 1, 2001</td>
<td>Dec. 1, 2001</td>
<td>March 1</td>
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<tr>
<td><strong>Graduate admission application</strong></td>
<td>April 1</td>
<td>Sept. 1, 2001</td>
<td>Nov. 1, 2001</td>
<td>Feb. 1</td>
<td>April 1</td>
</tr>
<tr>
<td><strong>Undergraduate admission application or re-enrollment—priority filing dates</strong></td>
<td>June 1</td>
<td>Oct. 1, 2001</td>
<td>Feb. 1</td>
<td>May 1</td>
<td>June 1</td>
</tr>
<tr>
<td><strong>Advance registration begins, touchtone phone and Web access</strong></td>
<td>May 14</td>
<td>Nov. 5, 2001</td>
<td>Feb. 18</td>
<td>April 1</td>
<td>May 13</td>
</tr>
<tr>
<td><strong>Continuous registration and adjustments until</strong></td>
<td>Oct. 5</td>
<td>Jan. 18</td>
<td>April 12</td>
<td>June 29</td>
<td>Oct. 4</td>
</tr>
<tr>
<td><strong>Classes begin (day and evening)</strong></td>
<td>Sept. 24</td>
<td>Jan. 7</td>
<td>April 1</td>
<td>June 24</td>
<td>Sept. 30</td>
</tr>
<tr>
<td><strong>Last day to enroll in classes, add a class, or make section changes</strong></td>
<td>Oct. 5</td>
<td>Jan. 18</td>
<td>April 12</td>
<td>varies</td>
<td>Oct. 11</td>
</tr>
<tr>
<td><strong>Late payment fee begins</strong></td>
<td>Oct. 8</td>
<td>Jan. 22</td>
<td>April 15</td>
<td>§</td>
<td>Oct. 14</td>
</tr>
<tr>
<td><strong>Last day of refund period and drop without course recorded</strong></td>
<td>Oct. 19</td>
<td>Feb. 1</td>
<td>April 26</td>
<td></td>
<td>Oct. 25</td>
</tr>
<tr>
<td><strong>Last day to make changes in grading option, drop from a class without permission</strong></td>
<td>Oct. 26</td>
<td>Feb. 8</td>
<td>May 3</td>
<td>varies</td>
<td>Nov. 1</td>
</tr>
<tr>
<td><strong>Last day to drop a class with department permission</strong></td>
<td>Nov. 16</td>
<td>March 1</td>
<td>May 24</td>
<td>varies</td>
<td>Nov. 22</td>
</tr>
<tr>
<td><strong>Final examinations</strong></td>
<td>Dec. 3-8</td>
<td>March 18-23</td>
<td>June 10-15</td>
<td>Aug. 15-16</td>
<td>Dec. 9-14</td>
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<tr>
<td><strong>Commencement days</strong></td>
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<td>June 16</td>
<td>Aug. 17</td>
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<tr>
<td><strong>Term ends</strong></td>
<td>Dec. 8</td>
<td>March 23</td>
<td>June 15</td>
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<td>Dec. 14</td>
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<tr>
<td><strong>Holidays</strong></td>
<td>Nov. 12</td>
<td>Nov. 22-23</td>
<td>Jan. 21</td>
<td>May 27</td>
<td>July 4</td>
</tr>
</tbody>
</table>

Notes:
- Changes are published in the quarterly Schedule of Classes.
- Advance registration beginning dates are tentative. Refer to the quarterly Schedule of Classes for dates and procedures.
- Summer Session catalog available in April.
- One week after session begins.
- For eight-week courses.
- The annual commencement day is in June, and there is a summer ceremony in August. There are no ceremonies in fall or winter.
<table>
<thead>
<tr>
<th>PROGRAMS OF STUDY</th>
<th>Minor</th>
<th>Certificate</th>
<th>Bachelor's</th>
<th>Master's</th>
<th>Doctorate</th>
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<tbody>
<tr>
<td>Accounting</td>
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<td>Administration of Justice</td>
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<td>Anthropology</td>
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<tr>
<td>Applied Linguistics</td>
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<td>Architecture</td>
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<td>Art</td>
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<td>Athletic Training</td>
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<tr>
<td>Biology</td>
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<tr>
<td>Black Studies</td>
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<td>Business Administration</td>
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<td>Chemistry</td>
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<td>Chicano/Latino Studies</td>
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<td>Child and Family Studies</td>
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<td>Civil Engineering</td>
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<td>Community Development</td>
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<td>Computer Applications</td>
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<td>Computer Engineering</td>
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<td>Computer Science</td>
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<td>Conflict Resolution</td>
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<td>Economics</td>
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<td>Education</td>
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<td>Electrical and Computer Engineering</td>
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<td>Engineering Management</td>
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<tr>
<td>Options: Project Management, Technology Management</td>
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<td>Subject</td>
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<td><strong>English</strong></td>
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<td>Professional Writing</td>
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<td><strong>Environmental Management</strong></td>
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<tr>
<td><strong>Environmental Sciences and Resources</strong></td>
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<tr>
<td>Options: Biology; Chemistry; Civil Engineering; Economics; General; Geography; Geology; Physics</td>
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<td><strong>Environmental Studies</strong></td>
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<td><strong>European Studies</strong></td>
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<td><strong>Foreign Languages</strong></td>
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<tr>
<td>Undergraduate options: Chinese, French, German, Japanese, Russian, Spanish, combination of two or more of these languages; Certificate: Teaching Japanese as a Foreign Language Graduate: French, German, Spanish</td>
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<td><strong>Foreign Literatures and Languages</strong></td>
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<td><strong>Geography</strong></td>
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<td><strong>Geology</strong></td>
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<td>Undergraduate option: Environmental Geology minor Graduate option: Geohydrology</td>
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<td><strong>Gerontology</strong></td>
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<td><strong>Health Education</strong></td>
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<td>Undergraduate options: Community Health; Health and Fitness Promotion; Health Sciences; School Health; M.P.H.: Health Education/Health Promotion</td>
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<td><strong>History</strong></td>
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<td><strong>International Business Studies</strong></td>
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<td>African Studies; East Asian Studies; European Studies; Latin American Studies; Middle East Studies</td>
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<td><strong>Latin American Studies</strong></td>
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<td>Options: Arts and Letters; Science; Social Science</td>
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<td><strong>Manufacturing Engineering</strong></td>
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<td>(joint degree with Oregon State University)</td>
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<td><strong>Mathematics</strong></td>
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<td>Graduate option: Statistics</td>
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<td><strong>Mathematics Education</strong></td>
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<td><strong>Mechanical Engineering</strong></td>
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<td><strong>Middle East Studies</strong></td>
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<td><strong>Music</strong></td>
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<td>Jazz minor</td>
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<td>Graduate options: Performance, Conducting</td>
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<td><strong>Philosophy</strong></td>
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<td><strong>Physics</strong></td>
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<td><strong>Psychology</strong></td>
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<tr>
<td><strong>Public Administration</strong></td>
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<td>M.P.A. option: Health Administration; M.P.H. option: Health Administration and Policy</td>
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<td><strong>Public Administration and Policy</strong></td>
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<td><strong>Science</strong></td>
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<td>Options: Biology; Chemistry; Environmental; General; Geology</td>
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<td><strong>Social Science</strong></td>
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<td><strong>Social Work</strong></td>
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<td><strong>Sociology</strong></td>
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<td><strong>Software Engineering (Oregon College of Engineering and Computer Science)</strong></td>
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<td><strong>Speech Communication</strong></td>
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<td>Options: General Speech Communication; Speech and Hearing Sciences</td>
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<td><strong>Systems Engineering</strong></td>
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<td><strong>Systems Science</strong></td>
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<td>Options for Ph.D.: Anthropology; Business Administration; Civil Engineering; Economics; Engineering Management; General; Mathematics; Mechanical Engineering; Psychology; Sociology</td>
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<td><strong>Theater Arts</strong></td>
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<td><strong>Social Work</strong></td>
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<td><strong>Women's Studies</strong></td>
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<td><strong>Writing</strong></td>
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<td>Options: Fiction, Non-Fiction, Technical Writing</td>
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<td><strong>Preprofessional Programs:</strong> agriculture; chiropractic; clinical laboratory science; cytotechnology; dental hygiene; dentistry; forestry; law; medicine; naturopathic medicine; nuclear medicine technology; nursing; occupational therapy; optometry; osteopathy; pharmacy; physical therapy; physician assistant; podiatry; radiation therapy; veterinary medicine</td>
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1 Postbaccalaureate or graduate certificate.
2 Departments participating in multidisciplinary doctoral program of systems science.
3 Offered by Department of Applied Linguistics as Teaching English to Speakers of Other Languages (TESOL).
4 Departments participating in multidisciplinary doctoral program of environmental sciences and resources.
5 Departments participating in multidisciplinary doctoral program of urban studies.
6 M.A./M.S. offered by Graduate School of Education. M.A.T./M.S.T. offered in cooperation with appropriate department.
7 M.S., M.Eng., and Ph.D. in Electrical and Computer Engineering.
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WELCOME TO PORTLAND STATE UNIVERSITY

THE UNIVERSITY

Portland State University is a comprehensive public university of growing distinction. The University has more than 17,000 enrolled students and serves 40,000 individuals in credit or noncredit classes each year, including nearly one-third of the Oregon University System’s enrolled graduate students. PSU is Oregon’s primary vehicle for meeting higher education, research, and public service needs throughout the Portland metropolitan area. Its research and study programs are essential elements in the development of the state and the region in the decades ahead. The institution serves Oregon’s population and commercial center through academic program flexibility, intellectual creativity, and dedication to lifelong learning.

Portland State University is at the center of a dynamic community. Almost 60 percent of Oregonians live within commuting distance of the campus and the population of greater Portland has grown to nearly two million people. With its excellent parks, cultural facilities, transportation systems, and cityscape, Portland is one of the finest cities in the United States. As Oregon’s economic and population center, and as a gateway to the Pacific Rim, Portland offers unique opportunities for business, industry, government, and the University to enhance partnerships that promote economic, social, cultural, and international development.

The University’s mission is to enhance the intellectual, social, cultural, and economic qualities of urban life by providing access throughout the life span to a quality liberal education for undergraduates and to an appropriate array of professional and graduate programs especially relevant to metropolitan areas. The University conducts research and community service that support a high quality educational environment and reflect issues important to the region. It actively promotes the development of a network of educational institutions to serve the community.


CAMPUS, CITYSCAPE

The PSU campus is a cityscape, designed to meet student needs.

Occupying 41 buildings in a 49-acre area, the campus is built around the Park Blocks, a greenway area reserved for pedestrians and bicyclists. The Park Blocks are well used by PSU students. Landscaped to combine utility with natural beauty, they provide a place for students and the community to gather, talk, study, or put on an impromptu concert or lecture.

Elevated walkways connect many of the buildings, bridging city streets and providing fast, easy routes for busy students. An underground tunnel network serves the same purpose and contains shops, game rooms, and eating places.

At the edge of campus, the University merges easily into downtown Portland. The areas immediately surrounding the campus contain private student housing, shops, taverns, convenience stores, dry cleaners, theaters, and restaurants which primarily serve the University.
Commercial and governmental centers, as well as cultural and entertainment resources, are within easy walking distance of campus. Among them are the Oregon History Center, Performing Arts Center, Portland Art Museum, Multnomah County Library, Portland Center with its noted Lovejoy and Keller fountains, Civic Stadium, Civic Auditorium, theaters, and restaurants.

The campus is located within 90 minutes’ driving time of snow-covered Mt. Hood to the east and the famed Oregon coastline to the west.

**Faculty**

PSU faculty members are engaged in teaching, research, and related academic work. Many also put their expertise to work in community affairs, consulting with local business concerns, holding key assignments in professional, cultural, and civic groups, working cooperatively with social agencies, or otherwise serving the community.

Faculty members come from colleges and universities throughout the United States and from foreign countries. The faculty includes almost 600 full-time and several hundred part-time members. More than 77 percent of the full-time faculty have doctoral degrees. Many of the part-time members from the community lecture in specialized courses while actively involved in their professions. The faculty is supported by about 600 non-teaching administrative, office, and technical personnel.

**Accreditation**

Portland State University is accredited by the Northwest Association of Schools and Colleges, the official accrediting agency for the region. Portland State is a member of the Association of American Colleges and Universities.

Various schools and departments within the University also are accredited by special agencies. The undergraduate and graduate programs and the accounting program of the School of Business Administration are accredited by the American Assembly of Collegiate Schools of Business. The Graduate School of Education teacher education programs are accredited by the National Council for Accreditation of Teacher Education and by the Oregon Teacher Standards and Practices Commission.

The Graduate School of Social Work program is accredited by the Council on Social Work Education. The Department of Chemistry is accredited by the American Chemical Society. The College of Engineering and Computer Science undergraduate programs in civil, electrical, and mechanical engineering are accredited by the Engineering Accreditation Commission/Accreditation Board for Engineering and Technology. The computer science program is accredited by the Computing Sciences Accreditation Board.

In the Department of Communication, the training program in speech pathology is accredited by the Education and Training Board, American Board of Examiners through the American Speech-Language-Hearing Association. The speech and hearing clinics have accreditation in both speech pathology and audiology by the Professional Service Board, American Board of Examiners in Speech Pathology and Audiology through the American Speech-Language-Hearing Association.

In the College of Urban and Public Affairs, the Master of Urban Planning degree is accredited by the Planning Accreditation Board, and the Master of Public Administration degree is accredited by the National Association of Schools of Public Affairs and Administration.

The Department of Music is accredited by the National Association of Schools of Music. Programs in the Department of Art are accredited by the National Association of Schools of Art and Design.

**Academic Resources**

The major academic units of the University are the Colleges of Engineering and Computer Science, Liberal Arts and Sciences, and Urban and Public Affairs, the Schools of Business Administration and Fine and Performing Arts, and the Graduate Schools of Education and Social Work.

Operating from a solid base of liberal and professional arts and sciences, the University encourages innovative curricula both on the undergraduate and the graduate levels through its degree, certificate, and preprofessional programs. New programs are initiated to meet educational needs as they are recognized.

Bachelor of Arts and Bachelor of Science degrees are available in a wide variety of fields from the academic colleges and professional schools. The Bachelor of Music degree is available for those seeking a professional music degree. Additionally, specialist certificate programs, minors, preprofessional programs, and secondary education programs supplement the major studies and provide many diverse opportunities. Students achieve the understanding and knowledge necessary to participate fully in the social, political, and cultural activities of the community.

Master’s degrees are offered in numerous disciplines, and the University offers ten doctoral degrees, including degrees in civil engineering, computer science, engineering, education, mathematics education, social work and social research, and four interdisciplinary degrees in which approximately a dozen departments participate. These professional advanced degrees enable students to make valuable contributions to society through the use of new knowledge and enhanced awareness of its concerns.

See pages 4-6 for a list of the programs offered at PSU and consult the index for further information about these programs.

**Year-round Study, Day and Evening**

Three 11-week terms, Summer Session, and Extended Studies make up PSU’s year-round study program. The programs and courses described in this catalog are offered throughout the year. Students may enter PSU at the beginning of any term. To enroll for 9 credits or more during fall, winter, or spring, formal admission to PSU is required; nonadmitted students may take a maximum of 8 credits per term. In summer, students may take a full academic load without being admitted formally. See the academic calendar on page 3 for important dates.
HOW TO APPLY: DOMESTIC STUDENTS

Domestic students should submit the following information to the Office of Admissions and Records.

1. Application Form and Nonrefundable Fee. Copies of the official form may be obtained from the PSU Office of Admissions and Records and at the counseling offices in most Oregon high schools and community colleges or on-line at http://www.pdx.edu. To assure consideration for admission, the application should be submitted by the dates listed on the form and must be accompanied by a nonrefundable $50 application fee†. The application and the nonrefundable $50 application fee are valid for one calendar year.

2. Admission Validation. If the student does not validate admission by registering for classes within one calendar year, the student must submit a new application and pay the $50 fee again. To validate your admission, you must register and pay for at least one credit in the term for which you were admitted.

3. Official Transcripts. Transcripts must be submitted directly from each high school or college attended. Transfer students who have earned fewer than 30 credits of college transfer coursework are required to submit high school transcripts. Since all official transcripts submitted become the property of PSU and cannot be copied or returned to the student, students are encouraged to obtain unofficial copies of their transcripts from prior institutions for advising or personal purposes.

4. Official Scores of College Board Scholastic Aptitude Test or American College Test. For new freshmen entering PSU directly from high school or who have earned fewer than 30 credits of college transfer work, scores from the College Board Scholastic Aptitude Test (SAT) or American College Test (ACT) are required. The applicant is responsible for seeing that test scores are submitted directly to PSU from the testing board. For more information on these examinations, contact the College Board, 1947 Center Street, Berkeley, CA 94704; the American College Testing Program, Iowa City, IA 52240; or PSU Counseling and Psychological Services, M343 Smith Memorial Center, 503-725-4423.

5. The number of students admitted for any term is subject to the availability of space. When space is limited, selection may be based on grade point average, date of application, intended major, etc.

6. Altered Transcripts and Falsified Applications. Students who knowingly submit altered transcripts or falsified applications jeopardize their admission status and could have their registration canceled. All records submitted, filed, and accumulated in the Office of Admissions and Records become the property of the University.

ADMISSION REQUIREMENTS

Entering Freshmen—Residents and Nonresidents. To be admitted as freshmen, students need to fulfill each of the requirements (or alternatives to each) as specified in items 1-4 below.

1. High School Graduation Requirement. Must have graduated from a standard or accredited high school. Students who have not graduated from high school or from a standard or accredited high school may meet entry requirements through alternative testing. Alternative testing includes successful completion of the Test of General Education Development (GED) with a minimum overall score of 46 and a minimum score of 40 on each of the five sub-tests. Students may also meet the high school graduation requirement at PSU through alternative testing. Alternative testing includes successful completion of the Test of General Education Development (GED) with a minimum overall score of 1,000 on the Scholastic Aptitude Test (SAT) or 21 on the American College Test (ACT) and an average of 470 or above (1,410 total) on each of SAT II subject tests for English, Math Level I or IIc, and one additional subject test of the student’s choice.

2. Admissions Test Requirement. Must submit scores of the Scholastic Aptitude Test (SAT) or American College Test (ACT). Note: Students graduated before 1975 are not required to provide the SAT or ACT.

3. Subject Requirements. Satisfactorily complete 14 units (one year each) of college preparatory work in the subject areas shown below, or submit Oregon Proficiency-based Admission Standards (PASS) scores of M, H, or E.

a. English (4 units). Shall include the study of the English language, literature, speaking and listening, and writing with emphasis on and frequent practice in writing expository prose during all four years.

b. Mathematics (3 units). Shall include first-year algebra and two additional years of college preparatory mathematics such as geometry (deductive or descriptive), advanced topics in algebra, trigonometry, analytical geometry, finite mathematics, advanced applications, calculus, probability and statistics, or courses that integrate topics from two or more of these areas. (One unit is highly recommended in the senior year.) Algebra and geometry taken prior to the ninth grade will be accepted.

c. Science (2 units). Shall include a year each in two fields of college preparatory science such as biology, chemistry, physics, or earth and physical science; one recommended as laboratory science.

d. Social Studies (3 units). Shall include one year of U.S. history, one year of global studies (world history, geography, etc.), one year of social studies elective (government highly recommended).

e. Second Language (2 units). Shall include two years of the same second language.

Alternatives to the Subject Requirements. (Any one of the following.)

i. Score an average of 470 or above (1,410 total) on the SAT II subject exams (English Composition, Math Level I or IIc, and a third test of the student’s choice).

ii. Take make-up coursework for specific subject requirements missed in high school and achieve a passing grade. Note: Satisfactory completion of Math 95 or its equivalent (Intermediate Algebra) fulfills in total the subject requirement in mathematics.
4. Grade Point Average Requirement.
To be admitted, students must have a 2.50 grade point average in all graded subjects taken toward graduation in four years of high school.
Alternative to the GPA Requirement.
(Either of the following.)
  i. 1000 SAT or
  ii. 21 ACT
5. Special Admissions. A limited number of students who do not meet the admissions requirements or alternatives listed above may be admitted through special action of an admissions committee. To be considered on this basis, contact: Portland State University, Office of Admissions and Records.

Admission of Students Graduated in 1984 or Before
Students who graduated from high school in 1984 or before will not be required to meet the 14 units of prescribed subjects. They will, however, need to meet the requirements (or alternatives) effective fall term 1984. Students who attend a college or a university in the interim between high school graduation and admission will be required to meet the transfer requirements in effect at the time of their transfer.

Entering Transfer Students
Oregon Resident. To be admitted as a transfer student, resident applicants must have a minimum GPA of 2.00 in 30 quarter credit hours of transferable college work. Students who have accumulated up to 29 credits of college work must also meet the freshman admission requirements.
Nonresident. To be admitted as a transfer student, nonresident applicants must have a minimum GPA of 2.25 in 30 quarter credit hours of transferable college work. Students who have accumulated up to 29 credits of college work must also meet the freshman admission requirements.

Transfer Evaluations. A copy of the transfer evaluation is sent after the transfer requirements or alternatives are met.

Academic Probation/Disqualification.
Academic probation/disqualification will not affect the admissibility of a student whose complete academic record meets the minimum admission requirements in effect at the time of application. A student who fails to meet the minimum admission requirements must petition the Office of Admissions and Records.

Disciplinary Disqualification.
A student who has been disqualified from another institution for disciplinary reasons must be eligible to re-enroll at that institution to be considered for admission to Portland State University. Students with extenuating circumstances may petition the Scholar's Standards Committee for a waiver of this policy.

HOW TO APPLY:

INTERNATIONAL STUDENTS

To be considered for admission to Portland State University for a full course of studies, non-U.S. citizens must submit an International Student Application, a $50 (U.S. dollars) nonrefundable application fee, and academic documents to show that the student meets the admission requirements described below. All international students must provide evidence of adequate financial resources to pay for their PSU education and their expenses.

Candiates for admission are given priority if complete applications are filed by:
  i. March 1 for fall term
  ii. July 1 for winter term
  iii. September 1 for spring term
  iv. December 1 for summer session

Applications will be considered for all terms subject to departmental restrictions and course availability. Students applying for graduate study should contact the appropriate academic department for specific departmental application information.

ADMISSION REQUIREMENTS
Applicants must satisfy an English language competency requirement and an academic preparation requirement.

English Language Competency Requirement. The English language competency requirement applies to all undergraduate students. It may be satisfied by scoring 525 on the Test of English as a Foreign Language (TOEFL). Effective fall term 1996, only the international TOEFL examination or the PSU institutional TOEFL examination will be accepted. Applicants who do not satisfy the English language competency requirement may be considered for admission in the English as a Second Language (ESL) program, students assigned to the ESL program as a condition of admission are restricted to ESL courses until they attain satisfactory proficiency in English. Information on TOEFL test dates, cost, and location of testing centers is available from TOEFL, PO. Box 899, Princeton, NJ 08540, or from www.toefl.org.

Academic Preparation Requirement. Undergraduate students: by completing academic (university preparatory) U.S. secondary school education or equivalent at an acceptable standard determined by the Office of Admissions and Records; or, as a transfer student, by completing 30 college credits, excluding ESL courses, with a 2.50 GPA or better at an accredited American college or university.

English as a Second Language Test. Applicants who are admitted to Portland State may take an institutional TOEFL on campus. Call the Testing Office, 503-725-4428, for dates and details of the testing program.

Intensive English Language Program.
Persons seeking English language training only, who do not wish to continue toward university-level academic study, may apply for admission to the Intensive English Language Program (IELP).

The IELP provides non-credit classes only; therefore, no university-level academic credit will be offered. Students must have earned the equivalent to a U.S. high school diploma for admission consideration. Prospective students must be in legal U.S. immigration status at the time of application.

Contact the Department of Applied Linguistics, 503-725-4088, for additional requirements.

VETERANS' ADMISSION REQUIREMENTS

503-725-3876

Portland State University is approved for the training of veterans.

Veterans considering entering PSU are expected to meet admission requirements appropriate for their educational backgrounds. (Please see Veterans' Services under Student Services for instruction in how to apply.)

Academic Credit. Credit may be granted for some types of military service courses on the college level where equivalency to Portland State courses can be shown. Veterans should provide transcripts from appropriate military schools and a copy of VA form DD214 to the Admissions and Records Office upon application to PSU.

Satisfactory Progress Standards. In order to maintain satisfactory progress, the student veteran must complete the following credits:

Certified for: Undergraduate: Graduate:
Full time: 12 credits 9 credits
Three-quarter time: 9 credits 7 credits
One-half time: 6 credits 5 credits

The GPA required to maintain satisfactory progress at Portland State University is 2.0. One hundred and eighty (180) credits are required to graduate with a baccalaureate degree (the total is greater in some programs). Incompletes, withdrawals, and audits do not count toward credits completed and may result in a VA overpayment.

For reporting purposes, the last date of attendance is the same as the date of official withdrawal from class or classes, date of student notification of a change in credits
to the Veterans’ Clerk, or the date of determination of unsatisfactory progress, whichever is earliest. This date determines the amount of overpayment, if any, incurred by a student not maintaining satisfactory progress standards.

Courses may be dropped during the drop periods, but student veterans are still responsible for reporting any changes in credits which affect the rate of VA certification. The number of credits completed is checked against the number of credits for which the veteran is certified each term by the Veterans’ certification clerk.

Failure to maintain satisfactory progress standards at Portland State University will result in the termination of G.I. benefits.

Please contact Veterans’ Services, 503-725-3876, 118 Smith Memorial Center, for more information.

**PART-TIME STUDENTS/ NONADMITTED STUDENTS**

A student may take up to a maximum of 8 credits per term without applying for formal admission. However, a first-time registrant must complete and provide a Quick Entry Form to the Office of Admissions and Records so a file can be created on the database. Credit work taken as a part-time student is acceptable in degree programs subject to University regulations. Students who plan to earn a degree at PSU should be admitted formally as soon as possible. Nonadmitted students are not eligible to receive financial aid.

Nonadmitted students are allowed to register after all other students. Space may be limited.

A student may earn most University degrees as a part-time student. Some degrees may be earned by taking courses exclusively at night. Students who wish to earn a degree should apply for admission at or before their junior year. Part-time students, especially, should meet regularly with an adviser for up-to-date requirements and University policies.

The Schedule of Classes, published each term, contains information needed to register as a part-time student. Part-time students may follow the same advance registration, touchtone telephone, and Web access procedures as full-time students. Fee payment is required by published deadlines.

Students are responsible for making sure that prerequisites have been met. Students should consult schools and departments regarding admission to upper-division courses. Prerequisites are listed in individual course descriptions in this catalog. If a student has not taken the necessary prerequisites but feels confident of performing the coursework, the student should check with the department. Often the department will waive the prerequisite for individuals with equivalent experience or learning in the field.

Evening classes on campus at Portland State University are a continuation of the regular daytime offerings. Credit courses have the same academic value whether taken by day or in the evening.

Library privileges are available to part-time students and they may use their fee receipt to obtain or revalidate a library card. This is done at the Circulation Desk in Millar Library. Part-time students are encouraged to obtain an ID card in the Neuberger Hall lobby.

Senior citizens, persons 65 or older not enrolled as regular students, may take classes on a space-available basis at no charge other than for special materials, if any. The University does not maintain any records of senior citizen enrollments, but the registration receipt may be used to obtain a library card. Contact the Senior Adult Learning Center, 113A Urban and Public Affairs Building.

**RETENTION OF STUDENT DOCUMENTS**

All documents submitted to PSU become the property of the University and may not be copied or returned to a student. Transcripts from other institutions cannot be copied.

**RELEASE OF STUDENT INFORMATION**

Please note: The privacy laws do not permit the University to discuss a student’s application with anyone other than the applicant. All inquiries must originate with the applicant.

**STUDENT RECORDS**

The University Student Records Policy, in accordance with the federal Family Educational Rights and Privacy Act of 1974 as Amended, governs the collection, use, and disclosure of student records with the goal of ensuring their privacy. Generally it provides the right to nonrelease of confidential information except as directed by the student in a transcript request, or as provided by law; the right to inspect educational records maintained by the University; the right to correction of errors, a hearing if necessary, and the right to file a complaint with the U.S. Department of Education. Copies of the full Student Records Policy are available from the Office of Student Affairs and the Office of Admissions and Records.

**STUDENTS RETURNING TO PSU AFTER AN ABSENCE**

Former Portland State University students who have attended another college or university since leaving PSU and who wish to enroll after an absence must submit a re-enrollment application form to the Office of Admissions and Records. Official transcripts must be submitted from each institution attended since leaving PSU. The filing date for a re-enrollment is the same as for new students.

**ADMISSION TO PROFESSIONAL PROGRAMS AND SCHOOLS**

Admission to Portland State University does not automatically admit students to its professional programs and schools. Standards for admission and evaluation of transfer credits often exceed general University requirements. Students should check this catalog under the appropriate academic unit to determine if a unit has special admission requirements.

**TRANSFER CREDITS**

Accredited Colleges and Universities. The Office of Admissions and Records evaluates credits from accredited colleges and universities. Portland State University accepts college-level credits earned in academic degree programs at colleges and universities accredited by regional accrediting associations and as recommended in Transfer Credit Practices of Designated Educational Institutions. All courses are evaluated to be either equivalent or parallel to PSU courses. Equivalent means that the catalog course description is substantially equal to that in the Portland State University Bulletin. Parallel means that the course is in a discipline which is offered by Portland State, even though PSU does not offer the specific course.

Unaccredited and Foreign Institutions. Departmental representatives, working through the Office of Admissions and Records, are authorized to evaluate credits transferred from unaccredited or foreign colleges and universities or International Baccalaureate (IB) Diplomas after a student has been admitted to PSU. International students requesting transfer of credit from foreign institutions must supply catalogs and/or documentation of course content from those institutions before consideration of transfer evaluation can be made. Work from unaccredited schools is evaluated in accordance with the institutions and policies listed in Transfer Credit Practices, published.
by the American Association of Collegiate Registrars and Admissions Officers. Credit given for a particular course will not exceed credit given for the equivalent or corresponding PSU course.

Co-admission Programs. Portland State University has established co-admission programs with Clackamas Community College, Mt. Hood Community College, and Portland Community College. Each co-admission program allows students to be simultaneously enrolled at both PSU and the community college campus. In addition, the program provides for PSU academic advising and, if qualified, financial aid for both PSU and the community college courses. Applicants should contact Clackamas Community College at 503-669-6996, or Portland Community College–Sylvania at 503-977-4519, or the Portland State University Office of Admissions and Records at 503-725-3511 for more information.

Associate Degree Transfers. Students who upon admission have completed an Associate of Arts–Oregon Transfer (AAOT) degree at an accredited Oregon community college or another PSU-approved associate degree, have met all lower-division general education and University requirements. Wrt 323 is waived. The student must still fulfill any outstanding upper-division general education requirements. The transfer A.A. may not satisfy all requirements for admission to professional schools. Please check with each school for specific admission requirements.

Vocational and Technical Schools. Portland State University generally does not grant credit for courses which are deemed vocational-technical that are not applicable toward a four-year baccalaureate degree. A student may petition to have up to twelve lower-division vocational-technical credits transferred to PSU as general elective credits, subject to academic requirements committee review and approval. Petition forms may be obtained from the Office of Admissions and Records, Neuberger Hall Lobby or by calling 503-725-3511.

Correspondence Credit. A maximum of 60 correspondence credits is acceptable in transfer from schools recognized as institutions of higher education.

Community and Junior Colleges. The number of lower-division credits to be accepted in transfer from regionally accredited junior colleges and the Oregon community colleges is limited to 108.

Military Service Courses. Credit may be granted for military service courses on the college level where equivalency to Portland State courses can be shown.

AFROTC Program. Under a cooperative agreement with the University of Portland, Portland State University students may participate in the Air Force Reserve Officers Training Corps (AFROTC) program offered on the University of Portland campus. The purpose of the program, which is administered by the Aerospace Studies faculty at the University of Portland, is to select and train students to serve as officers in the United States Air Force. AFROTC offers to men and women a two-year and a four-year program, both of which lead to an Air Force commission. Students who qualify may elect to pursue either of these programs. Scholarships are available on a competitive basis for those who qualify. The ROTC credits earned are accepted as transfer credits to meet Portland State University’s total credit requirements for graduation. For more information, see the University of Portland catalog or contact the professor of aerospace studies, University of Portland, Portland, Oregon 97203, 503-283-7216.

Army ROTC. For information on the Portland State Army ROTC program, see page 324.

National Student Exchange Program. Portland State is a member of the National Student Exchange Program, which enables sophomores, juniors, and seniors to attend state-supported institutions in other areas of the nation for up to one academic year. Students pay in-state tuition. Call 503-725-3511 for applications.

College Courses Completed before High School Graduation. College courses taken before a high school diploma is received are accepted in transfer provided the student receives grades of D- or above in the courses and the grades are posted on a college transcript.

Health Science Professions. Students who have completed preprofessional programs at PSU may transfer up to 48 credits of their professional health science work from schools accredited by a regional association and/or as indicated in Transfer Credit Practices. The health science students may not receive a bachelor’s degree from PSU and from the professional school when both degrees are based essentially on the same credits completed by the student. The residence credit requirement is satisfied by completing 45 of the last 60 credits at PSU, after admission to PSU and prior to formal enrollment in the qualifying professional program. The student must be within 48 credits of receiving a bachelor’s degree from PSU at the time of matriculation into the professional program.

Through affiliation agreements from fully accredited programs at the Veterans Administration Medical Center in Portland (NMT), Mayo School of Health Related Sciences in Rochester, Minn. (CYT) and Memorial Sloan-Kettering Cancer Center in New York (CYT), credits will be transferred to Portland State University in a manner equivalent to academically based programs.

Student Orientation Programs

The Office of Admissions and Records coordinates an orientation program for all undergraduate students new to PSU. This includes students coming to PSU directly from high school, students returning to college after an absence, and students transferring from other institutions of higher education. After admission to PSU, each undergraduate student receives information about attending a one-day orientation session prior to the beginning of her or his first term. Orientation provides students with the opportunity to meet with current PSU faculty, professional staff, and students in order to:

- Understand academic requirements of a baccalaureate degree
- Successfully develop an academic plan and register for courses
- Access programs and services available to PSU students
- Facilitate the academic and social transition to the University community

New Student Week is an orientation program that takes place the week prior to the start of fall term during the month of September. This is a week of activities, information sessions, open houses, and social events in which new students are invited to attend and encouraged to participate. For further information see orientation@pdx.edu or www.ess.pdx.edu/orient.

The Enrollment Process

503-725-3412

Registration. Before registering, a student should consult the Schedule of Classes, which is available each term, one month prior to the beginning of classes and in the spring for fall term. The Schedule of Classes contains the up-to-date information for course selection and registration.

Advance registration is accomplished by using the Touchtone Telephone Response (TTVR) or the PSU homepage Web access via www.pdx.edu registration system. Advanced registration is scheduled according to the priority dates published in the Schedule of Classes. For Web access, go to PSU homepage, www.pdx.edu, click on Admissions.
Registration and changes are continuous. Students may register until the end of the second week of the term. A preregistered student must drop all courses prior to the first day of the term in order to avoid a refund percentage charge. Changes in grading option are done via Web access or at the Admissions and Records windows, Neuberger Hall lobby.

A student is formally registered only when the procedures listed in the Schedule of Classes have been completed and tuition and fees have been paid for the term. Students are financially responsible for all classes and credits in which they are registered on or after the first day of the term.

The academic regulations which govern drops and withdrawals are described in detail on page 26 under “Grading System for Undergraduates.” Students who withdraw or drop may be entitled to certain refunds of fees paid. See page 32 for more information.

The University reserves the right to drop students who do not attend classes or do not have the proper prerequisites.

Concurrent Enrollment. Portland State University students paying full tuition may enroll for courses in other units of the Oregon University System through a concurrent enrollment program. Details of policies and procedures are available at the Admissions and Records Office, 113 Neuberger Hall.

ID Cards. All students (full time, part time, extended studies) may purchase a photo ID card by presenting their paid tuition receipt at the ID window in the Neuberger Hall lobby. See the Schedule of Classes for operating hours.

CROSS-LISTED COURSES

Whenever an academic department agrees with a program or school to cross-list a course, that course may be used toward satisfaction of undergraduate major requirements regardless of which course prefix the student used for registration. A cross-listed course may only be taken once for credit.

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**KEY TO COURSE DESCRIPTIONS**

1. **Course prefix/Subject.** These letters indicate the department or academic unit which offers the course.
2. **Course numbering system.** Courses throughout the Oregon University System (OUS) are numbered as follows:
   - 0-99 Noncredit courses or credit courses of a remedial, terminal, or semiprofessional nature not applicable toward degree requirements.
   - 100-299 Courses on the lower-division level.
   - 300-499 Courses on the upper-division level.
   - 4xx/5xx Master’s level graduate courses which are also offered as courses for undergraduates.
   - 5xx Graduate courses offered in support of master’s degree level instructional programs. Ordinarily employed for units whose majors have access to master’s programs or for courses populated by master’s students.
   - 5xx/6xx Graduate courses offered in support of doctoral degree level instructional programs which are also offered as courses for master’s level students.
   - 6xx Graduate courses offered in support of doctoral degree level instructional programs. Ordinarily employed for units whose majors have access to doctoral programs or for courses populated by doctorate students.
   - 7xx Postbaccalaureate courses which may not be applied toward an academic degree.
   - 8xx In-service courses with limited application toward advanced degrees and no application toward undergraduate degrees.

   In addition, the following number system is generally in effect in all OUS institutions: 100 to 110 and 200 to 210 courses are survey or foundation courses in the liberal arts and sciences in the disciplines covered. The following numbered courses are repeating courses (they may be taken for more than one term under the same number), with credit being granted according to the amount of work done: 199/299/399, Special Studies; 401, 501, 601, 801, Research; 402, 502, 602, 802, Independent Study; 503 Thesis/603 Dissertation; 404, 504, 604, 804, Cooperative Education/Internship; 405, 505, 605, 805, Reading and Conference; 406, 506, 606, 806, Problems/Projects; 407, 507, 607, 807, Seminar; 408, 508, 608, 808, Workshop; 409, 509, 609, 809, Practicum; and 410, 510, 610, 810, Selected Topics. Other repeating numbers are assigned to activity courses, such as art, music, and physical education. Certain senior level courses are taught concurrently with their graduate-level counterparts. Hence this course may be offered for either graduate or undergraduate credit. (See quarterly Schedule of Classes for specific offering.) In the graduate credit course, additional work appropriate to the graduate level of study will be assigned.
3. **Course title.** The official title of the course is listed next to the course number. A subtitle may be used as part of an omnibus course title.
4. **Credits.** The numeral or words in parentheses indicate the number of credits granted for one term of study in a particular course. When approved departmental combinations of courses are listed together, the first number in parentheses refers to the first course number and so on respectively. Example: Art 373, 374, 375 Creative Sculpture (3, 3, 3).
5. **Maximum credits.** This designation, which appears in descriptions of activity courses, such as art, music, and physical education, means that students may continue to earn credit in this course for more than one term up to specified limits.
6. **Prerequisites.** Prerequisites, expressed either in terms of specific courses or more general experience, are intended to assure that students are prepared for the work of the course. A student who lacks these specific prerequisites but feels prepared for the course for other reasons should consult the instructor before enrolling.
Undergraduate Requirements

Portland State University is committed to providing for its students maximum opportunities for intellectual and creative development within the context of its urban and international mission. Students earning a baccalaureate degree will complete a rigorous program of study leading to mastery of the chosen field of study at the undergraduate level. In addition, Portland State University is committed to providing the foundation for continued learning after completing the baccalaureate degree. This foundation includes the capacity to engage in inquiry and critical thinking, to use various forms of communication for learning and expression, to gain an awareness of the broader human experience and its environment (local, national, and international), along with an ability to appreciate the responsibilities of individuals to themselves, each other, and community.

To accomplish these goals, the University requires all students to complete the requirements for the major, the general education requirements or the Honors Program, the appropriate bachelor's degree (Bachelor of Science, Bachelor of Arts, or Bachelor of Music), and a sufficient number of elective courses to complete all degree requirements.

Undergraduate students at Portland State University may work toward a Bachelor of Arts, a Bachelor of Science, or a Bachelor of Music degree, with one or more majors. See the “Programs of Study” chart on pages 4-6 for majors leading to a baccalaureate degree.

Students working toward a bachelor's degree may wish to supplement their major coursework with:

A certificate program, a concentration of courses in one of the following specialty fields: biotechnology, black studies, Chicano/Latino studies, European studies, international business studies, Latin American studies, Middle East studies, teaching English as a second language, teaching Japanese as a foreign language, urban studies, or women's studies. A certificate program is only available upon graduation or as a postbaccalaureate.

A minor in administration of justice, anthropology, architecture, art, athletic training, biology, black studies, business administration, chemistry, community development, computer applications, computer science, economics, electrical engineering, English, environmental engineering, environmental studies, foreign languages, geography, geology, health education, history, international economics, international studies, jazz studies, linguistics, mathematics, music, philosophy, physics, political science, professional writing, psychology, sociology, speech communication, theater arts, and women's studies.

A nondegree preprofessional program in agriculture, chiropractic, clinical laboratory science, cytotechnology, dental hygiene, dentistry, forestry, law, medicine, naturopathic medicine, nuclear medicine technology, nursing, occupational therapy, optometry, osteopathy, pharmacy, physical therapy, physician assistant, podiatry, radiation therapy, and veterinary medicine.

Highly motivated students may wish to complete an undergraduate degree program through the independent study and individualized learning of the University Honors Program, 1632 SW 12th Avenue. Interdisciplinary studies are available through science and humanities courses. For further information, contact the honors program.

For more information on any of these degrees or programs, see the individual curricula listings in this catalog.

Requirements for Bachelor’s Degree

Catalog Eligibility Rules: Students may graduate according to the requirements of the PSU catalog in effect when they matriculate to any accredited, postsecondary institution, subject to the seven-year rule (see below). Once admitted and enrolled, students may graduate under the guidelines of any catalog issued after their first admission and enrollment, whether or not the student was enrolled during the year in which said catalog was in effect. This requirement applies to all PSU students regardless of whether or not they are transfer students.

Seven-Year Rule: No catalog is valid for longer than the summer term following the seventh academic year after issuance of the catalog. The 2001-2002 catalog will expire at the end of summer term, 2008. A student must meet the requirements of a catalog for which the student is eligible and which is valid at the time of the student’s graduation. This applies to a first bachelor's degree, to a second bachelor's degree, and to certificates which may be earned by undergraduates and by postbaccalaureate students.

Students working toward a bachelor's degree must complete the (1) University requirements, (2) Bachelor of Arts, Bachelor of Music, or Bachelor of Science requirements, (3) general education requirement, and (4) requirements for a major. Students majoring in Liberal Studies do not need to meet the general education requirement. Specific requirements for a baccalaureate degree are detailed by the chart on page 17. Students pursuing supplementary programs must complete additional requirements as specified in the curricula of these programs.
GENERAL UNIVERSITY REQUIREMENTS

FOR ALL BACCALAUREATE DEGREES

REQUIREMENTS FOR BACCALAUREATE DEGREES

To earn a baccalaureate degree a student must complete (1) University requirements, (2) general education requirements, (3) specific requirements for the Bachelor of Arts, Bachelor of Music, or Bachelor of Science Degree, and (4) requirements for a major.

Students bear final responsibility for ensuring that the courses taken are applicable toward satisfying their degree requirements.

1. UNIVERSITY REQUIREMENT

- Minimum number of credits (lower-division plus upper-division): 180 (180-205 in engineering)
- Minimum number of upper-division credits (300- and 400-level): 72
- Complete General Education Requirements (Not required for Liberal Studies or the Honors Program): For students graduating under post-1994 Bulletins including transfer students who commenced study at an institution of higher education on or after fall 1994. For continuing students and transfer students who commenced study at an institution of higher education prior to fall 1994 and are graduating under pre-1994 Bulletins only, see page 25.

2. UNIVERSITY STUDIES (GENERAL EDUCATION REQUIREMENTS)


The purpose of the general education program at Portland State University is to facilitate students in acquiring and developing the knowledge, abilities, and attitudes which form a foundation for lifelong learning. This foundation includes the capacity and the propensity to engage in inquiry and critical thinking, to use various forms of communication for learning and expression, to gain an awareness of the broader human experience and its environment, and appreciate the responsibilities of persons to themselves, to each other, and to community.

To accomplish this purpose all freshmen entering with less than 30 prior university credits are required to complete the following program (See current Schedule of Classes for course descriptions and capstone offerings):

- Freshman Inquiry
  One year-long course which must be taken in sequence (UnSt 101,102,103) 15 credits

- Sophomore Inquiry
  Students are required to choose three Sophomore Inquiry courses, each from a different University Studies cluster for a total of 12 credits. 12 credits

- Upper-Division Cluster (Junior and Senior Years)
  Students are required to select three courses (for a total of 12 credits) from one upper-division cluster which is directly linked to one of the three Sophomore Inquiry classes they have taken previously. Note: Upper-division cluster courses may not be used to fulfill a student’s major or program requirements. 12 credits

- Senior Capstone
  This 6-credit capstone course is the culminating general education course for seniors. Students join an interdisciplinary team, develop a strategy to address a problem or concern in the community, and implement this strategy over one, two, or three quarters of work. 6 credits

ATTENTION TRANSFER STUDENTS:

Please note: All students (not required for Liberal Studies or the Honors Program) who commenced study at an institution of higher education on or after fall 1994 will be required to complete the University Studies requirement. (See page 19). The following placement within University Studies is based on total credits accepted at term of admission to PSU.

- Transfer students who have earned less than 30 quarter credit hours of transfer work are required to complete all of the University Studies program requirements, including the entire sequence of Freshman Inquiry.
- Transfer students who have earned 30-44 quarter credit hours of transfer work are required to complete the Transfer Transition course (UnSt 210) and the University Studies program beginning with Sophomore Inquiry.
- Transfer students who have earned 45-89 quarter credits of transfer work are required to complete the University Studies program beginning with Sophomore Inquiry as follows: 45-59 credits, three courses; 60-74 credits, two courses; and 75-89 credits, one course. (The upper division cluster must come from one of these Sophomore Inquiry classes.) Transfer Transition 210 taken as a choice counts as a Sophomore Inquiry course.
- Transfer students who have earned 90 or more credits of transfer work are required to complete the University Studies program beginning with an upper-division cluster. It is recommended that they complete the Sophomore Inquiry course directly linked to the upper-division cluster they choose.

TRANSFERRING PSU'S UNIVERSITY STUDIES GENERAL EDUCATION REQUIREMENTS:

Portland State students often transfer in and out during their academic careers. Because general education requirements vary at each college and university, you must meet with advisers at each institution you attend to plot a successful path to graduation. University Studies and the Honors Program are comparable to and mesh well with general education requirements in Oregon and nationally. PSU has recommended that university studies general education credits transfer in as fulfilling general education requirements, and all Oregon University System schools are receptive to this. Our advisers are always available to assist you in resolving transfer issues.

Continued on next page
3. REQUIREMENTS FOR BACHELOR OF ARTS, BACHELOR OF MUSIC, BACHELOR OF SCIENCE DEGREES

(Students must choose one.)

Courses taken to satisfy BA/BS requirements may also be used to meet any other requirements if they conform to the regular qualification for those requirements.

- For the Bachelor of Arts Degree:
  Students must complete 28 credits to include a minimum of 12 credits in the arts and letters academic distribution area, with a minimum of 4 credits in the area of fine and performing arts; a minimum of 12 credits in the science and/or social science distribution areas, with a minimum of 4 credits in the science distribution area; and 4 credits in a foreign language numbered 203 or higher (conducted in the target language).

- For the Bachelor of Music Degree: Students must complete the program of music and applied music as prescribed by the Department of Music.

- For the Bachelor of Science Degree: Students must complete 28 credits to include a minimum of 12 credits in the science academic distribution area (excluding mathematical sciences/statistics) a minimum of 12 credits in the arts and letters and/or the social sciences distribution areas, and 4 credits in mathematical sciences/statistics. A minimum of 8 of the 12 credits in the science distribution area must be in coursework with integrated or associated laboratory or field work. Unless otherwise specified, only courses within the science distribution area that have an explicit indication of lab or field work as part of the catalog description will satisfy the B.S. degree requirement for lab/field work.

ACADEMIC DISTRIBUTION AREAS

- The arts and letters academic distribution area consists of undergraduate courses from the following: Applied Linguistics, Architecture, Art, Black Studies (BSt 221, 351, 352, 353, 421, 424, 425, 426, 427 only), English (except for Wr 115, 120, 121, 222, 227, 323), Foreign Languages and Literatures, General Arts and Letters, Music, Philosophy, Speech Communication, Theater Arts.

- The science academic distribution area consists of undergraduate courses from the following: Biology, Chemistry, Environmental Studies, Geology, Mathematics/Statistics, Physics, Science Education.

- The social science academic distribution area consists of undergraduate courses from the following: Administration of Justice (AJ 220 and 330 only), Anthropology, Black Studies (except BSt 221, 351, 352, 353, 421, 424, 425, 426, 427), Economics, General Social Science, Geography, History, International Studies, Political Science, Psychology, Sociology, Urban Studies and Planning, Women’s Studies.

4. MAJOR REQUIREMENTS

Students majoring in a department: see department description in the Bulletin.

Students majoring in Arts and Letters, Science, Social Science or Liberal Studies: see General Studies/Liberal Studies section of the Bulletin.

GENERAL LIMITATIONS

- Maximum number of credits transferred from regionally accredited two-year institutions: ................................. 108
- Maximum number of correspondence credits (transferred from schools recognized as institutions of higher learning): ......... 60
- Maximum number of credits graded P (pass) that may be counted for graduation: .............................................. 45

Note restriction on P (pass) grades used for residence requirements.

- Maximum number of Cooperative Education credits that may be applied toward degree requirements: ......................... 12
- Minimum cumulative grade point average: 2.00 on all residence work and 2.00 on all courses, no matter where taken, in major field (some departments require a GPA greater than 2.00 in the major).
- Residence credit: 45 (excluding credit by examination) of the final 60 or 165 of the total credits presented. Restriction: At least 25 of the last 45 credits must be for differentiated grades. Credits earned by participation in the Oregon State Inter-institutional Program at the Malheur Field Station, some Oregon State System Programs of Study Abroad, and some National Student Exchange programs also count as residence credit.
University studies

163 Cramer Hall
725-5890
www.ous.pdx.edu/

Please see page 17 for University Studies (general education) baccalaureate requirements.

The faculty of PSU have designed a four-year program of study required of all students (not required for Liberal Studies or Honors Program) planning to graduate under the specifications in the 1994-95 and subsequent University Bulletins. This nationally recognized program offers students a clear opportunity to acquire the foundation for the academic and problem solving skills needed to succeed in the 21st century. University Studies offers students a program of connected educational opportunities.

The purpose of the University Studies program is to facilitate the acquisition of the knowledge, abilities, and attitudes that will form a foundation for lifelong learning among its students. This foundation includes the capacity and the propensity to engage in critical thinking, to use various forms of communication for learning and expression, to gain an awareness of the broader human experience and its environment, and to appreciate the responsibilities of persons to themselves, each other, and their communities.

University Studies begins with Freshman Inquiry, a year-long course introducing students to different modes of inquiry and providing them with the tools to succeed in advanced studies and their majors. At the sophomore level, students choose three different courses, each of which leads into a thematically linked, interdisciplinary cluster of courses at the upper-division level. Students are required to complete 12 credits from one of these course clusters. Finally, all students are required to complete a capstone course which consists of teams of students from different majors working together to complete a project addressing an issue in the Portland metropolitan community.

**Freshman Inquiry**

(UNST 101, 102, 103)

See Web or orientation guide for course descriptions.

Freshman Inquiry consists of a year-long course developed by a team of faculty from different disciplines. Freshman Inquiry has a maximum class size of 40 students and each class is divided into three small-group, peer mentor sessions led by specially selected upper-division students. Class material is introduced and explored during the full class sessions and then assignments are developed and discussed in the peer mentor sessions.

While the themes and content of the Freshman Inquiry courses differ, the overall objectives are the same. Each of these classes emphasizes the building of a foundation of communication skills for learning and expression. Writing is the core, but communication also includes emphasis on improving oral, numeric, and graphic/visual modes of communication. Freshman Inquiry is also designed to help students learn and effectively use current information technologies. Both in the large groups and in the smaller peer mentor sessions, students are introduced to the Internet and e-mail, as well as word-processing and calculation software. Students will also learn how disciplines from the sciences, social sciences, humanities, and professional schools approach problems in different ways and how they work together to improve understanding of complex issues.

When students complete Freshman Inquiry they will be expected to be able to apply writing, numeracy, speech, and visual/graphic skills to problems requiring analysis and discovery. Freshman Inquiry will expand awareness of academic potential and prepare students to move on to increasingly rigorous and sophisticated levels of inquiry.

**Sophomore Inquiry**

See page 20 for course descriptions or current Schedule of Classes.

At the sophomore level, students complete 12 credits of coursework in Sophomore Inquiry. Students select three Sophomore Inquiry classes, each representing one of more than 26 different themes or clusters. Sophomore Inquiry classes are structured similarly to those in Freshman Inquiry with a main class and smaller mentor classes, except at this level the mentor classes are led by graduate students.

Sophomore Inquiry classes maintain an interdisciplinary approach to their individual topics, and continue to emphasize the four University Studies goals of inquiry and critical thinking, communication, the diversity of human experience, and ethics and social responsibility. Each Sophomore Inquiry class also provides an introduction to important concepts, questions, and concerns that will be explored in greater depth in the upper-division cluster courses to which it is linked.

**Upper-Division Cluster**

See page 20 for cluster descriptions and current Schedule of Classes for course descriptions.

After their Sophomore Inquiry coursework, students select one of three clusters represented in their Sophomore Inquiry classes. From a list of courses approved for the selected cluster, students pursue a program of 12 upper-division credits offered by various departments across campus. These classes allow students to explore an aspect of the cluster’s theme in greater depth, while continuing to investigate the four University Studies goals in relation to the cluster topic. Students might choose a cluster to broaden their perspective, allowing them the opportunity to take classes of interest outside their major, or students can choose a cluster to complement their major area of study. In either event, Upper-Division Cluster courses may not be used to fulfill a student’s major requirement.

**Capstone Requirement**

The culmination of the University Studies program is the Capstone course requirement. This 6-credit, community-based learning course is designed to provide students with the opportunity to apply, in a team context, what they have learned in the major and in their other University Studies courses to a real challenge emanating from the metropolitan community. Interdisciplinary teams of students address these challenges and produce a summation product in an University Studies approved Capstone course under the instruction of a PSU faculty member.

The Capstone’s purpose is to further enhance student learning while cultivating crucial life abilities that are important both academically and professionally: establishing connections within the larger community, developing strategies for analyzing and addressing problems, and working with others trained in fields different from one’s own.
The following are brief descriptions of the Upper-Division Clusters, including the Sophomore Inquiry courses which serve as the gateways to the clusters. Please contact the cluster coordinator for more detailed course descriptions. Contact information is available through the Office of University Studies, 503-725-5890, 163 Cramer Hall. See page 17 for information on undergraduate requirements.

AFRICAN STUDIES CLUSTER
This cluster presents interdisciplinary approaches to the study of the African continent and its peoples, their complexity and diversity. It explores problems and themes that are cultural, historical, political, and geographical, and that address fundamental issues in the construction and expression of identity and knowledge.

- Soph Inq: African Studies
  This course will explore changing disciplinary and interdisciplinary perspectives on the study of the African continent and its peoples. The course examines how an understanding of the African experience, far from being exotic or distant, reaches to the core of academic struggle and intellectual debate.

AMERICAN STUDIES CLUSTER
American Studies is an established interdisciplinary field both in the United States and in several other countries, including England and Japan. This cluster uses Americanist materials ranging from literature, through landscapes, to art, music, and court cases, to explore both the tensions and the traditions of American culture and society.

- Soph Inq: American Studies
  This course introduces students to the interdisciplinary field of American Studies, provides a focus through which to explore sources in the humanities, social sciences, natural sciences, and performing arts, and offers an opportunity to acquire a variety of skills important in college and the work world. As the interdisciplinary study of American Culture, the course focuses on a comparison of voices or perspectives as a way of knowing American artifacts, policies, and places. Although the focus of each class may differ, they will all use their subjects as a laboratory for learning the methods and perspectives of American Studies. In the process, students will become familiar with something of the culture, character, and environment of the United States. Each class will focus on several main texts or projects during class, and students will do an additional project either outside class and/or in their mentor sections.

ARCHAEOLOGY CLUSTER
Through the study of archaeology, students grapple with fundamental questions about what it means to be human, how we came to be the way we are, and what we might expect from the future. The field draws on research interests, methods, and explanatory approaches from multiple disciplines, including: anthropology, history, black studies, geography, biology, and geology.

- Soph Inq: Archaeology
  This course surveys the varieties of current archaeological approaches to the past, the kinds of questions we ask, and samples some of the most important answers.

ASIAN STUDIES CLUSTER
An interdisciplinary approach to understanding the diversity of cultures and societies in Asia, including both the continuities and discontinuities between past and present. History, religion, art, anthropology, geography, literature, political science, and economics provide complementary ways of grasping the complexities of contemporary Asian worlds.

- Soph Inq: Asian Studies
  This course introduces students to the study of diverse cultures and societies in Asia through history, literature, anthropology, and geography. Contemporary issues related to the political, cultural, and economic transformation of Asia in the twentieth century are discussed in light of tradition and its place in Asian societies as well as the powerful forces of modernity.

CLASSIC GREEK CIVILIZATION CLUSTER
The theme of this cluster is: What made the Greek civilization of the classical period what it was? Greek civilization was composed of several distinct features and the cluster provides a variety of courses which enable students to attain an overall view of the classical period and the influence of the Greeks on later cultures.

- Soph Inq: Classic Greek Civilization
  This course will investigate the history, art, archaeology, culture, and philosophies of Greece in the Classical period (600-100 B.C.). We examine Greek culture in terms of its influence on modern American culture and also focus on the differences between the two societies as a means of getting a more objective look at ourselves. Greek approaches to modern issues such as diversity, democracy, education, and poverty are explored and their lessons for today's society considered.

COMMUNITY STUDIES CLUSTER
This cluster explores the nature of the communities we live in, whether defined spatially (such as a neighborhood) or as a set of ties based on sharing a common interest. Building community has become a central debate in a number of social sciences, including sociology, political science, economics, and psychology. In a culture emphasizing individualism and individual rights, how can needs for community and responsibility to others be balanced? Thus, in this cluster, students have the opportunity to gain practical as well as theoretical experience with building communities.

- Soph Inq: Community and Identity in America
  This course considers how to study communities and how well social scientific knowledge squares with the understanding of community members. The study requires students to learn and utilize a variety of skills, including calculation, interviewing, and observation, as well as organization of observations through selection and synthesis.

- Soph Inq: Cities: Impressions, Perspectives, and Facts
  Many sources of information affect one's notions of what cities are and should be. This course reviews the mechanisms by which individuals gather information in and about an urban landscape, the media through which impressions derived from that information are expressed, and the degree to which authoritative perspectives condition both of these processes.

- Soph Inq: Dynamics Of The American City
  In this course, students become familiar with the historical development and current conditions of the American city. The course introduces basic concepts and methods of the interdisciplinary
plenary field of urban studies. Major topics include city planning, federal-city relations, and the dynamics of urban policymaking. Special attention is given to social class, gender, and ethnic diversity in urban America. The economic, cultural, and political contribution of women and nondonor-mind/ethnic groups to the development of modern urban America receives detailed attention throughout the course.

**ENVIRONMENTAL SUSTAINABILITY CLUSTER**

This cluster creates a bridge between the scientific approach to analyzing and solving environmental problems, the socioeconomic concerns involved in formulating and administering environmental policy, and the historic and philosophical basis of humanity’s relationship to ecosystems. With the common goal of defining, characterizing, and understanding environmental sustainability, the cluster identifies how each participating discipline can creatively contribute and thus, enable students to direct their own courses of study toward this end.

- **Soph Inq: Environmental Sustainability**
  A sustainable human society is one that satisfies its needs without jeopardizing the opportunity of future generations to satisfy theirs. This course introduces students to the study of environmental sustainability, and to the ways in which a wide variety of disciplines address environmental issues.

**EUROPEAN STUDIES CLUSTER**

Europe has long been a site of struggle over issues of self-identity, politics, ethnicity, class, gender, and religion, among others. The cluster in European Studies proposes an in-depth study of European history, economics, politics, geography, theater, art, and literature in order to convey the complexity of the European scene, past and present.

- **Soph Inq: European Political Theory**
  Although it has had immense cultural, political, and economic influence on the rest of the world, Europeans themselves have long debated the nature and meaning of Europe—a debate that has been recently reopened with the demise of the Communist bloc. This course takes an interdisciplinary approach to examine the historic impact of religious, class, national, and ethnic identities of European development and their contemporary relevance.

- **Soph Inq: Drama as Politics**
  This course will look at dramatic texts as they portray political and social issues in three major periods of European history: Ancient Greece, the Renaissance, and the Modern Period (1750-1945). In addition to teaching dramatic style and structure, the course will concentrate on teaching students to analyze critically the political and social content reflected and represented in literature for the stage. The texts are chosen to emphasize the stage as a forum for the portrayal of ethical issues within human experience. Their writings will encourage students to explore the manner in which the European tradition has seen theater as a stage responsible for the presentation of social and political issues.

- **Soph Inq: Art as Politics**
  The course will look at art and architecture as they portray political and social issues in three major periods of European history: Ancient Greece, the Renaissance, and the Modern Period (1750-1945). In the course students will learn to analyze critically the political and social content represented in art and architecture and how to “read” a work of art as a text. Each week we will concentrate on a major work of painting, architecture, sculpture, or music which will be complemented by short texts by major authors from each period. Students will develop a vocabulary with which to discuss art and reflect on its personal and political dimensions. As computer technology is ideal for the integration of art, literature and history in a three-dimensional and interdisciplinary manner, student groups will create Web pages for each era along with carrying out traditional assignments.

**FAMILY STUDIES CLUSTER**

The theme of this cluster is a broad exploration of family issues from diverse perspectives, which are relevant to the non-traditional PSU student. From this foundation students may pursue study of human development and multiple perspectives on families in the context of varied academic disciplines, including history, sociology, public health education, psychology, speech communication, and black studies.

- **Soph Inq: Family Studies**
  This introductory course in contemporary family issues is designed to provide a broad exploration of the family, emphasizing the current social, cultural, and political forces affecting urban families. Specific topics to be explored in-depth include: gender roles, work and family issues, poverty, teen parents, and the impact of race and culture on the family experience. A central focus throughout this course will be on the strength of contemporary families facing external challenges.

**FREEDOM, PRIVACY, AND TECHNOLOGY CLUSTER**

The aim of this cluster is to provide the knowledge that will enable those who complete the cluster to face thoughtfully the question of the appropriate use of and limitations upon modern technology. One important feature of the cluster is that it brings together actual sciences with humanistic and social science disciplines.

- **Soph Inq: Freedom, Privacy, and Technology**
  Privacy and freedom are highly valued, and are to some extent protected by the U.S. Constitution. Recent rapid advance in science and technology, combined with compelling motives to use this technology to control and exploit aspects of human life that have heretofore been left to chance or to individual choice, make urgent the questions about what uses of technology should be encouraged or permitted.

**GLOBAL ENVIRONMENTAL CHANGE CLUSTER**

Students are barraged on a daily basis with news stories of El Nino, global warming, CO2 increasing, greenhouse effects, ozone hole, etc. This cluster will introduce some of the scientific concepts and issues of natural global cycles and how the
systems have changed in the past. We will discuss the physical, chemical, and biological changes of the earth's environment in the past, present, and future. The past will concentrate on the physical, chemical, and biological changes that are recorded in the rock, ice, and sediment record. The present will concentrate on recent changes on the oceans and atmosphere, and discuss the human dimension. The future will discuss the merits and limits of global models.

- **Soph Inq: Global Environmental Change**
  This course will provide enough content and description of the global system for students to have a conceptual framework to do further study. This course will include a variety of exercises, including homework problems, writing exercises, group exercises and likely one or more mid-term exams. There will be some use of mathematics and graphical information, including use of Excel as an analytical tool. Having the computer in the classroom will allow analysis to take place in a group setting.

**HEALTHY PEOPLE/HEALTHY PLACES CLUSTER**
The major unifying themes in this cluster are: the reciprocal relationship between the well-being of individual members of a community and the health of the places within which individuals construct the elements of their daily lives, and the need to address problems at both levels in order to improve the functioning of each. Cluster courses from a variety of disciplines link theories, method, and practice regarding the diagnosis of contemporary problems and various natural, physical, and social environments.

- **Soph Inq: Health in Our Time**
  This course will examine health status and current health research within and between groups in the United States and comparatively, around the world. Students will critically analyze health information and controversial health issues in the media in the context of our class studies.

- **Soph Inq: Youth, Service, and Community**
  This course will examine the theory, history, and current applications of service initiatives to engage youth and strengthen communities. Contemporary service initiatives in educational reform, the national service program, and community development will be explored. Students will be given the opportunity to examine the role of service through class readings and discussions, guest speakers, and direct community contacts.

- **Soph Inq: People and Places: Life in Urban Africa**
  As larger numbers of African people work in industry and live in cities, quality of life issues in urban areas become extremely important. Healthy places, places that can contribute to the development of African nations and the continent as a whole, must have healthy people. Urban services and facilities, such as electricity, telephone, clean water, proper housing, and adequate transport, are essential elements to sustain a healthy quality of life. This course will look at the connection between the services and facilities available to people, and the creation of healthy people and healthy places.

**KNOWLEDGE, RATIONALITY, AND UNDERSTANDING CLUSTER**
Knowledge, rationality, and understanding are at once the chief goals of the academic enterprise and the subject of much current academic discussion. This study of their natures and the methods of achieving them has both theoretical interest and a practical benefit. Logic, science, and certain mathematical disciplines aim to discover rational methods of achieving knowledge and understanding. Assessments of these methods call upon the disciplines of epistemology, psychology, and philosophy of science.

- **Soph Inq: Knowledge, Rationality, and Understanding**
  An introduction to the cluster knowledge, rationality, and understanding, the course deals briefly with the nature of these, with the techniques of achieving them and with general criticisms of the techniques. Its main aim is to promote the kind of critical inquiry that has been so successful in advancing modern science, both physical and social.

**LATIN AMERICAN STUDIES CLUSTER**
Within a decade or so the vast region we call Latin America will have an under-fifteen population larger than the total population of the United States and, unless things change dramatically, overwhelming socioeconomic problems that make those of today pale in comparison. This cluster studies cultural, intellectual, artistic, and environmental issues in Latin American society and the impact of external influences.

- **Soph Inq: Latin American Studies**
  This course inquires into the colonial origins and development of Latin American society and culture, and the nineteenth century roots of political and economic dilemmas that confront the peoples of Mexico, the Caribbean, Central America, and South America. A variety of scholarly and literary sources are used to provide the student with a varied and balanced view of the rest of the hemisphere.

**LEADERSHIP FOR CHANGE CLUSTER**
This cluster will explore the theoretical frameworks of leadership studies by exposing students to a variety of leadership classes offered across academic disciplines. Students will understand the different forms leadership takes and be able to work with these forms within an organizational context. Students will grapple with the fundamental question of what it means to be a leader.

- **Soph Inq: Student Leadership for Change**
  This course will provide a foundation of leadership theory and will examine models of leadership in relation to the theory and concepts of change. There will be opportunities for practice, application, and documentation of leadership, and reflection on individual responsibility for and potential in leadership roles.

**MEDIEVAL STUDIES CLUSTER**
This cluster is made up of courses that, taken together, present to students a broad, interdisciplinary view of medieval Europe, approximately the period from 400 to 1500 AD. The cluster strives to distinguish the medieval cultural system(s) from those that preceded and those that followed.

- **Soph Inq: Medieval Europe 1000-1300: Sex, Truth, and Manuscripts**
  This course will provide students with an interdisciplinary introduction to pre-modern society and culture, with an emphasis upon literary, historical, and artistic aspects—which necessarily include social, religious, intellectual, political, and economic features of life.

- **Soph Inq: Interpreting a Distant Past: Medieval Europe 5th to 15th Century**
  Fifth by the myth of King Arthur from the earliest sources through its many reincarnations, this course will focus on the way different versions reflected the world(s) of the writers and
how historians, archaeologists, and philologists have contributed to separate reality from fantasy. Students will be introduced to different disciplinary approaches to the work and its historical contexts—social, political, religious, and literary. The study of Arthurian legends, both their content and their context, provides an exciting opportunity to appreciate the changing self-reflections of a distant age.

**Soph Inq: Telling Stories: Narrative in Medieval Europe**  
During the 12th and 13th centuries, Western Europe witnessed the rise of narrative story-telling in literature, in drama, and in the visual arts. This course will explore this increasing interest in telling stories, the interplay between the different media, and the sources found in earlier periods and other regions. It will also attempt to highlight these narratives as “telling stories,” discovering what they tell us about society in Romanesque and Gothic Europe, both their sources within that society and their impact upon it. The principle focus will be on visual narratives, but no preference will be given to students of the fine arts, and all majors are encouraged to enroll. Students in this class will find opportunity to discuss Gothic romance literature, devotional narratives, oral traditions, and mystery plays, in addition to image cycles found in stained glass, sculpture, and manuscript painting.

**Soph Inq: Epic Heroes, Honorable Knights, and Solitary Wanderers: Society and the Individual in Medieval Europe, ca. 1000 -1400**  
This interdisciplinary course will examine the complex and changing relationship of the individual to medieval society during a period of momentous cultural transformations in Europe. We will examine the idealization of social and gender roles and situate those in their broader historical and cultural context. Emphasis will be placed on close textual analysis and group discussion of works drawn from the genres of courtly romance, epic, allegorical treatises, biography, and epistolary correspondence.

**MIDDLE EAST STUDIES CLUSTER**  
The Middle East is a region of great ethnic and cultural diversity and intense nationalist rivalry. Its near monopoly of world energy supplies and geopolitical location have long made it a focus of international capital flow, labor migration, and world power competition. This cluster addresses key issues facing Middle Eastern societies in the 21st century, issues which face the United States as well: ethnicity, transnational culture, migrant labor, the politics of energy, and distribution of wealth in the context of both regional and world power structures.

**Soph Inq: The Original Melting Pot: Middle East Ethnicities, Politics, and Culture**  
This course introduces students to the distinctive cultural histories of the ethnic groups of the region and their interrelationships from Roman times to the present, examining at the same time larger political, economic, and cultural patterns at work in the region in the same period. Specific contemporary issues such as transnational culture, migrant labor, distribution of wealth are also addressed. Selections of scholarly and literary sources are used to introduce the student to both professional views and those of the region’s people themselves.

**MORALITY CLUSTER**  
This cluster studies morality (i.e., moral learning, beliefs, values, feelings, and behavior) from the perspective of philosophy, psychology, and other academic disciplines. The aim of these courses is not just the practical moral one of improving moral thought and behavior but the more intellectual one of coming to understand better this central aspect of our human nature.

**Soph Inq: Morality**  
This course focuses attention on the psychology of moral development, as well such philosophical questions as whether there are any objective moral standards. There will also be stress on the distinctions between philosophical questions about morality, scientific questions about morality, and moral questions themselves, as well as some effort to introduce students to the relevant methods of scientific inquiry on the one hand, and philosophical inquiry on the other hand.

**NINETEENTH CENTURY CLUSTER**  
The advent of the 19th century marks the beginning of the modern age. No field of inquiry was exempt from change: politics, society, religion, philosophy, psychology, science, music, and the literary and visual arts. In this cluster, students study the ideas that emerged and evolved in various intellectual disciplines during this dynamic century which even now shape the world we inhabit.

**Soph Inq: The Nineteenth Century: Revolution and Evolution**  
This course takes an interdisciplinary approach to the study of the development of the 19th century through its three phases: (1) Revolution, Romanticism, and Nationalism; (2) Realism, Evolution, Socialism, and More Revolution; and (3) Imperialism, the Bureaucratic State, Individualism, and Decadence.

**POPULAR CULTURE CLUSTER**  
Popular culture is a vital area of study that offers new insights into our history, beliefs, diversity, emotional make-up, and socio-economic relations. Study of popular culture is an interdisciplinary approach aimed at understanding how culture links the individual and society. This cluster of courses will enable students to see everyday life with new eyes by teaching them the habits of critical thinking and query into what they would otherwise take for granted.

**Soph Inq: Introduction to Popular Culture**  
In this course, students begin to study popular culture through observation, reflection, description, and critical thinking in order to gain a deeper understanding of the popular myths surrounding everyday life. Students focus on several forms of popular culture and engage in discussion and interpretation individually and in group work.

**CULTURE OF PROFESSIONS IN SOCIETY CLUSTER**  
Professions in society investigates the nature and role of the professions in contemporary American life. Since the beginning of the nineteenth century, professions like law, medicine, and engineering have grown immeasurably in knowledge. Less well understood is their growth in power of all types—economic, social, cultural, even political.

**Soph Inq: Professions in Society**  
This interdisciplinary course is intended to give those who anticipate a future identity as professionals insight into the intellectual and ethical bases of their chosen fields. For all interested students, it opens up to scrutiny, through depictions of professional roles in films, literature, and the works of historians and social scientists, the centrality of the professions to the making of the modern world.
Continued from previous page

**RENAISSANCE STUDIES CLUSTER**
The Renaissance, dating from approximately 1300 to 1700, saw the transition from the late medieval to the early modern world. It was the age of exploration and discovery, of the Reformation and Counter-Reformation; it saw an explosion of artistic and literary creativity. This cluster offers a broad, interdisciplinary view of the period.

- **Soph Inq: The Renaissance**
  This course examines the life and thought of this vibrant period of Western history as reflected in great works of literature and art.

**SCIENCES–HUMANITIES CLUSTER**
This cluster provides students a sophisticated portrayal of the historical and contemporary relationship of the natural sciences and the humanities. The cluster is formed around the idea that an appropriate scientific literacy must develop within a framework of the types of questions primarily posed by the humanities, and that an understanding of the historical inquiry characteristic of the humanities can be usefully contrasted to that of the sciences. Cluster courses explore these various and complex relations, identifying early developments of the two cultures, and moving into the contemporary age.

- **Soph Inq: Framing The Two Cultures**
  In this class we explore some of what C.P. Snow meant by dissociating the cultures of the sciences and the humanities; we also explore what it means for our current intellectual world to believe that these two cultures—the cultures of the sciences and the humanities—are distinct and unrelated.

**SCIENCE IN THE LIBERAL ARTS CLUSTER**
The theme of this cluster is “science-in-the-making” or the ongoing process of active scientific inquiry—the processes of problem-posing, problem-solving, and persuasion. This thematic emphasis is applied to scientific inquiry in general, to the study of general natural science concepts, and to the analysis of scientific issues in political, economic, social and ethical contexts.

- **Soph Inq: Natural Science Inquiry**
  This course is designed to provide a methodological and interdisciplinary perspective on science and engage students in the collaborative scientific investigation of problems of the sort they might encounter as attentive citizens. Through the use of collaborative inquiry students learn that the modern sciences, as well as the questions they address, require teamwork both within and between specific disciplines. The course features methods of scientific investigation, analysis and graphical presentation of data, and scientific writing. The major course project deals with a real-world scientific problem in the Portland area.

**SEXUALITIES CLUSTER**
This cluster will explore human sexualities from a variety of disciplinary and topical perspectives. While we tend to speak of sexuality in the singular, it actually encompasses a broad array of behaviors and beliefs which differ quite radically across cultures and time. Bodily sex, reproductive functions, and erotic expressions are all part of what we call “sexuality” and can be viewed from multiple vantage points, for example historically, cross-culturally, biologically, and through literature or the arts. All of the courses begin with the presumption that sexed bodies and expressions of desire are both socially con-structed and highly contested. Furthermore, sex and sexuality are interwoven with other social categories, such as gender, race, class, and nationality. This topic will enable a complex exploration of the constitutive work of sexuality in the formation of social institutions and power relations. Finally, this is a theme which lends itself to interdisciplinary education, cutting across the divides between the arts, humanities, social sciences, and physical sciences.

- **Soph Inq: Sexualities**
  This course will look at sexuality with its multiple meanings as body, desire, identity, and reproduction from a variety of different perspectives. We will consider sex and sexed body as historical constructions and explore the debates about the role of biology and culture in shaping desires, practices, and identities. We will then look at specific examples in which sexualities are regulated by societies. Finally, we will explore the interweaving of sex, race, class, and nationality.

**WOMEN’S STUDIES CLUSTER**
The field of Women’s Studies originated as an interdisciplinary effort to uncover women’s experience past and present. Today, the field focuses on gender as a category of analysis and explores the impact of gender on all areas of social life. Although feminist scholarship is diverse in terms of methods and theoretical frameworks, its common basis lies in this focus on gender difference and issues of inequality organized around gender. This focus is central to all courses in this cluster.

- **Soph Inq: Introduction to Women’s Studies**
  In this course students analyze the varieties of women’s experience in contemporary American society, consider how gender relations may be changing, and investigate the social, political, economic, and cultural forces that shape our lives as women and men. Feminist thinking within and across academic disciplines frames the exploration of these topics. Attention is paid to relations of inequality organized along lines of race, ethnicity, class, and sexual orientation as well as gender.

- **Soph Inq: Introduction to Women’s and Gender Issues**
  Utilizing a variety of disciplinary perspectives, this course will explore the process of gender socialization, whereby we learn to become women and men; implications of those socialization processes in our adult lives; and what happens when we move beyond binary gender systems, through examination of transgender issues. Throughout these explorations, attention will be paid to variations in experience based on race, ethnicity, nationality, sexual orientation, and economic status.
TRANSFER TRANSITION (UnSr 210 or 310)

Transfer Transition is a course specifically designed and recommended for students transferring to Portland State University from other post-secondary institutions. The thematically based course is designed by faculty from different disciplines assisted by student peer mentors. This 5-credit, one-term course is designed to assist transfer students in improving their communication skills, learning the process of inquiry from the perspectives of several different disciplines, and building a foundation for the effective and efficient application of information technology resources, such as the Internet and e-mail. For some students, Transfer Transition can be used as one of the required Sophomore Inquiry courses.

ALTERNATIVE MEANS OF MEETING SOME UNIVERSITY REQUIREMENTS

GENERAL EDUCATION REQUIREMENT
(For continuing students and transfer students graduating under pre-1994 Bulletins.)

A student must earn a minimum of 4 and a maximum of 12 credits in each of only two departments in each of the three academic distribution areas (arts and letters, science, social science). In each of the three academic distribution areas the total credits earned in the two departments must be a minimum of 16 credits. The general education requirement must be met by courses which are outside the student’s major department and which are not on the general education exclusion list. A student majoring in a foreign language may use credits in a second language toward the arts and letters part of the general education requirement.

GENERAL EDUCATION REQUIREMENT EXCLUSION LIST

The following courses are excluded from meeting the general education requirement:
All courses listed as 199, 299, 399, and 401-410, and all 500-level courses; transfer courses with omnibus numbers; Anth 304, 305, 350, D 235, 239, 335, 435, 455; Ec 470, 471, 480, and 481; Eng 474; G 211, 300; Ling 110, 120; Mth 95, 100, 191, 192, 193; USP 420, 422, 423; and Wr 115, 120, 121, 211, 222, 227, 323, 327, 426, 427, 429, and 472.

No one departmental course number may be taken for more than six credits to count for the general education requirement.

ENGLISH COMPOSITION

Wr 121 and Wr 323 English Composition. Wr 323 may not be taken until student is a junior and must be passed with a grade equivalent to C minus or better. A Writing Intensive Course (WIC) with a grade of C- or better will substitute for Wr 323.

Note: Wr 121 may be met by passing an examination with a grade equivalent to C minus or better. A portfolio assessment allows students to demonstrate competence and may confer credit in Wr 323. For students entering PSU with an Associate of Arts–Oregon Transfer degree, Wr 323 will be waived.

HEALTH AND PHYSICAL EDUCATION

PHE 295 Health and Fitness for Life.

THE UPPER-DIVISION REQUIREMENT IN THE ACADEMIC DISTRIBUTION AREAS

A total of 16 upper-division credits must be earned in the academic distribution areas with no more than 12 credits in one department. These 16 credits may all be in one, be split between two, or be split among all three academic distribution areas. These credits may also be counted toward the General Education courses (except Wr 323) offered in the three academic distribution areas. For students majoring in a department, these 16 upper-division credits must be earned in courses outside the student’s major department; for students majoring in General Studies Option I, these upper-division credits must be earned in courses outside the major academic distribution area.

DIVERSITY REQUIREMENT

Students graduating with the general education distribution requirements and using the 1992-93 catalog or a later catalog must meet the University diversity requirement which requires students to successfully complete two courses (minimum of six credits) of diversity coursework from the approved list. The two courses must be taken from two different departments. The list is available from the Degree Requirements Office in the Neuberger Hall lobby, the quarterly schedule of classes, and from academic departments and advisors.

Courses taken to satisfy the Diversity Requirement may also be used to meet any other requirements if they conform to the regular qualification for those requirements.

FOREIGN LANGUAGE REQUIREMENT FOR THE B.A. DEGREE

The B.A. language requirement is not defined in credits, but in terms of competence: for graduation, a student must demonstrate competence equivalent to that normally attained after two years of college study. Students with no previous knowledge of a foreign language are advised to complete 24 credits (two years) in a language.

Students who already possess sufficient competence (or who wish to prepare themselves outside of formal classes) may meet the B.A. language requirement in any of the following ways: (1) Completion in any foreign language of 203 or its equivalent with a grade of C- or above; (2) completion in any foreign language of a course that has 203 or higher as a prerequisite; (3) Demonstration of proficiency in a foreign language equivalent to that attained after two years of college study. There are three ways to demonstrate equivalency proficiency: a) in French, German, or Spanish, by passing the CLEP examination with a score high enough for second-year level credit (see page 28); b) in other languages regularly taught by the Department of Foreign Languages and Literatures by passing a departmental examination with a score high enough for second-year level credit; c) in any language for which the Department of Foreign Languages and Literatures has a qualified tester by passing a non-credit departmental examination.

English satisfies the B.A. language requirement for students whose official transcripts demonstrate that their secondary education was completed in a foreign language. Such students may not enroll in first- or second-year courses in the language in which they received their secondary education. (See page 121.)

DOUBLE MAJOR

Students with two or more majors must satisfy the University general education requirements for the first major only. When a double major includes a liberal studies major, the University general education requirements are to be satisfied for the departmental major.

ASSESSMENT

Students at Portland State University participate in assessment activities within their programs of study. Assessment activities may include standardized testing, placement tests, surveys, portfolios of student work, group or individual interviews, or classroom research. Results are used to inform the process of teaching and learning, the design and implementation of programs and curricula, and efforts to describe and improve the student experience at Portland State University.

Incoming students to PSU may be required to take a writing assessment and, based on the results of that assessment, take an assigned writing course.
Application for a Degree (and Degree Audit)  503-725-3438

An admitted student who intends to be graduated from Portland State University must file an application for a degree (undergraduate or graduate) with the Degree Requirements section of the Office of Admissions and Records. Commencement day is in June, a summer commencement is held in August, and degrees can be issued each term. Quarterly degree application deadlines are published in the Schedule of Classes. Applications received after a deadline are considered for the next available graduation date.

General University degree requirements are checked by the Degree Requirements section in the Office of Admissions and Records, 104 Neuberger Hall. All special requirements for a degree in a major will be checked and approved by the department, college, or school offering the major program.

Students bear final responsibility for ensuring that the courses taken are applicable toward satisfying their degree requirements. They are also responsible for informing the degree requirements section of any change of address while a degree candidate.

Based on the application, baccalaureate candidates are mailed a complete Degree Audit before their last term. Part-time students may request a Degree Audit prior to application upon completion of 150 credits. (Advanced degree candidates should see their adviser concerning the required GO-series forms.)

All University academic requirements must be satisfied before any degree will be conferred and all financial obligations must be met before any diploma will be released.

Postbaccalaureate Studies  503-725-3438

Second Baccalaureate Degree. A candidate for a second baccalaureate degree must complete the following:

1. Residence credit after earning first degree: if the first degree was from Portland State University, 36 credits; if the first degree was from another college or university accredited by a recognized regional association, 45 credits. Restriction: At least 25 of the 45 credits must be for differentiated grades (A-F).
2. a. Bachelor of Arts degree: if the first degree was not a B.A., students must complete 28 credits to include:
   - 12 credits in arts and letters distribution area with minimum of 4 in line and performing arts
   - 12 credits in science and/or social science distribution area with minimum of 4 in science
   - Four credits in a foreign language numbered 203 or higher
   b. Bachelor of Music degree: if the first degree was not a B.M., students must complete program in music and applied music as prescribed by the Department of Music
   c. Bachelor of Science degree: if the first degree was not a B.S.
      - Minimum 12 credits science including 8 with lab (excluding math/statistics)
      - Minimum 12 credits arts and letters and/or social science
      - Minimum 4 credits math/statistics
3. Requirements for a major: Courses taken as a postbaccalaureate student or as part of the first degree program count toward the major. Students do not need to meet the general education requirement.

Admitted postbaccalaureate students must maintain a cumulative GPA of 2.00 on all work taken at PSU. Failure to do so will result in academic probation and disqualification.

Postbaccalaureate students who do not hold a degree from a university where the language of instruction is English must satisfy the WR 323 requirements before graduation from PSU.

Certificate Candidates Holding a Baccalaureate Degree. A candidate for a certificate holding a baccalaureate degree must complete the following:

- If the first degree is from Portland State University, credits in residence needed to complete the certificate requirements.
- If the first degree is from another accredited college or university, 30 credits in residence at Portland State University, including that work needed to complete the certificate requirements. Postbaccalaureate students who do not hold a degree from a university where the language of instruction is English must satisfy the WR 323 requirements before graduation from PSU.

Grading System for Undergraduates

The undergraduate grading system applies only to undergraduate courses.

The undergraduate grading system gives students the choice of taking certain courses designated by departments for either differentiated (A, B, C, D, F) or undifferentiated (pass or no pass) grades.

The following grading scale is employed at the undergraduate level:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>B+</td>
<td>2.33</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
</tr>
<tr>
<td>C+</td>
<td>1.67</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
</tr>
<tr>
<td>F</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Evaluation of a student's performance is determined by the following grades:

A—Excellent  B—Good  C—Satisfactory  D—Inferior  F—Failure  P—Pass  NP—No pass

The following marks are also used:

I—Incomplete  IP—in Progress (UnSt 421 only)  W—Withdrawal  Au—Audit  X—No basis for grade/No grade received
The Schedule of Classes identifies courses as offered under the differentiated or undifferentiated option. Students electing the undifferentiated grade option when it is offered are graded pass or no pass. In the majority of instances, a pass grade is equated to a C- grade or better (some departments accept only C or better). Please check with the department. Neither pass nor no pass grades are used in computing a student’s GPA. A maximum of 45 credits graded P may be applied toward Portland State’s baccalaureate degree. Students elect grade options for specific courses during registration and will not be permitted to change after the regular deadline for making a change in grading option as listed in the Schedule of Classes. The undifferentiated grade option may not be used to repeat a course previously taken for differentiated grade or for major requirements in some departments.

Incompletes. A student may be assigned an I mark by an instructor when all of the following four criteria apply: 1. Quality of work in the course up to that point is C- level or above. 2. Essential work remains to be done. “Essential” means that a grade for the course could not be assigned without dropping one or more grade points below the level achievable upon completion of the work. 3. Reasons for assigning an I must be acceptable to the instructor. The student does not have the right to demand an I. The circumstances must be unforeseen or be beyond the control of the student. An instructor is entitled to insist on appropriate medical or other documentation. 4. Consultation must have occurred and a formal agreement must be reached between instructor and student. A written record of the remaining work and its completion date should be kept by both instructor and student. The instructor may specify the highest grade that may be earned. This should not exceed the level of achievement displayed during the normal course period.

The deadline for completion of an Incomplete can be no longer than one year. The instructor may set a shorter deadline when it is offered. An I must be dropped properly by the deadline dates published in the quarterly Schedule of Classes. To avoid having to pay a check-in fee, students should check in any assigned laboratory or studio desks.

A student may drop with no record of the course on the transcript up to the end of the fourth week of the term. As a courtesy, students are advised to notify the instructor concerned of the intended drop.

A student may withdraw for any reason before the end of the fifth week without the instructor’s approval. To withdraw in the sixth to the end of the eighth week, the student is required to get the instructor’s approval. A student withdrawing in the fifth through the eighth week will have a “W” recorded on the transcript.

A student wishing to withdraw after the eighth week must petition the Deadline Appeals Committee. A “W” is recorded if the petition is allowed. Reasons for withdrawal beyond the eighth week must be beyond the student’s control, and medical reasons must be documented. Instructor’s comments are required on the petition.

Deadline dates for drops and withdrawals are given on the calendar page of the Schedule of Classes. Date of withdrawal is the date it is received by Registration. Eight-week Summer Session classes will use three- and six-week deadlines instead of four and eight weeks.

If a student, to the best of the instructor’s knowledge, has never attended class, the name on the grading register may be assigned an X grade. An auditor may also be assigned an X for insufficient attendance only.

A student who has participated in a course but who has failed to complete essential work or attend examinations, and who has not communicated with the instructor, will be assigned an D, F, NP, or whatever grade the work has earned.

Grade Point Average (GPA). The Office of Admissions and Records computes current and cumulative GPAs on student grade reports and transcripts, according to the following scale: A = 4, B = 3, C = 2, D = 1, F = 0. A plus grade increases the points by 0.33, a minus decreases it by 0.33 (e.g., B- = 2.67). Cumulative grade point averages include all credits and points earned at PSU. Separate GPAs are printed for undergraduate courses and for graduate courses. For further details on academic standing, see the quarterly Schedule of Classes.

GPA Repeat Policy. This policy only applies to undergraduate duplicate courses. Credit and GPA are retained on the first A, A-, B+, B, B-, C+, C, C-, and all grades in subsequent attempts count in GPA. The first PSU grade of D or F may be forgiven if repeated at PSU for a differentiated grade (not P/NP). In this case, credit is retained on the last grade received. Both grades are retained on the transcript.

Honors Degrees. In order to be eligible for baccalaureate honors a student must have a minimum of 45 residence credits in courses with differentiated grades. To be graduated “With Honors” a student must have a minimum resident grade point average of 3.50 and an overall cumulative grade point average of 3.50. To be graduated “With High Honors” a student must have a minimum resident GPA of 3.75 and an overall cumulative GPA of 3.75. If a course has been repeated for credit, the first grade only is used in computing honors. For the purpose of determining a student’s eligibility for graduation with Honors or High Honors, overall cumulative grade point averages include credits and points earned at all accredited colleges and universities but do not include credits and points earned at unaccredited and foreign institutions.

Honors degrees are inscribed on diplomas and candidates’ names are published in the Commencement program.

Grade Requirements for Graduation. In order to earn a bachelor’s degree, a student must earn 180 credits (more required in some programs) with grades of A, B, C, D, or P.

A student must earn at least a 2.00 GPA on residence credit, that is, credit taken at PSU.

A student must earn at least a 2.00 GPA on all courses taken in the student’s major field. As some departments have additional conditions, check Requirements for Major in the major department description in the Bulletin to determine the minimum GPA required for your major and whether D or P grades may be counted toward the major.

A student completing a minor must meet the GPA prescribed in the description of the minor.

A maximum of 45 credits graded P may be counted toward the 180 credits required for graduation. At least 25 of the last 45 credits must be taken for differentiated grades.

Academic Standing: Warning, Probation, Dismissal, and Reinstatement. The faculty Scholastic Standards Committee has the authority to place on academic warning, probation, or dismissal any student according to the following standards:
Academic Warning. Any student with 12 or more attempted credits whose cumulative PSU GPA falls below a 2.00 will be placed on academic warning. A registration hold will also be placed on the student until he/she has met with an academic adviser.

Academic Probation. Students on academic warning will be placed on academic probation if they do not meet at least one of the following requirements:
1. Raise the cumulative PSU GPA to 2.00, or
2. Earn a GPA for the given term of 2.25 or above.

Academic Dismissal. Students on academic probation will be dismissed if they do not meet at least one of the following requirements:
1. Raise the cumulative PSU GPA to 2.00, or
2. Earn a GPA for the given term of 2.25 or above.

If only the second of these requirements is met, the student will remain on probation subject to the same requirements as those specified above.

A student's status when on probation does not change by repeating courses. However, a student's status when academically dismissed is changed by repeating courses, but not by grade changes made by the instructor.

Academically disqualified students are not permitted to register for any Portland State University day, evening, summer, or Extended Studies credit classes.

Reinstatement. A student who is dismissed may be readmitted to the University upon petition to and approval by the Scholastic Standards Committee; the student's proposed academic program must have the approval of an academic adviser.

Scholastic Standards Committee. This committee develops and recommends academic standards with a view to maintaining the reputation of the undergraduate program of the University. It advises the Registrar in academic matters concerning transfer students or students seeking readmission after having had scholastic deficiencies. It assists undergraduate students who are having difficulty with scholastic regulations and adjudicates student petitions that request the waiving of regulations on suspensions (academic readmission).

GRADUATE STUDENTS
Graduate Council. This council recommends policies and standards for graduate courses and programs and coordinates all graduate activities of instructional units and programs. It develops and recommends University policies, establishes procedures and regulations for graduate studies, and adjudicates petitions regarding graduate regulations.

UNDERGRADUATE AND GRADUATE STUDENTS
Academic Appeals Board. This board hears appeals from students who claim to have received prejudiced or capricious academic evaluation and makes recommendations on cases to the Provost. In such cases the student should first consult with the instructor. If the grievance is not resolved, the student should then contact the department chair, then the dean of the college or school. If the grievance is still not resolved, the student may then appeal by writing a letter to the Academic Appeals Board. Appeals may be filed in the Office of Student Affairs, 433 Smith Memorial Center.

Deadline Appeals Board. A student may petition this board to be exempted from published deadlines. Cases most often handled involve deadlines for waiving late registration fees and for changing classes. Petitions may be submitted before or after the deadline date and must include documentation of the reason for missing the deadline.

Petition forms may be obtained at the Office of Admissions and Records in the Neuberger Hall lobby. For further information students may call 503-725-3511.

Credit by Examination
503-725-3511

Undergraduate students may obtain Credit by Examination in three basic ways:
I. Examinations approved by Portland State University are available through the College-Level Examination Program (CLEP).
II. Examinations approved by Portland State University are available through the College-Level Examination Program (CLEP).
III. Advanced Placement Program.

I. PORTLAND STATE UNIVERSITY COURSES
Prerequisites for Credit by Examination (PSU courses)
1. Students must be formally admitted (in writing) to Portland State, and
2. Be currently registered or have completed one Portland State course.

Guidelines Governing Credit by Examination (PSU courses)
1. Not all courses in all departments are open to challenge. Each academic unit decides which of its courses are available to undergraduates for credit by examination. The determination by the department is final. No courses numbered 199, 299, 399, or 401 to 410 inclusive are eligible for credit by examination. NS 323 is not available.
2. Credit earned by examination may not be received in a course which:
   a. Duplicates credit previously earned by a student, or
   b. Is more elementary, as determined by departmental, college, or school regulations, than a course in which the student has already received credit.
3. A student may attempt to acquire credit by examination only once for any course.
4. A student who has taken but not passed a course may subsequently attempt credit in that course by examination. Only one such attempt is permitted. In the event of failure, results will not be recorded on a student's academic record. Should an examination not be passed, credit can be obtained by repeating the course.
5. In assigning grades for credit by examination, the departments, college, or schools determine whether to use an undifferentiated (P for pass or NP for no pass) or a differentiated grade, from A (excellent) to F (failing).
6. Credit earned by examination at other institutions of higher education may only be transferred with the approval of the appropriate Portland State department, college, or school and the Academic Requirements Committee.
7. Credit by examination does not count toward residence credit.

† The Scholastic Regulations use a GPA combining the undergraduate GPA with any graduate coursework.
Courses and Examinations Given for Credit

1. Students should contact the appropriate departments, college, or schools to determine the availability of particular courses for credit by examination.
2. The examinations administered vary according to the departments, college, or schools which administer them, and may include midterm and/or final examinations in current courses or special examinations designed for students “challenging” courses whether or not the courses are currently being offered.

Application for Credit by Examination (PSU courses) and Cost

1. Students wishing to take examinations for Portland State courses may obtain an application with detailed instructions from the Office of Admissions and Records (Neuberger Hall lobby).
2. The fee for credit by examination is $40 per course examination.

II. CLEP EXAMINATIONS

CLEP (College-Level Examination Program) includes nationally normed examinations. CLEP has (1) subject matter examinations, and (2) general examinations.

A table of CLEP examinations accepted by PSU is available from the Admissions and Records Office, Neuberger Hall lobby.

Eligibility for CLEP. CLEP subject or general examinations may be taken prior to entering the University. If the individual passes a CLEP examination, the University accepts the amount of credit indicated in the CLEP table, but only after admission is granted and the student is (or has been) enrolled in Portland State courses.

Qualifications for CLEP Transfer. Students who have taken CLEP examinations prior to entering Portland State may transfer such credit provided they have passed the examination with scores at or above the minimum accepted by PSU and provided the University has approved the examinations for credit.

Application for Credit before Coming to PSU. Students may request an official transcript be sent to Portland State University, Office of Admissions and Records. The request should be sent to College Examinations Entrance Board, Attention: CLEP Transcript Service, Princeton, NJ 08540. The transcript request should include Social Security number, date and place of test and fee. Fees are set by the Educational Testing Services and are subject to change.

Where to Apply for CLEP Examinations. Students planning to take CLEP examinations should apply for them at least one month in advance with the Testing Office of PSU’s Counseling and Psychological Services (M342 Smith Memorial Center) or with other recognized CLEP testing centers. The Testing Office supplies descriptive brochures and other information on CLEP examinations.

The Testing Office also supplies information and administers CLEP examinations to nonadmitted or nonenrolled students. Fees for CLEP examinations are set by the Educational Testing Services and are subject to change.

Relation between CLEP and Advanced Placement (AP) Program. Students cannot acquire duplicate credit through CLEP in the subjects for which they have acquired Advanced Placement credit. To the extent that a student’s high school does not offer Advanced Placement work, CLEP becomes a supplement or substitute for Advanced Placement credit.

III. ADVANCED PLACEMENT PROGRAM

Students who complete college-level work in high school under the Advanced Placement Program sponsored by the College Entrance Examination Board and who receive creditable grades in examinations administered by that board may, after admission to PSU, be granted credit toward a bachelor’s degree in comparable college courses. Students may request an official transcript be sent to Portland State University, Office of Admissions and Records. The transcript request should be sent to Advanced Placement Program, PO Box 6671, Princeton, NJ 08541-6671.

Students entering from high schools not participating in the Advanced Placement Examinations may, on their own initiative, apply to the College Entrance Examination Board for permission to take the Advanced Placement Examinations. If they receive creditable scores, they may be granted similar credit after admission.

Credit Awarded for Advanced Placement. The amount of credit a student may receive for Advanced Placement Examinations and the scores required for the award of credit vary according to department as described below under individual department headings. Important: Any student with a score of four or five (or three in mathematics) must arrange an interview with the department chair for purposes of further guidance.

Art History. With a score of 3 or better and the completion of the accompanying year-long course in high school, will confer 9 credits in Art 204, 205, and 206.

Biology. A student with a score of 4 or 5 will be permitted to enroll in advanced courses in biology with waiver of the introductory courses. This waiver does not reduce the total number of credits required in biology courses for a major but gives the student opportunity to gain greater depth and scope.

Chemistry. A score of 4 or 5 qualifies science, health science, and engineering majors to enroll in Ch 221 and 222. A creditable grade in these two courses will confer 10 credits in Ch 221, 222, 227, and 228. A score of four or five will entitle the nonmajor to 9 credits in chemistry, unassigned; these 9 credits will count toward the distribution requirements in science.

Computer Science. A score of 4 or 5 will lead to a conference with an adviser to determine whether credit will be conferred for CS 161 and CS 162.

English. A score of 4 or 5 on the Advanced Placement English Literature and Composition examination will confer a total of 15 lower-division credits: 3 credits in Wr 121 and 12 credits in Eng 104, 105, 106. A score of 3 will confer 3 credits in Wr 121. A score of 3, 4, or 5 on the Advanced Placement English Language and Composition examination will confer 9 credits: 3 credits in Wr 121 and 6 unassigned credits in lower-division writing.

European History. A score of 4 or 5 on the Advanced Placement European History and Composition examination will confer a total of 15 lower-division credits: 3 credits in Hist 101 and 102, and 4 credits in history, unassigned.

Foreign Languages. French, German, Latin, and Spanish Language Test: A score of 3 confers 12 credits for the first year sequence; a score of 4 confers 12 credits for the second-year sequence and 3 additional upper-division foreign language elective credits for a total of 15 credits; and a score of 5 confers 12 credits for the second-year sequences, plus 8 upper-division credits, for a total of 20 credits.

Mathematics. Calculus AB. A score of 4 or 5 confers 8 credits in Mth 251 and 252. A score of 3 confers 4 credits in Mth 251.

Calculus BC. A score of 4 or 5 will confer 12 credits in Mth 251, 252, and 253. A score of 3 will confer 8 credits in Mth 251 and 252.

Music. Music Theory. A score of 4 or 5 confers 12 credits for Mus 111, 112, 113; a score of 3 confers 4 credits for Mus 111.

Music History/Literature. A score of 4 or 5 confers 8 credits for Mus 201, 202.

Physics B. A score of 4 or 5 confers 12 credits in Ph 201, 202, and 203.

Physics C. A score of 4 or 5 confers 8 credits in Ph 211 and 212.

United States History. A score of 4 or 5 on the examination confers 8 credits in Hist 201 and 202.
The University Honors Program is intended for those students who plan to go on to graduate or professional school; it therefore gives highly motivated applicants the chance to develop undergraduate degree programs that reflect their particular interests.

Limited to 200 participants, the Honors Program offers a foundation course in the theory and methods of the human, natural, and social sciences, opportunities for independent study, and honors colloquia. Students are also allowed the chance to take part in the Washington, D.C., internship program provided by the program. Honors Program classes are small, and students work closely with advisers both in the program and in the academic departments of the University.

Students may major in any undergraduate degree program offered at Portland State. Requirements for majors are set by departments; students meet general education requirements through their work in the Honors Program.

Eligibility and Admission. The program seeks students who will strive for academic excellence. Students who have combined SAT scores of 1200 or more and whose high school grade point averages were 3.50 or better are eligible to apply. The qualities sought in Honors Program students, however, are not always reflected in test scores, GPAs, or transcripts, and so other factors, including letters of recommendation, a writing sample, and an interview are considered.

Part-time students, transfer students, and students returning after an absence from formal education also may apply. However, because of the program's own curricular structure and the unique directions that most degree programs take, students who have completed more than 60 quarter hours of college work are not usually considered for admission.

Graduation Requirements. Honors Program students are graduated after completing requirements for their majors, the liberal and general education requirements of the Honors Program, and the specific requirements of their individualized programs. Students complete a core component of work in the Honors Program, which satisfies their general and liberal education requirements. While individual core programs will vary to some extent, students will complete 8 or 10 courses in Honors (8 for technical/professional track, 10 for liberal arts track). These will include the appropriate track of the core course, “Studies,” at least two courses designated as colloquia, and the two-quarter thesis project (8 credit hours).

Studies in Western Culture. A foundation course in the theory and methods of the social sciences, humanities, and sciences. “Studies” examines the politics, art, ideas, and scientific practice of major periods in Western culture, beginning with the period that has been called the “foundation of the natural sciences,” the 17th century. Originally developed under a grant from the National Endowment for the Humanities, the course remains open to all Portland State students.

After the first two quarters of the freshman year, which are taken by all students, first-year students will separate into two tracks, the technical/professional track and the classical track. Students in the technical and professional majors will thereafter study the organization and historical development of professional culture, while students in the classical track will pursue the roots, beginning in ancient Greece and Rome and moving forward through the medieval and Renaissance periods, of the social and political movements which shape later culture.

Professors of classical studies, science studies, history, humanities, and interdisciplinary social science serve as faculty, and written work focuses on primary texts studied in the course. Students are encouraged to form study groups to supplement their classroom work. Further information and course descriptions are available from the Honors Program Office, located in the Honors Program Building, 1632 S W 12th Avenue.

Visiting Scholars Project. In the junior and senior years of the honors curriculum, students participate in coursework associated with the Visiting Scholars Project. Each year several noted scholars, American or foreign, are brought to campus; they both deliver public lectures and meet with a seminar group of students from the Honors Program, who have prepared by working through an appropriate bibliography with faculty from the honors program.

Departmental Honors. Some departments in the College of Liberal Arts and Sciences offer a departmental honors option. Students should contact their major department to find out if this option is available and, if so, what the requirements are.

COURSES

Courses with an asterisk (*) are not offered every year.

Hon 199 Studies in Western Culture I-IV (tech/prof–5, 5, 5, 4)
I-VI (classical–5, 5, 5, 4, 4, 4)

See section above for technical/professional and classical section course descriptions. Studies in Western Culture I-III comprise 15 credits (12 hours lecture, 3 hours recitation); Studies in Western Culture IV-VI comprise 12 credits (lecture only, no recitation).

Hon 199 Special Studies (Credit to be arranged.) Consent of instructor.

Hon 399 Special Studies (Credit to be arranged.) Consent of instructor.

Hon 401 Research (Credit to be arranged.) Consent of instructor.

Hon 403 Thesis (Credit to be arranged.)

Hon 404 Cooperative Education/Internship (Credit to be arranged.)

Hon 405 Reading and Conference (Credit to be arranged.) Consent of instructor.

Hon 407 Seminar (Credit to be arranged.) Consent of instructor. Reading and discussion of an area to be chosen by instructor, with a seminar paper required.

Hon 410 Selected Topics (Credit to be arranged.) Consent of instructor.
EXPENSES

Tuition and Fees/Student Status. Entering and continuing students at Portland State University should plan their study programs and work loads with knowledge of the fee and tuition schedules of the institution. The Oregon State Board of Higher Education reserves the right to change the schedule of tuition and fees without notice. Additionally, certain charges set by the University are also subject to change. However, no change made after a term begins will become effective within that term.

Most laboratory and class materials are included in the tuition and fees payment, but certain classes do require special deposit charges, surcharges, or costs to cover materials. These charges are listed in the Schedule of Classes.

A regular student is defined as a resident or nonresident undergraduate, post-baccalaureate, or graduate student enrolled for 9 credits or more. A regular student is entitled to use the resources of the University, including the Library, the Health Service, and use of the open recreation areas of the Peter Stott Center. A regular student is also entitled to admission to PSU home athletic events (with the exception of playoff games and social events) and coverage by a basic health insurance plan. No reduction in the total charge is made to those students who do not intend to use specific resources or services. All regular students are required to be currently admitted to the University.

All part-time students, admitted and nonadmitted, taking 1 to 8 credits pay tuition and fees according to the level of the course(s) in which they enroll. Courses numbered 499 or below are assessed at the undergraduate rate; courses numbered 500 and above pay graduate tuition and fees. Students enrolling in courses numbered 500 and above pay graduate tuition and fees.

Tuition Schedule. Note: The 2001–2002 tuition and fee schedules have not been set by the Oregon State Board of Higher Education. The charges listed in the chart below are effective during the 2000–2001 academic year. Students should consult the tuition and fee listing in the PSU Schedule of Classes for up-to-date information and applicable tuition and fees.

Students who enroll incur an accounts receivable obligation and are financially responsible for all classes and credits in which they are registered on or after the first day of the term. All classes dropped after the first day of the term are subject to the refund schedule. Students are required to pay for any tuition, fees and charges remaining on their account.

Tuition and Fee Calculation—8 Credits or Fewer. Part-time students enrolling in courses numbered 499 or below pay undergraduate tuition and fees. Students enrolling in courses numbered 500 and above pay graduate tuition and fees.

For students enrolling in classes both for undergraduate and graduate credit, the

**TUITION AND FEES**

(Charges for 2000-2001)

<table>
<thead>
<tr>
<th>Credits</th>
<th>Undergrad Resident</th>
<th>Undergrad Nonresident</th>
<th>Graduate Student Resident</th>
<th>Graduate Student Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-18</td>
<td>$1,175.00</td>
<td>$4,097.00</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Part-time:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1*</td>
<td>114.00</td>
<td>114.00</td>
<td>252.00</td>
<td>252.00</td>
</tr>
<tr>
<td>2*</td>
<td>205.00</td>
<td>205.00</td>
<td>481.00</td>
<td>481.00</td>
</tr>
<tr>
<td>3*</td>
<td>296.00</td>
<td>296.00</td>
<td>710.00</td>
<td>710.00</td>
</tr>
<tr>
<td>4*</td>
<td>387.00</td>
<td>387.00</td>
<td>939.00</td>
<td>939.00</td>
</tr>
<tr>
<td>5*</td>
<td>478.00</td>
<td>478.00</td>
<td>1,168.00</td>
<td>1,168.00</td>
</tr>
<tr>
<td>6*</td>
<td>569.00</td>
<td>569.00</td>
<td>1,397.00</td>
<td>1,397.00</td>
</tr>
<tr>
<td>7*</td>
<td>660.00</td>
<td>660.00</td>
<td>1,626.00</td>
<td>1,626.00</td>
</tr>
<tr>
<td>8*</td>
<td>751.00</td>
<td>751.00</td>
<td>1,855.00</td>
<td>1,855.00</td>
</tr>
<tr>
<td>9</td>
<td>902.00</td>
<td>3,095.00</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>10</td>
<td>993.00</td>
<td>3,429.00</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>11</td>
<td>1,084.00</td>
<td>3,763.00</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Over-time: Each additional credit</td>
<td>75.00</td>
<td>318.00</td>
<td>211.00</td>
<td>381.00</td>
</tr>
</tbody>
</table>

Graduate assistants pay $280.00 per term (plus hourly overtime fee above 16 credits).
Postbaccalaureate students pay undergraduate fees, when registered for 9 credits or more.

Admission is required in order to register for 9 credits or more.

Note: The appropriate fee is determined by total credits of registered coursework (credit and audit).

*Tuition for carrying loads of 8 credits or fewer is determined by the level of the course(s) taken. Residency is not considered.

See the quarterly Schedule of Classes for further details and for registration policies that affect carrying load, such as auditors and overloads.
Tuition and Fee Calculation—
9 Credits or More. All students taking 9 credits or more are assessed tuition and fees according to their undergraduate/graduate and residency status. The level of courses in which students enroll is immaterial.

Tuition Reciprocity. Under an agreement between the states of Oregon and Washington, a limited number of Washington students may be eligible to attend PSU and pay Oregon resident tuition and fee rates. To qualify for tuition reciprocity, Washington students must:
- Be legal residents of the state of Washington.
- Be a junior or senior level student with at least 90 credits or an A.A. degree.
- Be formally admitted PSU students.
- Enroll in and satisfactorily complete a minimum of 9 credits per term at PSU.
- Audit credits do not count for credit.
- Maintain permanent residence in the state of Washington.

The Office of Admissions and Records can provide additional information about the program.

Self-Support, Extended Studies, and Non-Credit. Enrollment in these courses may not be combined with regular PSU credit courses for fee calculations. Self-support courses have fees that are assessed in addition to any other tuition paid to the University.

Senior Citizen Fee Schedule. Senior citizens are defined as persons age 65 or older who do not wish to earn course credit. Senior citizens who are Oregon residents are authorized to attend classes on a space-available basis without payment of tuition. Charges for special materials, if any, must be paid.

Incidental and Health Service fee privileges are not provided and the University does not maintain any records of enrollment. The registration receipt may be used to obtain a library card.

Late Fees. Late payment fees apply on the fifteenth day of the term counting from the first day of the term. A late fee of $40 is charged after the second week of the term, with an additional assessment of $39 after the eighth week.

Resource Fee. This fee is a mandatory enrollment fee. All students are assessed a technology fee per credit hour. In addition, students admitted to some academic programs are assessed a program-specific resource fee per credit.

Other Special Fees. Special fees and fines are subject to change. Up-to-date information on special fees and clarification of charges can be obtained from the Office of Business Affairs, 167 Neuberger Hall, 503-725-3443.

Revolving Charge Account Plan (RCAP). An installment payment option is available (except to students who owe the University money from previous terms or who are receiving financial aid).

Students may elect to pay installments on their account balance. The balance is subject to interest at the rate of 12 percent per annum. First-time participants must sign an agreement which is available at the Accounts Receivable Window, Neuberger Hall lobby.

In the event of withdrawal, any refunds due are applied to the outstanding balance, and any remaining balance due remains payable. Failure to pay in full may also result in denial of registration, graduation, and transcripts as well as additional assessment for collection charges and attorney’s fees.

Withdrawals and Fee Refunds. Complete withdrawal or dropping coursework does not cancel a student’s obligation to pay a student loan, balance of Revolving Charge Account Plan (RCAP), or any other financial obligation owed the University. Students with such outstanding obligations will have any refund due them applied against the obligation.

Students on financial aid may have their refund credited back to the appropriate grantor or agency making the award. Students receiving financial aid who withdraw completely from school before the end of the term may be required to repay a portion of their financial aid award. The amount to be repaid will be calculated by the Student Financial Aid Office based upon the date the student withdraws.

Refund calculations are based on total tuition and fees. Special fees are nonrefundable. Refunds are computed from the date of official withdrawal or drop; they are not based on when attendance in class ceased. Students who are delayed in withdrawal process for reasons beyond their control may petition for an earlier drop date via a Deadline Appeals petition obtained at the Registration window. Allow four to six weeks between withdrawal/drop and receipt of refund. Action cannot begin until the two-week Add period has passed.

Refund Schedule for Complete or Partial Withdrawal

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Refund Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before the beginning of classes</td>
<td>100%</td>
</tr>
<tr>
<td>Before the close of the 14th calendar day after classes begin</td>
<td>85%†</td>
</tr>
<tr>
<td>Before the close of the 21st calendar day after classes begin</td>
<td>50%†</td>
</tr>
<tr>
<td>Before the close of the 28th calendar day after classes begin</td>
<td>25%†</td>
</tr>
</tbody>
</table>

There is no refund after the close of the 28th calendar day following the start of classes. This schedule applies to all students, whether making a complete withdrawal or just reducing hours. The appropriate percentage is applied to the difference between the initial official tuition and fees figure and the figure applicable to the reduced load.

† Less nonrefundable health insurance for regular students.
Welcome to Portland State University

174 Neuberger Hall
503-725-3461
e-mail: askfa@mail.pdx.edu
www.css.pdx.edu/fao

The professional staff of the Student Financial Aid Office is ready to help students to determine the level of their financial need and to plan for the most efficient use of their financial resources for education.

Student Aid Eligibility

To assist the student in financial planning and in determining eligibility for assistance, the following expenses are taken into consideration: tuition and fees, books and supplies, room and board, transportation, child care costs and personal/miscellaneous expenses. Specific allowable student expense budgets are shown in the Applying for Financial Aid brochure (available in the Financial Aid Office) and the Schedule of Classes. Note: All tuition and fee costs are subject to change by the Oregon State Board of Higher Education.

The Student Financial Aid Office provides needy, qualified students with financial aid in the form of loans, grants, and employment. In order to make the best use of available funds, awards normally consist of a “package” of two or more of these forms of financial aid.

Underlying the awarding of financial aid at PSU is the nationally accepted philosophy that parents are the primary source responsible for helping dependent students to meet educational costs. The amount of the contribution expected from parents is related directly to a family’s financial strength as reflected by adjusted gross income, number of dependents, allowable expenses, and assets. Both dependent and independent students also have a responsibility to make a reasonable contribution toward their costs from earnings and savings. Financial aid resources serve to supplement these primary resources. Aid eligibility is determined through a federally established formula.

Students should apply annually using the Free Application for Federal Student Aid (FAFSA). The FAFSA can be filed online at www.fafsa.ed.gov. FAFSA forms are available at high schools or at college financial aid offices. PSU’s federal school code to be used on the FAFSA is 003216.

Graduate Students. Graduate students may receive consideration for financial assistance through the Federal Perkins Loan, Federal Work-Study, and Federal Direct Stafford Loan programs.

International Students. International students are not eligible to participate in federal financial aid programs.

Applications for Aid. Applications for financial aid must be submitted annually for the academic year and/or summer aid. Applications are accepted by the Student Financial Aid Office at any time during the year, with priority given to admitted applicants who submit their FAFSA in January or February and who provide all requested information promptly. It is not necessary to wait for formal admission to the University before submitting the financial aid application; however, students must be admitted before processing of the application for financial aid may occur.

In order to be eligible to receive state or federal financial aid, students must remain in good academic standing as defined in the University Scholastic Standards Policy, and enroll for the minimum credits specified by their Award Notification Letter. Students also must meet the Satisfactory Academic Progress Policy requirements described in the Financial Aid Guide. The student must be in a degree or certificate program and must be a U.S. citizen or be an eligible non-citizen.
FINANCIAL AID NOTIFICATION

Applicants will be advised of the decision on their financial aid application by an Award Notification Letter. Those awarded aid will be required to sign and return a reply copy of their award letters.

The Student Financial Aid Office awards aid to eligible students from the following federal, state, and institution sources.

EDUCATIONAL GRANT PROGRAMS

Federal Pell Grants. This federally funded grant program is designed to provide assistance to eligible undergraduate students. The amount of the grant is determined by the federal government with the University acting as the disbursing agent. Eligibility is based upon financial need.

Federal Supplemental Educational Opportunity Grants. This is a federally funded grant program under which eligible applicants are selected for awards by Portland State University. Eligibility is based upon exceptional financial need and awards are limited to undergraduate students only.

State Grants (Oregon residents). All undergraduate students needing financial aid are eligible to apply for the Oregon Opportunity Grant awarded by the Oregon State Assistance Commission. Awards are based upon financial need. Awards are renewable for 12 terms provided satisfactory academic progress and financial need continue.

Oregon University System Supplemental Tuition Grants. This is a state-funded program that provides tuition assistance to eligible Oregon resident undergraduates.

Athletic Grants-in-Aid and Scholarships. Athletic grants-in-aid and scholarships are administered by the institution’s financial aid and athletic departments. Each coach is responsible for selecting recipients based upon eligibility and athletic ability. The National Collegiate Athletic Association sets forth the eligibility and financial aid requirements for Portland State University men’s and women’s athletic teams.

Any prospective PSU student should contact the coach of the desired sport about availability of scholarships and the recruiting process. Each coach will then consider the prospective student’s athletic ability, eligibility, finances available, and the need of that particular sport. An athletic grant-in-aid request is then submitted to the director of Athletics for award to the prospective student.

EDUCATIONAL LOANS

Federal Perkins Loans. This federally funded loan program is available to undergraduate and graduate students who demonstrate exceptional financial need. This is a long-term, low-interest loan for which repayment commences nine months after the student is no longer enrolled on at least a half-time basis.

Federal Direct Stafford Loans. Loans are available to PSU students through the cooperation of the University and the U.S. Department of Education. Both interest subsidized and unsubsidized loans are available. Subsidized loan eligibility is based upon the demonstration of financial need. Repayment begins six months after the student drops below half-time status or leaves the University. The federal government pays the interest on subsidized loans while the student is in school. Unsubsidized loan eligibility is based upon the difference between the student’s cost of attendance and financial aid awarded. Repayment of interest begins while the student is still enrolled. The federal government does not make interest payments.

Annual loan maximums for both loan types combined are $2,625 for freshmen; $3,500 for sophomores; $5,500 for juniors, seniors, and postbaccalaureates; and $8,500 for graduate students. Independent students may borrow additional unsubsidized Stafford Loans up to these maximums: $4,000 for freshmen and sophomores; $5,500 for juniors, seniors, and postbaccalaureates; and $10,000 for graduates. The interest rate varies annually, with a maximum of 8.25 percent.

Federal Direct PLUS Loans. These loans are available to the parents of dependent students who wish to borrow more funds than the Federal Direct Stafford Loan eligibility allows. Parents may borrow the difference between the student’s cost of attendance and all other aid the student receives. Repayment begins 60 days after the last disbursement. The interest rate varies annually, with a maximum of 9 percent.

Short-Term Loans. Short-term loans of up to $200 are available through the Accounts Receivable Office for educationally related expenses.

FEDERAL WORK-STUDY

The Federal Work-Study Program is a need-based program in which the federal government pays from 50 to 90 percent of student wages and the employer pays the remainder. Work-Study is available to undergraduate and graduate students. Employment opportunities are on-campus and off-campus. On-campus jobs are with nearly every academic and administrative department. Off-campus jobs are with government agencies and nonprofit groups, many are community service jobs that involve directly serving the community, while providing good work experience. The America Reads program which tutors young children in public schools is one of these programs. The Office of Human Resources lists openings for on-campus and some off-campus jobs. The Career Center refers students to community service jobs.

For other student employment opportunities, contact the Student Employment Office within the Career Center, 503-725-4958, 402F University Services Building.

DELIVERY OF AID AND TUITION CREDITS

Financial aid funds and tuition credits are disbursed by the Cashier’s Office each term. Available financial aid will be automatically credited to pay tuition and other PSU charges. Students may complete the Direct Deposit form to authorize the cashier to electronically deposit any remaining aid to the student’s bank account. Direct Deposit forms are included with the student’s Award Notification Letter. Students who do not choose this option go to the cashier in person to receive a check for any remaining aid. Federal Work-Study is earned on a monthly basis and paychecks are issued at the end of each month.

ADDITIONAL INFORMATION

Additional details on the federal aid programs are available in The Student Guide, published annually by the U.S. Department of Education. Students will also receive a Financial Aid Guide with their Award Notification Letter, which gives a detailed explanation of the conditions for receiving aid, student rights and responsibilities, and other information of which aid applicants should be aware. Copies of these guides are available through the Student Financial Aid Office, 174 Netuberger Hall.

SCHOLARSHIPS AND AWARDS

Portland State University has a number of scholarships and awards which are administered by individual academic departments, the Scholarship Committee, or special committees developed for specific scholarships. Scholarships generally are awarded on the basis of academic achievement, promise, and financial need. The following list represents some of the individual scholarships and awards admin-
istered by Portland State University. Additional information is available in the Scholarship Handbook, available in the Office of Student Financial Aid, 174 Neuberger Hall, or by contacting the department or person mentioned after each scholarship description.

UNDERGRADUATE

† Academy of American Poets Award. An annual award presented for the best poem or group of poems submitted by a Portland State University student. The Department of English Prize Committee may choose to make either a graduate or undergraduate award. (Department of English, 405 Neuberger Hall, 503-725-3521.)

A-DEC Scholarship. Awarded to admitted junior- or senior-level School of Business Administration students with a 3.25+ GPA interested in marketing. (240 School of Business Administration, 503-725-3712.)

AFROTC Scholarships. Portland State University participates in a crosstown Air Force ROTC program with the University of Portland. Students who qualify may compete for AFROTC scholarships, which are awarded on a competitive basis. Scholarships are available in numerous academic disciplines and are open to students on the basis of demonstrated academic abilities and leadership potential. (AFROTC Detachment 695, University of Portland, 503-943-7216.)

Marjorie Albertson Scholarship. Awarded to a senior student with a 2.80 GPA or above majoring in music. The individual is selected on talent and scholarship. (Department of Music, 231 Lincoln Hall, 503-725-3214.)

† Noury Al-Khaledy Scholarship in Arabic Studies. Established in 1995 in recognition of the contributions of the late Professor Noury Al-Khaledy who led the Arabic Language instructional program at PSU for over two decades. Open to all full-time PSU students of all majors who have formally studied Arabic in an accredited college for at least two years, had an outstanding performance in previous Arabic studies, 3.40 GPA or higher, and a commitment to successfully complete third-year Arabic at PSU. School performance and financial need are a major consideration. (Department of Foreign Languages and Literatures, 393 Neuberger Hall, 503-725-3522.)

Richard Apfel Scholarship. This scholarship is granted to a full-time, upper-division engineering student, based on scholarship and financial need. (College of Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

APWA (American Public Works Association) Oregon Chapter Scholarship. Scholarships granted to full-time civil engineering students based on scholarship and financial need. Recipients must be Oregon residents for at least four years. (Department of Civil Engineering, 128 Science Building 2, 503-725-4282.)

Army ROTC Scholarships. A significant number of students receive Army ROTC scholarships while at PSU. The scholarships are available on a competitive basis to all qualified undergraduate or graduate students, and are available for all academic majors. (University of Portland, Military Science Program, 503-943-7353.)

ASCE (American Society of Civil Engineers) Oregon Section Scholarship. Scholarship is granted to a senior civil engineering student (must be in their junior year in June of the year application is made) with a 3.00 GPA or above. (Department of Civil Engineering, 128 Science Building 2, 503-725-4282.)

Maria Balogh Scholarship. Awarded to an undergraduate computer science major. (Department of Computer Science, 120 PCAT Building, 503-725-4036.)

Boeing Engineering Scholarships. Two awards. Applicants must be full-time undergraduate students at PSU who are majoring in engineering and have achieved or shown the potential to achieve satisfactory or better academic accomplishments. Minimum GPA is 3.00. Applicants must be authorized to work in the United States on a full-time basis for other than training. (College of Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

Bernard V. Burke Awards in History. Applicants must be declared history majors with at least a 3.00 overall GPA and a minimum 3.25 GPA in history. (Department of History, 441 Cramer Hall, 503-725-3917.)

Phyllis and Tom Burnam Creative Writing Awards. Awards are made annually for the best works of fiction by students enrolled in any writing class which is taught by a member of the PSU Department of English. (Department of English, 405 Neuberger Hall, 503-725-3521.)

Richard V. Burke Awards in History. Applicants must be declared history majors with at least a 3.00 overall GPA and a minimum 3.25 GPA in history. (Department of History, 441 Cramer Hall, 503-725-3917.)

Robert B. Clarke and Helen Clarke Memorial Award. An undergraduate award offered annually by the Department of English for a work of excellence submitted as a regular course assignment by a Portland State University student. Department of English faculty members may nominate one or more noteworthy student papers. Also, students may directly submit essays which they have written for English courses during the academic year to the Department’s Prize Committee. (Department of English, 405 Neuberger Hall, 503-725-3521.)

Barry Commoner Scholarship/Paul Croy Scholarship. Each scholarship awarded to junior or senior students with academic and career interests in the area of environmental science. Applicants must have a cumulative GPA of 3.00 or above, be enrolled full-time, be in need of financial assistance, and be able to articulate academic and professional goals related to environmental policy or science. (Environmental Sciences and Resources, 218 Science Building 2, 503-725-4980.)

Coral Sales Company/D.P. Daniels Civil Engineering Scholarship. Recipients must intend to pursue a career in highway/transportation engineering or highway construction. No GPA requirements. Leadership qualities and participation in extra-curricular activities, both civic and professional, will be considered. Evidence of work experience in highway/transportation field is an asset. The recipients must have lived in the Northwest for at least 10 years and have junior or senior standing. (Civil Engineering Department, 128 Science Building 2, 503-725-4282.)

Corporate Associates Scholarship. One scholarship awarded to an outstanding junior- or senior-level undergraduate student admitted to the School of Business Administration. Minimum 3.25 GPA required. (240 School of Business Administration, 503-725-3712.)

Jeanine B. Cowles Music Scholarship. Awarded to full-time music majors with a 2.80+ cumulative GPA. Recipients will demonstrate academic and leadership potential as well as performance ability. (Department of Music, 231 Lincoln Hall, 503-725-3011.)

Dean’s Achievement Scholarships (Engineering and Computer Science). For entering freshmen or transfer students in engineering or computer science. Applicants must be U.S. citizens or permanent residents and have a minimum 3.00 GPA.

† Also for graduate students.
grams and Services, 425 Smith Memorial Center, 503-725-4457.)

Hulda DeVaughn Scholarship.
Awarded annually to a female Spanish major with a minimum 3.25 GPA in the major. (Department of Foreign Languages and Literatures, 393 Neuberger Hall, 503-725-5291.)

Diversity Achievement Undergraduate Scholarship for Freshmen.
A specific goal of the Diversity Achievement Scholarship is to enrich the diversity of Portland State’s educational environment by attracting and recognizing outstanding students from racially and ethnically diverse backgrounds and experiences. For the freshman award, graduating high school seniors and others with less than 30 college credits must meet regular admission requirements and have a high school GPA of at least 2.75. Students are provided academic support services, are monitored for completion of at least 12 credits per term, and must maintain a 2.50+ college GPA. Priority is given to Oregon residents. (Educational Equity Programs and Services, 425 Smith Memorial Center, 503-725-4457.)

Diversity Achievement Undergraduate Scholarships for College Students (with 30+ college credits.) A specific goal of the Diversity Achievement Scholarship is to enrich the diversity of Portland State’s educational environment by recognizing and retaining outstanding students from racially and ethnically diverse backgrounds and experiences. Students with 30 or more college credits and a cumulative GPA of 2.50 (minimum) are eligible to apply for the award. Students receive academic support services, are monitored for completion of at least 12 credits per term, and must maintain a 2.50+ college GPA. Priority is given to Oregon residents. (Educational Equity Programs and Services, 425 Smith Memorial Center, 503-725-4457.)

Dawn Dressler Health Sciences Award.
This award was established in honor of Dawn Dressler, who was a physics professor from 1962-88 and chaired the Health Sciences Advisory Committee. Awarded to a senior-level or post-bacc student who has been accepted for study in the health science or allied health professions. Applicants must have completed their required studies in general physics at Portland State to be considered. (Health Sciences Advising, College of Liberal Arts and Sciences, 490 Neuberger Hall, 503-725-3822.)

Elizabeth Ducey Fund.
For any student intending to study for a specialty in Middle East Studies, must be enrolled and making satisfactory progress in a Middle Eastern language. (International Education Services/Study Abroad Programs, 212 East Hall, 503-725-4011.)

H.C.M. Erzurumlu Scholarship.
This is an annual award of full resident tuition to an upper-division student majoring in engineering or computer science, based on scholarship, need, and potential for success in the profession. (College of Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

David Evans & Associates Scholarships.
Three scholarships are awarded to full-time, upper-division Civil Engineering students based on scholarship and need. A 3.00 GPA or above is required. (Department of Civil Engineering, 128 Science Building 2, 503-725-4282.)

C.G. Fanger Mechanical Engineering Scholarship.
Awards made to outstanding mechanical engineering students based on scholarship, need, and potential success in the profession. Restricted to upper-division engineering students. (Department of Mechanical Engineering, 118 Science Building 2, 503-725-4290.)

D. Paul Fansler Memorial Scholarship in International Affairs.
Two awards, for juniors and seniors majoring in political science and international studies who intend to pursue careers in international affairs. Applicants should demonstrate high academic achievement and show strong evidence of community service. (Division of Political Science, 650 Urban Center, 503-725-5974.)

Farmers Insurance Group of Companies Scholarship.
Awarded to sophomore-, junior- or senior-level undergraduates majoring in business or mathematics relating to the insurance industry, and have a minimum GPA of 2.50. Financial need is a consideration. Recipients must be full-time students when receiving the award. (School of Business Administration, 240 SBA, 503-725-3712.)

Food Industry Leadership Program Scholarship.
Awarded to an undergraduate or graduate student in the food industry management program. Financial need is a consideration and applicants must be pursuing a career in the food industry.

Mathilda Goldsmith Scholarship.
This scholarship is for women who are returning to college after a significant interruption in studies. Applicants must be Oregon residents and maintain a minimum GPA of 3.00. (Women’s Studies, 469 Neuberger Hall, 503-725-3510.)

Goodman Scholarship.
One full-tuition, renewable scholarship is awarded to an incoming freshman from among Grant, Jefferson, Madison, Marshall, or Roosevelt high schools in Portland. Finalists are recommended by high school faculty or administrators and are based upon academic promise and financial need. Must have minimum 2.50 GPA. (Office of Admissions and Records, 105 Neuberger Hall, 503-725-3511.)

Hatfield Prize in Political Science.
Yearly award to a PSU undergraduate political science major. Applicants will submit a 10-20 page essay addressing a topic chosen by the unit. (Division of Political Science, 650 Urban Center, 503-725-3921.)

Walter D. Hershey Memorial Scholarship.
Four awards given to outstanding junior-level business majors with a minimum GPA of 3.25. Financial need also a consideration. (240 School of Business Administration Building, 503-725-3712.)

Paul W. Howell Award.
Tri-annual award is made to students working on bachelor’s degrees in the Department of Geology. Based on academic records and written recommendations of two faculty members. (Department of Geology, 17 Cramer Hall, 503-725-3022.)

International Cultural Service Program Scholarship.
Intended to help international students in meeting costs of attending PSU. Students provide 80 hours of community service during the academic year, mostly in the form of cultural presentations to school and community groups, in exchange for partial tuition waivers. Applicants must have at least sophomore standing. (International Education Services, 212 East Hall, 503-725-4094.)

International Student Scholarship.
Intended to help international students in meeting costs of attending PSU. Applicants must have met all admissions requirements, including English language proficiency (students restricted to ESL coursework are not eligible). (International Education Services, 212 East Hall, 503-725-4094.)

Irvington Women’s Club Scholarship.
For a junior- or senior-level woman with demonstrated professional goals and financial need. The recipient must be a full-time student with a minimum cumulative GPA of 3.00. (Women’s Studies, 469 Neuberger Hall, 503-725-3510.)

Arthur M. James Scholarships.
Three scholarships are made to full-time, upper-division civil/structural engineering students, based on scholarship and need. (Department of Civil Engineering, 128 Science Building 2, 503-725-4282.)

† Also for graduate students.
Jantzen/Zehnbauer Scholarship. One award for an upper-division computer science student. This scholarship includes a summer internship at Jantzen prior to the recipient's senior year. (Department of Computer Science, 120 PCAT, 503-725-4036.)

Clyde R. Johnson Chemistry Award. Award is made each spring term for the succeeding year to a superior PSU chemistry student in the junior class. Consideration is given to qualities of character. Nominations for this award are made by faculty members of the Department of Chemistry. (Department of Chemistry, 262 Science Building, 2, 503-725-3021.)

Gail Katz Memorial Scholarship. U.S. citizenship is not required. This scholarship is awarded to an upper-division female studying electrical or mechanical engineering with an interest in energy conservation, renewable energy, and sustainable development. (Dean's Office, College of Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

Nina Mae Kellogg Awards. Annual awards to undergraduate students who demonstrate excellence in the use of the English language. The senior award is limited to English majors; the sophomore award is open to any full-time PSU student—regardless of major—who demonstrates proficiency in writing. Invitations to compete are based on grade point average. Eligible students should not hesitate to approach faculty about nomination. (For more information, contact the Nina Mae Kellogg Committee, Department of English, 405 Neuberger Hall, 503-725-3521.)

Jean Kendall-Glazer Art Scholarship. Annual award to a full-time declared art major at PSU who has completed 20 credits in art courses. The recipient is chosen on the basis of a portfolio, need, and GPA. Applications are available spring term. (Department of Art, 239 Neuberger Hall, 503-725-3515.)

Patricia and Gary Leiser Scholarship in Middle Eastern Languages. Annual award of $500 to an undergraduate engaged in the study of Arabic, Turkish, or Persian language at Portland State University. Applicants must be enrolled in a course in one of the above languages during the year for which the scholarship is granted, complete the course with a passing grade, and have an overall grade point average of at least 3.25. Applicants must also demonstrate serious interest in the Middle East by taking courses on the region, and be a U.S. citizen. (Middle East Studies Center, 320 East Hall, 503-725-4074.)

†Drew Lippay Scholarship in Human Resource Management. Scholarship to an outstanding undergraduate or graduate student in human resource management with a 3.00+ GPA. Must be a member of the Human Resource Management Association. (240 School of Business Administration Building, 503-725-3712.)

Robert and Rosemary Low Memorial Music Scholarship. Awards given to undergraduate music majors based on need and outstanding musical ability. (Department of Music, 231 Lincoln Hall, 503-725-3011.)

LSI Logic. Applicants must be upper-division students pursuing a degree in electrical engineering, computer engineering, computer science, or mechanical engineering, and interested in working in the semiconductor field, including the fields of process, manufacturing, modeling, and/or circuit and systems design. In addition, applicants must be willing to complete an internship at LSI as part of the award. Award is renewable for senior year, provided recipient continues to meet award requirements. (College of Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

Mackenzie Family Scholarship. This award provides support for single adult women students with job or family responsibilities pursuing an academic degree. Applicants must have a GPA of 3.00 or above, sophomore standing or above by the time of award, and must demonstrate financial need and potential to contribute to the community through school, family, civic, or similar activities. (Women's Studies, 469 Neuberger Hall, 503-725-3510.)

Vergil V. Miller Corporate Associates Scholarship. Awarded to an outstanding junior-level student admitted to the School of Business Administration; 3.25 GPA minimum required. (240 School of Business Administration, 503-725-3712.)

John P. and Miriam C. McKee Award. Annual award given to an outstanding undergraduate student, generally a senior, majoring in geology. (Department of Geology, 17 Cramer Hall, 503-725-3022.)

The Keith Morden Memorial Scholarship. Established to assist nonresident foreign students completing their undergraduate degree at PSU. Applicants must have a cumulative GPA of at least 3.00 at the beginning of the last term of their junior year and be currently enrolled in sufficient credits to qualify for senior standing prior to the fall term of the following academic year. The recipient must be enrolled for and complete 12 credits and maintain a cumulative GPA of at least 3.00 the term he or she is receiving the scholarship. (International Education Services, 212 East Hall, 503-725-4094.)

Richard Muller Art Scholarship. Annual award to a full-time declared art major at PSU who has completed 20 credits in art courses. The recipient is chosen on the basis of a portfolio, need, and GPA. Applications are available spring term. (Department of Art, 239 Neuberger Hall, 503-725-3515.)

Anne P. Myers History Scholarship. Applicants must be declared history majors with at least a 3.00 overall GPA and a minimum 3.25 GPA in History. (Department of History, 441 Cramer Hall, 503-725-3917.)

Richard L. and Maurine B. Neuberger Scholarship. Applicants need a cumulative GPA of 3.50 or above, show potential for civic leadership, and have a proven desire to serve their community. In receiving the award, Neuberger Scholars shall be made aware of the service of the Neuberger family to PSU, the state of Oregon and the nation. (Office of Financial Aid, 174 Neuberger Hall, 503-725-5251.)

†Thomas M. Newman Scholarship. Annual award for a graduate or undergraduate anthropology major. The student must be admitted and enrolled at the time the award is made. The student will have demonstrated focus and interest in studies in the Pacific Northwest which can be addressed through any of the subfields of anthropology. (Department of Anthropology, 141 Cramer Hall, 503-725-3081.)

Oregon Laurels Undergraduate Scholarships. The Oregon Laurels scholarships are available to graduating high school seniors, students transferring to Portland State University from other institutions of higher education, and to students currently enrolled at Portland State University. They are renewable for up to 12 academic terms, depending upon the status of the recipient at the time of the award. (Office of Financial Aid, 174 Neuberger Hall, 503-725-5251.)

Oregon State Sheriffs Association Scholarship. For full-time administration of justice majors completing 90 to 130 credits (the majority at PSU), completing specific AJ courses, and having a minimum 3.00 cumulative GPA. Award by faculty nomination. (Division of Administration of Justice, 350 Urban Center, 503-725-4018.)

Joseph J. O'Rourke Accounting Scholarship. Scholarship awarded to an outstanding student in accounting with a minimum 3.25 GPA. (240 School of Business Administration Building, 503-725-3712.)

Donald D. Parker Award. Applicants must be junior-level students with a 3.50 GPA or above admitted to the School of Business Administration. Awarded to a student with an outstanding scholastic record.

† Also for graduate students.
(240 School of Business Administration, 503-725-3712.)

Portland Society of Financial Analysis Scholarship. Awarded to junior- or senior-level finance majors. Students must be admitted to the School of Business Administration and have an interest in investments. (240 School of Business Administration, 503-725-3712.)

Portland Teachers Program. Tuition waivers are available to African-American, Asian-American, Native-American, and Hispanic students who have attained junior level standing. Students must be committed to completion of the degree and basic teaching certificate at PSU and seek subsequent employment as a teacher in the Portland Public School System. (Educational Equity Programs and Services, 425 Smith Memorial Center, 503-725-4457.)

Presidential Scholarships. Awarded to academically qualified high school seniors in the spring of their senior year. It is open to students who have a minimum 3.75 cumulative GPA and a SAT score of no less than 1150 or ACT of 27. (Office of Financial Aid, 174 Neuberger Hall, 503-725-5251.)

Professional Engineers of Oregon (PEO) Scholarships. Awarded to engineering or computer science majors with upper-division standing. Must have graduated from an Oregon high school, be an Oregon resident, and a U.S. citizen. (Dean's Office, Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

PSU Department of Art Scholarship. Annual award based on a portfolio and GPA. Applicants must be full-time PSU declared art majors with at least 20 credit hours in art. Applications available spring term. (Department of Art, 239 Neuberger Hall, 503-725-3515.)

PSU Department of Art Graphic Design Scholarship. Awarded to a declared full-time art major concentrating in graphic design at PSU who has completed lower-division requirements in the graphic design program. Selection is made on the basis of portfolio, need, and GPA. Applications available spring term. (Department of Art, 239 Neuberger Hall, 503-725-3515.)

PSU Department of Music Scholarships. Awards are given to music majors based on demonstrated musical abilities on voice or instrument. Decisions made by a committee of the Department of Music faculty. Minimum 3.00 GPA required. (Department of Music, 231 Lincoln Hall, 503-725-3011.)

PSU Department of Theater Arts Scholarships. Limited funds are available to continuing undergraduate theater majors. Awards are based on merit as decided by Department of Theater Arts faculty. (Department of Theater Arts, 127 Lincoln Hall, 503-725-4612.)

John Redman Memorial Award. Offered annually for writing completed as a regular course assignment by a freshman student. (Department of English, 405 Neuberger Hall, 503-725-3521.)

Julie and Bill Reiersgaard Mechanical Engineering Scholarship. This scholarship is for a female mechanical engineering major with junior or senior status, who works part time; has a minimum 3.00 GPA; and intends to remain in Oregon after graduation. (College of Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

William A. and Edith Rockie Scholarship: Geography. Awarded to geography majors completing a minimum of 18 credits in geography and who have junior, senior, or graduate student standing at effective time of award. (Department of Geography, 424 Cramer Hall, 503-725-3916.)

William A. and Edith Rockie Scholarship Fund: Geology. A tri-annual award to a student majoring in geology based on merit of a research project and competence. Award is made to senior-level undergraduates and to graduate students. (Department of Geology, 17 Cramer Hall, 503-725-3022.)

Nancy Ryles Scholarship. Awarded annually to women working toward undergraduate degrees who, due to financial need, family responsibilities, or other obstacles, have had their education interrupted. Applicants must be female, U.S. citizens, residents of Oregon, admitted to PSU, and either entering college after a significant period since graduating from high school or continuing after a significant interruption in their college education. (Women's Studies, 469 Neuberger Hall, 503-725-3510.)

Florence Saltzman-Heidel Art Scholarship. Annual award to a full-time declared art major at PSU who has completed 20 credits in Art courses. The recipient is chosen on the basis of a portfolio and GPA. Applications available spring term. (Department of Art, 239 Neuberger Hall, 503-725-3515.)

Kayo Uchida Sato Memorial Scholarship. Awards made to full-time PSU students or high school seniors planning to attend PSU full time who are Asian or other ethnic minority and are majoring in mathematics or the natural sciences and have a 3.00 GPA or above. U.S. citizenship or resident alien status is required. Financial need is a primary consideration. (Educational Equity Programs and Services, 425 Smith Memorial Center, 503-725-4457.)

Roland and Blanka Schumann Scholarship. An awards committee consisting of at least three ECE faculty selects the recipient. Student must maintain a full-time class load, taking at least 12 upper-division credits per quarter in courses applicable to the degree program. (Dean's Office, College of Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

Daniel J. Scheans Scholarship. Annual award for an undergraduate anthropology major. The student must be admitted and enrolled at the time the award is made. The student will demonstrate a focus and interest in studies of any of the subfields of anthropology. (Department of Anthropology, 141 Cramer Hall, 503-725-3081.)

Jack S. Schendel Commemorative Scholarship. Awarded to an outstanding health education major with a minimum 3.25 GPA. (School of Community Health, 450 Urban Center, 503-725-4401.)

Henry and Janice Schuette Engineering Scholarship. Recipient will be chosen based on academic achievement, financial need, and student's demonstration of leadership qualities in civic and professional activities. Preference will be given to applicants studying mechanical engineering. (Dean's Office, Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

Schwenn Family Scholarships. Preference given to graduates of high schools in Hillsboro, Forest Grove, and Banks. Financial need is top consideration, with under represented minority background and first-to-attend college also priorities. (PSU Foundation, P.O. Box 243, Portland, OR 97207, 503-725-4911.)

Wilma Sheridan Scholarship. Annual award of $1,000 for a student majoring in one of the Fine and Performing Arts departments and who has achieved junior or senior standing. (Additional information available in the Office of the Dean, School of Fine and Performing Arts, 349 Lincoln Hall, 503-725-3105.)

Georgia M. Sherman Award for Excellence in Human Resource Management. Cash award to a senior demonstrating outstanding potential in the field of human resource management with a 2.50+ GPA. Applicants will usually have been admitted to the School of Business Administration. (240 School of Business Administration, 503-725-3712.)

Annie Spencer Achievement Scholarship for Students with Disabilities. A specific goal of the Annie Spencer Achievement Scholarship is to enrich the University's learning environment by attracting and recognizing outstanding students from diverse backgrounds and experiences.

† Also for graduate students.
Applications must have current documentation (within the last three years) of a diagnosed disability by a qualified professional. Documentation will be verified through the Disability Services for Students Office and will be considered confidential. Recipients must be citizens or permanent residents of the United States. Oregon residents may be given preference and financial need will be taken into consideration. Graduating high school seniors and others with less than 30 college credits must have a high school G.P.A. of at least 2.75; students with 30 or more college credits must have a cumulative college G.P.A. at least 2.0. All applicants must meet regular admission requirements. (Office of Student Financial Aid, 174 Neuberger Hall, 503-725-3461.)

Nancy O'Rourke Tang Scholarship. Awarded to students in the School of Business at the junior level or beyond who are working toward a four-year degree, a post-baccalaureate accounting certificate, and/or a master's degree with an accounting concentration. This scholarship is restricted to returning students who have had a significant break in their education. Special consideration may be given to single-parent applicants. Both full- and part-time students are eligible. (240 School of Business Administration, 503-725-3712.)

3rd Regiment Drum and Bugle Corp Brass Scholarship. Awarded to one brass or percussion student each year. (Department of Music, 231 Lincoln Hall, 503-725-3011.)

Elizabeth and S. John Trudeau Scholarship for the Fine and Performing Arts. Annual award of at least $600 for a student entering junior or senior year enrolled in a minimum of 12 credits per term toward a degree in architecture, music, theater, or art. (School of Fine and Performing Arts, 349 Lincoln Hall, 503-725-3105.)

†UPA Memorial Award. Award is given annually to one undergraduate and one graduate student in the College of Urban and Public Affairs. (College of Urban and Public Affairs, 750 Urban Center, 503-725-4043.)

†Lucille S. Welch Art Scholarship. Full-time declared art majors at PSU who have completed a minimum of 20 credits in art courses. Selection made on the basis of portfolio, need, and GPA. Application available spring term. (Department of Art, 239 Neuberger Hall, 503-725-3515.)

Harry J. and Rhoda White Scholarship. Awarded to an outstanding, upper-division engineering or computer science student admitted to a specific degree program. (College of Engineering and Computer Science, Fourth Avenue Building, Suite 20, 503-725-4631.)

Jane Wiener Memorial Alumni Scholarship. Awarded to the son or daughter of an alumni who obtained a degree from PSU. Full tuition and fees for up to five terms of undergraduate study; documentation of financial need; community service component; minimum 2.5 G.P.A. (Alumni Relations Office, 503-725-5073.)

Phyllis Robideaux Wiener Memorial Scholarship. An award will be made to a scholar selected on merit, without regard to financial circumstances, who is a graduate of an Oregon public school, enrolled at PSU presently and returning, a junior or senior in the fall, and a political science major maintaining a minimum 3.50 grade point average in political science subjects. (Division of Political Science, 650 Urban Center, 503-725-3921.)

The Harold Zeh and The Rev. James G. Anderson Chemistry Award. City-wide award by the American Chemistry Society, Portland Section, to an outstanding student who will be graduating the following year and is majoring in chemistry. Eligibility by faculty nomination only. (Department of Chemistry, 262 Science Building 2, 503-725-3811.)

GRADUATE

Undergraduate scholarships with an (†) are also available for graduate students.

Alice Armstrong Scholarship. Awarded to the female graduate student that demonstrates the highest likelihood of becoming a business leader and role model for other professional women. Applicants must have completed at least 24 credit hours in the MBA program. (240 School of Business Administration, 503-725-3712.)

Robert Garner Cameron Memorial Scholarship. Awarded to the PSU graduate student who exemplifies Cameron's dedication to the community and his ethical business practices. (240 School of Business Administration, 503-725-3712.)

Casey Family Program Scholarship. The Casey Family Program provides one stipend annually in the amount of $6,000. To qualify for this stipend, you must be a minority student enrolled in the Graduate School of Social Work entering your second year of field placement and have demonstrated interest in work with children and families. Application deadline is March 1. (Janet Putnam, Graduate School of Social Work, 400 University Center Building, 503-725-5021.)

Graduate History Fellowships. Open to PSU graduate students in history pursuing any historical field of study. This fellowship is made possible by a generous grant from Concentrex Incorporated. Renewable for one year on condition that recipient continue to make good progress toward completion of the M.A. degree within two years of admission. (Department of History, 441 Cramer Hall, 503-725-3917.)

Graduate Studies in Early Intervention or Early Childhood Special Education. Applicants must be admitted to the Special Education and Early Intervention Program. (Special Education Program Office, 204 School of Education Building, 503-725-4632.)

† Also for graduate students.
Carl E. Green Graduate Fellowship. Awarded to a graduate student specializing in environmental/geotechnical engineering or environmental geology based on scholarship, potential success, and financial need. (Department of Civil Engineering, 128 Science Building 2, 503-725-4282.)

Elsa Jorgenson Awards. For full-time PSU graduate students majoring in English, foreign languages, and science; applicants must also receive full tuition remission from another source and demonstrate financial need. As many as two awards are given in each year that funds are available. (Office of Graduate Studies, 117 Cramer Hall, 503-725-8410.)

Robert and Rosemary Low Memorial Award. One award is given in years in which funds are available. Scholarship to give special recognition to academically qualified graduate students with physical handicaps. Student must be admitted to PSU as a regular graduate student. Selection will be made on the basis of scholarship and academic potential. Financial need may be considered, but is not a requirement. (Office of Graduate Studies, 117 Cramer Hall, 503-725-8410.)

Gladys McCoy Fellowship. This fellowship is awarded to ethnically diverse students from Oregon and Southwest Washington on the basis of financial need and demonstrated interest in policy development and child and family services. Applicants must be enrolled or admitted to the Graduate School of Social Work. (Graduate School of Social Work, 400 University Center Building, 503-725-5021.)

Minority Graduate Student Pipeline Support Fellowships. For students who intend to pursue an academic career in higher education. Each nominee must be a member of an ethnic minority group, a full-time student, admitted to a PSU graduate degree program, in good standing, and nominated by a faculty member. Funded by the Oregon University System. (Office of Graduate Studies, 117 Cramer Hall, 503-725-8410.)

James R. Nattinger Scholarship Award. Annual award to an outstanding graduate student in applied linguistics. Criteria for nomination are academic excellence and potential for scholarly contributions to the discipline of linguistics, theoretical and applied. (Department of Applied Linguistics, 467 Neuberger Hall, 503-725-4098.)

Oregon Laurels Graduate Tuition Remission Program. Annual awards of tuition credit equivalent to the instructional portion of resident graduate fees for full- and part-time PSU graduate students. Awards are merit-based. Financial need is a consideration for some of these awards. (Office of Graduate Studies, 117 Cramer Hall, 503-725-8410, or contact your major department.)

Oregon Sports Lottery Graduate Scholarship Program. Annual awards for full-time PSU master’s or doctoral students, with preference given to students in areas supported by PSU doctoral programs. All awards are merit-based; half of the awards are given to students who also demonstrate financial need. Amount and number of scholarships are dependent upon the funds available from the Sports Lottery in any given year. Nominations are accepted from the departments only. (Office of Graduate Studies, 117 Cramer Hall, 503-725-8410.)

Phi Alpha Theta Editorial Fellowships at the Pacific Historical Review. Graduate students in history at PSU are eligible to apply. Tuition waiver and monthly stipend are paid for working at the journal. (Pacific Historical Review, 487 Cramer Hall, P.O. Box 751, Portland, OR 97207.)

Ruth Renfroe Scholarship. Award based on applicant's potential to make a valuable contribution to the field of social work with the aging. Applicants must be M.S.W. students who will be entering their second year of field instruction. (Graduate School of Social Work, 400 University Center Building, 503-725-5021.)

Frank Roberts Community Service Scholarship. Awarded to a PSU graduate student who demonstrates a commitment to community or public service. Applicants must be admitted to a PSU graduate degree program, in good academic standing, and enrolled for at least 6 credit hours per term. They must also have excellent undergraduate portfolios and demonstrate financial need. (Office of Graduate Studies, 117 Cramer Hall, 503-725-8410.)

Morris and Anna Steinberg Scholarship. Awarded to a GSSW student entering their last year of the M.S.W. program. Applicants must be in good academic standing with demonstrated experience in working with immigrant or refugee populations. (Graduate School of Social Work, 400 University Center Building, 503-725-5021.)

Stoll Family Public Service Scholarship. Awarded to students who are planning a career in public service in the public, private non-profit, or government sector. Applicants must be in good academic standing with preference given to students currently working in the public, private, or governmental sectors. (Graduate School of Social Work, 400 University Center Building, 503-725-5021.)

Rose Tucker Graduate Fellowship. Awarded to graduate students in history, applicants are selected by a committee composed of a PSU history professor and employees of the Oregon Historical Society. Past graduate assistants have been assigned to work in the Oregon History Museum, the library, and the Oregon Historical Quarterly Journal. (Department of History, 441 Cramer Hall, 503-725-3917.)

Housing

College Housing Northwest, 1802 SW 10th Avenue, 503-725-4333 www.chnw.org

Housing for Portland State University students is provided through College Housing Northwest, a private, nonprofit corporation located on the PSU campus. The goal of PSU and College Housing Northwest is to provide desirable and affordable housing to students of the University. A wide range of housing is available, including small, furnished sleeper units and programs geared toward the different needs of the diverse student body of PSU. College Housing Northwest also provides living options for PSU students that are less expensive than comparable private housing options in downtown Portland.

Eleven buildings on campus and five buildings off campus are available to PSU students, offering more than 1,300 units in all. The central location of College Housing Northwest provides excellent access to all of the amenities of Portland’s urban core. Three buildings have apartments which have been modified to meet the needs of students with physical challenges, and two others are completely wheelchair-accessible. The buildings, which vary in architectural styles and floor
The more than 17,000 students who attend Portland State University form a diverse group, with many age groups and cultures represented. The great majority are Oregonians, but almost every state in the Union and 68 foreign countries are also represented. Approximately 27 percent of the students are enrolled in graduate studies.

The student population also reflects the enrollment of many older students—nearly 80 percent are in the 22-and-older age group, half are 25 years and older, and 20 percent are 35 or older. The average age of students at PSU is about 28 years.

Many students take a full load of courses while also being employed in positions either on or off campus, with over three-fourths of the students working while attending school. Forty-four percent of the students are part-time.

To be eligible for student housing, undergraduate students must successfully complete a minimum of 6 credits per term for three out of four successive academic terms. Graduate students in all units are required to complete a minimum of 6 credits per term for three out of four successive academic terms or provide documentation that they are working toward an advanced degree. Student status is checked at the beginning of every academic term and tenants are required to provide verification of their eligibility upon request.

Guest rooms for overnight visitors to the University are available on a year-round basis. Conference housing is available year round.

Incoming students are advised to make their housing plans three to six months prior to starting school at the University. Occasionally some units are available immediately, but most apartments and the residence hall have waiting lists of varying lengths. College Housing Northwest requires a $20 application fee from students before they are placed on any waiting lists. For information and a housing application, contact: College Housing Northwest, 1802 SW 10th Avenue, Portland, Oregon 97201, 503-725-4333; or (800) 547-8887, ext. 4333.

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**STUDENTS**

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**CAMPUS ACTIVITIES**

Campus-centered activities, supported by the changing resources of the city, make for dynamic and contemporary choices for the Portland State student. Most students plan their schedules to allow time to take advantage of the numerous opportunities, which may include organized cultural affairs, outdoor activities, or a multitude of other experiences available on campus or in the community. Conducting volunteer research at the Institute on Aging, finding a part-time job, or interning in city government are just a few of the opportunities. A visit to the Littman Gallery on campus, with its local and traveling exhibits, a lunch hour listening to free-form jazz at a noon concert, a presentation at the Lunchbox Theater, or an impromptu forum in the Park Blocks are among the options open to PSU students.

Opportunities exist for all levels of student involvement at PSU. Below is a sampling of currently active programs and groups. New activities are initiated continuously according to student interests.

**MULTICULTURAL CENTER**

26 SMITH MEMORIAL CENTER, 503-725-5547

The Multicultural Center is a focal place on campus that welcomes all students, faculty, staff and community members to share in dialogue and activities that further understanding among people of different cultures. The center offers a program space for events that promote appreciation for cultural diversity and serves as an informal gathering place for all members of the University's extended family. Student organizations, academic units, and community groups collaborate to offer a rich array of educational and cultural activities open to all.

**MUSIC**

Many musical organizations contribute to the cultural life of the University community. They include the PSU Piano Recital
The Music Committee works closely with the Department of Music to present weekly noon concerts. These Tuesday and Thursday programs are free and open to all. They feature exceptional student and professional performers in a variety of solo and ensemble literature. Each Wednesday and Friday at the Popular Music Board sponsors free performances by the Northwest’s finest rock and jazz musicians and hosts national musical acts as well.

Student rates are available for many other concerts, including those of the Friends of Chamber Music, Portland Symphonic Choir, Oregon Symphony Orchestra, and Portland Opera Association.

In short, music is a vital force at Portland State, providing extensive opportunities for participation to student performers and to all listeners.

PUBLICATIONS

Student publications include the Vanguard, the daily University newspaper; and The Portland State University Review, the campus literary magazine. The two publications strive to provide a service to the University community and to provide an opportunity to students to learn about the publications business.

RELIgIOUS ACTIVITIES

The Campus Christian Ministry represents eight faiths: Baptist, Christian (Disciples of Christ), Episcopal, Lutheran, Methodist, Presbyterian, Roman Catholic, and United Church of Christ. Campus Ministry is located at SW Broadway and Montgomery. There are also a variety of religious student organizations that invite participation in educational events.

The Center for the Study of Religion (CSR) at PSU has an office, library, and internet services in the basement of the Campus Ministry. CSR arranges PSU classes, as well as lectures, symposia, and forums to increase public knowledge and understanding of the religious traditions of the world, while also supporting inter-faith dialogue in the quest for meaning and wisdom.

SPECIAL EVENTS

Conferences and programs bring noted authors, actors, and political figures to campus to lecture and/or participate in group discussions. These events are organized by students and faculty working together and are open to the entire metropolitan community.

Student committees, with faculty consultation, plan and present continuing programs in film, poetry, photography, art exhibitions, and music. The Outdoor Program, World Dance office, the Women’s Union, and other student organizations provide a variety of co-curricular services. Film programs feature classics and new forms of expression, showing a caliber of excellence not often seen in popular theaters.

Special committees arrange for such events as foreign language theater and other programs in the performing arts which visit Portland State. PSU students work with representatives of the other Portland-area colleges and universities to bring the finest in cultural events to the community.

SPORTS

The Department of Athletics sponsors 17 intercollegiate varsity athletic programs, eight for men and nine for women. Men and women compete in basketball, cross-country, golf, tennis, and indoor and outdoor track and field. Other men’s programs are football and wrestling, while women compete exclusively in soccer, softball, and volleyball.

Portland State is a member of the National Collegiate Athletic Association (NCAA) and competes at the Division I level. The Vikings are a member of the Big Sky Conference in all sports except wrestling, which is in the Pac-10, and softball, which is a member of the Western Athletic Conference (WAC).

Football games are played at PGE Park in downtown Portland. Erv Lind Stadium is the home venue for PSU softball and the Tigard High School Soccer Complex serves as the backdrop for Viking soccer. Home tennis meets are held at the Eastmoreland Racquet Club and track and field events are held at Dunway Park. Indoor sports are played primarily at the Peter W. Stott Center, on campus, with selected events held at the Rose Quarter.

Free admission to all Portland State men’s and women’s intercollegiate home athletic events, with the exception of playoff games, is accorded to all PSU students who hold a valid ID card. Extra football reserved tickets are also available prior to each home game.

STUDENT GOVERNMENT—ASPSU

All students registered for at least one credit are members of the Associated Students of Portland State University (ASPSU). The ASPSU advocates for students’ interests, officially represents students before internal and external bodies, and is the vehicle through which students may participate in the governance of the University. There are many opportunities to become involved with student government at Portland State. Students may run for office, serving on the Student Senate or as president, vice president, or treasurer, or as a member of the Student Fee Committee. Students may also volunteer to work on specific-issue task forces on events such as the ASPSU Book Exchange, or be appointed to a University-wide committee to represent the student body.

THEATER

Opportunities for extensive performance and production experience are available to students through productions by the Portland State Theater Arts Department. Studio theater, graduate theses, and Lunchbox and Supperbox Theater (short pieces offered at noon and on weekend evenings) are student-directed.

All students, not just theater arts majors, are invited to audition for any departmental production. Tryouts are announced regularly in the Vanguard.

STUDENT PARTICIPATION ON FACULTY BOARDS AND COMMITTEES

Students are encouraged to share in the policy-making processes of the University by becoming members of University boards and committees. Students should contact the Office of Student Affairs which solicits names of interested persons, or ASPSU for more information regarding the nomination process.

STUDENT RIGHTS, FREEDOMS, RESPONSIBILITIES, AND CONDUCT

The policies of the University governing the rights, freedoms, responsibilities, and conduct of students are set forth in the Statement of Student Rights, Freedoms, and Responsibilities, as supplemented and amended by the Portland State University Student Conduct Code, which has been issued by the President under authority of the Administrative Rules of the Oregon State Board of Higher Education. The code governing academic honesty is part of the Student Conduct Code. Students may consult these documents in the Office of Student Affairs, 433 Smith Memorial Center.

Observance of these rules, policies, and procedures helps the University to operate in a climate of free inquiry and expression and assists it in protecting its academic environment and educational purpose.
ACADEMIC HONESTY

Academic honesty is a cornerstone of any meaningful education and a reflection of each student's maturity and integrity. The Office of Student Affairs is responsible for working with University faculty to address complaints of academic dishonesty.

The Student Conduct Code, which applies to all students, prohibits all forms of academic cheating, fraud, and dishonesty. These acts include, but are not limited to, plagiarism, buying and selling of course assignments and research papers, performing academic assignments (including tests and examinations) for other persons, unauthorized disclosure and receipt of academic information, and other practices commonly understood to be academically dishonest.

Allegations of academic dishonesty may be addressed by the instructor, may be referred to the Office of Student Affairs for action, or both. Allegations referred to the Office of Student Affairs are investigated following the procedures outlined in the Student Conduct Code.

Acts of academic dishonesty may result in one or more of the following sanctions: a failing grade on the exam or assignment for which the dishonesty occurred, disciplinary reprimand, disciplinary probation, loss of privileges, required community service, suspension from the University for a period of up to two years, and/or dismissal from the University.

Questions regarding academic honesty should be directed to the Office of Student Affairs, 433 Smith Memorial Center.

STUDENT SERVICES

The mission of the Enrollment and Student Services unit of PSU is threefold: to provide programs that facilitate and enhance student learning through intentionally connecting parts of the student experience into a meaningful whole through collaborative partnerships with faculty and other institutional agents and by bridging organizational boundaries; to enrich and complement student learning by providing opportunities for involvement in meaningful activities within the University community and the larger urban community; and to provide services that facilitate student transition to the University and remove barriers to student success.

Within the unique setting of PSU as the major metropolitan university in Oregon, student service programs, organizations, and activities serve as local points for student success, personal growth and development, multicultural understanding, community service, and leadership opportunities, as well as support the University's teaching, research, and public service mission.

The Vice Provost and Dean of Enrollment and Student Services also serves as the administrator of numerous student services and activities including the Office of Student Affairs, Career Center, Counseling and Psychological Services, Educational Equity Programs and Services, Enrollment Services, Information and Academic Support Center, Student Health Service, and Student Development.

ACADEMIC SUPPORT

INFORMATION AND ACADEMIC SUPPORT CENTER

425 Smith Memorial Center
503-725-4005

The Information and Academic Support Center (IASC) provides direct services to newly admitted and enrolled students to aid in the University's retention efforts. The IASC maintains a library of resources relevant to the needs of students and provides referral to other University services and departments. Specific programs are offered to meet the various needs of students.

General Education Requirements Advising. Students who have not declared a major are provided advising as it pertains to the University General Education Requirements. Students majoring in a department are provided appropriate referral to the advising available within the academic department. Workshops and other media resources provide needed information with individual appointments available for specific needs assessment.

Academic Support Program. Students who find themselves academically disqualified may petition to participate in the Academic Support Program (ASP). If accepted, they will receive extensive advising, monitoring and support while addressing academic deficiencies. Students are required to maintain standards which lead to increased academic performance enhancing the likelihood of success in petitioning the Scholastic Standards Committee for formal reinstatement.

Tutorial and Learning Skills Program. The Tutorial and Learning Skills Program coordinates a variety of supportive instructional and tutorial opportunities for students, including:

- A peer-tutoring program for Portland State University students who desire supplemental, individualized academic assistance in lower-division courses. Tutoring sessions are available on a drop-in basis.
- Workshops covering basic university-level skills. These workshops are open to any Portland State University student who desires further information and skill development.

These tutorial opportunities are designed to assist students who are experiencing academic difficulty because of initial anxiety about college, who find themselves insufficiently prepared for university coursework, or who have limited English-speaking ability. Returning students who need basic skill review can also benefit from tutorial assistance, as can students who face cultural and economic barriers to their educational goals. All students desiring to upgrade their academic skills are encouraged to use the tutorial services or to attend workshops.

Students can obtain services by making a direct request to the program staff or...
through faculty and special program referral.

The Tutorial and Learning Skills Program also offers tutor training and supervised tutoring experience to upper-division and graduate students who have a minimum 3.00 GPA in the subject area in which they wish to tutor. Tutoring can be done voluntarily, through the College Work-Study Program, or for credit. Training is required and can be completed through special tutor training workshops.

The program fosters academic success through individualized attention. Its peer-tutoring program helps personalize the university experience, opens channels for cultural exchange, and presents a valuable opportunity for students to become involved in one another’s intellectual growth and social development.

Students who need tutorial assistance or who are interested in becoming a tutor are encouraged to contact the Program’s staff.

COMMUNITY COLLEGE RELATIONS, 425 SMITH MEMORIAL CENTER, 503-725-8387

The Community College Relations Office responds to the needs of students transferring to PSU from community college by providing advising and transition assistance. PSU recognizes that transfer students often have unique needs and situations. The office also acts as a liaison for community college personnel, providing information, updates, and assistance in the development of collaborative educational opportunities.

Co-admission programs, currently in place with Clackamas Community College and Mt. Hood Community College, help ease the transition from community college to the University. Co-admitted students have access to PSU academic advising, library privileges, and, if qualified, financial aid for both PSU and community college courses.

DISABILITY SERVICES FOR STUDENTS, 425 SMITH MEMORIAL CENTER, 503-725-4150, TDD 503-725-6504

Disability Services for Students (DSS) is a University resource promoting barrier-free environments (physical, program, information, attitude), which means ensuring the rights of students with disabilities and assisting the University with meeting its obligations under federal and state statutes.

Disability Services for Students works to ensure access to University courses, programs, facilities, services, and activities by documenting disabilities and providing or arranging reasonable accommodations, academic adjustments, auxiliary aids and services, training, consultation, and technical assistance. Students who have a disability are encouraged to contact DSS for further information.

MENTOR PROGRAM FOR RETURNING WOMEN STUDENTS 425 SMITH MEMORIAL CENTER, 503-725-5471

The PSU Mentor Program for Returning Women Students provides support and information to women returning to college after an interruption in their formal education because of family and/or work responsibilities. The program is a resource for women at both the undergraduate and the graduate level. Any returning woman undergraduate new to PSU can be matched with a trained student mentor. In addition to matching individual women with student mentors, the program also sponsors weekly drop-in support groups, hosts special orientations for potential new students, and offers specific activities for graduate students. The Mentor Program also assists women who are planning to return to college and works with local community college programs to encourage returning women students to consider a bachelor’s degree as an educational goal and to facilitate their transfer to PSU.

STUDENT ATHLETE ACADEMIC ADVISER, 224 PETER STOTT CENTER, 503-725-2387

Student athletes coming to PSU will be able to work directly with an adviser to assist them in academic advising and scheduling. Referral, advocacy, problem solving and monitoring of progress for those with academic difficulty are also available.

VETERANS’ SERVICES 425 SMITH MEMORIAL CENTER, 503-725-3876

All veterans applying to Portland State University are encouraged to take advantage of the services and opportunities open to them. Veterans’ Services provides extensive academic counseling, and welcomes the opportunity to aid PSU veterans in any University-related problem they may encounter. The Veterans’ coordinator is available in 118 Smith Memorial Center, 503-725-3876. In addition, the personnel welcome the chance to talk informally with veterans about any aspect of federal veterans’ benefits.

Certification for VA Benefits. Veterans intending to use their education and training eligibility at PSU should obtain proper certification forms from the Veterans’ Clerk in the Registrar’s Office (503-725-3411). This process should be started at least one month prior to registration.

Portland State is approved for the training of veterans under Title 38, U.S. Code, Section 1501 (for disabled veterans), Section 1651 (Veterans’ Readjustment Benefits Act of 1966), and Section 1700 (Survivors and Dependents Educational Assistance).

Tutoring. For some veterans, tutorial funds are available. Basic requirements of the program are that the veteran be enrolled for at least 6 credits and be receiving VA educational benefits.

EDUCATIONAL EQUITY PROGRAMS AND SERVICES, 425 Smith Memorial Center, 503-725-4457

Educational Equity Programs and Services (EEPS) manages various programs and services that increase access for, and improve the retention of, students from low-income, ethnic, and other disadvantaged groups that are underrepresented in post-secondary education. This office also administers scholarships for underrepresented students and provides general advising, advocacy, and counseling for ethnic students.

DIVERSITY ACHIEVEMENT SCHOLARSHIPS/UNDERREPRESENTED MINORITIES ACHIEVEMENT SCHOLARSHIP PROGRAM/PORTLAND TEACHERS PROGRAM

Students admitted to PSU who are recipients of the Underrepresented Minorities Achievement Scholarship Program, the Portland Teachers Program, and the Diversity Achievement Scholarships are provided tuition waivers and support services through a special advisement component of the Educational Equity Programs and Services unit. Applications are accepted in February for first-time freshmen and transfer or continuing college students with 30 or more college credits. Applications may be accepted throughout the year, depending on availability of funds.

The recipients receive academic advising, advocacy, priority registration, tutoring, one-on-one counseling, and mentoring, and may participate in informational and social group activities. In addition, the students’ academic progress is monitored from term-to-term to promote academic success.

ETHNIC STUDENT SERVICES

Students who prefer advising and counseling from a multicultural staff can obtain these services from staff in EEPS. An ethnic student adviser assists underrepresented students—primarily students of American Indian heritage. In addition to meeting individually with students, the adviser provides guidance to several American Indian organizations on campus, such as the United Indian Students in Higher Education and the campus chapter of the American Indian Science and Engineering Society. The adviser also participates in outreach activities.
PROJECT CONNECT: MENTORS FOR NEW STUDENTS, 425 SMITH MEMORIAL CENTER, 503-725-8031
Project Connect, a mentoring project for new students, matches students who are new to Portland State with successful junior and senior students ("student guides"). These student guides help new students, especially those who are first generation college students, adjust to university life and provide the initial and important individual connections to the campus. Student guides, in turn, develop leadership and mentoring skills and are "connected" to faculty mentors.

STUDENT SUPPORT SERVICES, EDUCATIONAL OPPORTUNITY PROGRAM (SSS/EOP), 438 SMITH MEMORIAL CENTER, 503-725-3815
SSS/EOP is Portland State University's federally funded academic and personal support services program. It is designed to provide special assistance to those who have traditionally had limited access to a college education. Specifically, students who are low-income, who have a disability, or whose parents did not graduate from college can receive assistance from SSS/EOP if they have a need for academic support. The program provides counseling, skill development courses, and tutoring that is designed to help the student achieve his or her educational goals.

The program's goal is to provide support services that will facilitate an increase in the retention and graduation rates of program eligible students who, historically, have a higher attrition rate than most students.

Students should consider applying for the Student Support Services/Educational Opportunity Program if they feel they will benefit from the additional academic and personal support the program provides. Only admitted PSU students can apply for participation in SSS/EOP. Applicants will be selected on the basis of their need for the educational services SSS/EOP provides and their desire to fully participate in the program's activities. Once selected, participation is voluntary and determined by the individual needs of the student. Students interested in SSS/EOP are invited to contact the SSS/EOP office.

Student Support Services/EOP is a U.S. Department of Education Title IV TRIO program.

TALENT SEARCH: PROJECT PLUS PROGRAM, 219 SHATUCK HALL, 503-725-4438
The PSU Project PLUS program is the latest of the TRIO programs at the University. The program serves over 600 students at Cleveland, Franklin, and Marshall high schools and Whitaker, Hosford, Lane, and Binnsmead middle schools in Southeast Portland, and Glencoe, Century, and Hillsboro high schools and Thomas and Poynter junior high schools in the Hillsboro School District. The program is designed to increase the number of diverse, underserved students continuing in and graduating from middle and secondary schools. It seeks to increase the number of these students enrolling in postsecondary education. Students in this program will have access to free services provided by professional role models and educational advisers in the areas of motivation, career and college information, leadership skills, technology skills, mentoring, and tutoring as needed. Students are assisted with admissions and financial aid preparation for post-secondary study.

UPWARD BOUND PROGRAM, 239 SHATUCK HALL, 503-725-4010
The PSU Upward Bound Program supports student academic success in high school and develops the skills and motivation necessary for entry into post-secondary study among low-income and potential first-generation college students who are enrolled in high school.

To be eligible, students must:
- Be enrolled in 9th through 11th grade at Franklin, Grant, Jefferson, Lincoln, Madison, Marshall, Benson, or Wilson High School in Portland.
- Come from a low-income family in which the parents did not graduate from a four-year college.
- Be in need of academic assistance.
- Have a desire to pursue higher education.

PSU's Upward Bound Program offers:
- Preparation for postsecondary education
- Assistance from tutors during the academic year, instruction in math, science, and English language
- Individual and group counseling
- An intensive six-week nonresidential summer program (one week is a residential Outdoor Learning Lab)
- Assistance in completing college admissions and financial aid applications
- Special workshops, field trips and college visits
- Incentives: stipend checks, awards, bus tickets, high school credit

STUDENT DEVELOPMENT

443 Smith Memorial Center
503-725-4432

In the program area of Student Development, student organizations, committees, and a staff of advisers in the Office of Student Development work together to provide PSU students with:
- Student participation on campus and in the metropolitan community
- Resources and expertise for campus cultural, academic, recreational, and community service programs
- An open atmosphere for student dialogue, debate, experimentation, and action on problems and issues affecting the University and the wider community
- Specific services such as bulletin boards and displays for University and community announcements, scheduling and coordination of all student events, and a contact point for independent student clubs and organizations
- Opportunities for out-of-class learning and applied experience which compliments in-class learning
- The student locker rental program and the University lost and found program are administered through the information desk on the first floor of Smith Memorial Center.
- Community-service and leadership activities on and off campus.

All students within the University are encouraged to participate in Student Development activities as members of student boards and committees. These activities give students opportunities to sharpen their skills in leadership, budgeting, programming, communication, and relations with the public.

Art Exhibition Committee / 250A
SMC / 503-725-3656
Juried art shows featuring local and traveling exhibits is coordinated by students. Paintings, sculpture, prints, ceramics, and graphic design are shown in the Littman Gallery of Smith Memorial Center. Photographs are exhibited in the White Gallery, also on the second floor of Smith Center. A program of art education, including gallery talks and studio visits, accompanies the exhibitions.

Association of African Students / 449
SMC / 503-725-3659
The AAS promotes fellowship and cultural exchange among its members and organizational affiliates. Activities are aimed at increasing and enhancing the understanding of the economic, political, social, and cultural issues of Africa.

Black Cultural Affairs Board / 26A
SMC / 503-725-5660
The Black Cultural Affairs Board (BCAB) is one result of the efforts of the black community, black students, and Portland State University to address the needs of black students on the University campus. The purpose of the Black Cultural Affairs Board is to provide educational and cultural enrichment, with primary emphasis on the black experience for PSU students and community residents.
In addition to its theatrical productions, art exhibits, dances, speakers, debates, etc., the BCAB also provides resource information about student services to help incoming and returning black students accustom themselves to the logistics of the University. It is the goal of the Black Cultural Affairs Board to create an environment that makes the attainment of knowledge possible and gratifying for all students and to support the associated needs of black students.

Chiron Studies / 451 SMC / 503-725-5662. Chiron Studies is a student-run program which provides incentive and support for students to teach University courses, with faculty sponsorship, which are not offered by the academic departments. Stop by to learn more about Chiron or to discuss an idea for a course you would like to teach.

Club Sports / 443 SMC / 503-725-5663. Administered by students, the Club Sports program is designed to provide students with the opportunity to compete in sports including water polo, tennis, table tennis, taekwondo, volleyball, and soccer. Clubs travel regionally and provide an excellent basis for improving one’s knowledge of a sport.

Dance / 442 SMC / 503-725-5670. The World Dance office sponsors a wide variety of local, international, and national guest artists. Featured artists perform in short and long workshop format. Events are offered at a nominal cost to students.

Students with Disabilities Union / 435 SMC / 503-725-5664. The Students with Disabilities Union is coordinated and staffed by students who provide the PSU community with disability/ability programs and advocacy to eliminate attitudinal and architectural barriers to academic achievement. There is no charge or disability requirement to be an SDU member. The SDU offers advocacy, awareness seminars, complaint forms, procedures, and referrals.

Film / 510 SW Hall / 503-725-4470. The PSU Film Committee presents entertaining and edifying films, foreign and domestic, to students and the public throughout the year at the Fifth Avenue Cinema.

KPSU/S18E SMC/503-725-5669. KPSU, 1450 AM, provides students with an educational opportunity to learn about radio broadcasting. KPSU is Portland’s only city-wide college radio programming, which makes it a unique experience for students, the University, and the community. KPSU is on the air 365 days a year from 5 p.m. to 2 a.m.

La Raza / 448 SMC / 503-725-5665. La Raza is an umbrella for two student groups: Mecha, which focuses on the Mexican-American community; and Mujeres, which addresses the needs of Latino/Chicano women. La Raza provides students with the opportunity to learn about Chicano and Latino cultures with a variety of programs including speakers, films, traditional celebrations, and weekly meetings. The program maintains a close link with the Latino and Chicano communities of Oregon.

Literary Arts Council / 442 SMC / 503-725-5666. The Literary Arts Council brings poets and fiction writers of national and international stature to campus for readings and hosts writing workshops.

Music Committee / 442 SMC / 503-725-5666. The Music Committee works closely with the Department of Music to present weekly noon concerts. These Tuesday and Thursday programs are free and open to all. They feature exceptional student and professional performers in a variety of solo and ensemble literature.

OSPIRG / SB21 SMC / 503-725-4500. The Oregon Student Public Interest Research Group at PSU is part of a statewide research effort operating at several colleges and universities. The group investigates such areas as consumer and environmental protection, concentrating on local problems.

Outdoor Program / 114 SMC / 503-725-5668. This program provides students, faculty, and staff with the opportunity to take part in outdoor activities including team-led kayaking, canoeing, rafting, camping, wilderness hiking, cross country skiing, and snow camping trips. The program maintains an extensive inventory of outdoor equipment which students, faculty, and staff may rent for a small fee. Educational programs include films, lectures, demonstrations, etc.

Popular Music Board / 452 SMC / 503-725-5661. PMB sponsors weekly concerts every Wednesday and Friday at noon, featuring the top rock and jazz groups in the Northwest. In addition, special concerts featuring internationally acclaimed artists are presented periodically in the University’s auditoriums. PMB strives to present excellent musicians and a wide spectrum of popular music, including rock, new wave, blues, reggae, Latin, funk, and jazz.

Queers and Allies / 441A SMC / 503-725-5681. The Q&A provides a supportive environment for lesbian, gay, and bisexual students. It also acts as an advocate for sexual minority students and promotes gay, lesbian, and bisexual visibility through activism and educational programs.

Speakers Board / 446 SMC / 503-725-5654. The Speakers Board is a student-faculty committee which brings to campus high-caliber speakers of broad appeal to students, faculty, and staff. Each term the board selects a guest speaker. Listeners have included nationally known politicians, economists, journalists, poets, and others. Persons who would like more information about the board may call 503-725-5654 or drop by 446 Smith Memorial Center.

Students Building Better Communities / 47B SMC / 503-725-5657. This organization assists students in finding volunteer opportunities and placements in the Portland metropolitan area.

Student Organization Committee / 451 SMC / 503-725-5657. The Student Organization Committee assists student organizations with operation and registration with the University. Resources the SOC can provide to registered groups include up to $400 of financial support for programs.

Student Recreation Program / Peter W. Stott Center/ 503-725-5127. The Student Recreation Program is a student fee funded organization that provides recreational time in the Peter W Stott Center. The Student Recreation Program operates the weight room, circuit room, natatorium, intramural leagues, open gym time, and other recreational services provided in the Peter W Stott Center. Students with valid PSU identification may use any of the services for free or for a nominal charge. Recreation hours change on a term by term basis.

United Indian Students in Higher Education / 439 SMC / 503-725-5671. UHSE provides information and programs concerning Native American customs, traditions, history, and literature to PSU students. Annual events include a Salmon Bake and a series of Pow Wows. UISHE works closely with many Indian organizations in the community in order to have as many tribes as possible represented at its celebrations.

Women’s Union Resource Center / 28 SMC / 503-725-5672. Developed by and for women students, the union sponsors cultural, social, and academic activities. The union also acts as a referral center for needs such as child care, community services, and scholarship information. The office is a place to study, relax, and meet friends. Volunteers are welcome as office staff and organizers of union events.

GREEK SYSTEM
The PSU fraternities and sororities encourage scholastic achievement as well as promote leadership and teamwork.

Campus chapters of social sororities are Alpha Chi Omega, Delta Chi Sigma, and Phi Sigma Sigma. Fraternities include Kappa Sigma, Phi Delta Theta, and Tau Kappa Epsilon. For further information, contact the Office of Student Development, 503-725-5654.
HONORARY, PROFESSIONAL, SOCIAL AFFILIATIONS
Portland State has chapters of the following honorary and professional organizations:

Alpha Phi Sigma
Administration of Justice
Contact: Annette Jolin, Department of Administration of Justice
Students must have completed one-third of the credits necessary for graduation, have a 3.20 GPA in administration of justice, and have a 3.00 cumulative GPA.

Beta Alpha Psi
Accounting
Contact: Mike Henton, School of Business Administration
Students must have taken the first term of intermediate accounting, have a 3.00 GPA overall and a 3.00 GPA in accounting.

Beta Gamma Sigma
Business
Contact: Tom Gillpatrick, School of Business Administration
Students must be in the upper five percent of the junior class, the upper 10 percent of the senior class, or the upper 20 percent of master's candidates.

Delta Pi Epsilon
Business Education
Contact: Rosanne Mohr, School of Business Administration
Students must have a 3.00 GPA in 12 hours of graduate work in business teacher education.

Eta Kappa Nu
Electrical Engineering
Contact: Lee Casperson, Department of Electrical Engineering
Students must be in the upper quarter of the junior class, the upper third of the senior class, or the upper half of M.S. or Ph. D. candidates.

Financial Management Association Honors Society
Finance
Contact: Beverly Fuller, School of Business Administration
Students must have a 3.00 GPA overall, 90 credits at PSU, and have taken FinL 358 or 359. Student must have 3.00 GPA in finance classes.

Golden Key National Honorary
Overall, discipline, general honorary
Contact: Duncan Carter, Department of English; Susan Hopp, Student Development
Students must be in the top 15 percent of their junior or senior class, full- or part-time and traditional or nontraditional students are eligible.

Human Resource Management Association
Human Resource Management
Contact: Alan Cabelly, School of Business Administration
Membership is open to any undergraduate or graduate student with an interest or emphasis in human resource management. The student chapter is affiliated with the Portland chapter of the Northwest Human Resource Management Association and the national organization of the Society for Human Resource Management.

Iota Sigma Psi
Women in Chemistry
Contact: Carol Gatz, Department of Chemistry
Students must have a 3.00 GPA overall, a 3.00 GPA in chemistry, and one year in advanced chemistry beyond organic chemistry.

Kappa Delta Pi
Education
Contact: Lorey Hales, School of Education
School of Education graduate level students must have completed a minimum of 30 graduate-level credits at Portland State University in an approved certificate and/or master's degree program or a minimum of 18 graduate-level credits at Portland State University in an approved program for the Doctor of Education. Students must have an overall GPA of no less than 3.75 on graduate-level hours, exemplify worthy educational ideals, express an intention to continue in the field of education, manifest desirable personal qualities, and give evidence of leadership attributes.

Mu Phi Epsilon
Music
Contact: Marilyn Shotola, Department of Music
Students must be music majors or minors, have a 3.00 GPA in music, and show promise in music and service.

Phi Alpha Theta
History
Contact: Thomas Luckett, Department of History
Students must have 15 credits in history, with a 3.00 GPA, have a 3.00 GPA in courses in history classes.

Phi Kappa Phi
Overall disciplines-general honorary
Contact: Office of Student Development
Students must be in the top 5 percent of the senior class or in the top 5 percent and in the third term of the junior class. Students must have a 4.00 GPA.

Phi Sigma Iota
Foreign Languages
Contact: Sowako Watanabe, Department of Foreign Languages and Literatures
Students must be juniors and foreign language majors and have a 3.00 GPA in foreign language. Students must undergo an interview in the language.

Pi Mu Epsilon
Mathematics
Contact: Leonard Swanson, Department of Mathematical Sciences
Students must have two years of college-level mathematics, including calculus, a 3.00 GPA in mathematics, and be in the top third of their class overall. Sophomore students may join if they have five terms of college-level mathematics, including two terms of calculus. They must have a 4.00 GPA, and be in the top fourth of their class overall. Graduate students must have mathematical work at least equivalent to that required of the undergraduate and have maintained a 3.00 GPA in mathematics during their last school year prior to their election.

Pi Sigma Alpha
Political Science
Contact: David Smeltzer, Department of Political Science
Students must be graduating seniors and have a 3.50 GPA in political science.

Sigma Xi
Scientific research society of North America
Must be a major in a discipline that can be classified as a science, be it a natural science or a social science.
Contact: Thomas Hard, Department of Chemistry
Students must be invited to join and must have the sponsorship of two regular (faculty) members. Students must demonstrate an ability to do scientific research and indicate the potential of future scientific work.

Tau Beta Pi
Engineering Honor
Contact: Herman Migliore, Department of Mechanical Engineering
Students are scholastically eligible if their overall GPA is in the top 20 percent for juniors, 20 percent for seniors, and 12.5 percent for graduate level. The student chapter will also evaluate candidates for other factors such as minimum number of PSU credits and potential for active membership.

STUDENT LEGAL SERVICES
401C SMITH MEMORIAL CENTER, 503-723-4556
Confidential, professional advice and counseling on a wide range of legal issues is available through Student Legal Services. The attorney and staff are qualified to provide students with assistance in understanding and dealing with legal problems they may encounter. The office also maintains a resource file of community agencies and referral services.
This office also offers mediation services for students who want an alternative process for resolving disputes in a constructive, non-adversarial atmosphere. The goal is to provide a safe, neutral environment where students can come to resolve conflicts with other students, other members of the PSU community, or the community at large.

CHILD CARE RESOURCES
HELEN GORDON CHILD DEVELOPMENT CENTER
1609 SW 12TH AVENUE, 503-723-3092
The Helen Gordon Child Development Center is a University-operated service that provides a quality educational laboratory preschool/extended day program for children two to six years of age. The center is accredited by the National Academy of Early Childhood Programs, a division of the National Association for the Education of Young Children. The center is open from...
7:30 a.m. to 5:30 p.m. daily. Children of PSU students, faculty, and staff are eligible for enrollment in the program. Enrollment is based on the date of application. As a laboratory preschool/extended day program, the center enables students from education, psychology, and related fields to complete course requirements through observation, practicum, or research activities at the center. Interested students should contact the center's office.

**ASPSU CHILDREN'S CENTER**
126 SMITH CENTER
503-725-2273
The Children's Center provides child care for children (ages 3 through 9) of students, staff, and faculty on a part-time, flexibly scheduled basis. This facility is for part-time care, and time may be scheduled in blocks of up to four hours a day with a maximum of 20 hours of care per week. The Children's Center is fully licensed and staffed by professionals. Call 503-725-CARE for information and enrollment procedures.

**STUDENT PARENT SERVICES**
118 SMITH MEMORIAL CENTER,
503-725-5655
Student Parent Services (SPS) is a resource and referral, networking and educational center designed to help student parents manage their roles and responsibilities as both parents and students. SPS services include the PSU Child Care Cooperative (a networking service), parent education classes, workshops and materials; and child care information, education and referral. SPS also provides individual consultation. SPS is funded through Incidental Fees and there is no charge for direct services. Student parents can use SPS by calling 503-725-5655 or dropping by the SPS office in room 401D, SMC.

**COUNSELING AND PSYCHOLOGICAL SERVICES**
M343 Smith Memorial Center,
503-725-4423
Counseling and Psychological Services (CAPS) provides assistance to PSU students in the following areas:
- Crisis counseling
- Brief individual, couple or family counseling, group counseling, general and topic specific, psychiatric assessment and treatment, including medication
- Career counseling including testing
- Screening for learning disabilities
- Stress management
- Test anxiety
- Alcohol and other drug use assessment, education and referral

These services are available to students taking 9 or more credits during the regular academic year. Students taking 4-8 credit hours who wish to be eligible for CAPS and Student Health Services, may become so by paying the Health Fee within the first 15 days of the term. During Summer Session, students taking 1 or more credit hours are eligible for services.

CAPS also offers a testing service that coordinates national tests (LSAT, MCAT, GRE, GMAT) and administers other admissions, aptitude, and specialty tests. The service is available to PSU students and to members of the greater community. There are fees for testing which vary depending on the test.

The CAPS Outreach/Consultation Program sponsors various workshops through the year on topics of general and specific interest; these are well advertised and are usually open to students and community members. Consultation services (e.g., training, mediation, conflict resolution, program development) are available to students and faculty in groups or individually.

To learn more about our services or to take advantage of a specific service, call or come by the CAPS office Monday through Thursday, 8 a.m. to 6 p.m., and Friday, 8 a.m. to 5 p.m. to make an appointment. Walk-in appointments are available.

**STUDENT HEALTH SERVICE**
D4 Neuberger Hall,
503-725-3462
Student Health Services is staffed by physicians and nurses who are available for diagnosis, treatment, consultation and referrals for illnesses and injuries. Women's health care is available for annual gynecological exams, pap smears, family planning counseling, and contraception. The Student Health Service is an outpatient facility open 8 a.m. to 6 p.m. Monday through Thursday and 8 a.m. to 5 p.m. Friday.

Each term Student Health Services offers a variety of physical assessment screens, lectures and workshops that address health-related issues. These events are advertised on bulletin boards around the campus. A wellness resource center and a self help clinic are available and provide educational material and assessment tools on health-related issues pertinent to students. Assessments and counseling are available to assist students to live a healthier lifestyle.

Health Services and Counseling and Psychological Services work closely to enhance the students' educational experiences by recognizing the importance of maintaining physical and mental health at the optimal level.

Students taking 9 or more credits fall, winter, and spring terms are eligible for services, and a basic health insurance program is provided. Students taking 4-8 credit hours may pay the health fee within 15 days of the beginning of the term. Included in the basic benefits are partial payments for hospitalization, physicians' home and office visits, ambulance service, diagnostic work, surgery, and pregnancy expenses. An optional supplementary insurance, available at extra cost, covers major medical and dependent care.

Insurance coverage is available for students during summer session, even if they are not enrolled, providing that they were eligible spring term. Students eligible spring term and who are returning fall term may use the Health Services on a fee-for-service basis during the summer. Basic insurance is not automatic during Summer Session. It must be purchased individually by the student taking one or more credits.

Pamphlets explaining the insurance coverage and insurance forms are available in Health Services. Questions regarding insurance benefits may be directed to Health Services at 503-725-3462.

PSU is not responsible and will not pay bills from physicians, hospitals, and laboratories incurred by the student contrary to the provisions of the prepaid medical plan. For further information regarding services, call or come by Student Health Services.

**CAREER CENTER**
402 University Services Building
503-725-4613
www.career.pdx.edu
The Career Center offers assistance to Portland State University students (who are formally admitted and registered for classes) and alumni. Services and resources include:
- Individual career and job search counseling
- Workshops and individual assistance on career decisions, resume writing, interviewing, and job search strategies
- An extensive career library and home page with information on careers, internships, employers, and job-search resources
- An on-campus recruiting program in which students interview with employers, both public and private
- PSU CareerNet, an on-line service featuring full- and part-time job listings
- Placement file/dossier service for educators
Off-campus part-time or temporary employment for eligible students (see listing for Student Employment).

Off-campus Federal Work-Study Community Service, “America Reads” and “America Counts” programs.

Annual Career Information Day in February and Part-time/Summer/Temporary Job Fair in April.

Portland-area Peace Corps office.

Workshops are offered regularly to assist students with career decision making, resume writing, interview preparation, and effective job seeking techniques. Appointments may be arranged to discuss career plans, employment opportunities, resumes, and application materials. Practice interviews with video-taped feedback may be scheduled.

The Career Center library contains career information as well as information on employers in both the public and private sectors, in print, on videotape, and via the Web. Also available for use at any time are employer directories, school and college vacancy notices, information concerning employment trends and patterns, and job-seeking techniques, including sample resumes and letters of application.

For further information, contact the Career Center or visit the Web site: www.career.pdx.edu.

STUDENT EMPLOYMENT, 402F UNIVERSITY SERVICES BUILDING, 503-725-4938

Student Employment provides referrals to internships and part-time, temporary, and summer jobs off campus, including Federal Work-Study Community Service positions. Many employment opportunities are degree-related and most jobs offer flexible hours, often within walking distance from campus. Referrals may be obtained by using PSU CareerNet, an online career and job information service, or by stopping by the Student Employment Office during office hours. Some employers also arrange employment interviews with students in the Career Center. Check PSU CareerNet regularly, as job postings and employer interview schedules change daily.

UNIVERSITY SERVICES

More than 17,000 students attend Portland State—each one with a special set of circumstances, concerns, interests, and aims. Finding the right people to answer questions and provide help and support is made easier by organizations and channels set up to respond to the various needs.

ACCESSIBILITY

Accessibility is the keynote of Portland State: the campus is on the edge of downtown Portland and within the freeway loop.

Tri-Met, the local transit agency, serves the three counties—Multnomah, Washington, and Clackamas—which make up metropolitan Portland. Tri-Met tickets and passes are available at Transportation and Parking Services, the new Transportation Center in the Urban Center Building, and at numerous other locations throughout the city. Monthly passes entitle riders to unlimited travel and transfer privileges and offer a reduction over the purchase price of individual fares. The Portland metropolitan area is divided into zones which determine the price of monthly passes. Park and Ride Stations, located throughout the suburban areas, allow commuters to park their cars and ride the bus into the city. The campus is within Fareless Square, a large section of downtown Portland within which bus travel is free.

Wheelchair and bicycle paths, and parking areas for bicycles, are located throughout the campus. Automobile parking is provided in permit-only structures, surface lots, limited short-term meters, and on-street city metered spaces.

The campus offers special programs for carpools, disabled parking, and others with special needs.

For more detailed information on transportation, parking, or securing a permit, inquire at the Parking Office, 503-725-3442.

AFFIRMATIVE ACTION OFFICE
503-725-4417

It is the mission of the Affirmative Action Office to: (1) promote a campus environment that supports and celebrates the diversity of the PSU community; (2) ensure a good faith affirmative action effort and equal opportunity in all aspects of employment; and (3) ensure fair and equitable treatment for all PSU community members.

To accomplish this mission, the office provides the following services: complaint processing and investigation; campus recruitment facilitation; Affirmative Action Plan development; and workshop and event development for students, staff, and faculty in employment and diversity-related areas.

For more detailed information about our functions and policies, including grievance procedures and the sexual harassment policy, contact the office by phone at 503-725-4417, TTY 503-725-6503, or via the Internet at http://www.afm.pdx.edu. The Affirmative Action Office is located in 122 Cramer Hall and is open Mondays through Fridays from 8 a.m. to 5 p.m.

BOX OFFICE/TICKETMASTER
503-725-3307

The Box Office is located at 510 S.W. Hall Street. Tickets are for sale to PSU cultural events and activities, as well as to intercollegiate athletic home events. This office also serves as a Ticketmaster outlet where tickets to most major events and performances occurring in the metropolitan area may be purchased.

CAMPUS PUBLIC SAFETY OFFICE
503-725-4407

The Campus Public Safety Office is located adjacent to Shattuck Hall at SW Broadway and College streets. The office is open year-round, 24 hours a day to assist with personal safety, crime prevention, escort services, and limited vehicle services, and to provide general University information. Public safety officers patrol the campus continually to assure a safe and comfortable environment.
A copy of PSU's annual Public Safety Report including statistics and other pertinent information is available at the Public Safety Office or at www.cso.pdx.edu.

**INFORMATION TECHNOLOGIES**

503-725-4441

The Office of Information Technologies provides support for computing, voice, and data communications, multimedia, and television and audio visual services. The Office of the Executive Director is located in 445 Neuberger Hall. Information Technologies consists of the following areas:

**Computing and Network Services** (Shattuck Hall Annex) operates and maintains all centralized computer systems, the campus network, and Internet-2 connection, providing support for the academic and administrative functions of the University and specialized applications such as Portals (Portland Area Library System), UNIX, the campus library system, and the World Wide Web.

**Information Systems** (120 Shattuck Hall) supports the campus administrative enterprise. Systems include the full suite of SCT/Banner software (financial, human resources, student systems), data warehouse, and touchtone applications.

**Help Desk** (18 Smith Memorial Center) provides assistance in the use of hardware and software and issues accounts to students for Internet access and electronic and software and issues accounts to students for Internet access and electronic

**Instruction and Research Services** (B18 Smith Memorial Center) consists of Academic Consulting, Educational Media Services, the Instructional Computing Center, the University Micro Labs, and the University Studies Labs. The University Studies Labs (first and second floors, Cramer Hall) provide access to microcomputers in the support of the University Studies Program. University Micro Labs (UML) are general access microcomputer labs available for student use with current ID. Labs are located in 107 Shattuck Hall, 112 Shattuck Hall, and the Millar Library. UML facilities consist of both Intel based (Windows) and Macintosh desktop computers and laser printers. Other microcomputer labs maintained by the Office of Information Technologies such as the Universities Studies Labs, the Training Labs (321 Cramer Hall) and the Learning Labs (96 Neuberger Hall) are available for general student use when not scheduled for classroom use. The Instructional Computing Center (ICC) maintains labs for specialized applications such as the CAD/GIS Lab and the Electronic Conference Room.

ICC also provides technical support for Hoffmann Hall.

Educational Media Services consists of Audio Visual Services (B18 Smith Memorial Center), Television Services (501 Neuberger Hall), and Multimedia Development (B18 Smith Memorial Center). Audio visual material may be checked out to support classroom or campus-related activities. Television Services is responsible for the production and distribution of television support material, including support of on-campus distance education classrooms and delivery of distance learning presentations. Multimedia Development provides advice and technical assistance in the development and use of multimedia presentations and material.

**Hoffmann Hall** is Portland State University’s new high-tech classroom facility. It was designed to accommodate large classes without sacrificing the interaction between instructor and student by the use of cutting-edge multimedia technology. Three large rear-projection screens are visible from anywhere in the hall, giving the instructor the choice of projecting video, film, television, slides, computer presentations or a combination of any of the above. Combined with a powerful sound system and touch-screen that controls all functions including lighting and shades, the instructor has almost an unlimited number of options to present course material to as many as 400 students. When not scheduled for classroom use, the hall can be rented for a multitude of functions. Auxiliary Services can help with scheduling Hoffmann Hall. Additional information can be obtained from the Information Technologies home page (http://www.ot.pdx.edu/).

**Telecommunications** (M107F Smith Memorial Center) provides the University, including student housing, with telephone services including data connections and support to other Oregon University System (OUS) facilities located in the Portland metropolitan area.

**LIBRARY RESOURCES**

503-725-4617

The Portland State University Library is located on the west side of the park blocks, across from Neuberger Hall and next to the Health and Physical Education Building. The Branford P Millar Library, named in honor of PSU’s president from 1959 to 1968, was dedicated on May 10, 1975. A major addition which nearly doubled the size of the original building was dedicated on November 3, 1991.

During fall, winter, and spring terms the library is open Mondays through Thursdays, 8 a.m. to midnight; Fridays, 8 a.m. to 7 p.m.; Saturdays, 10 a.m. to 7 p.m.; and Sundays, 11 a.m. to midnight. In addition, the library is open extended hours to PSU students, faculty, and staff with PSU photo ID cards. These hours are Mondays through Fridays, midnight to 8 a.m. For up-to-date information on library hours, including changes during breaks and holidays, please call 503-725-3065 or check the PSU Library homepage at www.lib.pdx.edu.

To borrow material from the library it is necessary to have a valid PSU photo identification card. Bring this card to the library's Circulation Desk on the ground floor where you will be entered into the library's automated circulation system.

Library resources consist of more than one million volumes, including approximately 10,000 serial subscriptions, a growing number of CD-ROM and on-line computer databases, and an extensive collection of government documents. Music recordings and scores are also housed in the library.

The library issues a number of information guides to instruct and assist library users. These are available from display racks throughout the building.

Access to the library's collection is through an on-line catalog which lists about 90 percent of the books and other resources. The missing 10 percent consists mainly of books, media, and non-Roman alphabet materials cataloged prior to 1977, which are listed in the card catalog. Terminals connected to the on-line catalog's computer are located on the ground floor and elsewhere in the library. The catalog can also be searched by using personal computers from remote locations via the Web. For details obtain a copy of the information bulletin titled "How to use the PSU On-line Catalog."

The organization of the library is based on four divisions, each devoted to a general subject area. The divisional libraries offer a reference desk, open shelving of all books and periodicals, photocopy machines, and special equipment for using microform materials. The divisions are:

**Business and Government Documents (Basement).** Accounting, business administration, career development and resume writing, consumer information, economics, finance, government publications, law, management, statistics, taxation, and a collection of telephone directories.

**Social Science and Education (Second Floor).** Bibliography (general), children's literature, college catalogs and directories, dissertations and theses, educational, financial aid information, general periodicals, newspapers in microform, library science, medicine, physical education, psychology, and speech; the reference collections for administration of justice,
anthropology, social work, sociology, and urban studies, and a current newspapers room.

Arts and Humanities (Third Floor). Art, communication, film, foreign languages, literature, music, philosophy, photography, religion, theater arts, and special collections; the reference collections for biography, book reviews, history and political science.

Science and Engineering (Fifth Floor). Agriculture, architecture, biology, chemistry, computer science, earth sciences, engineering, forestry, mathematics, military and naval sciences, and physics; the reference collection for geography.

The fourth floor has no reference desk and no reference collections. It contains the circulation stacks for administration of justice, anthropology, geography, history, political science, social work, sociology, urban studies, and the map collection.

The library's ground floor contains the Reserve Library of short-term loan material selected by instructors for required and supplemental reading, the Music Room, housing the music CD, phonodisk, and phonotape collection with listening room and listening stations, the Interlibrary Loan Department, and the library's administrative offices. A 40-station computer lab for PSU students, featuring both IBM clones and Macintosh machines, is operated by the Office of Information Technologies. TALN/IACD (Technology Access for Life Needs/Information Access Center for the Disabled) have offices on the ground floor of the library as well.

The PSU Library augments its own resources by cooperation with other libraries. Students and faculty have library privileges at any school in the Oregon State System of Higher Education. Through a program known as Metroloan, direct access to other college and university libraries in the Portland area can be arranged. The Portland Area Library System (PORTALS) is a formal organization of libraries dedicated to resource sharing, cooperative collection development, and other collaborative pursuits. Before using other libraries it is always advisable to call in advance to determine local policies and procedures.

**Ombuds Office**

The mission of the Ombuds Office is to ensure that all members of the campus community receive fair and equitable treatment within the University system. The office serves as a confidential, independent resource to students, faculty, and staff who need assistance in resolving problems and conflicts that may arise. The Ombudsperson considers all sides of a question in an impartial and objective way and assists community members in resolving conflicts, sorting through policy; presenting options, and mediating issues. The Ombuds Office is located in 169 Cramer Hall and is open Monday through Friday, 8 a.m. to 5 p.m.

**PSU Foundation**

The PSU Foundation is an independent non-profit organization whose mission is to raise and manage funds and cultivate friends on behalf of Portland State University. Portland State University and its Foundation form a creative collaboration dedicated to inspiring and making effective use of private contributions and thus enables the University to reach levels of excellence unattainable through public funding alone. Philanthropy advances PSU by providing scholarships, supporting faculty research and instruction, enhancing facilities, and nurturing new programs. A volunteer board of directors oversees the Foundation, made up of business, professional, and civic leaders who have shown a strong interest in the advancement of Portland State University.

**Smith Memorial Center**

Smith Center, 1825 SW Broadway, serves as the campus local point for students, faculty, staff, and the University community. It is a gathering place for students to meet and plan activities, take advantage of recreational and social areas, attend events, seek help or information, or just relax and get food and refreshment.

The Smith Center ballroom and other meeting and conference rooms host a variety of activities, including conferences, lectures, meetings, dances, concerts, and other events involving the University and the metropolitan community. Most campus activities, other than credit classes, are scheduled by the campus Scheduling Office, located in the Smith Center administrative offices.

Smith Center is home to many student organizations, including Associated Students of Portland State University (ASPSU), student publications, and a variety of other student clubs and boards. It also houses the Student Resource Center, Multicultural Center, and the Offices of Student Affairs and Student Development.

Smith Center provides diverse services and amenities to enhance campus life—Portland Teacher's Credit Union, Co-Head Salon, Littman and White Galleries, Viking Bowl and Billiards (including video games), Parkway Commons, and University Market. Parkway Commons, Smith Center's food court, features Starbucks Coffee, Taco Bell, Subway, The Wokery, pizza, pastas, and made to order daily specials. University Market, located on the ground floor near the SW Montgomery Street entrance, stocks paperback books, magazines, pens, calculators, paper supplies, candy, soft drinks, and PSU memorabilia. Smith Center also offers areas for students to study or simply relax and admire the Park Blocks.

Smith Center is undergoing extensive renovations and upgrades during the next few years. The operating hours and availability of some services may be affected. Check out the latest plans and schedules for the renovation on the second floor (by room 203). Also, see www.pps.pdc.edu/AUX/SMCOP/ for the Smith Memorial Center, Master Plan for renovations and additions.

**Transportation and Parking Services**

The Transportation and Parking Services office sells faculty, staff, and student parking permits and is responsible for the coordination of alternative transportation programs and parking on the PSU campus. Parking permits authorize parking in any university parking areas and are designated by permit type. Beginning summer session 2001, the cost for parking for a full term is $210.00 term and $70.00 per month for faculty and staff. The daily parking rate for PSU faculty, staff, and students will remain $7.00. For complete information on available parking permits and where to park, please contact the Neuberger Hall Office of Transportation and Parking Services at 503-725-3442, or the Information and Transportation Office at 503-725-9005.

The Information and Transportation Center, located adjacent to the College of Urban and Public Affairs, in the plaza area, is open Mondays through Fridays, 8 a.m. to 5 p.m., and is open Wednesdays until 6 p.m. Students may purchase their discount student bus pass at either the Neuberger Hall location or the Information and Transportation Center. Students must present a valid ID when requesting the discount pass. The discount student bus pass program is subject to Tri-Met approval on an annual basis.

In addition, students who utilize the touch-tone process to register for parking may also pick up their permits at the Information and Transportation Center.

Daily and hourly parking is available at the University Center Building parking garage. The garage is located at the corner of 5th and Harrison. PSU faculty, staff, and students with a valid ID card, may park at...
the daily PSU rate. The charge for hourly parking will remain the public rate.

If you have any questions about the PSU parking program, please call Julie North, at 503-725-4412.

UNIVERSITY RELATIONS

341 Cramer Hall, 503-725-4478

The mission of University Relations is to communicate the value of PSU to the community and to build public and financial support for the University. University Relations is composed of Alumni Relations, Government Relations, Marketing and Communications, Publications, and University Development.

ALUMNI RELATIONS

The Office of Alumni Relations enables Portland State’s 80,000 alumni to maintain a strong and continuing relationship with the University. The office is responsible for promoting communication between alumni and the University and for providing services to alumni, such as the Alumni VISA Card, the Alumni Benefit Card (ABC), alumni travel, and a variety of insurance programs. The ABC card provides access to a variety of benefits and University facilities, including the Library and physical education facilities.

The 30 volunteer members of the Alumni Board of Directors initiate and promote many programs on behalf of the Alumni Association and the University. The board hosts an annual PSU Weekend, which includes a day of seminars, a nationally-known speaker, a pre-football game party, and a variety of other events. The Alumni Board also sponsors an endowed scholarship for children of alumni, oversees an alumni advocates program, selects outstanding alumni award winners; works with student and campus groups; and promotes numerous other activities.

GOVERNMENT RELATIONS

The Office of Government Relations, located in the President’s Office, has principal responsibility for liaison and communication between the University and local, state, and national governments and agencies. The office helps build governmental support for the University and identifies opportunities for faculty and staff to contribute to the public policy process.

MARKETING AND COMMUNICATIONS

The mission of the Office of Marketing and Communications is to build stronger relationships with key constituencies by (1) enhancing the University’s ability to sense, serve, and satisfy needs and (2) increasing public awareness of the strengths and benefits of PSU.

PUBLICATIONS

The Office of Publications produces the official University publications, including the Portland State University Bulletin; commencement programs; the faculty-staff newsletter, PSU Currently; PSU Magazine; and many other major and specialized publications. The office works closely with departmental and administrative offices to respond to the publications needs of the University.

UNIVERSITY DEVELOPMENT

The Office of University Development is responsible for managing and coordinating the University fund development program, working in collaboration with the deans and constituent development directors in the schools and colleges, and the PSU Foundation. The office is responsible for conducting planned giving, corporate and foundation relations, annual giving, stewardship, and prospect research, tracking and clearance programs, and provides the unifying impetus for a strong, cohesive, and ever-accelerating University-wide fund-raising program.

VISITOR INFORMATION CENTER

1939 SW Broadway, 503-725-4407

Campus maps, brochures, class schedules, and registration forms are available 24 hours a day in the Portland State University Visitor Information Center, 1939 SW Broadway.

The office is in the Campus Public Safety Office, and staff are available to give directions to visitors looking for the Library, the bookstore, and other campus points.

Street signs in the University district direct motorists to the center.
GRADUATE STUDIES

GENERAL INFORMATION
503-725-8410

Portland State University graduate programs offer a variety of opportunities for advanced study and research, including preparation for academic or other professional careers, continuation and improvement of skills for in-service professionals, and personal intellectual enrichment and professional development. More than 4,500 graduate students are enrolled in the University's colleges and schools, and over 1,100 graduate degrees are awarded annually in the more than 70 master's and the 10 doctoral programs.

The Office of Graduate Studies oversees the University's graduate programs in the interest of ensuring quality instruction and research and promoting the highest achievement of graduate students. Located in 117 Cramer Hall, it is the principal resource concerning advanced degree requirements, degree status, petition procedures, thesis or dissertation preparation, and final oral examinations.

The Office of Admissions, in the lobby of Neuberger Hall, receives and processes general inquiries related to graduate admissions. Complete application packets for admission to particular graduate programs are available in the academic departments. Individual academic departments respond to inquiries seeking information about graduate degree program requirements, admission to their graduate degree programs, and the availability of graduate assistantships in their subject areas.

GRADUATE GOVERNANCE

All matters of graduate study are subject to the policies and procedures established by the Faculty Senate upon recommendation of the Graduate Council. The dean of Graduate Studies is responsible for conducting the affairs of the Office of Graduate Studies and for certifying to the registrar candidates who have fulfilled the requirements for advanced degrees.

Student Responsibility. The student is responsible for knowing all regulations and procedures required by the University and the advanced degree program being pursued. In no case will a regulation be waived or an exception granted because of ignorance of the regulation or of the assertion that the student was not informed by the adviser or other authority. The student should be familiar with information published in the Portland State University Bulletin, including the section on Graduate Studies and the section listing the requirements for the degree and the offerings and requirements of the major department. The department chair appoints a faculty adviser for each graduate student to assist in developing the course of study, determining deficiencies, planning the program, and clarifying special regulations. Departments can be expected to have additional degree requirements beyond those listed in the Bulletin.

A graduate student may petition the Graduate Council for the waiver of a University graduate academic regulation or degree requirement. The responsibility of initiating the petition rests with the student. The petition must be approved by the faculty adviser and graduate committee and is forwarded to the Office of Graduate Studies. The petition must be accompanied by supporting documentation provided by the department and approved by the chair of the department/school/college graduate committee. Petition forms are available in the Office of Graduate Studies.

The University reserves the right to require the withdrawal of any student who fails to accept responsibilities, as evidenced by conduct or scholastic achievement.
GRADUATE DEGREES

The advanced degrees offered by Portland State University are listed below:

**Doctor of Philosophy (Ph.D.)**
Civil engineering; computer science; electrical and computer engineering; environmental sciences and resources; mathematics education; public administration and policy; social work and social research; systems science; urban studies.

**Doctor of Education (Ed.D.)**
In educational leadership: administration; postsecondary education; curriculum and instruction; special and counselor education.

**Master of Arts (M.A.) or Master of Science (M.S.)**
Administration of justice; anthropology; biology; chemistry; civil engineering; computer science; conflict resolution; economics; education (with options in counseling, curriculum and instruction, educational policy, foundations, and administration, media/librarianship, special education); electrical and computer engineering; engineering management; environmental sciences and resources; English; English (only); foreign languages; foreign literature and language; geography; geology; health education; history; mathematics; mechanical engineering; physics; political science; psychology; sociology; speech communication; TESOL; theater arts; writing.

**Master of Arts in Teaching (M.A.T.) or Master of Science in Teaching (M.S.T.)**
English; general arts and letters; environmental science; science; general social science; mathematics; music.

**Professional Degrees**
Master of Business Administration (M.B.A.), with an option in management of innovation and technology; Master of Education (M.Ed.); Master of Engineering (M.Eng.), in civil engineering, civil engineering management, electrical and computer engineering, mechanical engineering, project management, systems engineering, technology management; Master of Fine Arts (M.F.A.), in art, with options in painting, sculpture, and mixed media; Master of International Management (M.I.M.); Master of Music (M.M.), with options in performance and conducting; Master of Public Administration (M.P.A.), with an option in health administration; Master of Public Health (M.P.H.), a joint program with Oregon Health Sciences University and Oregon State University, with options in health education/health promotion and health administration and policy; Oregon Master of Software Engineering (O.M.S.E.), a joint program with Oregon Graduate Institute, Oregon State University, and University of Oregon; Master of Social Work (M.S.W.); Master of Urban and Regional Planning (M.U.R.P.); Master of Urban Studies (M.U.S.).

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy degree is awarded for scholastic achievement based upon the candidate's proven comprehensive knowledge in a recognized specialized field of study and for creative scholarship through independent research. Judgment of such attainments is based upon evaluation of a dissertation grounded in independent research and the passing of prescribed written and oral examinations.

All doctoral students must fulfills the residency requirement by attending a minimum of three consecutive terms of full-time approved graduate study at PSU (at least 9 credits per term) after admission to the doctoral program.

Doctor of Philosophy programs consist of formal coursework, guided individual study in a chosen field or discipline, study in cognitive areas, and original research which serves as the basis for a scholarly dissertation. Before being admitted to candidacy for the Ph.D. degree, each student must pass written comprehensive examinations; some programs also require demonstrated competency in at least one foreign language. Advancement to candidacy for the Doctor of Philosophy degree requires, among other prerequisites, certification by the responsible program coordinator/director that specified coursework has been or will be completed and that the proposed research can be adequately supported and directed. The dean of Graduate Studies retains final approval authority for advancement to candidacy.

In addition to the general University admission and degree requirements, each doctoral program has special requirements and/or policies concerning admissions and awarding of the Ph.D. degree. Information on specific admissions requirements, procedures, and other aspects of the program can be obtained from the following: dean, College of Engineering and Computer Science; Civil Engineering Doctoral Program; Computer Science Doctoral Program; director, Environmental Sciences and Resources Doctoral Program; director, Mathematics Education Doctoral Program; director, Social Work and Social Research Doctoral Program; and dean, College of Urban and Public Affairs.

Under the Western Interstate Commission for Higher Education (WICHE) Regional Graduate Program agreement, residents of Alaska, Hawaii, Idaho, Montana, Nevada, New Mexico, Utah, Washington, and Wyoming admitted to the doctoral program in environmental sciences and resources or in urban studies pay resident tuition fees.

DOCTOR OF EDUCATION

The Doctor of Education degree is granted in recognition of mastery of theory, practice, and research in education. The criteria for the award of the degree are the candidate's demonstrated comprehensive knowledge of designated fields of concentration and specialization and the successful presentation and defense of a dissertation embodying the results of original investigation which demonstrates the candidate's ability to conduct independent investigation. The dissertation is a contribution to knowledge or a constructive result of significance and value for educational practice. In addition to the area of specialization, which includes the leadership core and the specialty studies core, the student's program of study includes work in related fields outside education and the use of systematic inquiry leading to the dissertation.

All doctoral students must fulfill the residency requirement by attending a minimum of three consecutive terms of full-time approved graduate study at PSU (at least 9 credits per term) after admission to the doctoral program. For the Ed.D., these approved graduate credits may be coursework, the study of practice (i.e., field-based work), or dissertation credits. Foreign language competency is not required for the Ed.D. degree. The equivalent of three years of full-time study beyond the baccalaureate is required.
The Ed.D. in educational leadership program prepares highly qualified professional educators for positions in teaching, supervision, and administration in elementary and secondary education, in community and four-year colleges and universities, and in other educational institutions, both public and private. Information concerning admission requirements, procedures, and other aspects of the program can be obtained from the dean, Graduate School of Education.

**MASTER OF ARTS AND MASTER OF SCIENCE**

The University offers programs leading to the Master of Arts and the Master of Science as shown in the Graduate Degrees section. In all programs leading to these degrees, the primary emphasis is placed upon the student's scholarly development through formal coursework, seminars, research, and independent study. The programs are designed to develop a mastery of subject matter in a chosen discipline and to provide training and experience in research.

Candidates for the Master of Arts and Master of Science degrees must earn a minimum of 45 credits in approved graduate courses. A thesis may be required, depending on the program. The Master of Arts degree requires a demonstrated proficiency in one or more foreign languages. Foreign language proficiency is not required for the Master of Science degree. Programs of study are built upon appropriate baccalaureate coursework in selected academic fields. All M.A.T. degrees require a demonstrated proficiency in at least one foreign language. Foreign language proficiency is not required for the M.S.T. degree.

In general, admission requirements are equivalent to admission requirements for the M.A. and M.S. degrees.

A minimum of 45 graduate credits is required.

The program of study includes the following:

1. At least 24 graduate credits must be devoted to selected courses in academic fields which strengthen the candidate's scholarship in a teaching field and related area. This minimum may be higher at the department's discretion. At least 12 credits in residence at PSU at the 500, 500/600, or 600 level must be completed successfully. The remainder of the required courses may be 400/500 courses taken for the 500-level number.

2. At least 9 credits of courses in educational professional education courses is required.

3. A final written examination covering the academic teaching field and professional education courses is required.

4. A final oral examination is required of all students except in music and math M.S.T. programs.

Information on admission and other aspects of a program may be obtained by contacting the department identified with the field of interest.

Applicants for admission must meet the University requirements for admission to graduate study. For further information on admission, as well as other aspects of a specific master's degree, the appropriate department should be contacted directly.

**MASTER OF ARTS IN TEACHING AND MASTER OF SCIENCE IN TEACHING**

For students interested in specializing in a particular teaching field at the secondary level, the Master of Arts in Teaching (M.A.T.) and/or the Master of Science in Teaching (M.S.T.) are offered in the following fields: English, general arts and letters, science, environmental science, general social science, mathematics, and music.

The fundamental purpose of the M.A.T. and M.S.T. programs is the improvement of the quality of teaching in the schools. To this end, the programs are developed and administered within flexible guidelines to match the needs of students with varying backgrounds and professional plans. The programs permit the prospective or in-service teacher to work toward satisfying the requirements for a teaching certificate if desired and, in addition, to devote a substantial portion of the program of study to coursework in selected academic fields. All M.A.T. degrees require a demonstrated proficiency in at least one foreign language. Foreign language proficiency is not required for the M.S.T. degree.

In general, admission requirements are equivalent to admission requirements for the M.A. and M.S. degrees.

A minimum of 45 graduate credits is required.

The program of study includes the following:

1. Equivalent coursework: Students who have passed a course equivalent to PSU level 203 or higher in a foreign language within the four years prior to their admission into their PSU graduate program will be deemed to have met the language requirement. The Department of Foreign Languages and Literatures will issue a certificate of completion upon evaluation of the student's academic record. M.A. and M.A.T. students are responsible for making their academic records available to the chair of that department in the first term of admission and requesting evaluation and certification.

2. Students who do not meet the requirement under 1. above should make an appointment with the Department of Foreign Languages and Literatures during the first term after their admission to make an individualized plan for the completion of their language requirement. Options include preparing for and passing one of these evaluations:
   - Oral proficiency interview (mandatory for M.A. TESOL students)
   - A written test (mandatory for M.A. TESOL students), such as:
     1. The Graduate Student Foreign Language Test
     2. The CLEP exam
     3. A special exam, administered by the Department of Foreign Languages and Literatures
   - Coursework after admission: taking a course at level 203 or above
   - Overseas intensive courses or other intensive courses
   - Special reading courses, if available.

The Department of Foreign Languages and Literatures will teach and test only in languages in which it has expertise. However, off-campus arrangements may be possible with the cooperation of other institutions. Certification of having passed a foreign language examination from an institution other than Portland State University must be approved by the Department of Foreign Languages and Literatures at Portland State University prior to acceptance as fulfillment of the University's master's degree foreign language competency requirement.

A student whose native language is not English may meet the foreign language requirement in English, except for students in two programs: (1) students in the M.A. in French, Spanish, or German, who must be tested in a language other than English and other than the language of their M.A. program; and (2) students in the M.A. in Foreign Literature and Language, who are required to demonstrate fluency in two foreign languages other than English at the time of admission and are not required to demonstrate additional competency except as necessary to complete their degree requirements.

For M.A. TESOL students only, a student whose native language is not English will meet the written requirement (2.b., above) by achieving a TOEFL score of 600 or higher.
GRADUATE CERTIFICATES

A graduate certificate program is a linked series of approved graduate-level courses which constitute a coherent body of study with a specific defined locus within a discipline. It is designed for a postbaccalaureate participant and reflects the educational mission of the University. Each graduate certificate program is approved by the Graduate Council and the Faculty Senate with a minimum number of credits and a specific set of courses which must be completed; a final project or portfolio may be required to provide for integration of the sequence of course materials.

Students must be admitted to the graduate certificate program by the University and must meet standards for admission to allied graduate degree programs (master’s or doctoral level programs). All graduate certificate applicants must have an accredited baccalaureate degree. Applicants with an undergraduate GPA of at least 2.75 are eligible for regular admission with the agreement of their graduate certificate program; applicants with an undergraduate GPA lower than 2.75 but at least 2.50 are eligible for conditional admission at the discretion of their program. Applicants with 12 or more graduate credits must have a cumulative graduate GPA of at least 3.00, and this GPA supersedes the undergraduate GPA. Programs may specify additional requirements, including higher minimum GPA requirements.

Graduate certificate students must remain in good academic standing (see page 52) and must achieve a cumulative GPA of 3.00 or higher in all courses to be used for the graduate certificate.

Courses and certificates completed will be transcripted by the University Registrar as a part of the student’s permanent University record. Certificates may be awarded at the end of any term when the requirements have been met. Students must apply for award of the certificate in the Office of Graduate Studies no later than one week prior to the certificate award date. Students will be informed of their status and given the certificate. Certificates may be applied toward a graduate degree if the same or higher minimum GPA requirements (i.e., a course started in the fall term of 1995 will be beyond the seven-year limitation at the close of term 2002).

Courses completed for a graduate degree program may be applied to completion of a graduate certificate program. Degree credits earned in fulfillment of a graduate certificate program may be applied to a graduate degree program, provided they meet the appropriate standards for use in the degree (including acceptable grade and completion within seven years of the degree award date for the master’s degree).

For graduate certificates only, Transfer credit is defined as any graded (B- or higher) graduate course taken at another accredited institution. Two-thirds of the credits required for a graduate certificate, or 15 credits, whichever is higher, must be taken at PSU. Individual programs may set higher minimums.

The following graduate certificate programs are currently offered (additional programs are in the process of approval): analog and microwave circuit design; communication systems; computer architecture and design; design automation; digital design; digital signal processing; image processing; integrated circuit test, verification, and validation; lasers and optoelectronics (Electrical and Computer Engineering); applied energy economics (Economics); applied statistics; materials science for middle school mathematics teachers (Mathematical Sciences); children’s and young adult literature (Curriculum and Instruction); computational intelligence; computer modeling and simulation (Systems Science); earth and space sciences for K-12 educators; engineering geology; environmental geology; hydrogeology (Geology); hydrology (Environmental Sciences and Resources); gerontology (Urban Studies and Planning); professional communication (Communication); and systems engineering fundamentals (Systems Engineering).

Application materials and program requirements are available from the departments offering these programs or from the Graduate Studies Web site at www.gsr.pdx.edu.

ADMISSION TO GRADUATE STUDIES OFFICE OF ADMISSIONS
503-725-3511

Application to graduate programs at Portland State University requires two complete (but different) admissions packets, one sent to the Office of Admissions and one sent to the department. Complete applications are available from the individual academic departments.

A student must be admitted formally to graduate status (regular, conditional, certificate) for a program of study to be planned with the assistance of a faculty adviser. Admission to regular or conditional degree status should be obtained at the earliest possible time in order to avoid loss of credit applicable to a degree. Courses taken at PSU in postbaccalaureate status or non-admitted status are transfer courses and must meet all transfer limits and requirements.

Regular Status. Students who meet the University requirements and are fully accepted by their departments or schools as potential degree candidates are given regular status. Students must have regular status to be appointed graduate research or teaching assistants and to graduate with any degree or certificate.

Conditional Status. Students who do not meet all requirements for regular admission to the University are given conditional admission status if they are fully accepted by their departments (see Qualified Status below). After completing 9 graduate graded hours with a 3.00 or better GPA, these students will be given regular status. Students on conditional status may not be graduate research or teaching assistants. Students admitted to the University conditionally who do not achieve a 3.00 GPA after completing 9 graded graduate hours will be dropped from their graduate programs.

Qualified Status. Students whose department has imposed departmental prerequisites, GPA, or other requirements but who are eligible for a regular University admission are given qualified status. These students are eligible to be graduate assistants. A student may have both a conditional and qualified admission status.

Graduate Certificate Status. Students admitted only to a graduate certificate program are in a special status allowing a maximum of 8 credits of registration per term. Graduate certificate students who are concurrently admitted to a graduate degree program do not have this restriction. Graduate certificate students who wish to register for more than 8 credits per term should see the Office of Graduate Studies.

Certificate Status. All students working in a planned program leading only to a postbaccalaureate certificate are given certificate status. Certificate students may be admitted to other categories of graduate study and concurrently pursue a certificate. This status includes students working on teaching certificates but does not include students admitted only to graduate certificate programs.

Postbaccalaureate Status. Students not currently working for a degree but who wish to register for more than 8 credits of graduate credit courses may be admitted to postbaccalaureate status. A postbaccalaureate student wishing to be admitted to regular degree status must apply in the same way as any other applicant and must meet the general University requirements and be fully accepted by the department or school. A postbaccalaureate student may find departmental enrollment limitations on many courses. Transfer of courses completed in a postbaccalaureate status is not automatically applied toward a graduate degree; each course must be evaluated and
Applications for Admission to Graduate Courses and Programs.
To be admitted to Portland State University for the purpose of pursuing graduate work, applicants must satisfy minimum University requirements and be accepted by the department in which the graduate work is proposed. Any applicant whose native language is not English and who has not received a baccalaureate degree from a U.S. institution must pass the Test of English as a Foreign Language (TOEFL) with a minimum score of 550.

Portland State University will not confer active admission status to any graduate student pending an expected baccalaureate degree without formal written notification from the Registrar of the conferring institution confirming that all requirements for the degree have been met and stating the date the degree will be conferred. If admitted on this basis, an official transcript showing the degree will be required during the term of admission or the admission will be canceled.

To be considered for admission as a regular degree student, the applicant must present a baccalaureate degree from an accredited institution with either a minimum cumulative GPA of 2.75 in all undergraduate courses or a cumulative GPA of at least 3.00 in all graduate credit earned at accredited institutions (a minimum of 12 credits).

To be considered for admission as a conditional degree student, the applicant must present a baccalaureate degree from an accredited institution with a minimum cumulative GPA of 2.50 in all undergraduate courses. To be considered for admission as a graduate certificate student, the applicant must meet all requirements for regular or conditional graduate degree admission.

To be considered for admission as a postbaccalaureate certificate student, the applicant must present a baccalaureate degree from an accredited institution with either a cumulative GPA of 2.75 in all undergraduate courses or at least 12 credits with a cumulative GPA of 3.00 in graduate work in the proposed field of study earned subsequent to receiving the baccalaureate degree. Applicants with 12 or more graduate credits must have a cumulative graduate GPA of at least 3.00, and this GPA supersedes the undergraduate GPA.

Departmental Requirements. A department may have special admission requirements based on previous academic achievement scores on Graduate Record Examinations or other tests, letters of recommendation, a portfolio, or an autobiographical statement. Information regarding departmental requirements may be obtained directly from the specific department. The number of students admitted to a particular program is limited to the resources available.

Application Documents. In order to expedite the graduate admission process for domestic applicants, Portland State University requires that the applicant send two complete (but different) application packets, one packet to the Admissions Office and the other directly to the department. Incomplete packets sent either to the Admissions Office or to the department will seriously delay completion of the graduate admission process. Students may call the PSU Touch-tone Admission Status Reporting System at 725-ADMT (2368) to determine the status of their admission applications. Questions about the admission process should be directed to the department.

1. The application packet sent to the Admissions Office must include:
   a. the University application form;
   b. the application fee;
   c. one official transcript from every college or university attended (except PSU), including junior colleges and community colleges;
   d. the measles immunization form.

2. The application packet sent to the department must include:
   a. the departmental application form;
   b. a copy of each transcript (or official transcripts, if required by the department);
   c. other departmental requirements, which may include recommendations, resume, personal statement, essay, test scores, portfolio, and/or departmental checklist.

The department evaluates the file and recommends admission or denial of the applicant. Some departments evaluate admission applications periodically, and other departments wait until the application deadline before evaluating all applications.

Upon admission, the student will be assigned to a departmental or school faculty adviser. The application and the non-refundable application fee are valid for one academic year. To validate admission, a student must register and pay for at least one credit in the term for which he/she was admitted. If the student does not validate admission for the admission term, that admission will be cancelled unless the student contacts the Admissions Office and requests that the admission be updated to another term within the year. If the student does not validate admission within one calendar year, the admission will be cancelled, and the student must submit a new application and new application fee.

Admission of Foreign Applicants. All graduate students are expected to be proficient in the use of English. An applicant whose native language is not English and who has not completed undergraduate degree requirements at an accredited U.S. institution must present the following:

1. A complete and accurate chronological outline of all previous college-level education.

2. Authorized school or university records, transcripts, certificates of degrees, etc., showing all courses taken and all grades and degrees received. The records must be either the original documents or certified copies (i.e., copies certified by a notary public or a U.S. Embassy official). An official translation must be attached to these records if they are in a language other than English.

3. A minimum score of 550 on the Test of English as a Foreign Language, which is administered by the Educational Testing Service at testing centers established throughout the world. Students who cannot obtain a TOEFL bulletin and registration form locally should write, well in advance, to: Test of English as a Foreign Language, Box 899, Princeton, NJ 08540. The minimum acceptable TOEFL score is 550 (213 for computer-based test).

The applicant must have earned the equivalent of a U.S. bachelor’s degree, with first-class marks, from an approved institution. The applicant must present certification of the availability of sufficient funds to meet all costs while studying at the University. Contact the Admissions Office for an estimate of expenses.

Funds for graduate assistantships and fellowships are limited, and the chances of a foreign student obtaining such aid during the first year of residence are minimal. Students from other countries are expected to carry a full academic load of 9 credits during the regular school year and are cautioned not to plan to supplement funds by part-time off-campus employment during this period.

Application deadlines for foreign students are fixed. Applications for admission and complete credentials should reach the Office of Admissions at least 6 months prior to the opening of the term. Please note that the application must be accompanied by a $50 (U.S.) nonrefundable application fee.

Exceptional Admission Procedures. In situations beyond the control of a foreign applicant, when transcripts and documents are not available to confirm completion of a baccalaureate degree in a foreign university, the Vice Provost may
employ a special admissions procedure. Upon referral by the Admissions staff responsible for foreign student admission and recommendation of the admitting department, a special panel consisting of three faculty may be appointed to review the materials available and interview the applicant. The panel shall consist of one member of the admitting department, one member of the Graduate Council, and a representative of the Office of Graduate Studies. The panel will evaluate the educational background and preparation of the applicant and review documents including letters and written testimony of persons who serve as references or are cognizant of the circumstances of the applicant’s situation. The panel may determine that an equivalency of a baccalaureate degree was earned and, if so, may recommend that the student be admissible in regular or conditional status; or it may determine that an equivalency of a baccalaureate degree was not earned, and, if so, it may recommend that specific additional preparation be required in order to meet the admission standard. The dean of Graduate Studies shall make a final determination based upon the recommendation and the evidence presented.

Re-enrollment. Students who have not been enrolled for three terms (excluding summer) after admission to graduate study and who have not attended another college or university in the interim, must complete a re-enrollment request and submit it to the Office of Admissions. Students who have not been in continuous enrollment after admission to graduate study; but who have enrolled in coursework elsewhere, must complete the re-enrollment request; in addition, they must request that each institution attended since leaving PSU send two transcripts directly to the Office of Admissions. A GPA of at least 3.00 in all graduate work taken subsequent to admission to Portland State University is a prerequisite for re-enrollment.

To assure that registration materials can be prepared on time, the re-enrollment request form and supporting documents should be received by the Office of Admissions no later than three weeks prior to registration.

**Basic Graduate Fees**

The basic fees associated with graduate study at PSU are listed in the following table. The admission application fee is required and is nonrefundable. For many of the graduate degree programs, the applicant is required to submit a recent test score on one or more of the designated standardized tests. The graduate tuition fees depend on the total number of credits in enrolled classes, resident or nonresident status in the state of Oregon, and the student’s status as graduate assistant or non-graduate assistant. Further details on graduate fees are available by contacting the Office of Admissions and Records, 113 Neuberger Hall.

Tuition and fees may be paid in full at the time of registration; however, the University offers a deferred tuition plan which allows for a partial payment at registration with the balance due in two installments.

<table>
<thead>
<tr>
<th>Tuition (2000-2001)</th>
<th>Oregon residents</th>
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<tbody>
<tr>
<td></td>
<td>8 credits</td>
</tr>
<tr>
<td>1,855.00</td>
<td>2,173.00</td>
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<tr>
<td>211.00</td>
<td>381.00</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>8 credits</th>
<th>Full time (9 to 16 credits)</th>
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<tbody>
<tr>
<td>1,855.00</td>
<td>3,709.00</td>
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<tr>
<td>381.00</td>
<td></td>
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</tbody>
</table>

**Microfilming**

<table>
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<tr>
<th>Microfilming</th>
<th>Oregon residents</th>
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<tbody>
<tr>
<td>Dissertation</td>
<td></td>
</tr>
<tr>
<td>55.00</td>
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**Financial Assistance**

**Graduate Assistantships.** The University offers graduate assistantships for teaching or research on a competitive basis for students working toward advanced degrees in most areas. To qualify and to remain eligible for an appointment, a student must be admitted to regular or qualified status and be in good academic standing in a graduate degree program at PSU. Graduate assistants must be registered for and satisfactorily complete a minimum of 9 graduate academic credits each term the assistantship is in effect, except Summer Session, and show satisfactory academic progress in fulfilling the requirements of the degree program. The student’s department chair or graduate coordinator may allow up to 4 undergraduate credits within the 9 credits if the undergraduate credits are needed as prerequisites for graduate courses or are important to the student’s plan of study. Any request for a student to take more than four undergraduate courses must be approved by the dean of Graduate Studies. Graduate assistants are provided a salary on a regular periodic basis as compensation for the service provided and receive a remission of the instructional fee portion of tuition each term of appointment. Students wishing to apply for graduate assistantships must correspond directly with the appropriate academic department chair. The Office of Graduate Studies does not award graduate assistantships.

**Oregon Laurels.** The Oregon Laurels Graduate Tuition Remission Program provides remission of the instructional fees at in-state rates to academically qualified students on a competitive basis with preference given to Oregon residents. The tuition remissions are available to admitted graduate students, both full time and part time, at Portland State University. The Oregon Laurels is a merit program; financial need is also a consideration for some of the awards. The application deadline is April 15 for the following year. Information will be available after March 1 from the Office of Graduate Studies in 117 Cramer Hall.

**Scholarships.** Portland State University has a limited number of scholarships available to graduate students. Scholarships are awarded to students in attendance at the University on the basis of academic achievement, promise, and financial need. A computerized data base of scholarships, both national and local, is available on the second floor of the library. Information on scholarships related to specific departments should be made to the specific department involved.

**Educational Loans and Work.** Graduate students may apply for educational loans through the Federal Perkins Student Loan program, the Federal Direct Stafford Loan program, the Federal Unsubsidized Stafford Loan program, and the federal College Work-Study Program. Details and application materials are available from the Student Financial Aid Office, 176 Neuberger Hall. Priority consideration for Federal Perkins Student Loan and federal College Work-Study will be given to those who have completed the application process earliest, while funds are available.
ENROLLMENT POLICIES AND CREDIT REGULATIONS

Graduate Grading System. The following grading scale is employed at the graduate level:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.00</td>
</tr>
<tr>
<td>A+</td>
<td>4.33</td>
</tr>
<tr>
<td>A-</td>
<td>4.00</td>
</tr>
<tr>
<td>B</td>
<td>3.67</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>B-</td>
<td>3.00</td>
</tr>
<tr>
<td>C</td>
<td>2.67</td>
</tr>
<tr>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>C-</td>
<td>2.00</td>
</tr>
<tr>
<td>D</td>
<td>1.67</td>
</tr>
<tr>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>D-</td>
<td>1.00</td>
</tr>
<tr>
<td>F</td>
<td>0.00</td>
</tr>
</tbody>
</table>

The grading system at the graduate level is defined as follows:

- **A—Excellent**
- **B—Satisfactory**
- **C—Below graduate standard**
- **D—Failure**
- **F—Failure**

The following marks are also used:

- **P—Satisfactory completion (B- or better)**
- **NP—No credit, unsatisfactory**
- **I—Incomplete**
- **IP—In progress**
- **W—Withdrawn**
- **X—No grade received/No basis for grade**

Although grades of C+, C, and C- are below the graduate standard, they may be counted as credit toward a graduate degree with the specific approval of the department. The student must have a B average (3.00 GPA) on the courses fulfilling the degree requirements (courses listed on the GO-12 form for master's students), and departments may establish a more rigorous standard. Grades of D or F indicate clearly unacceptable work and carry no graduate credit.

The grades of P/NP are used by only a limited number of departments which have received special authorization and may be counted as credit toward a graduate degree in resident credit only.

A mark of IP may be used for 501/601 Research and for 506/606 Project when a student is progressing in an acceptable manner toward completion of the work; final grades for 501/601 and 506/606 are assigned by the instructor on a Supplemental Grade Report. A mark of IP may be used for 503 Thesis/603 Dissertation when a student is progressing in an acceptable manner; final grades for 503/603 are assigned by the instructor on the Recommendation for the Degree form (GO-17) and posted after acceptance of the thesis/dissertation by the Office of Graduate Studies.

Incomplete. A student may be assigned an I grade by an instructor when all of the following four criteria apply:

1. Quality of work in the course up to that point is C level or above.
2. Essential work remains to be done. “Essential” means that a grade for the course could not be assigned without dropping one or more grade points below the level achievable upon completion of the work.
3. Reasons for assigning an I must be acceptable to the instructor. The student does not have the right to demand an I. The circumstances must be unforeseen or beyond the control of the student. An instructor is entitled to insist on appropriate medical or other documentation. In no case is an “Incomplete” grade given to enable a student to do additional work to raise a deficient grade.
4. A written agreement, signed by both the student and the instructor, should include a statement of the remaining work to be done to remove the I grade, and the date, not to exceed one year from the end of the term of enrollment for the course, by which work must be completed in order to earn credit toward the degree. The instructor may specify the highest grade which may be awarded upon completion; the grade awarded should not exceed the level of achievement attained during the regular course period.

An Incomplete grade becomes part of the permanent transcript record after the deadline expires, unless a retroactive withdrawal is approved by petition to the Graduate Council. To remove an I an instructor must file a supplementary grade report.

Withdrawals. Withdrawal from a course must be initiated by the student. It is the student’s responsibility to withdraw properly by the deadline dates published in the Schedule of Classes.

A student may withdraw with no record on the transcript up to the end of the fourth week of the term. As a courtesy, students are advised to notify the instructor concerned of the intended or completed withdrawal.

A student may withdraw for any reason before the end of the fourth week, but withdrawal between then and the end of the eighth week requires instructor approval. A student withdrawing after the end of the fourth week shall have a W recorded on the transcript.

A student wishing to withdraw after the eighth week must petition the Deadline Appeals Board. A W is recorded if the petition is allowed. Reasons for withdrawal beyond the eighth week must be beyond the student's control, and medical reasons must be documented. Instructor's comments are required on the petition.

Refunds are automatic and are calculated from the date of official course load reduction. The refund is 100 percent before the first day of the term.

If a student, to the best of the instructor’s knowledge, has never attended class, the name on the Grading Register may be assigned an X grade. An auditor may also be assigned an X for insufficient attendance.

A student who has participated in a course but has failed to complete essential work or attend examinations, and who has not communicated with the instructor, will be assigned an F, D, or whatever grade the work has earned.

Repeat of Graduate Courses. If a required course is repeated, the grades awarded both times are included in the GPA, however, credit toward the number of credits required for the degree is counted only once. Repeating courses to raise the GPA is not acceptable.

Audit. Graduate students may take any course for which they have the prerequisites and which is open to them on the basis of their admission category on an audit (no-credit) basis. The tuition and fees for auditing courses are the same as for taking the courses for credit, but a student's load (total credit hours) does not include audit enrollments.

Courses taken more than once on an audit basis cannot be repeated for graduate credit. During the add-drop period a student registered for a course for audit may change to credit status or vice versa through the official methods; thereafter the change cannot be made.

Television Course Credit. Graduate credit earned through enrollment in television courses (closed-circuit TV excepted) will not be acceptable toward an advanced degree, except when approved in advance by the graduate adviser, the department, and the dean of Graduate Studies.

Correspondence Credit. Under no circumstance will graduate credit earned through correspondence study be acceptable toward an advanced degree.

Academic Load. The normal term load for a student devoting full time to graduate study is 12 credits including coursework and thesis. Graduate students must seek approval of registration in excess of 16 credits. A student registering for 17 to 19 credits must obtain the approval of the department chair or faculty adviser. A student registering for 20 credits or more must obtain the approval of the department chair or faculty adviser, the student’s academic dean, and the dean of Graduate Studies. A graduate assistant registering for more than 16 credits must obtain approval from the department chair and the dean of Graduate Studies. Overload approval forms may be obtained from the departments or the Office of Graduate Studies.

Minimum Enrollment. The University requires that graduate students who are involved in activities requiring faculty time or the use of University facilities register each term.
The student's department will determine the exact number of credits for which the student must enroll in any given term in relation to the amount of time required of faculty or the use of University facilities during the term.

A minimum of one credit is required when taking any comprehensive or final examination. A minimum of one credit of registration is required when engaged in any phase of research, such as developing or collecting data, or any aspects of a thesis or dissertation until its final acceptance is approved by the Office of Graduate Studies.

Residence Credit. In a 45-credit program, a master's candidate must earn a minimum of 30 graduate credits in courses on the PSU campus during the student's admitted graduate degree status (regular, conditional, or qualified) and graduate certificate status. In a degree program greater than 45 credits, a master's candidate must earn a minimum of two-thirds of the required credits in courses on the PSU campus during the student's admitted graduate degree status (regular, conditional, or qualified) and graduate certificate status. A minimum of 12 credits in a 45-credit program (or 25 percent of the required credits in a degree program greater than 45 credits) must be taken in residence in 500, 500/600, or 600 course level categories. The remainder of the required credits may be 400/500 courses taken for the 500-level number.

In a doctoral program, a minimum of three consecutive terms must be spent in full-time residence (minimum 9 graduate credits each term) after admission to the doctoral program.

A maximum of 12 graduate credits acquired by an undergraduate student at Portland State University through the graduate credit reservation procedure will be counted as residence credits if approved for inclusion in the student's graduate program.

Residence requirements are intended to ensure that the candidates work in close association with other graduate scholars in the intellectual environment of the University.

Credit Distribution and Limitations for Master's Degrees. Limitations are placed on the use of credits in 501, 503, 505, 508, and 509 courses. In a 45-credit program, the limits are as follows: a maximum of 12 credits in 501 and 505 combined; a maximum of 9 credits in 508 and 509 combined; a range of 6 to 9 credits in 503.

Courses applied to the degree must be 500 or 600 level. The 700- and 800-level courses are not acceptable in graduate degree programs, with the exception of the master's degree programs in the School of Education as well as some M.A.T./M.S.T. programs; these programs may allow a maximum of 6 credits at the 800 level.

Joint Campus Program. Graduate students at Portland State University may, with adviser, department, and registrar approval, take graduate courses at any of the other institutions in the Oregon State System of Higher Education. A student registers for these courses with the PSU registrar, who records each grade on the academic record under Joint-Campus Course (JC 510/610). The student must be a matriculated graduate student in a PSU advanced-degree program and be registered for PSU credit the same term the JC 510/610 course is taken. A maximum of 13 JC credits may be applied toward a PSU graduate degree program. Forms are available from the assistant director in the Office of Registration and Records in the lobby of Neuberger Hall. Self-support courses and courses offered by Extended Studies and Summer Session are ineligible for this program.

Transfer Credit. If transfer credit is to be presented, the Proposed Transfer Credit for Master's Degree form must be filed in the Office of Graduate Studies for approval, and must be accompanied by an official sealed transcript from the institution if it has not been sent to the University previously. It is suggested that this form be submitted early in the student's program, but it must be submitted and approved before the Office of Graduate Studies will review the Graduate Degree Program form, which is due in the first week in the term of graduation. Transferable credits may include graduate credits graded A or B received from: (1) PSU prior to admission to a PSU graduate degree program, except courses reserved for graduate credit; (2) other accredited institutions. Credit from foreign institutions is generally not transferable into a graduate program at Portland State University.

The acceptability of transfer credit toward an advanced degree at PSU is determined by the student's department with the approval of the Office of Graduate Studies. Courses approved for graduate transfer credit from another institution are not entered on PSU's graduate transcripts and are not considered in the computation of grade point averages for the purposes of determining continued admisissibility and graduation. Graduate courses taken at PSU while in nonadmitted or postbaccalaureate status are considered transfer credit if used toward a graduate degree; they must meet all transfer requirements and are subject to transfer limits.

Credit cannot be transferred for the following: (1) courses for which a grade lower than B- was received; (2) courses graded Pass; (3) correspondence courses, television courses, and some short-term courses; (4) courses completed at a date which exceeds the time limits prescribed for the degree program; (5) courses used for any other degree at any institution; (6) courses not acceptable into graduate academic degrees without qualification at the originating institution; (7) undergraduate courses.

The maximum transfer credit accepted toward a master's degree is one-third of the number of credits required for the degree. Departments may require stricter limits on transfer credit, therefore, students should seek advice concerning individual program requirements. Certain professional master's programs have special transfer credit allowances resulting from accreditation requirements and interinstitutional agreements (e.g., M.S.W. program).

Reservation of Work for Graduate Credit. Only credits earned at PSU can be reserved for graduate credit. A Reservation of Graduate Credit form must be filed in the Office of Graduate Studies after admission to a graduate program, preferably the term following admission. Reserved graduate credit is limited to 12 completed and graded graduate credits of A or B earned within the last 45 credits prior to the award of the baccalaureate degree and not used to fulfill the requirements for the baccalaureate degree.

Approval to accept a course reserved for graduate credit toward a graduate degree is within the province of the department or authorized director of the degree program. Such courses then can be used to partially fulfill the residence requirements for the degree.

Dual Master's Degrees. No credits applied toward a master's degree, once that degree is achieved, may be applied to the earning of another master's degree, except for the special arrangement provided for the dual master's degree program.

In the case of the dual master's degree program, a graduate student may work concurrently toward the completion of the requirements of two master's degrees in complementary disciplines where an overlap of coursework or research (not thesis) occurs. The dual degree program is planned in consultation with and approved by the advisers from each program. The courses to be accepted dually for the two degrees shall be determined by the department(s) involved but may not exceed one-third of the required quarter credits for a degree. If the two master's programs have different totals for course credits, the one-third limit is determined by the smaller course total. To ensure time for adequate planning, applications for admission to the
dual degree program are made early in the graduate studies. Admission to the second program in the dual degree program must be attained no later than the term prior to the term in which the final coursework is completed for the first degree. A memo of agreement signed by both advisers and listing the specific courses which will be used for both degrees must be approved by the Office of Graduate Studies before graduation with the first degree. These forms are available in the Office of Graduate Studies, 117 Cramer Hall.

Leave of Absence. A student admitted to a graduate program and in good standing may petition for leave of absence for one calendar year. Leave of absence status assures the student a continuation of the student's admission in the program during the period of the leave of absence. Application for leave of absence, endorsed by the department chair or program director, must be filed in the Office of Graduate Studies not later than the last day to register for classes in the term for which the application is made. A leave of absence is granted only to graduate students in good standing and does not constitute a waiver of the time limit for completion of the graduate degree at PSU.

A student may petition for a second leave of absence from a graduate program, but approval is required from the department chair or program director and graduate committee of the college or school.

Cancellation of Admission to Graduate Program. If a student does not validate admission by registering and paying for at least one credit in the term of admission, that admission will be cancelled unless the student contacts the Admissions Office and requests that the admission be updated to another term within the calendar year. If the student does not validate admission within one calendar year, the admission will be cancelled and the student must submit a new application and a new application fee.

A student with validated admission to a graduate program who during a one-year period 1) does not have an approved leave of absence and 2) does not successfully complete a graduate course in the approved program of study for the degree may have admission to the degree program canceled. For further information, students are urged to contact individual departments for departmental restrictions.

Degree Application. Candidates must file a Degree Application card with Graduate Studies by the first Friday of the anticipated term of graduation. The degree will not be conferred unless the student has attained a cumulative GPA of at least 3.00 for all graduate credits earned at Portland State, as well as a GPA of at least 3.00 on the courses fulfilling the degree requirements (courses listed on the GO-12 form for master’s students), departments may establish a more rigorous standard.

Limitations for Faculty Members. PSU faculty members are encouraged to pursue additional advanced degrees at other institutions. Specifically, faculty members above the rank of instructor are not eligible to receive an advanced degree in their own department or school at the University; however, in special circumstances, they may earn a degree in a department or school in which they do not hold an appointment.

ACADEMIC STANDING

All students admitted to graduate studies (regular, conditional, and graduate certificate) at Portland State University must maintain a GPA of at least 3.00 for all graduate credit earned at Portland State University. All graduate students, especially those in a conditional admission status, are expected to keep in close communication with their departments and to avail themselves of departmental advising.

Academic Probation. An admitted student is placed on probation if:

1. The student's cumulative graduate GPA at Portland State University, based on the completion of 9 graded graduate credits after admission to the graduate/postbaccalaureate level at PSU, is below 3.00 at the end of any term, or
2. The student's term graduate GPA, based on a minimum of 6 graded graduate credits, is below 2.67 for a given term.

While on academic probation the student will not be permitted to graduate, to be advanced to doctoral candidacy, to receive approval of the master's degree program (GO-12 form), to receive or continue to hold a graduate assistantship, or to register for more than a total of 9 credits in any term. Removal of academic probation occurs if the cumulative graduate GPA is brought to 3.00 within the next 9 graduate credits in graded courses in the case of probation due to a low cumulative GPA, or both cumulative and term GPA of 3.00 or above in the case of probation due to a low term GPA.

Disqualification. A student who is disqualified may not register for any graduate courses at PSU for at least one calendar year. Disqualification occurs if:

1. The student on academic probation for low GPA fails to achieve a cumulative graduate GPA of 3.00 or higher within the next 9 graduate credits in graded courses; or
2. The student on probation for a term GPA below 2.67 does not receive at least a 3.00 term GPA and does not achieve a 3.00 cumulative GPA within the next 9 credits of graded graduate coursework; or
3. The student becomes subject to academic probation for a second time.

Readmission After Disqualification.

A disqualified student may petition for readmission as a degree-seeking student in a graduate program after one calendar year. Removal from the mandatory one-year period is initiated by the student's filing of a petition for readmission to the Graduate Council through the Office of Graduate Studies. Readmission is not automatic. To be readmitted the student must meet all current admission requirements, with the exception of the graduate GPA. If the student's graduate program has recommended readmission, the Graduate Council may grant readmission, with or without additional academic requirements, or may recommend continued disqualification. If the Graduate Council approves readmission, the student must submit a re-enrollment request to the Office of Admissions. The readmitted graduate student is subject to all University and program requirements in effect at the time of readmission. The student must raise the PSU cumulative graduate GPA to 3.00 or better with 12 credits of graded graduate coursework after readmission, or she/he will be disqualified.

Graduate courses completed at any institution while a student is under disqualification at PSU will not be applied toward a graduate program at PSU.

ACADEMIC HONESTY

Graduate Policy on Academic Honesty and Integrity. Graduate students have a primary, unique relationship and responsibility to the faculty of the academic departments, the faculty upon whose recommendations graduate degrees are awarded. A major feature of the graduate student's responsibilities to the faculty is the adherence to academic honesty. The Graduate Policy on Academic Honesty and Integrity assumes that the student is honest, that all coursework and examinations represent the student's own work, and that all documents supporting the student's admission and graduation are accurate and complete. Academic honesty is a requirement for all graduate activities. Any violation of academic honesty and integrity is grounds for academic action. In addition, a student found in violation of this policy may be subject to disciplinary sanction as provided in the University Student Conduct Code. Violations of the policy include but are not limited to:
1. Cheating in Examinations and Course Assignments. The willful use or provision to others of unauthorized materials in written or oral examinations or in course assignments.

2. Plagiarism. The appropriation of language, ideas, and products of another author, artist, or performer and representation of them as one’s own original work; failure to provide proper identification of source data; use of purchased or borrowed papers in graduate courses without complete identification of the source.

3. Selling or Offering to Sell Course Assignment Materials. Selling or offering to sell material to another person, knowing, or under circumstances having reason to know, that the whole or a substantial part of the material is intended to be submitted in fulfillment of a course requirement.

4. Academic Fraud. Furnishing false or incomplete information to the University with the intent to deceive; forging, altering, or misusing University documents or academic forms which serve as the basis for admission, course study, or graduation; misrepresenting a person’s identity to an instructor or other University official.

Procedures for Allegations of Violations of Policy on Academic Honesty and Integrity. Allegations of violation of the graduate policy on academic honesty and integrity not resolved within the department (or appropriate academic unit) shall be submitted to the dean of Graduate Studies. At this point in the process, the dean is empowered to attempt to resolve the case and not forward the case to the Graduate Council. If the dean does not respond to the charges; the student’s right to request a formal hearing to contest the charges; the student’s right to waive the formal hearing by utilizing the student petition process (see paragraph below); and the requirement that the student’s request for a formal hearing or to file a petition be submitted in writing to the dean within 10 business days of the date of this written notification. If the student does not respond within this time period, the dean shall refer the matter to the Graduate Council for decision by default, based upon the information and records in the file, without further participation by the student. Upon referral to the Graduate Council, the council chair shall review the file and submit a written determination for final consideration by the council.

If the petition option is selected by the student, the student will complete a written petition to the dean of Graduate Studies that includes the student’s own written statement, with attached supporting documentation, and the specific action requested of the Graduate Council. The Office of Graduate Studies shall request a written statement from the faculty member(s) and/or administrative personnel who have advanced the case of alleged violation of academic honesty and integrity. Consistent with existing Office of Graduate Studies procedures for the review of student petitions, at least two members of the Graduate Council will review the petition independently and each will submit their decision to approve or deny the student’s requested action. Then, the Graduate Council chair will review both the student’s petition and the decisions made by the Graduate Council members. The Graduate Council chair will approve or deny the student’s request, or invoke an alternative disposition, indicating the findings of fact and evidence used to arrive at the decision. The Graduate Council chair’s decision is final. It is reported to the dean of Graduate Studies, who provides written notification to the student of the chair’s decision.

If the student requests a formal hearing instead of exercising the petition option (see paragraph above), the dean shall refer the matter to the Graduate Council chair, who will convene a hearing panel under the following procedures. The Graduate Council chair shall appoint a hearing panel from among its members and designate one of the appointed members to serve as the panel’s chair. The hearing panel will be comprised of at least three but no more than five members. If there are graduate student members serving on the Graduate Council, the council chair shall invite one graduate student member to serve on the hearing panel. The council chair, in consultation with the panel chair, shall notify all involved parties of the time, date, and place for the hearing and provide a list of hearing panel members, in advance of the hearing, to permit objections to be heard regarding the appointment of any particular panel member(s). Prior to the hearing, all involved parties are encouraged to submit written arguments and corroborating documents to the hearing panel chair.

The dean, with assistance from the original complainant, and with advice and assistance from the Oregon Department of Justice, shall advance the case before the hearing panel. The student shall have the right to be represented (at the student’s own expense) by counsel. The dean may elect to have the Department of Justice present the matter. At the panel hearing, all involved parties shall be given the opportunity to present further oral and written arguments and to have witnesses called. Opportunity shall be provided for witness cross-examination. Testimony shall be presented upon oath or affirmation and a verbatim record of the hearing kept.

The hearing panel shall deliberate in private and produce a written decision, including the findings of fact and evidence relied upon to reach its decision. The administration has the burden of proving the allegations. Findings shall be based upon a preponderance of the evidence. If the hearing panel concludes that a violation of graduate policy on academic honesty and integrity occurred, the following constitute academic actions which the hearing panel may take:

- denial or rescinding of credit for the course in which the violation occurred;
- academic probation for a period of one calendar year;
- academic disqualification for a period of one to three calendar years;
- denial or rescinding of the award of the graduate degree.

In the event that the hearing panel is unable to reach a consensus decision, the hearing panel will submit its majority and minority report at the next scheduled Council meeting for deliberation and vote by the entire Graduate Council. A consensus decision, reached by the hearing panel and ratified at a subsequent council meeting, is final.

Upon receipt of the Graduate Council’s decision, or the council chair’s decision in the case of a petition, the dean of Graduate Studies will impose whatever academic sanction is included in the decision. If an academic sanction is imposed, the dean will also forward all materials gathered in the case to the Office of Student Affairs, which may choose to act under the auspices of the Student Conduct Code.

GENERAL REQUIREMENTS FOR DOCTORAL DEGREES

Advisory Committee. An advisory committee for the doctoral degree student shall consist of at least three faculty members representative of the student’s field of study. When a student enters the doctoral program, a faculty adviser shall be designated by the program director to advise the student and to meet in regular consultation concerning the program of studies and research. The additional members of the advisory committee shall be appointed at a time not later than six months prior to the completion of the comprehensive examinations.
Residence Requirements. A minimum of three academic years of satisfactory graduate study beyond the baccalaureate is required. A minimum of three consecutive terms must be spent in full-time residence, with registration for 9 or more graduate credits each term, after admission to the doctoral program at Portland State University.

Language Requirement. For the Ph.D. degree, the student may be required to demonstrate competency in at least one foreign language. The requirement of foreign language competence for the Ph.D. degree is determined by the governing unit of the program or department. Any foreign language requirement must be completed before the comprehensive examinations.

Preliminary Examination. Early in the doctoral program the student may be required to take preliminary examinations. The scope and content of the examination, and the standard of performance, shall be determined by the department concerned.

Comprehensive Examination. Before advancement to candidacy and not less than one academic year before all requirements for the doctoral degree are expected to be completed, the student must pass a series of comprehensive examinations in the field of specialization. The examinations may be written, oral, or both. The comprehensive examinations may not be taken until the language requirement, if any, and substantially all the coursework for the degree have been completed.

Advancement to Candidacy. After passing the comprehensive examination and the identification of the dissertation proposal, and after the student completes a preliminary draft for approval from the Human Subjects Research Review Committee, a dissertation committee—consisting of the dissertation adviser, a minimum of three and a maximum of five additional faculty from the doctoral program, plus the representative of the Office of Graduate Studies—shall be formed to take the place of the advisory committee. At this time the faculty adviser is superseded by the dissertation adviser. The chair of the dissertation committee and the Graduate Office Representative must be regular, full-time PSU faculty, tenured or tenure-track, assistant professor or higher in rank; the other three committee members may include adjunct faculty. If it is necessary to go off-campus for one additional committee member with specific expertise not available among PSU faculty, a curriculum vitae (CV) for that proposed member must be presented. All committee members must have doctoral degrees. A written dissertation proposal shall be presented to the dissertation committee for discussion, evaluation, and suggested modifications. The final proposal submitted to the committee for approval should be sufficiently detailed and clear to provide a blueprint for the study to follow. The proposal is expected to include the following:

1. General nature and present status of knowledge of the problem.
2. The theoretical and empirical framework within which the proposed problem exists.
3. The significance of the proposed research and its likely contributions.
4. The research methodology to be used.

Upon final approval of the dissertation proposal by the dissertation committee and approval of the research plan and procedure by the Human Subjects Research Review Committee, the program shall request advancement to candidacy. Changes in the original proposal are permitted, but the student is expected to provide a sufficiently complete formulation of the proposal and to keep modifications to a minimum. All major modifications of the approved dissertation proposal must be reviewed and approved by the dissertation committee and the Human Subjects Research Review Committee. If the student has not satisfied the residency requirement by the time of advancement to candidacy, a plan for doctoral residency must accompany the program’s recommendation for advancement. The dean of Graduate Studies retains final approval authority for advancement to candidacy.

Human Subjects Research Review Committee. All research involving human subjects conducted by faculty, staff or students in any program at PSU must have prior approval of the Human Subjects Research Review Committee. This policy, established by the Office of the President of Portland State University, applies to all research under the auspices of the University, including surveys and questionnaires, whether supported by grant, contract, gift, University, or personal funds. Even if a student’s research is exempt from full Human Subjects Research Review Committee review, the student must still file an application with the HSRRC. The decision to waive review is made by the HSRRC chair or a designated member of the HSRRC. The student should allow a minimum of six weeks for the approval process.

Dissertation Presentation. With guidance of the dissertation committee, the candidate shall present a dissertation written in acceptable form setting forth the results of original and independent investigation. The dissertation must constitute a contribution to knowledge, significantly enlarging, modifying, or reinterpreting what was previously known. The candidate is expected to register for dissertation and the related research for a minimum of one full-time academic year. Until the degree is granted, the student enrolls for the number of credits appropriate to the amount of University services utilized, as determined by the dissertation adviser, with a minimum of one credit each term. Ph.D. students must register for a minimum of 27 hours of dissertation (603) credits before graduation; Ed.D. students must register for a minimum of 18 hours of dissertation.
(603) credits before graduation. A minimum continuing enrollment of one credit is required through the term a student graduates. The dissertation must be prepared in accordance with the University’s Information Regarding Dissertation Approval, available in the Office of Graduate Studies.

**Microfilming.** Portland State University subscribes to the services offered by University Microfilms International, enabling degree candidates to have their doctoral dissertations microfilmed and abstracts published in the Dissertation Abstracts International. Microfilming is mandatory for doctoral candidates. An abstract, not to exceed 350 words, must be submitted to the Office of Graduate Studies with the microfilm agreement form. The charge for this service is $55, payable at the Cashier’s office, after picking up the necessary forms in the Office of Graduate Studies. Doctoral students may wish to copyright their dissertations. The charge for this optional service is $45.

**Final Oral Examination.** After tentative approval of the dissertation, the candidate's dissertation committee, including the representative of the Office of Graduate Studies, shall conduct a final oral examination, which may be scheduled only during the regular sessions or during the eight-week Summer Session. The final examination shall not be given until coursework and residence requirements have been completed. The final defense of the dissertation may be held no later than five weeks prior to the conferring of the degree. The final doctoral oral examination, which is open to the public, is the culminating experience in the doctoral studies. The candidate is expected to prepare and present orally a formal statement on the research methodology and results. The oral presentation should not exceed 30 minutes. Following the oral presentation, the candidate must defend the dissertation as a worthy contribution to knowledge in its field and must demonstrate a mastery of the field of specialization as it is related to the dissertation. The questioning and discussion are for the purpose of: (1) further enlightenment of the candidate and the committee of the significance and limitations of the research, and (2) demonstration that the candidate has met the high expectations of the University for the award of the doctoral degree.

All committee members or alternates approved by the dean of Graduate Studies must be present for the final examination. For dissertation approval there may be no more than one dissenting vote on the doctoral final examination. If the final oral examination is not satisfactory, the advisory committee may recommend that the dean of Graduate Studies permit the candidate to take another oral examination after a period of further study.

**Dissertation in Absentia.** With the written approval of the doctoral program chair, the dean of Graduate Studies may authorize the dissertation to be prepared in absentia. The student must register at Portland State University at the beginning of each term and conduct the research under the direction of the dissertation adviser.

**Time Limitation.** A doctoral candidate has a minimum of four months and a maximum of five years from the effective date of advancement to candidacy to complete all requirements for graduation, including defense of the dissertation and its final acceptance by the Office of Graduate Studies (within this time frame, doctoral programs may have stricter requirements). Candidates must be continuously enrolled during that period. Failure to meet the five-year limitation will invalidate passing of the comprehensive examinations and remove the student from candidacy. Readmission to candidacy requires the passing of the regular, or a special, comprehensive examination. Approvals for readmission are required from the academic program and the dean of Graduate Studies.

**SUMMARY OF PROCEDURES FOR DOCTORAL DEGREES**

The following outline summarizes the Portland State University procedural requirements for the doctoral degree. Additional requirements may be imposed by specific programs.

**PRE-CANDIDACY FOR DEGREE**

1. After admission to a specific program, each student is assigned to a faculty adviser by the program director. A preliminary course of study is developed in consultation with the adviser.
2. Upon satisfactory completion of 9 credits of coursework and not later than six months prior to the completion of the comprehensive examinations, an advisory committee consisting of at least three members is appointed by the program director.
3. A program of study is prepared by the advisory committee in consultation with the student. The student’s program is recommended to the program director; after approval, copies are distributed to the student, adviser, program director, and dean of Graduate Studies.
4. In some programs the student may be required to pass a preliminary examination.
5. Foreign language examinations, if required, must be passed before the comprehensive examination. Notice of passing of the examination is sent to the dean of Graduate Studies.
6. The comprehensive examinations are scheduled and administered in accordance with established rules of the program. The results of the examination are sent to the dean of Graduate Studies.
7. After the student has passed the comprehensive and foreign language examinations, and after identification of a dissertation research problem, a dissertation committee consisting of the dissertation adviser and a minimum of three and a maximum of five additional faculty from the doctoral program is recommended by the program director. This committee is selected with regard to both faculty skills and knowledge required by the research problem and the regulations of the specific academic program and the University. The chair of the dissertation committee and the Graduate Office representative must be regular, full-time PSU faculty, tenured or tenure-track, assistant professor or higher in rank; the other three committee members may include adjunct faculty. If it is necessary to go off-campus for one additional committee member with specific expertise not available among PSU faculty, a CV for that proposed member must be presented. All committee members must have doctoral degrees. The adviser submits one copy of the Appointment of Final Oral Examination Committee (GO-16D) to the Office of Graduate Studies for appointment of the representative of the Office of Graduate Studies and approval of the committee by the dean of Graduate Studies. The dissertation topic must accompany this request, along with a copy of the preliminary draft for approval from the Human Subjects Research Review Committee.
8. The student prepares a written dissertation proposal and submits it to the approved dissertation committee for evaluation, modification, and final approval. When the dissertation committee accepts the proposal, it recommends the student for advancement to candidacy to the dean of Graduate Studies. This request must be accompanied by a copy of the approval of the research plan and procedure by the Human Subjects Research Review Committee. If the student has not satisfied the residency requirements, a plan for doctoral residency compliance must also accompany this request.
9. The student is informed by the dean of Graduate Studies of advancement to candidacy for the doctoral degree. The candidate has a minimum of four months and a maximum of five years from the effective date of advancement to candidacy to complete all requirements for graduation, including defense of the dissertation and
its final acceptance by the Office of Graduate Studies. Candidates must be continuously enrolled during that period.

CANDIDACY FOR THE DEGREE
1. Under direction of the chair of the dissertation committee, and in consultation with the members of the dissertation committee, the candidate prepares a preliminary draft of the dissertation.
2. The draft is revised and corrected as directed by the dissertation committee until it meets the approval of the committee.
3. The candidate files the Application for the Degree form with the Office of Graduate Studies no later than the anticipated term of graduation.
4. At least two weeks prior to the final oral examination, the chair of the dissertation committee submits copies of the final draft to each member of the committee.
5. The final oral examination must be passed and degree requirements completed no later than five calendar years after advancement to candidacy for the doctoral degree. Candidates must be continuously enrolled.
6. Three copies of the dissertation and four copies of the abstract in final approved form (some departments require five copies of the dissertation and four copies of the abstract) must be submitted to the Office of Graduate Studies no later than three weeks before graduation. Required corrections must be made before graduation. Deadlines for each term are available in the Office of Graduate Studies.
7. Microfilming of the dissertation is mandatory for doctoral candidates. An abstract, which may not exceed 350 words, must be submitted to the Office of Graduate Studies with the University Microfilms International agreement form. The charge for this service is $55, payable at the Cashier's Office, after picking up the necessary forms in the Office of Graduate Studies. Copyrighting of the dissertation is optional, at an additional charge of $45, payable at the Cashier's Office.
8. The National Research Council Survey of Earned Doctorates must be completed by the student and returned to the Office of Graduate Studies. There is no charge involved.
9. Incomplete or In Progress grades in any course (excluding dissertation, see 10 below) which is in the approved program must be removed no later than two weeks before graduation.
10. The doctoral program completes the Recommendation for the Degree form (GO-17D) which is forwarded to the Office of Graduate Studies no later than the last week of the term of graduation.

progress grades for required 603 dissertation credits are changed on this form, eliminating the need for the Supplemental Grade Report for these courses.
11. The dean of Graduate Studies certifies that all requirements for the degree have been met and recommends the awarding of the degree.

GENERAL REQUIREMENTS FOR MASTER’S DEGREES
Program of Study. Prior to the completion of 18 credits, the degree student prepares a program of study with the assistance of the faculty adviser. The purpose of the planned program of study is to present an organized, individualized plan for coursework, practicums, and research activities consistent with the requirements for the proposed degree and approved by the faculty adviser. Successful completion of the program of study should demonstrate a high level of academic and professional performance required in the graduate specialization.

The final, approved program of study must be received in the Office of Graduate Studies no later than the first week of the term of graduation.

Language Requirement. The language requirement for M.A. and M.A.T. students must be passed before the student's program (GO-12) or committee can be approved and before final exams can be taken. (See “Options for Meeting the Graduate Foreign Language Requirement for M.A. and M.A.T. students,” page 55.)

Final Examination. If a final examination is required by the student's major department, it shall be taken after successful completion of any required foreign language examination and after at least 30 credits have been completed. The examination is not a re-examination over coursework but rather a test of the candidate's ability to integrate material in the major and related fields, including the work in any thesis or research project.

If a final oral examination is required, it may be scheduled only during the regular sessions or the eight-week Summer Session and no fewer than two weeks before the close of the term of graduation. If a thesis is being presented, the required oral examination must be scheduled no later than five weeks prior to the close of the term in which the degree will be granted.

When a thesis is presented, the final oral examination is conducted by a committee of at least three and not more than five faculty members, including the candidate's adviser as chairperson and a representative of the Office of Graduate Studies who is appointed by the dean of Graduate Studies. The chair of the examination committee and the Graduate Office representative must be regular, full-time PSU faculty, tenured or tenure-track, assistant professor or higher in rank; the other committee members may include adjunct faculty. If it is necessary to go off-campus for one committee member with specific expertise not available among PSU faculty, a CV for that proposed member must be presented; that member must be in addition to the required three PSU faculty members. All committee members must have master's degrees.

In the case of a non-thesis oral examination, the committee shall consist of at least two members of the student's department, including the candidate's adviser. At the discretion of the department, a faculty member from another department may be added; that member would be selected by the adviser, the department chair, or the departmental graduate committee chair, according to department policy. For M.A.T. and M.S.T. candidates, one member of the committee is required to be added from the School of Education.

The chairperson of the final oral examination committee will schedule the time and place of the examination after agreement has been reached among all members and the candidate. All committee members or alternates approved by the dean of Graduate Studies must be present for the final oral examination. The final examination is open to the University faculty. Passing of the final oral examination requires a majority approval. In case of failure of the final oral examination, the department has the option of disqualifying the candidate from the master's program or permitting the candidate to appear for re-examination after a period of at least three months. The result of the second examination is final.

If a final written examination is required, the student must pass all sections of the examination. If the student fails the entire examination or any section thereof, the department may dismiss the student from the degree program, or permit the student to repeat the entire examination, or the section that was failed, after a minimum of three months. The result of the second examination is final.

Human Subjects Research Review Committee. All research involving human subjects conducted by faculty, staff, or students in any program at PSU must have prior approval of the Human Subjects Research Review Committee. This policy, established by the Office of the President of Portland State University, applies to all research under the auspices of the University, including surveys and questionnaires, whether supported by grant, contract, gift,
Thesis in Absentia. With the written approval of the department or program chair, the dean of Graduate Studies may authorize the thesis to be prepared in absentia. The student must register at Portland State University at the beginning of each term and conduct the research under the direction of the thesis adviser.

Microfilming. The University subscribes to the services offered by University Microfilms International, enabling degree candidates to have master's theses microfilmed and abstracts published in the Master's Abstracts. The microfilm agreement form and further information may be obtained from the Office of Graduate Studies. It is not required that master's theses be microfilmed. Upon the recommendation of the department chair, however, selected theses may be accepted for microfilming. In such cases an abstract of not more than 150 words must be submitted to the Office of Graduate Studies with the microfilm agreement form. The charge for this service is $45, payable at the Cashier's office after picking up the necessary forms in the Office of Graduate Studies.

Time Limitation. All coursework submitted for the master's degree program approved by the department must be completed within the seven years prior to the awarding of the degree (e.g., a course started in the fall term of 1993 will be beyond the seven-year limitation at the close of fall term 2002). The formal application for the degree must be filed with the Office of Graduate Studies no later than the first week of the anticipated term of graduation. Deadlines for each term are available in the Office of Graduate Studies.

Validation of Out-of-Date Graduate Credit. Credits offered for a master's degree program that were earned beyond the seven-year limitation must be validated by a written examination prepared and administered by the academic department in which the coursework was completed. Only credits earned at Portland State University may be validated.

Summary of Procedures for Master's Degrees

The following outline summarizes the Portland State University procedural requirements for master's degrees. Additional requirements may be imposed by specific programs.

1. Apply for admission about six months prior to registration. Check with the specific department about deadlines.

2. Prior to registration, become familiar with general regulations and procedures for the master's degree as described in the Bulletin.

3. Prior to first term registration, meet with faculty adviser assigned by program director and plan a preliminary program of study.

4. If graduate courses taken as an undergraduate and not used in the bachelor's degree are to be considered for use in the graduate program, the Reservation of Graduate Credit form (GO-10) must be filed in the Office of Graduate Studies no later than the term following admission to a graduate degree program. (Valid only for courses completed at Portland State University.)

5. If transfer credit from another accredited institution is to be presented, the Proposed Transfer Credit for Master's Degree form (GO-11) must be filed in the Office of Graduate Studies for approval. It is suggested that this form be submitted early in the student's program; it must be approved before the Graduate Degree Program (GO-12) can be approved.

6. If admitted to conditional or qualified status, remove all deficiencies and/or conditions. Adviser will submit a Petition for Change of Status form (GO-7) to change from qualified to regular status; conditional admission will automatically be changed to regular status after completion of the first 9 graded graduate hours with a 3.00 or better GPA.

7. If a foreign language is required, pass the foreign language exam. This requirement must be met before the GO-12 or oral exam committee can be approved and before any final exam may be taken. (See “Options for Meeting the Graduate Foreign Language Requirement for M.A. and M.A.T. Students,” page 55.)

8. Submit a final Graduate Degree Program form (GO-12), planned with and approved by the faculty adviser and signed by the department chair or department graduate committee chair, to the Office of Graduate Studies no later than the first week of the term of graduation.

9. File Application for Degree form in the Office of Graduate Studies no later than the first week of the term of graduation. Deadlines for each term are available in the Office of Graduate Studies.

10. A minimum enrollment of one credit is required during the term in which oral or written exams are taken. A thesis student must be registered for at least one credit in every term in which the student is working on any phase of thesis, including data development or collection, writing, revision, defense, and finalization through acceptance by the PSU Library and the Office of Graduate Studies.

11. If thesis is to be submitted:
   a. thesis proposal, Human Subjects Research Review Committee approval,
and appointment of the departmental thesis committee must be completed before submission of the GO-12 (see 8 above); b. adviser submits the Appointment of Final Oral Examination Committee form (GO-16M) for appointment of the representative of the Office of Graduate Studies by the end of the first week of the term of graduation (earlier in summer term). The chair of the examination committee and the Graduate Office representative must be regular, full-time PSU faculty, tenured or tenure-track, assistant professor or higher in rank; the other committee members may include adjunct faculty. If it is necessary to go off-campus for one committee member with specific expertise not available among PSU faculty, a CV for that proposed member must be presented; that member must be in addition to the required three PSU faculty members. All committee members must have master's degree; c. the oral examination must be scheduled at least five weeks prior to the end of the term and the Graduate Office representative must receive a complete copy of the thesis at least two weeks prior to the examination date (for Summer Session, the oral examination must be held during the regular eight-week session); d. student must check with faculty adviser and thesis committee chair to assure completion of requirements prior to final examinations; e. three copies of the unbound thesis and four copies of the abstract, in final approved form, must be submitted to the Office of Graduate Studies at least three weeks prior to close of the term in which the degree will be granted. Deadlines for each term are available in the Office of Graduate Studies. Required changes must be made before graduation. 12. In the case of a non-thesis oral examination, the committee shall consist of at least two members of the student's department, including the candidate's adviser. At the discretion of the department, a faculty member from another department may be added; that member would be selected by the adviser, the department chair, or the departmental graduate committee chair, according to department policy. For M.A.T and M.S.T. candidates, one member of the committee is required to be added from the Graduate School of Education. The oral examination must be scheduled no less than two weeks before the end of the term.

13. If there are any changes in the approved program, a Change in Graduate Degree Program form (GO-13) must be filed.

14. Schedule and pass final master's examinations, if required, at least two weeks before date of graduation. Deadlines for each term are available in the Office of Graduate Studies.

15. An Incomplete or In-Progress grade in any course, excluding thesis (see 16 below), which is on the approved program (GO-12) must be removed no later than two weeks before graduation.

16. Adviser is responsible for the completion of the form Recommendation for the Degree (GO-17M), which is forwarded to the Office of Graduate Studies no later than the last day of the term of graduation. In-Progress grades for required thesis credits are changed on the form, eliminating the need for the Supplemental Grade Report for these courses.

17. The dean of Graduate Studies certifies that all requirements for the degree have been met and recommends the awarding of the degree.

18. Graduation.

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**Systems science**

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In 1970, the Systems Science Ph.D. Program was established at Portland State University. The program encompasses both applications and theory-oriented aspects of the field. It is designed to prepare students for professional practice in industrial, governmental, and public service organizations and for research and teaching in academic institutions.

The School of Business Administration, the College of Liberal Arts and Sciences (Departments of Economics, Mathematics, Sociology, Anthropology, and Psychology), and the College of Engineering and Computer Science (Departments of Civil Engineering, Engineering and Technology Management, Mechanical Engineering, and Computer Science) participate in the program. In addition to the systems courses offered by these departments (e.g., cost-benefit analysis, operations research, systems analysis and synthesis, mathematical modeling, etc.), the systems science core faculty offers courses in information systems, dynamical systems, information theory, neural networks, artificial life, systems management and planning, general systems and cybernetics, and other areas.

There are two options for the Ph.D. in Systems Science.

**Core Option:** The student pursues interdisciplinary studies with a strong emphasis on systems coursework. Examples of study topics appropriate for inclusion in such a program are: intelligent systems, information, structure and dynamics, organizations, decision making and optimization; modeling and simulation; systems philosophy; systems approach; and related topics in the study of complex systems.

**Departmental Option:** The student undertakes advanced academic preparation primarily in a single department or school. Discipline-oriented studies are supported by systems coursework and lead to research on a systems-related topic. This option is currently available in the above listed departments in the College of Liberal Arts and Sciences, the College of Engineering and Computer Science and the School of Business Administration.
ADMISSION AND ADVISING

Students with high academic standing and with a baccalaureate and/or master’s degree may apply for admission to the doctoral program. Generally, applicants should have a combined GRE score of 1100 (quantitative and verbal, or analytical and verbal) or GMAT score of 550. Applicants must submit scores (preferably taken within the last five years) for either the GRE aptitude or GMAT test to verify their national ranking. In considering an applicant for admission, the Admissions Committee for Systems Science seeks evidence of demonstrated intellectual capacity, undergraduate and/or graduate training in an appropriate discipline (or disciplines), adequate preparation in mathematics (including calculus, statistics, and computer programming), and the potential to pursue advanced study and research for the Ph.D. Students are admitted to the program in fall, winter, and spring terms. Prospective applicants should write to the Office of Admissions and request the Application to Doctoral Program form. The Office of Admissions must receive: (1) the completed Application to Doctoral Program form, (2) the application fee, and (3) one copy of all undergraduate and graduate transcripts to be sent by the institutions to Portland State University. The applicant must arrange for the Admissions Committee for Systems Science to receive: (1) the completed Application to Doctoral Program form, (2) one copy of all undergraduate and graduate transcripts to be sent by the institutions, (3) GRE aptitude or GMAT scores, (4) three letters of recommendation from faculty and/or professionals acquainted with the applicant’s abilities and record, (5) statement of the student’s expectations of the program, and (6) TOEFL score of 575 or other evidence of English competency if a foreign student.

Applicants who meet the requirements to enter the graduate degree program in systems science are admitted to regular status. In exceptional cases a student who meets the required standards for admission except for a minor gap in subject matter background, such as deficiencies in computer and mathematics knowledge or introductory courses in relevant disciplines, may be admitted to conditional status in systems science. The student must immediately remove the background deficiency (with grades of B or better) or be dropped from the graduate program.

Each applicant who has received formal notice of admission to the Systems Science Doctoral Program should contact the program office for initial advising. Adviser(s) will be appointed to assist and consult with the admitted student regularly in planning the program of study and research. A comprehensive examination committee is appointed for each student to give required oral and written examinations. A research committee supervises the research and preparation of the dissertation.

GRADUATE PROGRAMS

PH.D. IN SYSTEMS SCIENCE

A discussion of general requirements for doctoral degrees is on page 62. Minimum requirements specific to the Ph.D. in systems science include:

Systems Component. Students in both the core and departmental options are required to complete 16 credits of systems science coursework as the minimum systems component of the program. All students must satisfy the first 8 credits by taking two of the following courses: SySc 511, SySc 512, SySc 513, SySc 514. Any combination of two of the courses, except SySc 512 and 514 is acceptable. SySc 511 and 512 explore systems concepts in more quantitative terms than SySc 513 and 514. Consequently, students taking SySc 511 and 512 should have stronger quantitative background.

To fulfill the remaining 8 credits of the systems component, students must take two systems science courses numbered 515 through 599 or 610 and above. These elective courses are either advanced systems science courses or integrative courses. The integrative courses have emerged from the interdisciplinary nature of the program. They are taught jointly by faculty from Systems Science and participating departments, and the topics covered illustrate specific applications of systems concepts.

Additional Coursework Requirements. Beyond the systems component described above, additional graduate courses in approved areas are required as shown below:

Requirements in addition to systems components (16 credits)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Entering Degree</th>
<th>Additional Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Option</td>
<td>B.A/B.S.</td>
<td>12 SySc + 44</td>
</tr>
<tr>
<td>SBA</td>
<td>B.A/B.S.</td>
<td>48</td>
</tr>
<tr>
<td>MBA</td>
<td>B.A/B.S.</td>
<td>72 for concurrent MBA</td>
</tr>
<tr>
<td>CLAS</td>
<td>M.B.A.</td>
<td>18</td>
</tr>
<tr>
<td>EAS</td>
<td>B.A/B.S.</td>
<td>45</td>
</tr>
<tr>
<td>Equivalent coursework</td>
<td>M.S. or</td>
<td>9</td>
</tr>
</tbody>
</table>

These are minimum requirements. Additional coursework may be required to strengthen the student’s academic background and to prepare the student for comprehensive examinations and thesis research.

Courses taken to satisfy the systems core and additional coursework requirements must be at the 500 or 600 level. Credit for graduate work done elsewhere (with a grade of B or better) may also be approved. However, at least 27 credits of coursework (not including dissertation credits) must be taken at Portland State University.

Students are required to be enrolled continuously, except if a leave of absence is formally requested and approved by the program director. Failure to take courses for a year, or failure to maintain continued progress after coursework is completed will result in a student being dropped from the program.

Language Requirement. Foreign language competency may be required of departmental option students in some departments which also determine the level of competency and testing procedures. (Consult the appropriate department for further information.) There is no foreign language requirement for the core option. If required, the foreign language examination must be successfully completed before the student is allowed to take the comprehensive examinations.

Comprehensives. Written and oral comprehensive examinations are required in appropriate areas. Quality and breadth of academic competencies must be demonstrated.

Internship. Internship in a public or private organization or an equivalent experience may be required of core option students.

Research. All students must establish competency in appropriate research methodology before beginning thesis work. After this and all other requirements have been met, the student prepares a proposal for independent research leading to a significant and original contribution to knowledge in the systems field. When the proposal is accepted, the student is advanced to candidacy, and then focuses exclusively on research. Students must register for at least 27 credits of dissertation research after advancement to candidacy.

Dissertation. Completed research is presented in a dissertation which must be approved and successfully defended in a final oral examination.

The student can anticipate approximately four to five years of full-time study beyond the baccalaureate degree in order to satisfy the program requirements. Detailed additional information on requirements and procedures are contained in the document, “Systems Science Program.
Information,” and should be obtained by contacting the director, Systems Science Ph.D. Program.

**MASTER OF SCIENCE IN SYSTEMS SCIENCE**

**Program Overview:** The Systems Science M.S. program emphasizes the systems theories and methodologies taught in the current Systems Science Ph.D. program. Students choose a combination of systems science courses plus approved courses in associated disciplines. Concentration areas include (but are not limited to) the faculty research areas described in the document entitled *Systems Science Research at PSU*. Upon completion of the program, students will understand a wide variety of systems ideas, be able to use them in modeling and analysis, be able to tap methods and ideas from a variety of disciplines, and will gain expertise in problem solving and in being integrative thinkers.

**Admissions.** Admission is based on the applicant’s academic transcript, two letters of recommendation, a statement of interests and objectives, and other background material considered individually by an admissions committee, in line with general University admission policies. GRE/GMAT scores are recommended but not required. Students admitted to the Ph.D. program (either option) need not apply separately for admission to the master's program.

**Degree Requirements.** To be granted an M.S. degree, students must meet the requirements below and submit the necessary Graduate Studies Office forms. All students will be required to complete 24 credits of courses listed under Systems Science in the PSU catalog, including selected new 510/610 courses that are under development. The master’s program has two options:

1. **Thesis Option:**
   - Students must take 12 additional credits of systems science courses and/or approved courses from other departments (see document entitled, *Approved Resource Courses for the Master of Science Program in Systems Science*), and 9 thesis credits.
   - A student selecting the thesis option must form a thesis committee of at least three faculty members (two committee members, one of whom must be a systems science core faculty, and a Graduate Studies representative), and pass an oral thesis defense.

2. **Non-Thesis Option:**
   - Students must take 21 additional credits of systems science courses and/or approved courses from other departments (see document entitled, *Approved Resource Courses for the Master of Science Program in Systems Science*).
   - A student selecting the non-thesis option will be required to pass two written comprehensive exams, each of which covers a minimum of 16 credit hours of coursework. One of the examiners must be a Systems Science core faculty member. Students admitted to the Ph.D. program who pass their comprehensive exams meet this requirement automatically. Ph.D. students who do not pass their comprehensive exams meet this requirement if they pass two of their written exams, one of which is a core systems science exam.

**GRADUATE CERTIFICATES**

The Systems Science program offers graduate certificates in two specialty areas: computational intelligence and computer modeling and simulation. Please see the Graduate Studies section on page 56 for graduate certificate requirements.

**Courses**

_Courses with an asterisk (*) are not offered every year._

**SySc 501 Research (Credit to be arranged.)** Research which is normally not part of the thesis.

**SySc 503 Thesis (Credit to be arranged.)** All aspects of the thesis including thesis research and writing of dissertation.

**SySc 505 Reading and Conference (Credit to be arranged.)** Scholarly examination of literature including discussion between student and professor.

**SySc 507 Seminar (Credit to be arranged.)** Discussion of recent and current research and/or presentation of progress and final reports of studies performed in SySc 508.

**SySc 508 Workshop (2-6, 2-6)** Provides (1) the students with experience in actual interdisciplinary systems analysis and planning, and (2) the community with a service. Local government agencies or industrial firms determine potential systems problems for analysis in the workshop. The workshop operates on a team concept with an advanced student as team leader and a faculty member as adviser. Credit for the second term of SySc 508 will be based upon evidence of successful team leadership by the student. Undergraduates will be admitted to participate as junior members of the workshop. Prerequisites: SySc 511, 512, 513.

**SySc 510 Selected Topics (Credit to be arranged.)**

**SySc 511 Systems Theory (4)**

1. **Systems Theory (4)**
   - Surveys fundamental systems concepts and central aspects of systems theory. The course begins with an overview of the systems paradigm and the systems field as a whole. Topics then include introductions to set-and information-theoretic multivariate relations and structures, discrete dynamic systems, model representation and simulation, decision analysis, optimization, game theory, artificial intelligence, complex adaptive systems. Readings drawn from mathematics, the natural and social sciences, and the professional disciplines (e.g., engineering, business). Course content derives both from “classical” general systems theory, cybernetics, and operations research as well as from contemporary systems research, which is organized around the themes of nonlinear dynamics, complexity, and adaptation. Prerequisites: graduate standing, calculus, probability, computer programming.

**SySc 512 Quantitative Methods of Systems Science (4)**

An introduction to the quantitative representation and investigation of systems with a focus that emphasizes tools more than applications. Topics include linear dynamics, optimization, and uncertainty. The level of presentation assumes familiarity and facility with calculus. Notions from linear algebra unify the topics and those notions will be presented. Required coursework includes both calculations to be done on a computer and calculations to be done by hand. Prerequisites: one year of calculus, probability and familiarity with computers, graduate standing.

**SySc 513 Systems Approach (4)**

Provides practitioner-oriented definition of systems, including: importance of observer dependence and context, and ideas of meta-systems, subsystems; notion of value system and associated optimization/sub-optimization; aspects of life-cycle project management; the underlying notions of inquiring systems, and key aspects of learning (human) organizations. Qualitative tools for the system's practitioner, including graphical tools, basic ideas of modeling/simulation and structural modeling. Also, the multiple perspectives aspect of the systems approach. Prerequisite: graduate standing.

**SySc 514 System Dynamics (4)**

Introduces concepts and a methodology for analyzing the behavioral dynamics of systems that consist of complex "webs" of feedback loops. Primary emphasis is on building computer models of these systems and using these models to enhance understanding, make predictions, and find ways to improve the performance of systems and processes. Models are defined in terms of a set of "rate" equations that are numerically integrated to simulate behavior over time. The process of applying this methodology to real world situations is discussed in detail. Prerequisite: graduate standing.

**SySc 515, 516 Communication of Complex Ideas in Systems Work I, II (3,3)**

Effective use of the systems approach in communicating complex ideas: holistic communication, the computer as a communications device, group problem solving, models of change (personal, organizational, and societal), project implementation and interpersonal behavior systems, cognitive style discrepancies, graphics and other communications aids.
SySc 520, 521, 522  
Operations Research I, II, III (3, 3, 3)  
Convex sets, linear, dynamic, and integer programming. Markov chains, steepest descent, maxima and minima, calculus of variations, search techniques, queuing theory, inventory theories, case studies. Prerequisites: knowledge of calculus, probability, statistics, and linear algebra.

SySc 527/627  
Discrete System Simulation (4)  
The primary focus is on the application of discrete system simulation to real world problems using the Arena simulation language. The mathematical basis for discrete system simulation is probability theory and queuing theory. It is used extensively in the fields of operations research, civil engineering, and industrial engineering. Students apply the tools to projects within their fields of interest. Prerequisite: graduate standing or consent of the instructor.

SySc 529/629  
Business Process Modeling and Simulation (3)  
The primary focus is on the application of system simulation to process flow problems. Extend, a special-purpose computer simulation language, is used to develop models to describe and analyze both continuous and discrete flow processes in order to better understand bottlenecks and how to alleviate them. Such models are used to study, for example, manufacturing systems, business systems, and engineering systems. Students apply the concepts to projects within their fields of interest. Prerequisite: graduate standing or consent of the instructor.

SySc 531, 532  
Systems Decision Making I, II (3, 3)  
Decision making under certainty, risk and uncertainty, decision criteria, subjective probability and Bayesian concepts, utility theory, risk analysis, decision trees, policy capturing. Prerequisites: knowledge of probability, statistics, and linear algebra.

SySc 541/641, 542/642  
Dynamic Systems I, II (4, 4)  
The fundamental concepts of modeling time dependent deterministic systems, including applications of dynamic models to various types of systems including electrical, mechanical, economic, and ecological. Computer methods are used as illustrations and as tools for analysis. Prerequisites: familiarity with high-level computer languages, applied linear algebra, differential equations, and multivariable calculus.

SySc 545/645  
Information Theory (4)  
Establishes theoretical limits on the performance of techniques for compression or error correction of signals. This course focuses on communications applications, specifically source coding and channel coding for discrete signals. Topics will include: entropy and mutual information, asymptotic equipartition (the Ergodic Theorem of Information Theory), Entropy Rates of Information Sources, Data Compression, and Channel Capacity.

SySc 551/651  
Discrete Multivariate Modeling (4)  
This course focuses on information theory as a tool for modeling and multivariate analysis and as a general framework for the study of structure and organization. The course examines the use of set- and information-theoretic techniques for the analysis of constraints in qualitative, as well as quantitative, data. Also covered are software implementations, relations to log-linear methods, and applications in the natural and social sciences and the arts. Prerequisite: SySc 511/611 or consent of instructor.

SySc 552/652  
Game Theory (4)  
Study of cooperation, competition, and conflict in social systems and associated issues of rationality. Emphasis is on game-theoretic models, particularly of dilemmas of collective action, their possible solutions, and their applications to social, economic, and political phenomena. Also covered are social choice theory, differential equations models of competition and conflict, and other systems-theoretic approaches to similar problems. Prerequisite: SySc 511/611 or consent of instructor.

SySc 553/653  
Manufacturing Systems Simulation (4)  
Application of discrete systems simulation to manufacturing processes, including production cells, assembly operations, materials handling, and scheduling. Students also learn general systems modeling concepts, such as how to model random processes and probabilistic events, and how to use a specific simulation package that features realistic animation of the system under study. Prerequisites: basic knowledge of probability and statistics, and some exposure to manufacturing processes and terminology. This course is the same as EMgt 553/653, course may only be taken once for credit.

SySc 557/657  
Artificial Life (4)  
Artificial life (Alife) encompasses mathematical and computational studies of phenomena such as replication, metabolism, morphogenesis, learning, adaptation, and evolution. Situated at the intersection of computer science and biology (also physics and chemistry) and focused on abstract, materiality-independent aspects of life, its purpose is two-fold: to understand biological phenomena and to develop computational technologies. Alife bears significantly also on the social sciences and philosophy. It is part of the research program into “complex adaptive systems” and exemplifies (as does Artificial Intelligence) what Herbert Simon called “the sciences of the artificial.” This course will sample the research literature in this field, and will be organized in a seminar format. Topics emphasized are (1) cellular automata (and other discrete dynamical models), (2) ecological and evolutionary simulations, and (3) genetic algorithm optimization and adaptation. Other topics include artificial chemistry (metabolism and origins of life) and philosophical issues. Prerequisites: graduate standing, calculus, probability, computer programming.

SySc 571/671, 572/672, 573/673  
Information Systems I, II, III (3, 3, 3)  
SySc 571/671: Concepts, tools, and background examples necessary to design advanced information systems for business, government, and non-profit organizations. Emphasis placed on assessing information needs, scanning and adapting to the external environment, and participatory design. Prerequisite: graduate standing.

SySc 572/672: Concepts on experimental design applied to the design and use of databases. Students will have an opportunity to go through each stage of the design process needed to upgrade an existing system or design a new one. Prerequisites: SySc 571 and Mth 243, 244, or equivalent.

SySc 573/673: A general framework of information systems (ISs) that provide a perspective useful in understanding, designing, and/or evaluating ISs, and provides a perspective from which to ask questions of a type not examined in the traditional IS literature. Includes basic ideas from pattern recognition and the new mathematics of imprecision (Fuzzy Set Theory). SySc 571/671 and 572/672 not prerequisites.

SySc 575 AI:  
Neural Networks I (4)  
Introduces approach for developing computing devices whose design is based on models taken from neurobiology and on notion of “learning.” A variety of NN architectures and associated computational algorithms for accomplishing the learning are studied. Experiments with various available architectures are performed via a simulation package. Students do a major project on the simulator or a special programming project. Prerequisite: graduate standing.

SySc 576 AI:  
Neural Networks II (4)  
Focuses on applications. Topics in fuzzy set theory, control theory, and pattern recognition are studied and incorporated in considering neural networks. A design project (using NN simulator) in selected application area is done by each student. Prerequisite: SySc 575.

SySc 580, 581, 582  
Advanced Systems Seminar I, II, III (3, 3, 3)  
Each term focuses on one significant subject or problem. From multiple points of view, the possible value of the systems approach, and the differences between a discipline-oriented and transdisciplinary attack are examined. Prerequisites: an approved core sequence which includes SySc 511/611.

SySc 601  
Research (Credit to be arranged.)

SySc 603  
Thesis (Credit to be arranged.)

SySc 605  
Reading and Conference (Credit to be arranged.)

SySc 607  
Seminar (Credit to be arranged.)

SySc 608  
Workshop (Credit to be arranged.)

SySc 610  
Selected Topics (Credit to be arranged.)
The College of Liberal Arts and Sciences provides an opportunity for students to obtain a liberal education—an education that both broadens and deepens their understanding of the major areas of knowledge and scholarship, and develops their expertise in an area of specialization. A liberal education is an education for life. It prepares students to make informed decisions about their lives and to think critically and analytically.

All students—Liberal Arts and Sciences majors as well as those from professional schools and programs—take a selection of courses that represent the three areas of the College: arts and letters, science, and social science. Course offerings range from those designed to provide a foundation for all baccalaureate degrees to those of an advanced, specialized nature.

Acquiring a balanced and integrated liberal education requires planning and consultation with an adviser. Faculty advisers in each department and program are available to help students structure their academic careers so they may get the most from their college experience.

The instructional units of the College include Anthropology, Applied Linguistics, Biology, Black Studies, Chemistry, Chicano/Latino Studies, Child and Family Studies, Communication, Economics, English, Environmental Programs, Foreign Languages and Literatures, Geography, History, International Studies, Mathematical Sciences, Philosophy, Physics, Psychology, Science Education, Sociology, and Women’s Studies. Undergraduate and graduate degree programs and certificates available through the College are listed on pages 4-6.
Geology, History, International Studies, Mathematical Sciences, Philosophy, Physics, Psychology, Sociology, and Women’s Studies. (Students majoring in a field of study outside Liberal Arts and Sciences also may declare an academic minor in one of these programs.) The requirements for these minors are indicated within the appropriate department sections of this Bulletin.

Requirements for the professional writing minor are listed in the Department of English information. Requirements for a minor in international economics are listed in the Department of Economics information.

**COMPUTER APPLICATIONS MINOR—COLLEGE-WIDE**

The computer applications minor may accompany any departmental major. This minor is designed to encourage and emphasize the application of computer technology and to acquaint the student with hardware and software function and design appropriate to modern academic disciplines. The minor is tailored to the specific needs and interests of the student.

All students who declare this minor must coordinate their program through an assigned adviser in one of the following departments: Anthropology, Applied Linguistics, Biology, Chemistry, Economics, English, Foreign Languages and Literatures, Geography, Geology, History, Mathematical Sciences, Physics, Psychology, Sociology, or Speech Communication. Selection of a department constitutes a student’s declared emphasis.

**Requirements for the Minor**

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three lower-division, adviser-approved computer science courses selected from, but not restricted to, the following: CS 105, CS 106, CS 107, CS 161, CS 162, CS 163, CS 199, CS 200, CS 201, CS 202, CS 208, CS 250</td>
</tr>
<tr>
<td>Four adviser-approved courses in advanced computer applications, with at least 3 credits outside the student’s major department. These courses may come from any unit in the University but may not include 405 reading/conference courses</td>
</tr>
<tr>
<td>A one-term, adviser-approved senior practicum or seminar</td>
</tr>
<tr>
<td>Adviser-approved, upper-division research project</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**CERTIFICATE OPTIONS**

Specialized academic certificates are offered by several units in the College of Liberal Arts and Sciences: Applied Linguistics/ESL, Biotechnology, Black Studies, Chicano/Latino Studies, Foreign Languages/Teaching Japanese, International Studies, and a postbaccalaureate certificate in Women’s Studies. (Refer to the appropriate department for certificate requirements.) Requirements for these certificates are met concurrently with completion of a major in a selected field.

Secondary teaching licenses allow the student to teach the selected discipline at specified grade levels in public schools in Oregon. Recommended courses for those preparing to be teachers are listed under appropriate departments.

**BACCALAUREATE DEGREES**

All majors in the College of Liberal Arts and Sciences, along with University and general education requirements, lead to a bachelor’s degree. Requirements for each major are listed under the appropriate department. (Students wishing to emphasize a broad study in arts and letters, science, or social science may do so by majoring in Liberal Studies. For these options see page 131.)

**DEGREE COMPLETION**

In addition to an increasing range of evening and weekend courses on campus, the College offers innovative degree completion options at two off-campus sites; the CAPITAL Center in Beaverton and the Salem Center, located in Salem on the campus of Chemeketa Community College. The CAPITAL Center allows upper-division students to complete a degree in general studies: social sciences with an optional minor in business administration. The Salem Center provides upper-division students with an option of majoring in either child and family studies or in social sciences.

**GRADUATE PROGRAMS**

There are many options available for graduate study within the College of Liberal Arts and Sciences. Currently students may specialize in any one of the many master’s programs, or three doctoral programs.
### Anthropology

**UNDERGRADUATE PROGRAM**

Anthropology is concerned with two basic questions: How is it that human beings are both like and unlike other animals? And how is it that there are so many sorts of human beings both like and unlike one another in different societies and cultures? In seeking answers, anthropologists deal with prehistoric and historic times and with such topics as human evolution, comparative primate behavior, language, and human ecology.

The curriculum in anthropology is designed to develop an understanding of human life from these various perspectives. It does this by providing, both in general survey courses (Anth 101, 102, 103) and in its departmental major program, a balanced view in terms of the anthropological subfields of physical anthropology, archaeology, linguistics, and socio-cultural anthropology.

The departmental major program is of benefit to the liberal arts student in providing the most broadly based view of human adaptation, variation, and achievement. A variety of ethnographic courses is offered for persons with particular regional or area interests, such as East Asia, Latin America, Africa, and the Pacific Northwest. Finally, the major provides the necessary general anthropological background for those interested in graduate study in the discipline.

**Requirements for Major.** In addition to meeting the general University degree requirements, the anthropology major must meet minimum departmental requirements as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 101 Introduction to Physical Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>Anth 102 Introduction to Archaeology</td>
<td>4</td>
</tr>
<tr>
<td>Anth 103 Introduction to Social/Cultural Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>Anth 304 Social Theory</td>
<td>4</td>
</tr>
<tr>
<td>Anth 305 Culture Theory</td>
<td>4</td>
</tr>
<tr>
<td>Anth 350 Archaeological Method and Theory</td>
<td>4</td>
</tr>
<tr>
<td>Anth 372 Human Variability (4) or Anth 370 Paleoanthropology (5)</td>
<td>4-5</td>
</tr>
<tr>
<td>Ling 290 or Stat 244</td>
<td>4</td>
</tr>
<tr>
<td>Upper-division anthropology electives (5 courses, see below)</td>
<td>20</td>
</tr>
</tbody>
</table>

Total anthropology coursework: 52-53 credits

All anthropology students (B.A. or B.S.) must complete two years of a foreign language or demonstrate equivalent proficiency.

**Elective Requirements.** Upper-division electives shall be selected from at least two subfields of anthropology (physical, social/cultural, or archaeology) and include at least one methods course (i.e. 412, 452, 453, 454, 455, 456, 478, 479). At least 8 of the 20 credits must be in formally numbered 400-level courses (i.e., not including 401, 404, 405, 407, 410). Note: In exceptional circumstances, the department may permit a student to apply a maximum of one lower-division course to the upper-division elective requirement.

All anthropology courses used to satisfy the departmental major requirements must be taken for a letter grade and must have been assigned a grade of C- or better. Courses taken outside the department as part of departmental requirements (i.e. Ling 290 or Stat 244, Foreign Languages) may be taken pass/no pass (subject to the University limitations on the maximum number of hours taken pass/no pass) or for a letter grade. However, students who take these courses for a letter grade must earn a C- or better. Students must earn a cumulative grade point average of 2.00 or better in all courses required for the anthropology bachelor’s degree (including those courses taken outside the department as part of departmental requirements).

**Limitations.** Students majoring in anthropology should seek assignment to a department adviser no later than the beginning of the junior year. Selection of appropriate courses to supplement the student’s major work should be made in consultation with the adviser. No student majoring in anthropology will be permitted to offer more than 72 credits of work in anthropology for the bachelor’s degree. This limitation will be waived only through petition to the department.
Requirements for a Minor. To earn a minor in anthropology a student must complete 28 credits (12 credits of which must be taken in residence at PSU), to include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 101 Introduction to Physical Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>Anth 102 Introduction to Archaeology</td>
<td>4</td>
</tr>
<tr>
<td>Anth 103 Introduction to Social/Cultural Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>One of the following courses</td>
<td>4-5</td>
</tr>
<tr>
<td>Anth 304 Social Theory</td>
<td>1</td>
</tr>
<tr>
<td>Anth 305 Culture Theory</td>
<td>1</td>
</tr>
<tr>
<td>Anth 350 Archaeological Method and Theory</td>
<td>1</td>
</tr>
<tr>
<td>Anthropology</td>
<td>4</td>
</tr>
<tr>
<td>Paleoanthropology (5)</td>
<td></td>
</tr>
</tbody>
</table>

Upper-division anthropology electives—three courses. (Upper-division electives must include at least one 400-level course, excluding courses numbered 401, 404, 405, 407)

Total 28-29

All anthropology courses used to satisfy the departmental minor requirements, whether taken in the department or elsewhere, must be graded C- or above. Students must earn a cumulative grade point average of 2.00 or better in all courses required for the anthropology minor (including those courses taken outside the department as part of departmental requirements).

SECONDARY EDUCATION PROGRAM
Adviser: V.A. Butler
(See General Studies: Social Science, page 131.)

GRADUATE PROGRAMS

MASTER OF ARTS
The Department offers a program leading to the Master of Arts degree. The program is designed to give the student a graduate level of competence in general anthropology, including the major subfields of physical anthropology, archaeology, and sociocultural anthropology. At the same time, the program will permit the student to pursue a special interest in one of the subfields. The M.A. degree candidate is required to do research in an area of special interest and prepare a thesis based upon it.

The master's program has been planned for students who hold an undergraduate degree in general anthropology or its equivalent in course coverage. Under these circumstances, the master's degree, including research and thesis, may be completed in two to three years. The undergraduate major is not required, however, for admission to the program. In the latter case, completion of the degree may require a more extended period of study. Students without an adequate background in anthropology will be required to take certain selected undergraduate courses to remove deficiencies. These courses normally do not offer graduate credit.

For admission to graduate study the student must have a minimum of a 3.25 grade point average in anthropology courses and an overall GPA of 3.00. In addition, applicants must submit GRE scores, a 500-word statement indicating why he or she is interested in pursuing a graduate degree in anthropology, and a sample of written work (e.g., a term paper). All applicants must also arrange to have three letters of recommendation indicating professional promise sent directly to the Department's Graduate Admission Committee. To facilitate scheduling of graduate courses, students ordinarily are admitted for fall term only.

Degree Requirements. Of the 48 required credits, 36 must be in anthropology and must include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 511, 550, 570 Core Seminars in Anthropology</td>
<td>12</td>
</tr>
<tr>
<td>Graduate-level Anthropology Electives (3 courses)†</td>
<td>12</td>
</tr>
<tr>
<td>Approved graduate-level electives (Anth, non-Anth)†</td>
<td>8</td>
</tr>
<tr>
<td>An adviser-approved, graduate-level course in research methods‡</td>
<td>4</td>
</tr>
<tr>
<td>Anth 501 (thesis research)</td>
<td>4</td>
</tr>
<tr>
<td>Anth 503 (thesis)</td>
<td>8</td>
</tr>
</tbody>
</table>

Total 48

Five calendar years from the term of admission will be the maximum time allowed to complete all requirements for a master's degree. Terms on approved leave of absence will be charged against the five-year limitation.

In addition to formal course requirements, the following are also necessary:

1. Fulfilling the foreign language requirement. Ordinarily the examination is taken in French, Spanish, or German. Other languages may, upon departmental approval, be substituted. Students must complete the foreign language requirement no later than one calendar year following entrance to the program.
2. Advancement to candidacy involves successful passing of a written examination in general anthropology (covering archaeology, physical anthropology, and sociocultural anthropology). This examination is normally given as part of the core seminars (Anth 511, 550, 570) in the respective fields. Advancement to candidacy can only be accomplished before the close of the next-to-the-final term of work.
3. Approval of a thesis topic and the appointment of the thesis committee. The student develops a thesis proposal and submits it to the department faculty for approval and for the formal appointment of the thesis committee. In addition to advising and guiding the student's research and thesis preparation, the chairperson of this committee files a graduate degree program with the Office of Graduate Studies and Research. Students must have a master's thesis proposal submitted to and approved by the department faculty as soon as possible following admission to the program, but in no case later than the end of the seventh term (excluding Summer Session) following admission to the program. Students who fail to meet this requirement will be dropped from the program.
4. Presentation and approval of thesis.

PH.D. IN SYSTEMS SCIENCE—ANTHROPOLOGY

The Department of Anthropology participates in the Systems Science Ph.D. Program. Students interested in seeking a Ph.D. in Systems Science—Anthropology should contact the Department of Anthropology for further information on areas of concentration, e.g., systems applications in archaeology, systems applications in physical anthropology. Applicants must be simultaneously admitted to the anthropology graduate program and the Systems Science Ph.D. Program.

COURSES

Courses with an asterisk (*) are not offered every year.

Anth 101 Introduction to Physical Anthropology (4)
The biological side of anthropology: primate paleontology, human evolution, modern human variation, and primate behavior.

Anth 102 Introduction to Archaeology (4)
The study of ancient and prehistoric cultures of the world. Introduction to the theories and techniques of archaeological investigation.

Anth 103 Introduction to Social/Cultural Anthropology (4)
Study of modern and recent societies in cross-cultural perspective. Focus on methods for understanding social and cultural differences and similarities.

† At least three of these courses (12 credits) must be in formally numbered graduate-level courses (i.e. courses numbered between 510-597 or 610-697). With graduate adviser approval, the remaining two courses (8 credits) may be in courses numbered 504 or 505 (i.e. Internship, Reading and Conference).
‡ This course must be formally numbered and described in the PSU Bulletin. It may not be a course numbered 501/601, 502/602, 503/603, 504/604, 505/605, 506/606, 507/607, 508/608, 509/609.
Anth 300
The Modern World in Anthropological Perspective (4)
Examination of anthropological approaches to cultural diversity in a global context. Include cultural contact between the Fourth World and the industrialized world; health, nutrition, and poverty in different world areas; ecocide and ethnocide; political movements in the Fourth World; racism; and sexism.

Anth 301
Culture and Ethnography (4)
Cultural diversity and contemporary social issues examined through a series of ethnographic studies that highlight the methodology and efficacy of ethnographic research. Topics may include, but will not be limited to, issues to identity formation, gender, political economy, and transnational culture flows.

Anth 304
Social Theory (4)
Human social organization is examined in cross-cultural perspective. Analysis of kinship systems in stateless societies and of the state and other institutional arrangements in complex societies. Attention to the historical development of major theoretical approaches to social organization: structural functionalism, structuralism, human ecology, sociobiology, political economy, post-modernism. Designed for anthropology majors and minors. Note: This course is not approved for distribution credits. Prerequisite: Anth 103.

Anth 305
Cultural Theory (4)
Explores the historical development of the concept of culture within anthropology and examines how this concept and the theories based on it have shaped both fieldwork practices and production of ethnographic texts. Designed for anthropology majors and minors. Note: This course is not approved for distribution credits. Prerequisite: Anth 103.

Anth 311
Peoples and Cultures of Latin America (4)
Introduction to the peoples and cultures of Latin America, including Mexico, Central and South America, and the Caribbean. Course topics include religion, ecology, race and ethnicity, gender, urbanization, conflict, and social change.

Anth 312
Southeast Asian Societies and Cultures (4)
Introduction to the societies and cultures of Southeast Asia, the area encompassed today by the nations of Burma (Myanmar), Thailand, Laos, Cambodia, Vietnam, Malaysia, Singapore, Brunei, Indonesia, and the Philippines. Course topics explore the religious and cultural diversity of the area, as well as historical and cultural themes that traverse this region. Prerequisite: students are strongly encouraged to complete Anth 103 before enrolling in this course.

Anth 313
Indian-White Relations (4)
Consideration of North Americans since 1500: problems of social and cultural survival and change, as well as changing governmental policies, population, non-Indian conceptions of “The Indian.”

Anth 314
Native Americans (4)
Ethnographic survey of North American Indian cultures from simple hunter-gatherers to complex empires illustrating the patterns of adaptations to the variety of landscapes and historical processes.

Anth 315
American Culture (4)
Central beliefs and core values of modern American society are examined from an anthropological perspective. Considers: value of constructs such as individualism and conformity; creation of public images; kinship and friendship; privacy; schools and neighborhoods; and conflicts involving ethnicity, social class, and gender. Questions the role of culture in our own lives, thereby gaining a greater understanding of social experience and of the concept of culture.

Anth 316
Traditional East Asia (4)
Comparative ethnographic examination of peasant cultures in East Asia (China, Japan, Korea) prior to World War II. Prerequisite: students are strongly encouraged to complete Anth 103 before enrolling in this course.

Anth 317
Peoples and Cultures of South Asia (4)
Introduction to the peoples and cultures of South Asia, the area encompassed by India, Pakistan, Sri Lanka, Nepal, Bangladesh, Butan and the Maldive Islands. Topics include cultural diversity, religious traditions, the caste system, class and gender hierarchies, and social change.

Anth 319
Traditional Cultures of Africa (4)
A survey of the culture history and characteristics of the traditional (before Western influence) cultures of African peoples.

Anth 350
Archaeological Method and Theory (4)
A survey of current techniques and conceptual models applied in the discovery and analysis of archaeological materials. The fundamentals of archaeological research design, field survey, excavation, dating, cultural reconstruction, and the application of interdisciplinary studies. Prerequisite: Anth 102.

Anth 361
European Prehistory (4)
Methods and results of the study of prehistoric cultures of Europe from the earliest traces until the advent of written records. Prerequisite: Anth 350.

Anth 362
African Prehistory (4)
Methods and results of the study of prehistoric cultures of Africa with an emphasis on those south of the Sahara from the earliest traces until the first historical records. Prerequisite: Anth 350.

Anth 363
Pacific Northwest Prehistory (4)
The prehistory of northwestern North America from its earliest occupants to the arrival of Europeans, with emphasis on developments during the last 5,000 years. Prerequisite: Anth 350.

Anth 365
North American Prehistory (4)
A survey of pre-contact cultures north of Mexico, from the first prehistoric migrant populations and early hunter-gatherers to the complex agricultural societies encountered by 15th and 16th century European explorers. Prerequisite: Anth 350.

Anth 366
Mesoamerican Prehistory (4)
Early cultures of Mesoamerica with an emphasis on the domestication of plants and animals and the development of civilization, focusing on the Maya and Highland Mexico. Prerequisite: Anth 350.

Anth 367
East Asian Prehistory (4)
The archaeology of China, Japan, and Korea from about 1 million years ago to the establishment of the Yamato State in Japan. Focuses on developments during the past 18,000 years, including the domestication of plants and animals, the spread of agriculture, and the development of civilization and regional states. Prerequisite: Anth 350.

Anth 368
Oceania Prehistory (4)
Reviews issues related to the peopling of Australasia about 40,000 years ago and subsequent voyaging and colonization of all parts of the South Pacific. Examines prehistoric cultural developments in Hawaii, New Zealand, Easter Island, and island groups in Micronesia. Examines evidence of human modification of island ecosystems. Prerequisite: Anth 350.

Anth 370
Paleoanthropology (3)
Method and theory in paleoanthropology. A study of hominoid and human evolution from the Miocene to modern times. Emphasis will be placed on the interactions between biology and culture in the evolution of the human species. Prerequisite: Anth 101.

Anth 372
Human Variability (4)
The causes and significance of biological variation in contemporary human populations-genetic, environmental and cultural factors. Prerequisite: Anth 101.

Anth 390
Special Studies (Credit to be arranged.)
Consent of instructor.

Anth 401/501
Research (Credit to be arranged.)
Consent of instructor.

Anth 404/504
Cooperative Education/internship (Credit to be arranged.)
Consent of instructor.

Anth 407/507
Reading and Conference (Credit to be arranged.)
Consent of instructor.

Anth 410/510
Selected Topics (Credit to be arranged.)
Consent of instructor.

* Anth 370 and Anth 372 are offered in alternating years.
Anth 412/512
Research Methods in Social and Cultural Anthropology (4)
Methods and techniques of research involving primary contacts with people, institutions and communities. The initiating and developing of projects designed to produce data for both ethnographic, as well as applied, anthropological research. Prerequisite: 12 credits in anthropology (Anth 304, 305 strongly recommended).

"Anth 414/514
Culture and Ecology (4)
A critical analysis of the interrelations of culture, social structure, and human ecology. Social organization as influenced by characteristic patterns of resource exploitation. The uses of natural environment from the viewpoint of the members of societies. Prerequisites: Anth 304, 305.

Anth 415/515
Applied Anthropology (4)
The application of anthropological knowledge to various kinds of projects and action programs in which cultural factors are critical elements. An examination of problems produced by rapid technological, social and cultural change, conflicts of values, and unequal access to resources in multi-ethnic societies and "developing" nations; research leading to possible solutions is considered. Prerequisite: 8 credits in anthropology (Anth 304, 305 strongly recommended).

Anth 416/516
Urban Anthropology (4)
Cross-cultural examination of urban phenomena including variability in cultural and institutional patterning of cities, acculturation processes affecting urban populations, migration and social accommodation of rural and tribal peoples to urban settings, and the varieties of new subcultures that emerge in urban society. Prerequisite: 8 credits in sociocultural anthropology or allied social science (Anth 304, 305 strongly recommended).

Anth 417/517
Indians of North America (4)
An advanced study of the aboriginal peoples of North America, linguistic and cultural relations, selected problems in the reconstruction of culture history and in the interpretation of native social systems. Prerequisite: 8 credits in anthropology (Anth 304, 305 strongly recommended).

Anth 422/522
Contemporary American Indian Policy (4)
An examination of current federal, state, and tribal law and policy pertaining to Indian affairs, including tribal government organization, government-to-government relations, economic development, natural and cultural resource management, health care, welfare, and education. Both reservation communities and the Portland metropolitan Indian community are considered. Student research is based on reading, field trips, and interviews with tribal officials and other policy professionals. Anth 313, 314 recommended.

"Anth 423/523
Medical Anthropology (4)
An examination of the relationship of health-related beliefs and practices relating to biological factors and to wider systems of belief. Healing in traditional societies, origins and culture of scientific medicine. A comparison of traditional and scientific medical systems and the impact of scientific medicine on traditional healers. Examples drawn from both Western and non-Western societies. Prerequisite: 8 credits in sociocultural anthropology (Anth 304, 305 strongly recommended Anth 101 helpful).

Anth 426/526
Transnationalism and Migration (4)
In-depth exploration of globalization, transnationalism, and migration. Topics include colonialism and the history of world connections, the global economic system, cultural imperialism, nationalism and identity, migration, refugees, tourism, and the commodification of local cultures. Prerequisite: 8 credits in socio-cultural anthropology (Anth 304, 305 strongly recommended).

"Anth 428/528
Political Anthropology (4)
Survey of major anthropological approaches to politics and power. Coverage includes structural functionalism, evolutionism, action theory, structuralism, political economy; and post-structuralism. Ethnographic cases include both primitive politics and contemporary ethnic, class, and gender struggles in heterogeneous societies. Prerequisites: 8 credits sociocultural anthropology (Anth 304, 305 strongly recommended).

"Anth 430/530
Myth, Ritual, and Symbol (4)
A critical examination of both classic and recent anthropological theories in the cross-cultural study of symbolic forms. Prerequisite: 8 credits in sociocultural anthropology (Anth 304, 305 strongly recommended).

"Anth 431/531
Advanced Topics in Latin American Anthropology (4)
In-depth exploration of a current topic in Latin American anthropology, especially in relation to the study of social change. Course materials will cover both theory and ethnography. Prerequisite: either Anth 311 or two courses related to Latin America.

Anth 432/532
Gender in Cross-Cultural Perspective (4)
A cross-cultural examination of sex roles and gender beliefs including political, social, economic, and ideological aspects of the position of the sexes. Prerequisites: upper-division standing and at least one basic course in sociocultural anthropology (Anth 103, 304, 305).

Anth 446/546
Chinese Culture and Society (4)
Issues in the study of Chinese societies today, including those found in the Chinese mainland, Hong Kong, Taiwan, and Southeast Asia. In-depth examination of questions surrounding kinship organization, religious practice, ethnic identities, gender relations, and economic and political change. Prerequisite: 8 credits in sociocultural anthropology (Anth 304 and 305 strongly recommended).

Anth 447/547
Advanced Topics in South Asian Anthropology (4)
In-depth exploration of a current topic in South Asian anthropology, especially in relation to social change, nationalism and conflict, colonialism, or modernization. Course materials will cover both theory and ethnography. Prerequisite: either Anth 317 or two related courses in Asian studies. (Anth 304, 305 strongly recommended.)
**Applied linguistics**

Linguistics is the study of one of the most important human characteristics: language. It is an interdisciplinary field that involves the sciences, the social sciences, and the humanities.

Studying linguistics is not a matter of learning lots of different languages, but rather is the study of language in general, of the essential nature of any human language. The questions that linguists ask are such as these: How do linguistic structures relate to the sounds we utter, and how do these relate to the meanings that we express? What is the structure of these sounds, and how are they articulated? What is the nature of the syntactic structure of a sentence, and how is a grammar correctly stated? How can children master language as quickly as they do, even though the number of sentences appears to be infinitely many? What does this remarkable capacity tell us about the mind? How does human language differ from the communication systems of animals? How does language change through time? By what processes does a language diverge into two mutually incomprehensible languages, as did Latin into Rumanian and French? In turn, how can the prehistory of a language be reconstructed?

The Department of Applied Linguistics is concerned with these as with related, more practical questions: How can a language best be taught and learned? How can it best be translated? How does one invent a practical orthography (alphabet and spelling system) for a language? What is involved in the ability to write and read? How does language relate to other facets of culture and society? What sorts of problems develop when language doesn’t work as it should, such as in various language disorders? How do computer scientists use linguistic descriptions for natural language understanding systems?

The major in applied linguistics would serve either as preparation for graduate study, or as an organizing theme for a rich undergraduate education. The graduate degree prepares students to become teachers, language consultants, and researchers in the field of language learning and teaching. The English as a Second Language and the English for Non-Native Residents programs are designed to develop non-native English speakers’ competence in English.

**Requirements for a Major in Applied Linguistics.** In addition to meeting the general University requirements and those for the B.A. degree, majors must complete an adviser-approved program to include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ling 390</td>
<td>Introduction to Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>Ling 407</td>
<td>Senior Seminar</td>
<td>4</td>
</tr>
<tr>
<td>Ling 411</td>
<td>Syntax</td>
<td>4</td>
</tr>
<tr>
<td>Ling 435</td>
<td>Applied Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>Ling 490</td>
<td>History of the English Language</td>
<td>4</td>
</tr>
<tr>
<td>Linguistics electives (upper-division level)</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

All courses used to satisfy the department major requirements, whether taken in the department or elsewhere, must be graded C or above. No later than the end of the first quarter after admission to the program the student is required to consult with the applied linguistics adviser to select
the appropriate courses and areas of concentration. The entire program must be approved by the adviser.

Requirements for a Minor in Linguistics. To earn a minor in linguistics a student must complete 28 adviser-approved credits (12 credits of which must be taken in residence at PSU), to include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ling 390 Introduction to Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>Ling 411 Syntax or Ling 492 Structure of the English Language</td>
<td>4</td>
</tr>
<tr>
<td>Ling 490 History of the English Language</td>
<td>4</td>
</tr>
<tr>
<td>Linguistics electives (upper-division level)</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

All courses used to satisfy the department minor requirements must be graded C or above. Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling department minor requirements.

**INTENSIVE PROGRAM IN ENGLISH AS A SECOND LANGUAGE (ESL)**

**LING 110**

As an intensive course, Ling 110 is designed to develop the student’s competence in listening, speaking, reading, and writing for academic purposes.

Ling 110 is a year-round intensive program. It is offered throughout the regular academic year as well as during the summer. There are five basic levels: beginning, lower-intermediate, intermediate, upper-intermediate, and advanced.

Students may earn from 3 to 12 credits per term depending upon the parts of the program in which they enroll. Full-time students usually register for 12 credits. Students in levels 1 and 2 may not take other academic courses. Students in level 5 may enroll in some non-ENNR courses with the approval of the program coordinator, if their academic record allows.

Specifically, the Ling 110 course is divided into four major parts:
- **Part A:** Grammar and sentence patterns
- **Part B:** Reading and vocabulary development
- **Part C:** Writing
- **Part D:** Oral communication skills

Time is also devoted to American cultural patterns and academic and cultural orientation.

To reinforce classroom instruction, students spend up to 10 hours a week in the language and computer laboratory, and in individual tutorials if necessary.

An essential function of the program is orientation of the international student to American life. Students are encouraged to take part in a series of social and educational activities, both on campus and in the community, each term.

**ADMISSION**

The student must submit a completed application form and other materials requested on the application to the Office of Admissions at Portland State University. If the student is accepted, the I-20 or other appropriate form will be issued. Upon arrival the student must take a Placement Test in English administered by English as a Second Language/Applied Linguistics. Placement into courses will be based on these test results as well as TOEFL score reports if students have them.

Qualified students interested in English-only study can participate in an Intensive English Language Program offered through a partnership between Applied Linguistics and the School of Extended Studies. For information and application materials, contact the Department of Applied Linguistics.

**PROGRAM IN ENGLISH FOR NON-NATIVE RESIDENTS (ENNR)**

**LING 199**

As a semi-intensive course, Ling 199 is designed to develop the student’s competence in writing, reading, and grammar. It is available to any non-native resident.

Students earn 4 credits per term. Sections are limited to small groups divided according to their level of English proficiency. In addition to ENNR credits, students normally register for 6 to 9 credits in non-ENNR courses.

There are three basic levels: lower-intermediate, intermediate, and advanced.

An essential part of the program is general academic advising. Students are given guidance in planning course schedules and in choosing non-ENNR courses appropriate to their level of English proficiency.

Placement in the advanced or intermediate courses is based on scores received on standardized placement tests.

**CERTIFICATE IN TEACHING ENGLISH AS A SECOND LANGUAGE (TESL)**

The program is administered by the Department of Applied Linguistics. It is specifically designed to prepare persons to teach English to speakers of other languages in the United States and abroad.

In contrast with the M.A. TESOL, this certificate will fit into the programs of majors in a wide variety of fields, such as foreign languages, speech, education, and the social sciences. Candidates may enroll in the program as postbaccalaureate students or while completing degree requirements in an academic major.

**ADMISSION REQUIREMENTS**

1. Admission to Portland State University
2. English proficiency in spoken and written English if the student is not a native speaker of English (a TOEFL score report is required). The student is to be tested upon arrival. (Required for both certificate and M.A. programs.)
3. Two years’ proficiency in at least one foreign language if the student is a native speaker of English.

**COURSE REQUIREMENTS**

In addition to fulfilling minimum University or graduate school requirements, the following adviser-approved courses are required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ling 390 Introduction to Linguistics</td>
<td>4</td>
</tr>
<tr>
<td>Ling 438 Second Language Acquisition</td>
<td>4</td>
</tr>
<tr>
<td>Ling 492 Structure of the English Language</td>
<td>4</td>
</tr>
<tr>
<td>Ling 477, 478 TESOL Methods</td>
<td>8</td>
</tr>
<tr>
<td>Linguistics electives (upper-division)</td>
<td>12</td>
</tr>
<tr>
<td>Literature and cultural studies (at least one course in each area)</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

All courses used to satisfy certificate course requirements must be upper-division and graded C or above. No later than the end of the first quarter after admission to the program, the student is required to consult with the TESL adviser to select the appropriate courses and areas of concentration. The entire program must be approved by the adviser.

Some courses used in the TESL certificate program can also be applied to obtaining the ESL/bilingual endorsement for public school teachers. Students seeking this endorsement must plan a program through a departmental adviser and must complete 100 hours of practice in the K-12 setting.

**GRADUATE PROGRAMS**

The Department of Applied Linguistics offers graduate work leading to the Master of Arts in Teaching of English to Speakers of Other Languages (M.A., TESOL).

**MASTER OF ARTS**

M.A., TESOL (Teaching English to Speakers of Other Languages)

**Admission Requirements**

1. Admission to graduate study at Portland State University
2. Proficiency in English if the student is not a native speaker of English
3. At least two years’ proficiency in at least one foreign language if the student is a native speaker of English.
COURSE REQUIREMENTS

In addition to the minimum graduate school requirements, the following adviser-approved courses are required. (For those students who have completed the Certificate in TESL as undergraduates, certain adviser-approved courses will be used to substitute for some of the following requirements.)

Group A: Credits
Ling 511 Syntax ................................. 4
4 credits from the following ........................ 4
Ling 512 Phonology
Ling 513 Linguistic Semantics
Ling 514 Linguistic Pragmatics
Ling 516 Discourse Analysis
Ling 520 Historical and Comparative Linguistics
Ling 545 Linguistics and Cognitive Science
Ling 590 History of the English Language

Group B:
Ling 538 Second Language Acquisition .... 4
4 credits from the following ........................ 4
Ling 532 Sociolinguistics
Ling 533 Psycholinguistics
Ling 537 First Language Acquisition
Ling 570 Grammar for TESOL
Ling 581 World Englishes

For the remaining 4 credits in linguistics, choose from Group C. 4

Group C:
Ling 539 Language Testing
Ling 565 Administration of ESL/EFL Programs
Ling 574 ESL in the Workplace
Ling 575 Curriculum Design and Materials Development
Ling 594 Linguistics and Literature
Ling 507 (Seminar) and Ling 510 (Selected Topics) count for Group A, B, or C depending on course content.

Total credits for groups A, B, and C .......................... 20

Cultural Studies and elective (at least one course in each area) .......................... 8
Cultural Studies requirement is Ling 571 Culture Learning in the Classroom, or Sp 515 Problems in Intercultural Communication, or another adviser-approved course. Elective is an adviser-approved course in contemporary American and British Literature, or an adviser-approved course related to student’s thesis topic. Work in another department is strongly recommended.

TESOL Methods and Supervised Practice .................................. 8
Ling 577 Methods I
Ling 578 Methods II
All students must submit a portfolio documenting 70 hours of practicum experience
Research
Ling 560 (This course must be taken within the first year of study) .......................... 4
Thesis ................................................................... 6

Total .................................................................. 46

No later than the end of the first quarter after admission to the program, the student is required to consult with the TESOL adviser to select the appropriate courses and areas of concentration. The entire program must be approved by the adviser and the Department of Applied Linguistics Graduate Committee.

Upon satisfactory completion of coursework, the student in consultation with a research adviser completes a thesis that deals with a specific aspect of TESOL. The thesis requires a proposal that must be approved by the research committee before the research is undertaken. Upon successful completion of the thesis, the student will be eligible for the final oral examination.

Persons interested in applying for the M.A., TESOL Program should write to the Department of Applied Linguistics for additional information.

MASTER OF ARTS IN TEACHING OR MASTER OF SCIENCE IN TEACHING

For information on the Master of Arts in Teaching and the Master of Science in Teaching (General Arts and Letters), see page 133.

Courses

Courses with an asterisk (*) are not offered every year.

Ling 110 English as a Second Language (+12 each term)
An intensive course to develop the non-native speaker’s competence in listening, speaking, reading, and writing. For students enrolled in the ESL program only.

Ling 115 WNNR: Writing for Non-native Residents I and II (4)
A two-level course designed to help non-native residents develop skills and confidence in writing for college. Both levels will focus on responses to readings, instruction in grammar and understanding of assignment instructions. Level I stresses study skills, and essay format. Level II focuses on higher level skills of analysis, evaluation, synthesis, and incorporation of source material in an essay. Placement will take place in class on the first day of the quarter.

Ling 190 Special Studies (Credit to be arranged)

Ling 290 Introduction to Language (4)
General introduction to structure of languages of the world, how they are used, and how they change through time and space and social context. Designed for non-majors.

Ling 390 Introduction to Linguistics (4)
A general introduction to the study of linguistics, including a basic survey of phonology, morphology, syntax, and semantics, brief overview of other topics such as language acquisition and language in social contexts, a brief sketch placing English in historical perspective, and a preliminary examination of principles in modern language study.

Ling 399 Special Studies (Credit to be arranged)

Ling 401/501 Research (Credit to be arranged)

Ling 404/504 Cooperative Education/Internship (Credit to be arranged)

Ling 405/505 Reading and Conference (Credit to be arranged)

Ling 407/507 Seminar (Credit to be arranged)

Ling 408/508 Workshop (Credit to be arranged)

Ling 409/509 Practicum (Credit to be arranged)

Ling 410/510 Selected Topics (Credit to be arranged)

Ling 411/511 Syntax (4)
Introduction to modern grammatical theory and research. Presents basic results of linguistic research in syntax, and methods of investigation and argumentation used to establish those results. Constitutes a foundation for advanced work in syntax and semantics, provides background for understanding much recent work in applied linguistics and in such allied fields as psycholinguistics and sociolinguistics. Prerequisite: Ling 390.

Ling 412/512 Phonology (4)
An introductory course in the analysis and understanding of the basic nature of the sound systems of natural languages. Prerequisite: Ling 390.

Ling 413/513 Linguistic Semantics (4)
Survey of approaches to meaning in linguistics, including influence from logic and philosophy of language. Addresses general questions of meaning, methods proposed for studying it, and relationship of semantic theory to theories of syntax and pragmatics. Prerequisite: Ling 390, 492, or 411 recommended.

Ling 414/514 Linguistic Pragmatics (4)
A study of current theories of language use, particularly contextual and functional aspects of the communication process. Prerequisite: Ling 390, 411 or 413 recommended.

Ling 415/515 Linguistic Phonetics (4)
Introduces the sounds of the world’s languages with a concentration on English. Practical exercises designed to develop skills in production, discrimination, and phonetic transcription. Examines applications to speech technology (speech synthesis and speech recognition) and speech pathology. *Ling 416/516 Discourse Analysis (4)
An exploration of forms and functions in the analysis of discourse. Practice with using variety of analytic procedures for description of discourse, particularly in relation to language learning and teaching. Prerequisite: Ling 390.

*Ling 420/520 Historical and Comparative Linguistics (4)
Study of linguistic change and language relationships. Topics include genetic classification of languages, language families, language and prehistory, methods of historical reconstruction, types of sound change, types of semantic change, evidence of borrowing. Prerequisite: Ling 390.

C O L L E G E  O F  L I B E R A L  A R T S  A N D  S C I E N C E S

79
How Do People Learn a Second Language?

Gain a historical perspective of language teaching and look at current language learning and teaching models. Examine variables involved in first and second language acquisition, including the effect of the first language, individual socioeconomic factors, and instruction. Analyze natural language collected from second language learners. Appreciate the complexity of learning and studying in another language so you can understand and effectively help your LEP students learn successfully.

Taking Stock: Assessment and Evaluation in Programs With Language Minority Students

Consider ways to expand the assessment domain so that it describes the full range of student work and includes all populations. Learn about technical standards needed to ensure fair, accurate, and meaningful information. Discuss using assessment results to focus school and district services for language minority students.

Sociolinguistics

An examination of language in relation to social and interpersonal interaction. Prerequisite: Ling 390.

Psycholinguistics

A survey of psycholinguistics and the psychology of language, focusing on the general question of the relation between human language and human beings. Prerequisite: Ling 390.

Applied Linguistics

An examination of current areas of applied linguistic research. Prerequisite: Ling 390.

First Language Acquisition

Introduction to main aspects of first language acquisition in childhood, from infancy to the early school years. Examines comprehension and production of the structural and social aspects of language. Includes discussion of language acquisition theories from linguistic, psycholinguistic and sociolinguistic perspectives. Research project based on collection and analysis of child language data required. Prerequisite: Ling 390.

Second Language Acquisition

Introduction to main aspects of second language acquisition from sociolinguistic and psycholinguistic perspectives. Examines comprehension and production, stages in acquisition, cognitive processes, linguistic environment, individual variables, relationship between first and second language. Research project based on collection and analysis of language-learner language. Prerequisite: Ling 390.

Language Testing

Examination of recent theory and research on language testing, including selection, evaluation, and interpretation of language proficiency tests and test results; development of classroom tests; comprehensive assessment of language programs. Prerequisite: Ling 390.

Linguistics and Cognitive Science

Presents current developments in linguistic theory, and in psychological theories of perception, cognition, and information processing (with special focus on language processing). Examines the fusion of linguistic and psychological theories into the rapidly growing field of cognitive science. Prerequisite: Ling 390, 433 recommended.

Grammar for TESOL

A study of how to teach difficult grammatical structures in English, how to resolve problems and questions that frequently arise in the ESL classroom, and how to adapt and supplement ESL grammar tests. Prerequisites: Ling 390, 492.

Culture Learning in the Language Classroom

Study of the relationship between language learning and culture with emphasis on learning about the cultures of English as a Second Language (ESL) and English as a Foreign Language (EFL) students and teaching cultural competence in a language classroom. Prerequisite: Ling 390.

ESL in the Workplace

Theory and practice in developing programs to teach English language programs in the workplace. Students observe workplace programs, examine case studies, and work in teams to assess needs, write curriculum, and develop materials for a local company employing non-native speakers. Prerequisite: Ling 477 or teaching experience.

Curriculum Design and Materials Development in TESOL

Principles of curriculum design and instructional materials development in teaching English to speakers of other languages. Students work in teams to assess needs, design syllabus, develop lessons and materials, plan evaluation for English language program. Covers structural, notional and communicative, task-based, and content-based syllabus. Prerequisite: Ling 390.

TESOL Methods

Approaches, methods, and techniques in teaching English to speakers of other languages. Students are required to tutor, observe, and teach in an approved ESL program. Prerequisites: Ling 477/577. Emphasis is on macro-level variables and introduction to instructional methodology. Ling 478/578: Emphasis is on techniques for teaching listening, speaking, reading, writing, and grammar. Courses should be taken in sequence. Previous study equal to at least one class in linguistics is required.

World Englishes

Explores the role of English as a world language. Using film, audio tapes, and English language newspapers from around the world, students will become familiar with such Englishes as Malaysian English, Indian English, Nigerian English, and Filipino English. Prerequisite: Ling 290 or 380.

History of the English Language

A survey in which the development of English phonology, morphology, vocabulary, and syntax is studied through the application of modern linguistic criteria and methodology. Prerequisite: Ling 390.

Structure of the English Language

A study of English structure and modern approaches to grammar. This course satisfies state standards for teaching English. Prerequisite: Ling 390.

Research Design for Applied Linguistics

Methods for qualitative and quantitative research in TESOL and other areas of applied linguistics. Measurement concepts, major types of research designs, alternative types of research in TESOL, introductory statistics, evaluation of published research, review of literature, and preparation of proposal. Prerequisites: completion of at least two terms in the M.A. TESOL program, Ling 390.

Research Design in TESOL

Analyzes models of intensive and non-intensive programs in terms of goals, students, levels, staff, schedules, materials and approaches based on resources and facilities available. Discusses theoretical, financial and pedagogical issues in designing and maintaining a successful program. Prerequisite: Ling 390.

Semiotics

Study of modern critical theories based on linguistics, especially structuralism. Prerequisite: 3 credits of linguistics.

Admission of ESL/EFL Programs

Analyzes models of intensive and non-intensive programs in terms of goals, students, levels, staff, schedules, materials and approaches based on resources and facilities available. Discusses theoretical, financial and pedagogical issues in designing and maintaining a successful program. Prerequisite: Ling 390.

3 credits of linguistics.

Ling 392/592 and Ling 423/523 are to be used only for ESL/bilingual endorsement for public school teachers, offered through Continuing Education. These courses cannot be used as linguistics electives or toward the TESL certificate or TESOL master’s degree without explicit approval by the Applied Linguistics department.
The biology program is designed to prepare students for careers in biological research, development, and teaching, and in health sciences, nursing, agriculture, forestry, and other applied fields. It also provides the necessary background for prospective teachers and for advanced study leading to graduate degrees in the more specialized fields of the biological sciences.

A student planning to enter medicine, dentistry, or other professional fields should consult the catalog of the professional school to which the student intends to apply following preprofessional work in biology and other sciences at Portland State. Biology is also a teaching endorsement area in the program of secondary education.

The Oregon University System maintains the Institute of Marine Biology near Coos Bay and the Hatfield Marine Science Center in Newport on the Oregon coast. PSU also participates in programs at the Malheur Field Station in southeastern Oregon. Biology majors are encouraged to spend a summer at one of these institutions.

Requirements for Major: In addition to satisfying general University requirements, a student majoring in biology must meet general department major requirements and specific requirements in one of the biology major options. General requirements are completion of two terms of statistics or two terms of calculus; three terms of science majors’ introductory chemistry with laboratory; one term of organic chemistry, Ph 201, 204, and 12 elective credits from geology, physics, or chemistry at the 200 level or higher. All biology majors must complete at least 60 credits in biology including three terms of science majors’ introductory biology with laboratory. Of the 60 credits in biology at least 44 must be upper-division, including one term of genetics (Bi 341, Introduction to Genetics) and fulfillment of one of the options listed below. Students must receive a grade of C- or better in all upper-division courses specifically listed in the four options.

Biology courses taken pass/no pass are not acceptable toward fulfilling departmental major requirements, with the exception of courses numbered Bi 401, 404, 405, 406, and 407 which are only offered pass/no pass. Of the 60 credits required in biology, at least 46 credits must be in courses other than Bi 401, 404, 405, 406, and 407. The remaining 14 credits may include no more than a total of 6 credits in Bi 401, 404, 405, and 406.

Biology majors interested in the Biology Honors program may obtain information on that in the Science Support Office.

Option I: General Biology

Students selecting Option I will take the following courses or their equivalent.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 251-253 Principles of Biology</td>
<td>15</td>
</tr>
<tr>
<td>Bi 341 Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

At least two of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 338 Introduction to Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 336 Cell Biology</td>
<td>5</td>
</tr>
<tr>
<td>Bi 357 General Ecology</td>
<td>4</td>
</tr>
</tbody>
</table>

Upper-division electives 32-33

Courses taken as upper-division biology electives must include at least one other upper-division course in each of the following areas: botany, zoology, microbiology, and evolutionary biology.

Several different avenues of study may be followed under the general track. These include emphases in ecology, evolution, botany, microbiology, and field biology. Please consult your adviser for more details. The remaining courses taken to meet upper-division elective requirements in biology may be selected from any upper-division courses offered by the Department of Biology (courses with a “Bi” prefix).

Botany

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 433 Morphology of Vascular Plants</td>
<td></td>
</tr>
<tr>
<td>Bi 435 Plant Systematics</td>
<td>4</td>
</tr>
<tr>
<td>Bi 441 Plant Physiology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 471 Plant Ecology</td>
<td>4</td>
</tr>
<tr>
<td>ESR 445 Phytoplankton Ecology</td>
<td></td>
</tr>
</tbody>
</table>

Zoology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 387 Vertebrate Zoology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 413 Herpetology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 414 Ornithology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 415 Mammalogy</td>
<td>4</td>
</tr>
<tr>
<td>Bi 461 Freshwater Invertebrate Zoology</td>
<td></td>
</tr>
</tbody>
</table>

Microbiology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 480, Bi 488 Microbiology and Laboratory</td>
<td></td>
</tr>
<tr>
<td>Bi 421 Virology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 430 Theory of Recombinant DNA Techniques</td>
<td></td>
</tr>
</tbody>
</table>

Evolutionary biology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 426 Evolution</td>
<td>4</td>
</tr>
<tr>
<td>Bi 427 Evolutionary Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Bi 428 Human Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Bi 476 Population Biology</td>
<td>4</td>
</tr>
</tbody>
</table>

Option II: Organismal Biology

Students seeking an emphasis in organismal biology will take the following courses or their equivalent.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 251-253 Principles of Biology</td>
<td>15</td>
</tr>
<tr>
<td>Bi 341 Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Bi 336 Cell Biology</td>
<td>5</td>
</tr>
<tr>
<td>Bi 357 General Ecology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 426 Evolution</td>
<td>4</td>
</tr>
<tr>
<td>Upper-division electives</td>
<td>28-29</td>
</tr>
</tbody>
</table>

Courses taken as upper-division biology electives must include at least one course from each of the following sub-areas:

Systems physiology sub-area

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 301, Bi 302, Bi 303 Human Anatomy and Physiology</td>
<td>4, 4, 4</td>
</tr>
<tr>
<td>Bi 417 Mammalian Physiology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 418 Comparative Animal Physiology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 419 Animal Physiology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>Bi 441 Plant Physiology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 462 Neurophysiology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 463 Sensory Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

Structure/systematics/development sub-area:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 326 Comparative Vertebrate Embryology</td>
<td>5</td>
</tr>
<tr>
<td>Bi 328 Comparative Vertebrate Anatomy</td>
<td>5</td>
</tr>
<tr>
<td>Bi 387 Vertebrate Zoology</td>
<td>6</td>
</tr>
<tr>
<td>Bi 413 Herpetology</td>
<td>6</td>
</tr>
<tr>
<td>Bi 414 Ornithology</td>
<td>6</td>
</tr>
<tr>
<td>Bi 415 Mammalogy</td>
<td>6</td>
</tr>
<tr>
<td>Bi 416 Marine Mammals</td>
<td>6</td>
</tr>
<tr>
<td>Bi 433 Morphology of Vascular Plants</td>
<td>4</td>
</tr>
<tr>
<td>Bi 435 Plant Systematics</td>
<td>4</td>
</tr>
<tr>
<td>Bi 445 Histology</td>
<td>4</td>
</tr>
</tbody>
</table>

Ecology/genetics/evolution/behavior sub-area:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 360 Introduction to Marine Biology</td>
<td>3</td>
</tr>
<tr>
<td>Bi 412 Animal Behavior</td>
<td>4</td>
</tr>
<tr>
<td>Bi 427 Evolutionary Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Bi 428 Human Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Bi 471 Plant Ecology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 472 Natural History</td>
<td>3</td>
</tr>
<tr>
<td>Bi 476 Population Biology</td>
<td>4</td>
</tr>
<tr>
<td>ESR 475 Limnology and Aquatic Ecology</td>
<td>4</td>
</tr>
</tbody>
</table>

The remaining courses taken to meet upper-division elective requirements in biology may be selected from any upper-
division courses offered by the Department of Biology (courses with a "Bi" prefix).

**Option III: Microbiology/Molecular Biology**

Students selecting Option III will take the following courses or their equivalent:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 251-253 Principles of Biology</td>
<td>15</td>
</tr>
<tr>
<td>Bi 336 Cell Biology</td>
<td>5</td>
</tr>
<tr>
<td>Bi 337 Cell Biology Lab</td>
<td>2</td>
</tr>
<tr>
<td>Bi 338 Introduction to Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 341 Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Bi 480, Bi 488 Microbiology and Laboratory</td>
<td>6</td>
</tr>
<tr>
<td>Ch 350 or Ch 490, 491 Biochemistry</td>
<td>4 or 6</td>
</tr>
</tbody>
</table>

Upper-division electives: 24

Electives must include at least 12 credits from the following list:

- Bi 421 Virology
- Bi 423 Microbial Ecology
- Bi 424 Molecular Genetics
- Bi 428 Human Genetics
- Bi 430, 431 Recombinant DNA Techniques and Laboratory
- Bi 456 Developmental Biology
- Bi 481 Microbial Physiology
- Bi 482 Environmental Microbiology
- Bi 486 Pathogenic Bacteria
- Bi 487 Immunology

The remaining courses taken to meet upper-division elective requirements in biology may be selected from any upper-division courses offered by the Department of Biology (courses with a "Bi" prefix).

The department offers a Certificate in Biotechnology in cooperation with Portland Community College. Students interested in obtaining the Certificate in Biotechnology should contact Dr. Lisa Weasel for information on specific requirements for the certificate.

**Option IV: Botany**

Students selecting Option IV will take the following courses or their equivalent:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 251-253 Principles of Biology</td>
<td>15</td>
</tr>
<tr>
<td>Bi 336 Cell Biology</td>
<td>5</td>
</tr>
<tr>
<td>Bi 341 Introduction to Genetics</td>
<td></td>
</tr>
<tr>
<td>Bi 480 Microbiology</td>
<td></td>
</tr>
<tr>
<td><strong>Area I: Cellular Biology</strong></td>
<td></td>
</tr>
<tr>
<td>Bi 336 Cell Biology</td>
<td>5</td>
</tr>
<tr>
<td>Bi 341 Introduction to Genetics</td>
<td></td>
</tr>
<tr>
<td>Bi 480 Microbiology</td>
<td></td>
</tr>
<tr>
<td><strong>Area II: Organismal Biology</strong></td>
<td></td>
</tr>
<tr>
<td>Bi 301, 302, 303 Human Anatomy and Physiology</td>
<td></td>
</tr>
<tr>
<td>Bi 326 Comparative Vertebrate Embryology</td>
<td></td>
</tr>
<tr>
<td>Bi 328 Comparative Vertebrate Anatomy</td>
<td></td>
</tr>
<tr>
<td>Bi 334 Systematic Botany</td>
<td></td>
</tr>
<tr>
<td>Bi 387 Vertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td>Bi 433 Morphology of Vascular Plants</td>
<td></td>
</tr>
<tr>
<td>Bi 434 Plant Anatomy</td>
<td></td>
</tr>
<tr>
<td>Bi 455 Histology</td>
<td></td>
</tr>
<tr>
<td>Bi 461 Freshwater Invertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td><strong>Area III: Ecological and Evolutionary Biology</strong></td>
<td></td>
</tr>
<tr>
<td>Bi 357 General Ecology</td>
<td></td>
</tr>
<tr>
<td>Bi 360, 361 Introduction to Marine Biology and Laboratory</td>
<td></td>
</tr>
<tr>
<td>Bi 423 Microbial Ecology</td>
<td></td>
</tr>
<tr>
<td>Bi 426 Evolution</td>
<td></td>
</tr>
</tbody>
</table>

Total 30

Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department minor requirements. Bi 401, 404, 405, 406, and 407 are not allowed for the minor. Additional courses may be required as prerequisites.

**SECONDARY EDUCATION**

Adviser: R. Tinnin, M.C. Carter

Students who wish to teach biology in secondary schools should complete one of the two programs shown. Courses are to be taken for differentiated grades, except for those offered for pass/no pass only. Students must have at least a 3.00 GPA in the recommended science courses and must earn at least a C in each course of the endorsement area. Students should also take Ed 420 Introduction to Education and Society, Psy 311, and one of the following: Sp 100, 229, 220, 262, or 324.

**Biology Majors**

The student must complete a biology major’s program as outlined above, to include a course each in microbiology, ecology, genetics, and evolution. (See adviser.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology (see above)</td>
<td>50</td>
</tr>
<tr>
<td>Mathematics (see above)</td>
<td>12</td>
</tr>
</tbody>
</table>

The remaining courses taken to meet upper-division elective requirements in biology may be selected from any upper-division courses offered by the Department of Biology (courses with a "Bi" prefix).

**Requirements for a Minor.** To earn a minor in biology, a student must complete at least 27 credits (at least 9 credits of which must be taken in residence at PSU), to include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 251, 252, 253 Principles of Biology</td>
<td>15</td>
</tr>
<tr>
<td>Upper-division electives to include at least one course from each of the following three areas</td>
<td>15</td>
</tr>
</tbody>
</table>

**Area I: Cellular Biology**

- Bi 336 Cell Biology: 5 credits

**Area II: Organismal Biology**

- Bi 301, 302, 303 Human Anatomy and Physiology: 5 credits
- Bi 326 Comparative Vertebrate Embryology: 4 credits
- Bi 328 Comparative Vertebrate Anatomy: 4 credits
- Bi 334 Systematic Botany: 4 credits
- Bi 387 Vertebrate Zoology: 4 credits
- Bi 433 Morphology of Vascular Plants: 4 credits
- Bi 434 Plant Anatomy: 4 credits
- Bi 455 Histology: 4 credits
- Bi 461 Freshwater Invertebrate Zoology: 4 credits

**Area III: Ecological and Evolutionary Biology**

- Bi 357 General Ecology: 4 credits
- Bi 360, 361 Introduction to Marine Biology and Laboratory: 4 credits
- Bi 423 Microbial Ecology: 4 credits
- Bi 426 Evolution: 4 credits

Total 30

**Electives**

**Total 57**

**Graduate Programs**

The Department of Biology offers graduate study leading the Master of Arts or Master of Science, and the Master of Arts in Teaching or Master of Science in Teaching Science/Biology. The department also participates in the Environmental Sciences and Resources Doctoral Program. Specialized studies in the basic principles and techniques of the discipline, when combined with multidisciplinary environmental sciences courses and seminars, will partially fulfill the requirement for the Ph.D. in environmental sciences and resources. For information relative to the Ph.D. program in environmental sciences and resources/biology, see page 117.

**Admission Requirements.** In addition to the instructions for admission to the graduate program as they appear on page 100, the department requires the following information from each applicant to the M.A./M.S. program in biology and the Ph.D. program in environmental sciences and resources:

1. Satisfactory scores on the Graduate Record Examination (GRE), to include results from the aptitude test and the advanced biology examination.

2. Three letters of evaluation from persons qualified to assess the applicant’s promise as a graduate student.

The student should contact the department for a statement of current admission policy.

The prospective student should realize that a high GPA and acceptable GRE scores do not guarantee admission to the graduate programs in biology. This is because of the many departmental factors which must be taken into consideration, such as availability of appropriate advisers and research space.
Degree Requirements. University master's degree requirements are listed on page 62. Specific departmental requirements are listed below.

MASTER OF ARTS OR MASTER OF SCIENCE
Satisfactory completion of at least 45 credits of approved graduate-level courses is required for a master's degree. The student must complete at least 30 credits in the field of biology. No more than 9 credits may be in Bi 503 Thesis. No more than a total of 15 credits may be in seminar, reading and conference, research, and thesis. A maximum of 15 credits may be programmed as electives in fields related to biology in consultation with the degree adviser. Successful completion of a final oral examination and a thesis is required.

MASTER OF ARTS IN TEACHING OR MASTER OF SCIENCE IN TEACHING
The College of Liberal Arts and Sciences offers the M.A.T./M.S.T. degrees in Science/Biology. In consultation with the graduate adviser, the student should establish the degree program before the completion of 15 credits of coursework. The program must include a minimum of 45 credits in approved graduate courses, to include a minimum of 24 credits in the area of concentration. At least 9 credits, but no more than 15 credits, must be in education courses. In order to fulfill requirements for the degree, the student must satisfactorily complete the degree program and pass both a final written examination and a final oral examination.

CONTINUING TEACHING LICENSE
The requirements for the continuing teaching license include satisfactory completion of 45 credits of upper-division and graduate work earned subsequent to receipt of a bachelor's degree. The 45 credits are in addition to those required for the initial teaching license. For the continuing endorsement in biology, the student must take at least 15 credits of adviser-approved graduate-level work distributed to strengthen the student's background in science. Although no specific courses in science are required for the continuing endorsement, combined undergraduate and graduate preparation must include at least 36 credits in biology and must include specific courses. Each student's program is tailored to meet the needs of the individual and the requirements of the continuing endorsement and the continuing license. See page 205 for the required education courses.

COURSES
Courses with an asterisk (*) are not offered every year.

Bi 101, 102, 103
General Biology (3, 3, 3)
The fundamental principles of life as they apply to both plants and animals. If taken after completing courses with similar materials credit will be restricted Concurrent enrollment in Bi 104, 105, 106 required.

Bi 104, 105, 106
General Biology Labs (1, 1, 1)
Laboratory to accompany General Biology (Bi 101, 102, 103). Previous or concurrent enrollment in Bi 101, 102, 103 is required. One 2-hour laboratory per week.

Bi 161
Food, Plants, and People (3)
The role of plants in human affairs as sources of food, fiber, fuel, beverages, and drugs. This course does not satisfy the Department of Biology botany course requirement and is intended for nonmajors.

Bi 162
Indoor Plants (3)
An in-depth study of the botany, identification, cultural characteristics, propagation, care and maintenance, and effective utilization in interior design of common foliage plants. Not intended for biology majors.

Bi 163
Organic Gardening (3)
An in-depth study of the principles and practices of modern home gardening. Plants, soils, and climates are studied in relation to the production of vegetables, herbs, flowers, and perennial food plants. The organic and chemical approaches to gardening are discussed with the goal of helping students to formulate intelligently their own philosophy of gardening. Not intended for biology majors.

Bi 175
Evolutionary Concepts (3)
This class is designed to provide background in evolutionary concepts for nonmajors and to address current issues in evolution as they are perceived and are being investigated by various members of our faculty in biology and geology. It is a combined lecture and discussion class and will include occasional guest lecturers presenting their research and views on various topics in evolution.

Bi 199
Special Studies (Credit to be arranged.)

Bi 234
Elementary Microbiology (4)
Introduction to the basic and applied aspects of microbiology, with special emphasis on the role of microorganisms in human affairs. Such fields as nursing, environmental protection, food technology, and public health are given special attention. Topics will include microbial growth and death, human disease, environmental microbiology, food and industrial microbiology, microbial aspects of water and sewage treatment, aspects of microbial gene flow, genetic engineering, and vaccine development.

Bi 235
Elementary Microbiology Laboratory (2)
The laboratory is designed for science majors and others who need practical experience in culturing and observation of microorganisms.

Bi 236, 232, 233
Plant Morphology (4, 4)
Study of the structure and life history of representatives of the algae, fungi, and bryophytes (Bi 332) and the vascular cryptogams (Bi 333). Two 3-hour laboratory periods. Prerequisite: Bi 253.

Bi 301
Comparative Embryology (5)
Comparative study of the development of representative vertebrates, including the cellular mechanisms responsible for early morphogenesis. One 4-hour laboratory period. Prerequisite: one year of introductory biology.

Bi 302
Comparative Embryology (5)
Comparative study of the development of representative vertebrates, including the cellular mechanisms responsible for early morphogenesis. One 4-hour laboratory period. Prerequisite: Bi 253.

Bi 330
Introduction to Plant Biology (4)
Plant diversity, structure and function in relation to evolution, habitat, and interactions with other organisms. Historical impacts of plants on human culture, including conservation, biotechnology, and world food supply. Prerequisites: Bi 251, 252, 253.

Bi 332, 333
Plant Morphology (4, 4)
Study of the structure and life history of representatives of the algae, fungi, and bryophytes (Bi 332) and the vascular cryptogams (Bi 333). Two 3-hour laboratory periods. Prerequisite: Bi 253.

Bi 336
Cell Biology (5)
An introduction to the biology of eukaryotic (plant/animal) and prokaryotic cells (bacteria, etc.) with emphasis on physiology, biochemistry, morphology, and energetics. Four hours of lecture and one hour of recitation. Prerequisites: one year of introductory biology and one year of introductory chemistry.

Bi 337
Cell Biology Laboratory (2)
Experiments in cell biology to complement lecture. One three-hour laboratory. Prerequisite: prior completion of/or concurrent enrollment in Bi 336.
Bi 338
Introduction to Molecular Biology (4)
The principles, concepts and methods of molecular biology with focus on structure, biochemistry, biosynthesis, and regulation of cellular macromolecules-DNA, RNA, and proteins. Topics covered include DNA/RNA technology, gene structure and function, macromolecular interactions, expression and regulation of gene function, DNA replication and repair, mutagenesis, viruses, and oncogenes. Prerequisite: Bi 341, and either Bi 335 or one term of college-level biochemistry.

Bi 341
Introduction to Genetics (4)
A study of the mechanism of biological inheritance. One 2-hour recitation period. Prerequisite: one year of biological science.

Bi 357
General Ecology (4)
The study of the interrelationships of plants and animals with their environment. Emphasis is on basic ecological principles and concepts, not on current environmental problems. Prerequisite: one year of biological science.

Bi 360
Introduction to Marine Biology (3)
Introduction to the marine environment and its life forms. Survey of organismal diversity with emphasis on structural and physiological adaptations to the marine realm. Prerequisite: one year of biological science.

Bi 361
Introduction to Marine Biology Laboratory (1)
Laboratory and field work in marine biology. One 3-hour laboratory period. Prerequisite: completion of or concurrent enrollment in Bi 360.

Bi 370
Mushrooms (4)
An introduction to the distribution, systematics, identification, ecology, morphology, and life histories of visible fungi (mushrooms). Two 3-hour laboratory periods, field trips. Prerequisite: one year of biology.

Bi 387
Vertebrate Zoology (6)
Introduction to the classification, anatomical characteristics, distribution, and life habits of fishes, amphibians, reptiles, birds, and mammals. Two 2-hour lectures, two 2-hour laboratories. Prerequisite: one year of college-level biology or zoology.

Bi 399
Special Studies (Credit to be arranged.)

Bi 401/501
Research (Credit to be arranged.)

Bi 404/504
Cooperative Education/internship (Credit to be arranged.)

Bi 405/505
Reading and Conference (Credit to be arranged.) Pass/no pass only.

Bi 406
Laboratory Project (Credit to be arranged.)

Bi 407/507
Seminar (Credit to be arranged.)

Bi 410/510
Selected Topics (Credit to be arranged.) Consent of instructor.

*Bi 412/512
Animal Behavior (4)
An evolutionary approach to the study of animal behavior. The importance of ecological, physiological, and social variables will be examined in relation to the behavior of the individual animal. Prerequisites: one year of introductory biology and upper-division standing.

*Bi 413/513
Herpetology (6)
Study of the distinguishing features, anatomy, physiology, origins, evolution, and ecology of amphibians and reptiles. North American species are emphasized. Two 2-hour lectures, two 2-hour laboratories. Prerequisite Bi 387.

*Bi 414/514
Ornithology (6)
Study of the diversity, characteristics, evolution, structure, function, distribution, and life habits of birds. North American species are emphasized. Two 2-hour lectures, two 2-hour laboratories. Prerequisites: Bi 387.

Bi 415/515
Mammalogy (6)
Study of the diversity, characteristics, evolution, structure, function, distribution, and life habits of mammals. North American Species are emphasized. Two 2-hour lectures, two 2-hour laboratories. Prerequisite: Bi 387.

Bi 416/516
Marine Mammals (6)
Study of the distinguishing features, classification, origins, evolution, physiology, anatomy, behavior, ecology, and status of groups of marine mammals. Two 2-hour lectures, one 3-hour laboratory. Prerequisite: Bi 387.

*Bi 417/517
Mammalian Physiology (4)
Physiology of the mammalian cardiovascular, respiratory, renal and digestive systems with emphasis on homeostatic control and integration of these systems in normal and pathophysiologic states. Prerequisite: upper-division physiology course.

Bi 418/518
Comparative Animal Physiology (4)
Physiology of metabolic, respiratory, circulatory, excretory, muscle, and nervous systems with emphasis on a comparative ecological approach. Prerequisite: upper-division physiology course.

Bi 419/519
Animal Physiology Laboratory (4)
Laboratory experiments on the physiology of animals from the cell through organismic levels. Two 3 3-hour laboratory periods. Prerequisite: Bi 335, 417 or 418. May be concurrent.

*Bi 421/521
Virology (4)
A study of the classification, structure, genetics, molecular biology of replication, cell interactions, and host response of representative groups of bacterial, plant, and animal viruses, and the medical aspects of important human viruses. Prerequisite: Bi 338.

*Bi 422/522
Comparative Vertebrate Endocrinology (4)
Neuroendocrine and endocrine mechanisms in vertebrates with an emphasis on the comparative physiology and morphology of endocrine systems. Prerequisite: Organic Chemistry, Principles of Biology.

*Bi 423/523
Microbial Ecology (4)
Study of the interaction of microorganisms with each other and plants and animals, soil and aquatic systems; microbial evolution, cycles of matter; biodegradation and microbial pest control. Prerequisite: Bi 420.

*Bi 424/524
Molecular Genetics (4)
The nature of the gene and its mode of action, organization of the genetic material, and the regulation of gene action. Prerequisite: Bi 338.

Bi 426/526
Evolution (4)
Examination of micro- and macroevolutionary patterns in the evolution of life, with an emphasis on the mechanisms of evolution. One 2-hour recitation period. Prerequisite: Bi 341.

*Bi 427/527
Evolutionary Genetics (4)
An introduction to population genetics theory and an examination of the genetic techniques that are used to look at populations, speciation, and phylogenetic relationships. Prerequisite: Bi 341, Bi 426 recommended.

*Bi 428/528
Human Genetics (4)
The organization of the human genome, pedigree analysis, gene mapping, chromosome abnormalities, sex determination, and gene defects (metabolic and hemoglobin). Topics are discussed from the point of view of clinical applications and current research. Prerequisite: Bi 341.

Bi 429/529
Conservation Biology (4)
Examination of the principles of conservation biology and applications of theory to conservation issues, globally and in the Northwest. Prerequisites: Bi 341, 357, 426; Bi 387 recommended.

Bi 430/530
Theory of Recombinant DNA Techniques (3)
Lectures on the principles and theory of recombinant DNA and molecular cloning techniques. Topics will cover use of restriction and other DNA modifying enzymes, host-vector systems, DNA fragment and plasmid isolation techniques, gene mapping, subcloning techniques, in vitro mutagenesis, cDNA and genomic cloning, screening of clones, blot hybridizations, DNA transfection and use of reporter genes, DNA sequencing and PCR. Prerequisite: Bi 338.

Bi 431/531
Recombinant DNA Techniques Laboratory (2)
Laboratory of recombinant DNA and molecular cloning techniques. Corequisite: Bi 430/530.

*Bi 432/532
Morphology of Nonvascular Plants and Fungi (4)
Study of the morphology, structure, and life history of algae, bryophytes, and fungi from an evolutionary point of view. One 3-hour laboratory. Prerequisite: Bi 253.

*Bi 433/533
Morphology of Vascular Plants (4)
Study of the gross morphology, development, and structure of roots, stems, leaves, and flowers from an evolutionary point of view. One 3-hour laboratory. Prerequisite: Bi 253.
BI 434/534
Plant Anatomy (5)
Study of the structure of meristems, cells, tissues, and tissue systems of roots, stems, leaves, flowers, and fruits from the developmental and comparative standpoint. One 3-hour laboratory. Prerequisite: Bi 253.

BI 433/533
Plant Systematics (4)
Study of angiosperm classification, diversity, and evolutionary relationships. Methods of phylogenetic analysis and current hypotheses regarding angiosperm phylogeny are emphasized. Lab will focus on the form and floral structure of about 30 local plant families. One 3-hour laboratory. Prerequisite: Bi 252.

BI 441/541
Plant Physiology (5)
An introduction to the metabolic activities of plants. Two 3-hour laboratory periods. Prerequisite: Bi 335 or one term of biochemistry.

BI 442/542
Plant Physiology (3)
Biochemical activities of plants, photosynthesis, and respiration. Course is intended to be taken in sequence with Bi 441. Prerequisite: Bi 441.

BI 451/551, 452/552
Parasitology (4, 4)
Study of the biological inter-relationships of parasites and their hosts. An introduction to the morphology, physiology, and life cycle of representative parasites. One 3-hour laboratory period. Prerequisite: two years of biology.

BI 453/553
Biological Aging (3)
The study of molecular and structural changes in animals as a function of age. Emphasis is on the basic biological factors which limit life-span. Prerequisite: Bi 335 or biochemistry. Recommended: Bi 487.

BI 455/555
Histology (6)
Systemic study, description, and identification of histological structures. Two 3-hour laboratory periods. Prerequisite: two years of biology.

BI 456/556
Developmental Biology (4)
Explores basic principles of how organisms develop from a fertilized egg into a complex, multicellular adult. Focuses on contemporary issues in developmental biology, including pattern formation, morphogenesis, determination, and differentiation in vertebrates and invertebrates. Prerequisite: Bi 341.

BI 461/561
Freshwater Invertebrate Zoology (5)
A survey of the major groups of freshwater invertebrates with emphasis on benthic invertebrates and invertebrate groups used as biological indicators. Two 3-hour laboratories; field work outside of class hours. Prerequisites: Bi 251, 252, 253.

BI 462/562
Neurophysiology (4)
Lectures covering the basic anatomy of the vertebrate central nervous system (CNS) and the cellular bases for resting, graded and action potentials. Also, chemical and electrical signaling between cells of the nervous system is discussed, including pharmacological intervention in the CNS. Lastly, several model systems for integrative neuroscience are described including the visual and somatosensory systems, learning, memory, and simple motor pattern generators. Prerequisite: Bi 335.

BI 463/563
Sensory Physiology (4)
An exploration of the range of animal senses with lecture and discussion of the principles of sensation and sensory communication in general, and the detailed physiology of transduction for mechanical, electromagnetic, chemical, nociceptive, and thermal senses. Prerequisite: Bi 491/591.

BI 471/571
Plant Ecology (4)
A study of the interrelationships between plants and their environment with emphasis upon individual adaptation and community dynamics. One 3-hour laboratory period. Prerequisite: Bi 357 or equivalent.

BI 472/572
Natural History (3)
A study of plant and animal interrelationships, emphasizing maintenance of proper field records, identification, distribution, and ecology of vertebrates in Oregon. Includes one two-hour laboratory. Prerequisite: one year of biology.

BI 473/573
Field Sampling (4)
An introduction to the methods commonly employed for collecting and interpreting ecological data. One 3-hour laboratory. Prerequisite: Bi 357.

BI 476/576
Population Biology (4)
A study of classical and modern theories of the growth and regulation of natural populations of plants and animals. Emphasis will be placed on quantitative models. Topics will include: age-specific population growth; population growth in a limited environment; competitive and predator-prey interactions; biotic diversity; data collection and mathematical modeling of actual populations. Includes one-hour recitation. Prerequisite: Bi 357.

BI 480/580
Microbiology (4)
Fundamental concepts and techniques of microbiology. The general principles of microbial cell structure and function, physiology and biochemistry, growth, survival, classification, and diversity are emphasized. Prerequisite: Bi 336. Corequisite: Bi 488/588.

BI 481/581
Microbial Physiology (3)
Physiology and biochemistry of microorganisms. Modern contributions to microbiology emphasized. Micro- and macro-molecular anatomy of microbial cells; energy metabolism, biosynthetic pathways and their regulation, kinetic and molecular aspects of growth, genetics, evolution, and ecology. Prerequisites: Bi 480, 488, and either Bi 335 or one term of biochemistry.

BI 486/586
Pathogenic Bacteriology (4)
Study of bacteria pathogenic to humans and their relationship to infectious disease. Emphasis on the biochemical mechanism of infection and laboratory diagnosis. Prerequisite: Bi 420.

BI 487/587
Immunology and Serology (4)
The study of resistance to infectious disease and the properties and behavior of antibodies formed within an animal in response to foreign antigenic substances. Prerequisite: Bi 420.

BI 488/588
Microbiology Laboratory (2)
Techniques in microbiology, including staining and microscopy, isolation and maintenance of bacteria, counting techniques, and methods for a wide range of physiological and morphological tests. Corequisite: Bi 480/580.

BI 489/589
Microbiology Physiology Laboratory (1)
Application of the principles of microbiology in the laboratory. One 3-hour laboratory period. Prerequisite: concurrent with Bi 481/581.

BI 503
Thesis (Credit to be arranged.)
The Department of Black Studies seeks to expose students from all cultural, religious, and ethnic backgrounds to academic experiences beyond those usually found in traditional college curricula. It seeks to provide students with added dimension to the world civilization, a Black Studies Certificate has practical applications.

1. It may be utilized as the foundation for graduate studies in the social sciences, liberal arts, and some professional programs. Examples of such careers are teaching, counseling, social work, politics and government, law enforcement, health planning, and urban planning.
2. It provides background for students interested in the field of social welfare as a vocation.
3. It provides added dimension to the study of education, and it is especially crucial for those persons considering teaching in inner-city communities.

Certificate Requirements. Candidates for the Black Studies Certificate must satisfy the requirements outlined below as well as meet the general requirements for a degree in any field. Completion of 36 credits is required for certification in black studies. It is recommended that of these 36 credits, 24 credits be Department of Black Studies course offerings. Twenty-four credits will be upper-division courses within an area of specialization constructed with the consent of the adviser and approval of the faculty.

1. Completion of all requirements for a major with a B.A. or a B.S. degree.
2. Completion of 12 credits of lower-division courses with consent of adviser and approval of faculty. These 12 credits must relate to black studies areas of specialization listed below.
3. Completion of 24 credits of upper-division courses in an area of specialization within a program constructed with consent of adviser and approval of faculty.

Areas of specialization include:

1. Black culture and civilization (history, art, music, literature, etc.)
2. Black social development (sociology, political science, psychology, etc.)

All courses used to satisfy certificate requirements need not be black studies courses, but can include appropriate courses in other departments as approved by an adviser.

Students may focus on the American, Caribbean, or African experiences.

Courses taken under the undifferentiated grading option (pass/no pass) are acceptable toward fulfilling certificate requirements.

Languages. There are no special language requirements for a Black Studies Certificate. However, students interested in travel to Africa, the Caribbean, or South America are encouraged to acquire skills in African languages, French, Spanish, or Portuguese.
Requirements for a Minor. To earn a minor in Black Studies a student must complete 28 credits (12 credits of which must be taken in residence at PSU), to include the following:

Credits
Two courses chosen from: ........................... 8
BSt 203, 204 Introduction to African-American History
BSt 205 Introduction to African Studies
BSt 206 Introduction to Caribbean Studies
BSt 221 Introduction to African-American Literature

Four courses chosen from .................................12
BSt 302 African-American Experience in the 20th Century
BSt 305 African History, Before 1800
BSt 306 African History, 1800-Present
BSt 362 African Prehistory
BSt 412 Oregon African-American History
BSt 413 Slavery
BSt 414 Racism
BSt 417 African-American Family
BSt 419 African-American Women in America
BSt 421 African-American Writers
BSt 424 African-American/African Culture in Cinema
BSt 430 African-American Political Thought
BSt 440 Caribbean Studies
BSt 470 African Art
BSt 484 African-American Community Development

Eight advisor-approved credits chosen from related courses within departments in the College of Liberal Arts and Sciences ......... 8

Total 28

No more than 12 credits taken under the undifferentiated grading option (pass/no pass) are acceptable toward fulfilling department minor requirements.

COURSES

Courses with an asterisk (*) are not offered every year.

BSt 199 Special Studies (Credit to be arranged.)
BSt 203, 204 Introduction to African-American History (4, 4)
An introductory sequence designed to provide students with a factual framework and conceptual foundation to analyze the history of the black race in the New World. Primarily a lecture-discussion format augmented with speakers and films, the course will trace the pertinent contacts between the African and European worlds from ancient times to the present. Special consideration will be given to developing the student's skill to re-examine traditional historical concepts and information from the perspective of the black experience.

BSt 205 Introduction to African Studies (4)
An introductory course designed to provide students with an understanding of methods and sources used by the historian of the African past. Museum visits, guest speakers, and films will supplement the lecture format. In addition to a survey of major themes and issues in the history of the African continent, the course will consider the rise of complex societies, indigenous African towns, agricultural and technological achievements, African state systems, and the impact of international trade and Islam on Africa.

BSt 206 Introduction to Caribbean Studies (4)
Interdisciplinary examination of the historical and cultural experience of the circum-Caribbean regions. Special attention will be given to issues in the creation of multicultural society such as the dynamics of resistance and the interplay of cultural identity and political domination.

BSt 211 Introduction to African-American Literature (4)
An overview of African-American fiction, poetry, drama, and expository prose.

BSt 261 The African-American Economic Experience (4)
The role of African-Americans in the American economic system. Employment, wage differentials, welfare payments, and the ghetto economy are examined.

BSt 302 African-American Experience in the 20th Century (4)
An upper-division course designed to examine the history of the black experience in the 20th century. Primarily a discussion-reading format augmented with speakers and films. Special consideration will be given to developing in the student the skill to re-examine traditional concepts and approaches to the study of the black experience within the broader context of mainstream developments in American life and history. Prerequisite: BSt 203.

BSt 305 African History, Before 1800 (4)
An upper-division course designed to survey the history of the African continent from the period of European exploration to the eve of colonialism. Using a lecture/discussion format, the course will examine the impact of the European presence on African institutions and trade, and the relative importance of the environment, technology, and indigenous social systems on the transformation of African society prior to 1800. This course is the same as Hst 312; course may be taken only once for credit. Prerequisite: BSt 205.

BSt 306 African History, 1800-Present (4)
An upper-division course designed to survey the history of the African continent from 1800 to the present, with emphasis on the colonial period, independence and post-independence. This course is the same as Hst 313; course may be taken only once for credit. Prerequisite: BSt 205.

BSt 319 Traditional Cultures of Africa (4)
Survey of African cultures. Some of the main features examined include: environment and people, oral traditions, time and seasons, naming and numbering systems, language and communication systems, religious, political and legal institutions, music, dance, and family. Prerequisite: BSt 205 or Sociology 208.

BSt 351, 352 African-American Literature (4, 4)
A study of African-American literature from its oral and folk beginnings to the present. Prerequisite: BSt 221 or Eng 256.

BSt 362 African Prehistory (4)
Methods, sources of evidence, and the results of the study of prehistoric cultures of Africa from the earliest traces until the first written records; it includes human origins (physical and cultural evolution), the earliest civilization, peopling of Africa, migrations, earliest settlements, origins of agriculture and metallurgy. Prerequisites: BSt 205, Anth 102.

BSt 397 Understanding International Experience (4)
Examination of communication-based cultural, economic, emotional, physical, political, religious and social aspects of an overseas or community-based international or intercultural experience. Presentation of strategies for the development of appropriate levels of preparation required to meet challenges of working, traveling or researching in an international/intercultural setting. This course is the same as Bst 397/ course may only be taken once for credit.

BSt 399 Special Studies (Credit to be arranged.)
BSt 401 Research (Credit to be arranged.) Consent of instructor.
BSt 404 Cooperative Education/internship (Credit to be arranged.)
BSt 405 Reading and Conference (Credit to be arranged.) Consent of instructor.
BSt 406/506 Overseas Experience (4)
Provides community-based learning in an international context through immersion in departmental programs in Africa and/or the Caribbean. The fee-based programs provide students with rich, multicultural environments in which to learn and serve international communities. Students will be asked to apply for admission to the overseas programs focused in the Caribbean and Africa.

BSt 407/507 Seminar (Credit to be arranged.) Consent of instructor.
BSt 408 Workshop (Credit to be arranged.) Consent of instructor.
BSt 409 Practicum (Credit to be arranged.) Consent of instructor.
BSt 410 Selected Topics (Credit to be arranged.) Consent of instructor.

BSt 411/511 African-American History Seminar (4)
This course may provide an in-depth analysis of critical topics and issues in African-American history. The focus will be topical rather than chronological and the approach will emphasize specific periods, individuals, or relevant developments for a concentrated treatment in a seminar environment. Prerequisites: BSt 203 or 204; Hist 201, 202.

BSt 412/512 Oregon African-American History (4)
An examination of the black experience in Oregon history. The course will include coverage of the slavery controversy in early Oregon development as well as the individual contributions of
Blacks to the growth of the state. Additional topics will include the black migration of World War II, Vanport flood, and various legislative actions related to black status in Oregon. Prerequisites: BSt 203 or 204, or Hist 201, 202.

*BSt 413/513 Slavery (4)
A survey of the pertinent social-psychological literature on individual and cultural forms of racism in America. The rationalizations, processes, and machinery of oppression as constructed by white European and American governments which control and exploit the resources of non-white peoples will be examined. Special attention will be given to the theoretical, social-psychological explanations of black/white differences. Prerequisites: Psy 342, 343, or Soc 342, 343.

*BSt 414/514 Racism (4)
A survey of the pertinent social-psychological literature on individual and cultural forms of racism in America. The rationalizations, processes, and machinery of oppression as constructed by white European and American governments which control and exploit the resources of non-white peoples will be examined. Special attention will be given to the theoretical, social-psychological explanations of black/white differences. Prerequisites: Psy 342, 343 or Soc 342, 343.

*BSt 416/516 African-American Urban Education Problems (4)
Course examines the education systems in major cities being inhabited by African-Americans. The relationship between public and private education will be studied for impacts on African-Americans. Educational system response to African-American enrollment will be discussed. Moreover, pertinent literature, e.g., the Coleman Report, Jensen's thesis, and others will be introduced with respect to their overall effect on the curricula available to the African-American child. Topics of concern include community control, citizen involvement, alternative education forms, race relations, faculty-staff responses, modern trends, etc. Prerequisite: junior, senior, or graduate-level standing.

*BSt 417/517 The African-American Family (4)
A review of the present-day life-styles of African-American families in the United States. Special attention is placed on cultural variations by class as they relate to the African-American family. A careful study of the appropriate social science literature commonly used to describe the African-American family will provide more accurate insights. Prerequisite: Soc 461.

*BSt 419/519 African-American Women in America (4)
A course designed to investigate the evolution of the African-American female experience from pre-Civil War to the present period. African-American pioneers will be viewed as participants in antislavery, suffrage, and civil rights movements. Modern complexities of psychological conflicts and insecurities, economic survival, liberation, club movement, and sexual jealousies are examined. Information relative to the development of African-American women as part of the total human experience will be emphasized. Prerequisite: WS 101.

*BSt 420/520 Caribbean Literature (4)
A selection of poetry and fiction from the English and French-speaking Caribbean (in translation where necessary). Prerequisites: one previous African-American literature course and 12 additional literature credits.

*BSt 421/521 African-American Writers (4)
A concentrated examination of significant African-American literary figures and their impact on American arts and letters. The course will identify each term a particular author or literary period of writing and then read, analyze, and discuss the major works and the background information of that period. Special consideration will be given to the relationships between the topic of focus and the larger spheres of American and world writing. Prerequisites: BSt 221, Eng 107, 108, 253, 254.

*BSt 422/522, 423/523 African Fiction (4, 4)
Readings in African fiction in regional, cultural, generational, and gender contexts. Prerequisites: one previous African-American literature course and 12 additional literature credits.

*BSt 424/524 African-American/African Culture in Cinema (4)
An examination of the treatment accorded black culture and individuals in the evolution of the cinema industry. Coverage will include review and analysis of classic film productions from the infancy of Hollywood through to the black urban films of the modern period. Emphasis will focus on the relationships between racial stereotypes and the creation of majority culture perceptions of the black experience. Prerequisite: upper-division standing.

*BSt 425/525 Black Cinema: the 1970s (4)
Examination of the treatment of Black themes, issues and characterization during the decade of the 1970s in the cinema industry. Particular attention will be focused on the genre of the blaxploitation film as an industry response to the rapidly shifting social and racial dynamics of American culture as the Civil Rights era wound down. Prerequisites: BSt 203, 204, or 302.

*BSt 426/526 Contemporary African-American Cinema (4)
Examination of the treatment of Black themes, issues, and characterization in the contemporary cinema industry. Particular attention will be focused on the development of new Black actors, directors, and producers. The impact of these new factors in the industry will be analyzed for the influence they have on the traditions of cinema history relative to the Black experience. Prerequisites: BSt 203, 204, or 302.

*BSt 427/527 African-American Films and Film Makers (4)
Examination of films made by African-Americans from the early years of cinema history down through contemporary films. Examination will include a focus on the internal structure and content of the films as well as consideration of the larger social, cultural, economic, and political context of the society in which the films were produced.

*BSt 430/530 African-American Political Thought (4)
An examination in-depth of the political theory of African-American leaders in America between 1850-1920 and the impact of that thought on American political thought. Prerequisite: consent of instructor.

*BSt 440/540 Caribbean Studies (4)
Interdisciplinary examination of historical or cultural issues in the Caribbean experience. Emphasis will be on issues and dilemmas related to the creation of a multicultural society. Prerequisite: BSt 205 or 206.

*BSt 450/550 Topics in African/Caribbean History And Culture (4)
In-depth exploration of selected topics in African and/or Caribbean cultural history. Special attention will be given to thematic issues of broad application to the understanding of cultural interaction, continuity, and change.

*BSt 464 Minority Business Perspectives (4)
This course is designed to prepare the student for a role as a proprietor of an enterprise, as an administrator in a related public or social agency, or to conduct research in an economic area which has very special problems and constraints for the minority entrepreneur or professional. The traditional elements of small business operation will be examined within the framework of reference, progressing from basic organization and feasibility studies through marketing, governmental contracting, contract compliance, and special governmental assistance to minorities.

*BSt 467/567 African Development Issues (4)
An examination of the causes of poverty and underdevelopment of the African continent: A comparative analysis of pre-colonial, colonial and post-colonial circumstances will be conducted. Prerequisites: Ec 201, 202, 203.

*BSt 470/570 African Art (4)
Examination of selected African art forms, styles, and traditions. Emphasis on the context of the art and artist, and their relationship to politics and society in African history. Prerequisites: ArH 204, 205, 206, BSt 205. This course is the same as ArH 470/570; course may be taken only once for credit.

*BSt 484/584 African-American Community Development (4)
Designed to investigate processes of community development for their application to urban African-American communities. Topics include community development, community organization, ghettos as colonies, citizen participation, roles of change agents, social planning, and social change implications. Prerequisite: consent of instructor.
Chemistry

262 Science Building II
503-725-3811
www.chem.pdx.edu

B.A., B.S.
Minor
Secondary Education Program
M.A., M.S., M.A.T. and M.S.T. (Science/Chemistry)
Ph.D.—Environmental Sciences and Resources: Chemistry

Undergraduate Programs

Chemistry has helped to provide us with a way of life never before known. Chemistry is the study of the reactions of atoms and molecules, the stuff from which people and their physical environment are made. With a relatively small knowledge of atoms and molecules, it is possible to have a considerable understanding of many chemical phenomena we see and use. A comprehensive knowledge of chemistry is essential for the person who wishes to help solve the problems of today—problems of illness and disease, problems of wise use of our resources—and for the person who wants to do basic research in chemistry or who wants to work in the chemical industry.

The Department of Chemistry is committed to maintaining a teaching program of excellence at the undergraduate level as well as having a strong graduate program. Courses tailored for the student desiring only an introduction to the field are offered on a regular basis. A wide variety of other courses in the program are designed to offer fundamental training for students majoring in chemistry or for students in other science areas, such as biology or health-related occupations.

Students of different disciplines who share an interest in black studies; to collect and disseminate information which accurately reflects and helps improve the black experience; and to link the University and black communities by maintaining an active role in community service.

The center provides the University and the broader community with cultural activities and the stimulation of an exciting and enlightening intellectual atmosphere in the Portland community, contributing to greater understanding and cooperation between races. A lecture series brings to the campus and the Portland community black speakers of different disciplines and philosophies who have made notable contributions to society. The center promotes national and international activities in this area through the generation of grants, proposals, and programs that combine University staff, money, and expertise with resources from the government and the private sector.

Center for Black Studies
308 Neuberger Hall
503-725-3472

Established in 1969, the Center for Black Studies at Portland State University facilitates the study of the past and present experiences of black America. Among the goals of the center is to act as a forum between faculty members and students of different disciplines who major in chemistry or for students in other science areas, such as biology or health-related occupations.

The curriculum, faculty, library, and facilities of the department are approved by the American Chemical Society. Graduating chemistry majors are eligible for certification to become members of the ACS after two years of professional experience.

Requirements for Major: A student majoring in chemistry is required to take a minimum of 70 credits in the subject and will take courses in the core areas of general chemistry, analytical chemistry, organic chemistry, physical chemistry, inorganic chemistry, and biochemistry. For transfer students, a minimum of 20 credits in upper-division chemistry courses must be earned at PSU.

In addition to meeting the general University degree requirements, the major in chemistry must meet the following departmental requirements:

Option I: Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch 221, 222, 223 General Chemistry</td>
<td>12</td>
</tr>
<tr>
<td>Ch 227, 228, 229 General Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Ch 320, 321 Quantitative Analysis</td>
<td>6</td>
</tr>
<tr>
<td>Ch 334, 335, 336, 337, 339 Organic Chemistry</td>
<td>17</td>
</tr>
<tr>
<td>Ch 426, 427 Instrumental Analysis</td>
<td>6</td>
</tr>
<tr>
<td>Ch 436, 437 Spectrometric Analysis</td>
<td>4</td>
</tr>
<tr>
<td>Ch 440, 441, 442, 443, 444, 445 Physical Chemistry</td>
<td>16</td>
</tr>
<tr>
<td>Approved 400-level chemistry courses</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total in chemistry</strong></td>
<td><strong>70</strong></td>
</tr>
</tbody>
</table>

One year of General Physics with Calculus with laboratory | 12 |
Calculus through Mth 254 or equivalent | 16 |
| **Total in other fields** | **28** |

Study of a foreign language, although not required, is highly recommended, particularly for students who plan to pursue graduate studies in chemistry.

Option II: Biochemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch 221, 222, 223 General Chemistry</td>
<td>12</td>
</tr>
<tr>
<td>Ch 227, 228, 229 General Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Ch 320, 321 Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Ch 334, 335, 336, 337, 339 Organic Chemistry</td>
<td>17</td>
</tr>
<tr>
<td>Ch 416, 417 Physical Chemistry for the Biosciences</td>
<td>8</td>
</tr>
<tr>
<td>Ch 426, 427 Instrumental Analysis</td>
<td>6</td>
</tr>
<tr>
<td>Ch 480, 491, 492, 493 General Biochemistry</td>
<td>12</td>
</tr>
<tr>
<td>Approved 400-level science electives</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total in chemistry</strong></td>
<td><strong>70</strong></td>
</tr>
<tr>
<td>One year of Physics, with laboratory</td>
<td>12-15</td>
</tr>
</tbody>
</table>
Calculus through Mth 253 or equivalent | 12 |
| **Total in other fields** | **24-27** |

Study of a foreign language, although not required, is highly recommended, particularly for students who plan to pursue graduate studies in biochemistry.

All courses used to satisfy the departmental major requirements, whether taken in the department or elsewhere, including courses from supporting departments (i.e., mathematics and physics), must be graded C- or above, with a combined GPA of 2.25 or higher, except for those major course requirements offered only on a pass/no pass basis (e.g., General Chemistry Laboratory). If an unsatisfactory grade is received in an upper-division course offered in the Department of Chemistry, a student will be allowed to retake the course to improve their grade only once.

A student will be certified by the American Chemical Society and is eligible to become a member of the society after graduation, if the 400-level chemistry electives include Ch 411 and a lab course that includes at least 30 clock hours (including Ch 401 and 406).
Requirements for a Minor. To earn a minor in chemistry a student must complete credits in one of two options; at least 10 credits of these must be taken in residence at PSU.

Option I: Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch 320, 321, Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Ch 334, 335, 336, 337, 338 Organic Chemistry or Ch 331, 332, 337, 338 Elements of Organic Chemistry</td>
<td>12-16</td>
</tr>
<tr>
<td>Ch 416, 417, or 440, 441, 442 Physical Chemistry</td>
<td>8-9</td>
</tr>
</tbody>
</table>

Approved 400-level chemistry electives 9

Total 34-39

Option II: Biochemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch 320, 321, Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Ch 334, 335, 336, 337, 338 Organic Chemistry, or Ch 331, 332, 337, 338</td>
<td>12-16</td>
</tr>
<tr>
<td>Ch 416, 417, or 440, 441, 442 Physical Chemistry</td>
<td>8-9</td>
</tr>
<tr>
<td>Ch 490, 491, 492, 493 General Biochemistry</td>
<td>12</td>
</tr>
</tbody>
</table>

Total 37-42

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling department minor requirements for either option.

SECONDARY EDUCATION PROGRAM

Adviser: G. Shusterman

Students who plan to obtain a teaching license with an endorsement to teach chemistry at the high school level should complete a baccalaureate degree with a major in chemistry (preferred) or in general studies/science. The degree program should include the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch 221, 222, 223 General Chemistry</td>
<td>12</td>
</tr>
<tr>
<td>Ch 227, 228, 229 General Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Ch 320, 321 Quantitative Analysis</td>
<td>5</td>
</tr>
<tr>
<td>Ch 334, 335, 336, 337, 338 or 331, 332, 337, 338 Organic Chemistry</td>
<td>12-14</td>
</tr>
<tr>
<td>Ch 416 or 440 Physical Chemistry</td>
<td>4 or 3</td>
</tr>
</tbody>
</table>

Total 35-38

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph 201, 202, 203 or 211, 212, 213 General Physics</td>
<td>12 or 15</td>
</tr>
<tr>
<td>Ph 204, 205, 206, or 214, 215, 216 Physics Laboratory</td>
<td>3</td>
</tr>
</tbody>
</table>

Subtotal 12 or 15

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry or Physics elective</td>
<td>3 or 4</td>
</tr>
</tbody>
</table>

Total 50-57

Those majoring in general studies/science are advised to strengthen their preparation for teaching by taking additional chemistry and physics courses as their degree programs permit. Consult with the secondary education adviser for suitable courses. Chemistry teachers in many schools also teach physics, so it is recommended that additional physics courses be taken in preparation for eventually adding a physics endorsement to the license.

Courses should be taken for differentiated grades, except those offered only on a pass/no pass basis. A positive departmental recommendation for admission to the fifth-year teacher-education program will depend on at least a C- in all chemistry and physics courses, as well as a combined 2.25 GPA for these courses.

GRADUATE PROGRAMS

The Department of Chemistry offers graduate work leading to the following degrees and licenses: continuing secondary license with an endorsement in chemistry, Master of Arts or Master of Science; Master of Arts in Teaching or Master of Science in Teaching (Science); and Ph.D. in environmental sciences and resources/chemistry. The M.A./M.S. program is designed for the student who wishes to pursue a career as a professional chemist or a scientist in other allied disciplines. The program involves work in advanced courses with training in research techniques. An integral part of the program is the individual research project and thesis.

The M.A.T./M.S.T. is offered to provide scientific training for teachers in secondary schools. The program is composed of courses intended to increase the sophistication of the student in chemical principles and to acquaint the student with current techniques in teaching methods.

The program leading to the Ph.D. in environmental sciences and resources/chemistry combines basic training in a particular chemical discipline with courses and seminars relating to environmental topics; dissertation research is devoted to a project with distinct environmental implications. Students complete the program prepared to pursue a career in chemistry or a career more directly related to environmental science or environmental problems. The program is part of the Environmental Sciences and Resources Doctoral Program in the College of Liberal Arts and Sciences. For more information, see page 117.

Degree Requirements. University master’s degree requirements are listed on page 62; requirements related to the Environmental Sciences and Resources Doctoral Program are given on page 117. Specific departmental requirements are listed below and in the graduate handbook.

MASTER OF ARTS OR MASTER OF SCIENCE

Prior to initial course registration in the M.A./M.S. program, the student must take entrance examinations in those areas of chemistry represented in the student’s previous coursework. Any three of these examinations must be passed by the end of the first three academic terms of residence. The candidate must complete a minimum of 45 credits in approved graduate courses. In addition, the student must complete 6 credits of coursework outside of the major area of interest but within the Department of Chemistry. All students participate in a one-term course entitled Seminar Preparation as well as present to the department one seminar on an acceptable topic. For the M.A., if the student has not successfully completed one academic year of German, Russian, or French at the undergraduate level, the student must show competence by examination. The language requirement is waived for students whose native language is not English. Each candidate for the M.A./M.S. degree in chemistry must complete a thesis. The thesis, an experimental or theoretical research project resulting in an original contribution to chemical knowledge, must be defended in an oral examination. The examination is not restricted to the thesis material alone but may cover any aspect of chemistry or related fields.

MASTER OF ARTS IN TEACHING OR MASTER OF SCIENCE IN TEACHING

The College of Liberal Arts and Sciences offers the M.A.T./M.S.T. degrees in Science/Chemistry. In consultation with the graduate adviser, the student should establish the degree program before the completion of 15 credits of coursework. The program must include a minimum of 45 credits in approved graduate courses, to include a minimum of 24 credits in the area of concentration. At least 9 credits, but no more than 15 credits, must be in education courses. In order to fulfill requirements for the degree, the student must satisfactorily complete the degree program and pass both a final written examination and a final oral examination.

DOCTOR OF PHILOSOPHY IN ENVIRONMENTAL SCIENCES AND RESOURCES

In addition to the program requirements listed on page 117, the candidate must pass entrance examinations as in the M.A./M.S. program and the departmental comprehensive examination. The candidate must satisfy a seminar requirement as in the M.A./M.S. program and also present an environmental sciences seminar dealing with the candidate’s proposed research. Additional requirements are delineated in the graduate handbook.
COURSES

Courses with an asterisk (*) are not offered every year. Students registering for all labs must attend the first lab meeting.

Lab Insurance: Every chemistry laboratory course requires the purchase of laboratory insurance with a breakage deductible. The details are as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Insurance Fee/ Course</th>
<th>Deductible/ Incident</th>
</tr>
</thead>
<tbody>
<tr>
<td>All 100 and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>200 level labs:</td>
<td>$10</td>
<td>$5</td>
</tr>
<tr>
<td>All 300, 400, and 500 level labs:</td>
<td>$20</td>
<td>$10</td>
</tr>
</tbody>
</table>

All students registering for laboratory courses must purchase breakage tickets to pay the insurance deductible in the event of breakage or loss of laboratory equipment. Unused portions of the breakage ticket can be carried over from term to term. Alternatively, unused portions of the ticket may be redeemed at the cashier's window at Neuburger Hall.

*Ch 104, 105, 106  
Introductory Chemistry I, II, III (4, 4, 4)  
A survey of chemistry for students in nursing, in allied health fields such as dental hygiene, in forestry, and in the liberal arts. This course is not intended for science or engineering majors. Ch 104, 105: three lectures, one recitation; Ch 106: four lectures. Must be taken in sequence. Prerequisite for Ch 104: two years of high school algebra or Mth 95.

*Ch 107, 108, 109  
Introductory Chemistry Laboratory I, II, III (1, 1, 1)  
Laboratory work to accompany Ch 104, 105, 106 respectively. Concurrent enrollment in the appropriate lecture course is required. Ch 107, 108, 109: one 2-hour laboratory period. Pass/no pass only. Ch 109: one 3-hour laboratory period.

*Ch 160  
Physical Science (4)  
An integrated survey of fundamental principles of physics and chemistry. The course is designed for students majoring in fields other than chemistry, physics or geology who wish a broad view of the principles of several physical sciences needed. Elementary algebra is used in this course.

*Ch 167  
Physical Science Laboratory (1)  
Optional lab work to accompany Ch 160. Enrollment in the laboratory requires concurrent or prior enrollment in the lecture. One 2-hour laboratory.

*Ch 170  
Fundamentals of Environmental Chemistry (4)  
A course designed to increase the scientific knowledge of the non-science major. The interaction between science and society, the nature of matter and chemical reactions, energy, radiation, and nuclear power.

Ch 199  
Special Studies (Credit to be arranged.)

"*Ch 201, 202, 203  
Chemistry for Engineering Majors I, II, III (3, 3, 3)  
Fundamental aspects of chemistry particularly adapted for students in engineering. Requires concurrent enrollment in Ch 227 for 201 and in 228 for 202 unless waived by adviser. Prerequisite: Mth 111 or concurrent enrollment. High school chemistry is recommended.

*Ch 221, 222, 223  
General Chemistry (4, 4, 4)  
Fundamental basis of chemistry for science, engineering and health professional students (such as premedical, premedical, premedical technology and veterinary students). Requires concurrent enrollment in Ch 227 for Ch 221, Ch 228 for Ch 222, and Ch 229 for Ch 223 unless waived by adviser. Prerequisite for Ch 221: Mth 111 or concurrent enrollment. High school chemistry or equivalent is recommended. Prerequisite for Ch 222: Ch 221; for Ch 223: Ch 222.

Ch 227, 228, 229  
General Chemistry Laboratory (1, 1, 1)  
Laboratory work to accompany Chemistry for Engineering Majors (Ch 201, 202, 203) or General Chemistry (Ch 221, 222, 223). Concurrent enrollment in the appropriate lecture course is recommended. One 3-hour laboratory. Pass/no pass only.

Ch 250  
Nutrition (4)  
Nutritive value of foods from the standpoint of newer scientific investigations, nutritional requirements for normal human beings, selection of an optimal diet for health, present-day problems in nutrition; recent trends in American dietary habits.

Ch 320  
Quantitative Analysis (4)  
Fundamental principles of quantitative analytical chemistry. Prerequisites: Ch 223 and 229.

Ch 321  
Quantitative Analysis Laboratory (2)  
Basic quantitative analytical laboratory work including volumetric instrumental methods. Two 3-hour laboratory periods. Prerequisite: Ch 320 or concurrent enrollment.

Ch 331, 332  
Elements of Organic Chemistry I, II (4, 4)  
Chemistry of the carbon compounds, the aliphatics, aromatics, and derivatives. Generally meets predental, premedical technology, and preveterinary requirements. Prerequisites for Ch 331: Ch 203 or 223; concurrent enrollment in Ch 337 is recommended. Prerequisite for Ch 332: Ch 331. concurrent enrollment in Ch 338 is recommended.

Ch 334, 335, 336  
Organic Chemistry I, II, III (4, 4, 4)  
A comprehensive study of the chemistry of the compounds of carbon. Meets chemistry major requirements. Concurrent enrollment in Ch 337 laboratory is recommended for Ch 339; concurrent enrollment in Ch 338 or Ch 339 laboratory is recommended for Ch 336. Prerequisites: Ch 203 or 223.

Ch 337  
Organic Chemistry Laboratory I (2)  
Laboratory work to accompany Ch 331 or 335. One 4-hour laboratory period. Concurrent enrollment in Ch 331 or Ch 335 is recommended.

Ch 338  
Organic Chemistry Laboratory II (nonmajors) (2)  
Laboratory work to accompany Ch 332 or Ch 336. Not open to chemistry majors. One 4-hour laboratory period. Prerequisite: Ch 337. Concurrent enrollment in Ch 332 or 336 is recommended.

Ch 339  
Organic Chemistry Laboratory II (chem majors) (3)  
Laboratory work to accompany Ch 336. More extensive laboratory course than Ch 338; required for chemistry majors. Two 4-hour laboratory periods. Prerequisite: Ch 337. Concurrent enrollment in Ch 336 is recommended.

Ch 350  
Biochemistry (4)  
Biochemistry for students having a limited background in physical chemistry. Prerequisites: Ch 229 and 332 or 336.

Ch 355  
Biochemistry of Women (3)  

Ch 371  
Environmental Chemistry (4)  
Current environmental problems. Stratospheric ozone, greenhouse effect, photochemical smog, particulates, acid rain, and trace metals; water resources, pollution, and treatment; oil spills; solid waste disposal; hazardous chemicals. Prerequisite: one term of college chemistry.

Ch 375  
Environmental Chemistry Laboratory (1)  
Optional laboratory work to accompany Environmental Chemistry (Ch 371). For elementary education and non-science majors. Concurrent enrollment in Ch 371 is required. One 2-hour laboratory.

Ch 399  
Special Studies (Credit to be arranged.)

Ch 401/501  
Research (Credit to be arranged.)

Consent of instructor and chair of department. Credit will only be awarded after filing in the department office a well-written, detailed report approved by the instructor and the department chair. Ch 501 pass/no pass only.

Ch 404/504  
Cooperative Education/Internship (Credit to be arranged.)

† A maximum of 16 credits will be allowed for first-year chemistry. Students will be allowed credit for only one first-term, one second-term, and one third-term course. First-year chemistry courses are Ch 104, 105, 106; Ch 201, 202, 203; and Ch 221, 222, 223.

‡ Ch 331, 332 duplicate to some extent Ch 334, 335, 336. No more than 12 credits will be allowed in organic chemistry lecture.
Ch 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor and department chair. Ch 505 pass/no pass only.

Ch 406
Chemical Preparations (Credit to be arranged.)
Methods of synthesis of compounds in the fields of inorganic, organic, or biochemistry. Maximum: 6 credits. Prerequisite: consent of instructor and chair of department.

Ch 407/507
Seminar (Credit to be arranged.)
Consent of instructor. Ch 507 pass/no pass only.

Ch 410/510
Selected Topics (Credit to be arranged.)
Consent of instructor and chair of department.

Ch 411/511
Chemical Bonding (4)
Atomic orbitals, ionic bonding, valence bond theory, molecular orbital theory, crystal field theory, and introduction to coordination theory. Prerequisites: Ch 223, Ph 203, Mth 253, and Ch 417 or Ch 442.

*Ch 412/512
Advanced Inorganic Chemistry (4)
Ligand field theory, coordination chemistry, transition metals, organometallic chemistry, acids and bases, nonaqueous solvents, and descriptive chemistry of the elements. Prerequisite: Ch 411/511.

Ch 416, 417
Physical Chemistry for the Biosciences I, II (4, 4)
Intended primarily for students in the biological sciences and allied medical health fields. The emphasis is on the application of modern physical chemistry to problems of biological interest. Ch 416 includes the study of heat, work, energy, entropy, vapor pressure, chemical equilibrium, and transport phenomena. Ch 417 covers chemical and enzyme kinetics, photochemistry, and spectroscopy. Courses must be taken in sequence. Prerequisites: Ch 223 or 203 and Ch 229, Ch 320, 321, a year of general physics, and two terms of calculus.

*Ch 418/518
Advanced Chemistry Laboratory (4)
Advanced techniques and their use in the preparation of compounds. One lecture; two 3-hour laboratory periods. Prerequisite: Ch 338 or 339.

*Ch 424/524
Electronics and Instrumentation for Chemists (4)
Selected topics in chemical instrumentation will be presented at a basic level. Representative topics are current and voltage measurements, voltage dividers, simple filters, introduction to operational amplifiers and digital circuits. Requires concurrent enrollment in Ch 425/525. Prerequisites: Ch 320, 321, Ph 203, and Ch 416 or 440/540.

*Ch 425/525
Electronics and Instrumentation Laboratory (3)
Laboratory work to accompany Ch 424/524. Assignments will include measurements with a variety of transducers including ion selective electrodes, thermistors, phototransistors, and GLC thermal conductivity detectors. Two 3-hour lab periods. Requires concurrent enrollment in Ch 424/524.

Ch 426/526
Instrumental Analysis (4)
Theory and application of modern instrumental methods, including UV-visible, fluorescence, atomic absorption and emission, infrared, nuclear magnetic resonance, and mass spectrometry; potentiometry and voltammetry; gas and liquid chromatography, and capillary electrophoresis.

Ch 427/527
Instrumental Analysis Laboratory (2)
Laboratory work to accompany Ch 426/526. One 4-hour laboratory period.

*Ch 430/530, 431/531
Advanced Organic Chemistry (4, 4)
Advanced treatment of general organic reactions and structure; emphasis on bonding, stereochemistry, the correlation of structure and reactivity, scope and mechanisms of organic reactions classified by reaction type. Prerequisite: Ch 336 and 442/552, or 416/417. Ch 430/530 is a prerequisite for 431/531.

Ch 436/536
Spectrometric Analysis (3)
Ultraviolet, infrared, nuclear magnetic resonance and mass spectrometry in the analysis of molecular structure. Prerequisites: Ch 336 and 339.

Ch 437/537
Spectrometric Analysis Laboratory (1)
Use of infrared spectrometers and nuclear magnetic resonance spectrometers. One 3-hour laboratory period. Prerequisite: Ch 436/536 or concurrent enrollment.

*Ch 438/538
Advanced Spectrometric Techniques (3)
Use of the mass spectrometer in analysis of organic molecules. Discussions of high resolution infrared and nuclear magnetic resonance spectroscopy and their applications to molecular structure. Prerequisites: Ch 436/536 and Ch 437/537. Requires concurrent enrollment in Ch 439/539.

*Ch 439/539
Advanced Spectrometric Laboratory (1)
Laboratory work to accompany Ch 438/538. One 3-hour laboratory period. Requires concurrent enrollment in Ch 438/538.

*Ch 440/540, 441/541, 442/542
Physical Chemistry (3, 3, 3)
The study of thermodynamics, phase and chemical equilibria, solutions, electrochemistry, reaction rates and mechanisms, quantum mechanics, spectroscopy, and statistical mechanics. Ch 440/540 requires concurrent enrollment in Ch 443/543. Prerequisites: Ch 320, Mth 254, Ph 213.

*Ch 443/543
Computational Chemistry (3)
The study of programming methods, statistical analysis of experimental data, and numerical methods of common importance in physical chemistry. Concurrent enrollment in Ch 440/540 required.

*Ch 444/544, 445/545
Physical Chemistry Laboratory (2, 2)
Laboratory work to accompany Ch 441/541, 442/542. One 4-hour laboratory period. Prerequisites: Ch 321 and concurrent enrollment in Ch 441/541, 442/542 respectively.

Ch 490/590, 491/591, 492/592
General Biochemistry (3, 3, 3)
Professional biochemistry course for majors. Structure, metabolism, and function of the major components of living cells. Prerequisites: Ch 229, 332 or 336, 416 or 442/542.

Ch 493/593
Biochemistry Laboratory (3)
Laboratory work to accompany Ch 491/591. Introduction to general techniques of biochemistry including purification and characterization of enzymes. One 4-hour laboratory period, plus one hour of lecture. Prerequisite: Ch 490/590 or concurrent enrollment.

*Ch 494/594, 495/595
Biochemistry Laboratory (2, 2)
Advanced laboratory projects carried out on an individual and group basis. Two 3-hour laboratory periods. Prerequisite: Ch 493/593.

Ch 503
Thesis (Credit to be arranged.)
Pass/no pass only.

Ch 601
Research (Credit to be arranged.)
Pass/no pass only.

Ch 603
Thesis (Credit to be arranged.)
Pass/no pass only.

Ch 604
Cooperative Education/internship (Credit to be arranged.)

Ch 605
Reading and Conference (Credit to be arranged.)
Pass/no pass only.

Ch 607
Seminar (Credit to be arranged.)
Pass/no pass only.

Ch 610
Selected Topics (Credit to be arranged.)

*Ch 615
Selected Topics in Inorganic Chemistry (3)
Current topics in inorganic chemistry such as advances in oxidation, solution chemistry, and fluoride chemistry. As subject matter varies, course may be repeated with consent of instructor. Prerequisite: Ch 411/511.

*Ch 620
Selected Topics in Analytical Chemistry (3)
Current topics in analytical chemistry such as chromatographic theory and methods, electroanalytical methods, electrochemical kinetics and analytical applications of spectroscopy. As subject matter varies, course may be repeated with consent of instructor. Prerequisite: graduate standing and consent of instructor.

*Ch 621
Advanced Analytical Theory (3)
Modern methods of analysis and their application to the analytical chemistry of elements. Prerequisites: Ch 425/525 and 442/542.

*Ch 622
Trace Metal Analysis (3)
Analytical methods for detecting and studying the chemistry of trace metals and ions, including optical, electrochemical, X-ray, neutron activation, mass spectrometric and gas chromatographic techniques. Use in studies of complexation, precipitation, redox and reaction rates of trace metals. Prerequisites: Ch 320, 321, 426/526.

* Carries graduate credit only for nonchemistry degrees.
In comparison with long-established disciplines, the Chicano and Latino experience predates the mid-19th century when territories belonging to Mexico were occupied by the United States. The Chicano and other Latinos living in the United States have, over the years, developed a rich and extensive literature. They have been involved in all aspects of American life and have made major contributions in all areas of society. In comparison with long-established recognized academic fields, Chicano/Latino Studies is still developing its critical perspectives and the formulation and application of new approaches and methodologies.

Graduates with a certificate in Chicano/Latino Studies will have augmented their major field of study by broadening their scope of knowledge. They will have gained important insight into a very different culture within U.S. borders. This increased awareness and insight will lead to successful interaction on many levels of society. Graduates also will be better prepared to enter the work force with its rapidly changing demographics.

In addition to meeting the general PSU requirements for a degree in any field, students pursuing a certificate in Chicano/Latino Studies must complete 40 credits to be distributed as follows:

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ChLa 201 Introduction to Chicano/Latino I</td>
<td>4</td>
</tr>
<tr>
<td>ChLa 202 Introduction to Chicano/Latino II</td>
<td>4</td>
</tr>
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<td>4</td>
</tr>
<tr>
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<tr>
<td>ChLa 302 Survey of Chicano/Latino Literature</td>
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<td>4</td>
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<tr>
<td>Span 301, 302 Third-Year Spanish</td>
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Electives will consist of Chicano/Latino Studies courses or closely related courses in arts and letters and social sciences approved by Chicano/Latino Studies advisors. These courses may be Chicano/Latino Studies courses which harmonize with the student’s major plan of study. Students may take 8 credits of the following:

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141 Cramer Hall
503-725-4447 or 503-725-3081

Certificate in Chicano/Latino Studies

Chicano/Latino Studies is the interdisciplinary study of social, cultural, political, economic, and historical forces that have shaped the development of the people of Mexico and other Latin American countries in the United States over the past 300 years. Emphasis is on the experience of the Chicano and other Latinos as residents and citizens in the United States and not in their countries of origin or descent.

The Chicano/Latino experience predates the mid-19th century when territories belonging to Mexico were occupied by the United States. The Chicano and other Latinos living in the United States have, over the years, developed a rich and extensive literature. They have been involved in all aspects of American life and have made major contributions in all areas of society. In comparison with long-established recognized academic fields, Chicano/Latino Studies is still developing its critical perspectives and the formulation and application of new approaches and methodologies.

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COURSES

ChLa 201
Introduction to Chicano/Latino I (4)
An introductory history of Latinos in the United States. Beginning with Spanish colonization and moving to the recent migration of Latin and South Americans in the 1970s, 1980s, and early 1990s. Special attention will be given to particular events that shaped and influenced the Latino experience, such as the Mexican-American War, Repatriation, Bracero Program, World War II, War on Poverty, the Chicano Movement, and U.S. foreign policy in Latin America.

ChLa 202
Introduction to Chicano/Latino II (4)
An introductory course designed to look at the social, political, and economic status of Latinos. Includes an examination of the political and economic structure and organization and U.S. society and the status and class position of various Latino groups. The course will include a demographic profile and an overview of current social issues.

ChLa 203
Introduction to Chicano/Latino III (4)
An introductory course designed to examine the cultural heritage of Chicanos and Latinos in the United States. Drawing from a wide range of disciplines, including anthropology, folklore, literature, film, and linguistics. Examines both folk and popular culture as well as the combination and integration of various cultural traditions in Latino communities in the United States.

ChLa 301
Chicano/Latino Communities (4)
Contemporary sociological studies and theory used to understand and explain the status of Chicanos and Latinos in the U.S. Topics will include family, gender relations, immigration, work and employment, inter- and intra-ethnic and racial relations in the community.

ChLa 302
Survey of Chicano/Latino Literature (4)
A representative overview of Chicano/Latino literature covering poetry, theater, novel, short story, and essay. The course will include literary techniques, modes of expression, trends in Chicano and Latino creativity, critical approaches, and will expose students to available bibliographic resources in the field.

ChLa 303
Chicana/Latina Experience (4)
The social, political, and literary experience of women in the Chicano and Latino communities. The women's perspective and position in historical events, community organizing, and social issues will be explored through literature, art, music, and social science research.

ChLa 399
Special Studies (Credit to be arranged.)

ChLa 401
Research (Credit to be arranged.)
Consent of instructor.

ChLa 405
Reading and Conference (Credit to be arranged.)
Consent of instructor.

ChLa 407
Seminar (Credit to be arranged.)
Consent of instructor.

ChLa 408
Workshop (Credit to be arranged.)
Consent of instructor.

ChLa 410
Selected Topics (Credit to be arranged.)

ChLa 411
Chicano/Latino History Seminar (4)
This course will take an in-depth look at the history of Chicano/Latino experience in this country examining such issues as the Treaty of Guadalupe-Hidalgo and its affect on Latinos. Additional topics will include issues dealing with why the Puerto Rican and Cuban experience has been different than for other Latinos in this country. Prerequisite: ChLa 201.

ChLa 412
Chicano/Latino Theater (4)
An examination of the Chicano Theater movement of the 1960s and 1970s with an in-depth study of the work of Luis Valdez and El Teatro Campesino. Additional topics will include the work of the Nuyorican Playwrights and the Latino New York Shakespeare Festival. Prerequisite: ChLa 302.

ChLa 413
Chicano/Latino Cinema (4)
An examination of the Chicano/Latino issues, themes, and struggles as presented by Chicano/Latino filmmakers. The course will further examine stereotypes created by the film industry of the Chicano/Latino people and their place in contemporary society. Prerequisite: ChLa 203 or 302.

ChLa 414
Chicano/Latino Literature (4)
Examination of the works created by some of the leading Chicano/Latino novelists, poets, and short fiction writers from the 1960s to present day. The course will look at the impact of their work and how it impacts how Latinos view themselves and their place in American society. Prerequisite: ChLa 203 or ChLa 302.

CHILD AND FAMILY STUDIES

101L Sixth Avenue Building
503-725-8535
www.cfs.pdx.edu/

B.A., B.S.

UNDERGRADUATE PROGRAM

Child and family studies is an academic major for a baccalaureate degree. The primary focus is on children and their families. The program is collaboratively designed by faculty and professionals from varied disciplines at Portland State University and Oregon Health Sciences University in cooperation with community agencies and institutions. The Child and Family Studies program attends to the needs and varied professional goals of students desiring broad and socially relevant preparation for work with children and families. Program content is directed toward competencies for a range of professional roles.

Coursework in child and family studies reflects the socioeconomic and cultural diversity of children and families in the metropolitan area.

Majors in child and family studies will develop a broad understanding of family systems and the diverse sociocultural contexts in which children and families develop. The program offers an opportunity to acquire knowledge and skills in one or more specialization areas. Majors may pursue careers as early childhood teachers, preschool and child care administrators, parent educators, family advocates, youth workers, social service caseworkers, early intervention/special education assistants, and program directors for community agencies providing services to children and their families. The Child and Family Studies program also provides a foundation for those students who intend to pursue graduate work in education, counseling, social work, or related disciplines.

The program represents an integration of theory, research, and practice related to children and families. The unique program strengths include interdisciplinary seminars and extensive and diverse practicum experiences.

Requirements for admission to the child and family studies major include an application, letters of reference, and an interview with members of the Consortium for Children and Families. Applicants are admitted during spring for the following
This specialization is designed to develop understandings and strategies for administration programs for children, youth, and families. There is a focus on communication, with sensitivity to issues of culture, race, and economics.

Preparation for Early Childhood Education
Advisers: Christine Chaille, Curriculum and Instruction, Early Childhood Education, Cari Olmsted, Head Start Regional Training Office

This specialization is designed to develop understandings and approaches for working with children and their families in early childhood education settings. This area of study will focus on developmentally appropriate curriculum and guidance, and the development of relationships with families.

Preparation for Early Intervention Settings
Advisers: Ruth Falco, Leslie Munson, Special Education and Counselor Education

This specialization is designed to develop a repertoire of understandings and approaches necessary for accommodating children with special needs in developmentally appropriate settings. Coursework includes a focus on normal and abnormal development, a survey of disorders, and understandings of families with children with special needs.

Practicum—10 credits
Majors will select practicum experiences from a range of community organizations and agencies, federal and local preschool and day care programs, and early intervention centers. The practicum supervisor will assist in the selection and scheduling of practica with consideration of coursework, experience, and career goals.

Seminars—8 credits
CFS 497 and CFS 498.

Total minimum 64 credits

All courses submitted to satisfy the requirements for a major in child and family studies must be passed with a grade of C or above. In addition, courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department major requirements.

COURSES

CFS 404 Cooperative Education/Internship (Credit to be arranged.)
CFS 409 Practicum (Credit to be arranged.)
CFS 485/585 Working with Diverse Families (4)

For individuals who are preparing to work professionally with families. Theoretical perspectives on working with families. Issues involved when working with diverse U.S. families (African American, Asian, Russian, and Hispanic) as well as international families.

CFS 497 Interdisciplinary Perspectives on Children and Families (4)

This seminar, for majors in child and family studies, examines contemporary issues, research, and resources regarding children and families in urban settings from multiple disciplines and multicultural perspectives. Promotes a synthesis of understandings and professional reflection of child and family issues in the context of community-based service learning. Participants also investigate leadership, empowerment, and advocacy roles within the child and family profession.

CFS 498 Professional Development in Child and Family Studies (4)

This seminar, for majors in child and family studies, is directed to the development of professional perspectives, roles of advocacy and leadership, and reflective practice. Students will be actively involved in self-directed learning, self-assessment, community involvement, the legislative process, and group presentations.
The Department of Communication offers programs leading to degrees at both the undergraduate and graduate levels. Academic concentrations are in communication studies and in speech and hearing sciences.

The courses offered in communication studies are based on the premise that an educated individual must be able to think critically and analytically, comprehend political, social, cultural, institutional, international, and mediated contexts, listen effectively, and be rhetorically sensitive and adaptive to communicative encounters with persons of diverse abilities, backgrounds, and situations: interpersonal, small group, organizational, political, international, media, policy, and public. The effective communicator has an understanding of the complexity and dynamic nature of the communication process, as well as a sense of responsibility for the substance and consequences of communicative interaction. Students may acquire experience through internships in the community and other practical communication activities, both in the classroom and in the community.

In the Speech and Hearing Sciences concentration at the undergraduate level, coursework in typical speech, language, and hearing development is emphasized. Study in these areas is necessary educational preparation for graduate work leading to professional certification by the American Speech-Language-Hearing Association. Courses of instruction include education in speech-language pathology and/or audiology. Practice in speech and hearing include experiences in the University clinic, the public schools, and several clinics, medical agencies, and private practice in the greater Portland area. The speech and hearing science laboratories provide special experiences for the science and research-oriented student.

All classes in the major or minor must be taken for a letter grade and only classes graded C or better will be counted toward the major or minor.

Requirements for Major: Communication Studies. In addition to meeting the general University requirements, the student must complete a minimum of 56 credits in speech communication courses based upon A-F grading.

Coursework for the Major:
1. Complete these courses:
   Sp 100 Introduction to Speech Communication (may be waived for students who have completed at least four communication studies courses at PSU and who have earned a minimum grade of B or better in all communication studies courses.)
   Sp 220 Public Speaking
   Sp 311 Communication Inquiry (may be waived for students who have taken statistics or an equivalent course in research methods.) Statistics is no longer required for the Communication Studies major.
   Sp 416 Theories of Communication
2. Complete at least one course offered through Speech and Hearing Sciences. There is no longer a restriction on the number of hours that may be taken from Speech and Hearing Science. Recommended courses include: SpHr 262, 493 (may be waived for students who have taken a comparable course in another department).
3. Of the required total of 56 credits in speech communication, note the following restrictions:
   a. At least 24 must be in upper-division speech communication courses.
   b. No more than 12 credits may be counted toward the major from courses numbered Sp 401 through Sp 409 and Sp 370 Debate/Forensics.
   c. All must be taken for a letter grade and all must be graded C or better.

Requirements for a Minor: Communication Studies. To earn a minor in communication studies, a student must complete 28 credits with a minimum of 16 credits at the upper-division level. Total for Sp 404 and Sp 409 may not exceed 9 credits. A minimum of 12 credits must be taken in residence at PSU. All must be taken for a letter grade and must earn a grade of C or better.

Requirements for a Major: Speech and Hearing Sciences. In addition to meeting the general University degree requirements, the program requires the student to complete a minimum of 52 credits based upon A-F grading. Note: the pass/no grade option may not be used for major requirements.
1. Complete Sp 220 Public Speaking

COMMUNICATION DISORDERS EDUCATION LICENSURE
Advisers: M.E. Gordon-Brannan, E. Reuler
The Speech and Hearing Sciences Program offers programs leading to Oregon education licensure for communication disorders at two levels: initial license and continuing license.

Initial Teaching License in Communications Disorders
The undergraduate and graduate level courses listed below are the requirements for the initial license program, some of which may be used to fulfill University requirements for the baccalaureate degree:
SpHr 370 Phonetics and Acoustics (4)
SpHr 371 Anatomy and Physiology of Speech and Hearing (4)
SpHr 372 Speech and Language Development in Children (4)
SpHr 380 Disorders of Communication I (4)
SpHr 389 Sign Language: Theory and Practice (4)
SpHr 461/561 Neurology of Speech and Hearing (4)
SpHr 464/564 Articulatory/Phonological Disorders (4)
*SpHr 486/586 Urban Language Clinic (2)
SpHr 487/587 Basic Audiology (4)
SpHr 488/588 Advanced Audiology (4)
SpHr 489/589 Aural Rehabilitative and Educational Audiology (4)
SpHr 495/595 Disorders of Communication II (4)
SpHr 496/596 Introduction to Clinical Management (4)
*SpHr 498/598 Speech-Language Practicum (4)
SpHr 550 Advanced Speech Disorders Practicum (2)
SpHr 551 Advanced Child Language Disorders Practicum (2)

† SpHr 486/586 and 498/598 require 25 hours of confirmed clinical observation as part of the courses listed as prerequisites.
Education courses may require additional prerequisite courses.

through formal coursework and/or directed disciplines are encouraged to apply. Should the applicant have an undergraduate degree in speech communication; students and hearing sciences. It is not required that work in communication studies or speech and hearing sciences.

The Department of Speech Communication Disorders offers graduate work leading to the degrees of Master of Arts and Master of Science with specialization in communication studies or speech and hearing sciences.

The Department of Speech Communication offers graduate work leading to the degrees of Master of Arts and Master of Science with specialization in communication studies or speech and hearing sciences. It is not required that the applicant have an undergraduate degree in speech communication; students with undergraduate backgrounds in related disciplines are encouraged to apply. Should the student's preparation be deemed inadequate in certain areas, the student will be required to overcome those deficiencies through formal coursework and/or directed readings. All such work is separate from work toward the master's degree.

Applicants to the communication studies program must submit letters to the director explaining their reasons for pursuing an advanced degree in the communication studies discipline. Additionally, each applicant must submit three letters of recommendation from individuals closely acquainted with the applicant's academic career and, where applicable, with the applicant's professional background and competencies.

All students are admitted to the program on conditional status. Regular status and retention in the graduate program requires the satisfactory completion of 12 graduate credits with a minimum grade of 3.00 in each course and evidence of satisfactory progress toward the degree.

Applicants to the speech and hearing sciences program must submit a statement of their professional philosophy and purpose to the director of the program. In addition, each applicant must submit three letters of recommendation from individuals closely acquainted with the applicant's academic or work background. Finally, scores from the Graduate Record Examination must be submitted.

All students are admitted to the program on conditional status. Regular status and retention in the graduate program require attainment of 3.00 or higher GPA for 12 graduate credits of speech and hearing sciences coursework as an admitted graduate student, and attainment of at least a B- in each of two consecutive or concurrent clinical practica totaling at least 4 credit hours in the student's major professional area (speech-language pathology or audiology).

Degree Requirements. University master's degree requirements are listed on page 65.

communication studies includes three options: thesis with 45 credits, communication project with 45 credits, or coursework-only with 56 credits.

The master's degree program requires a minimum of 45 credits of coursework for those students who elect to complete the thesis or communication project option. Six credits of the 45 total are to be taken for the thesis or communication project. Students electing the thesis option will take Sp 503 Thesis, while students electing the communication project will take Sp 506 Communication Project.

The third option, a coursework-only master's program, consists of a minimum of 56 credits of coursework with 4 credits to be taken as an advanced theory or research seminar designated as a final integrative course to be taken during one of the final two quarters of study.

Each student's program must be based upon the following courses or their transfer equivalencies.

1. Theory, History, and Methods. Complete a, b, and c.
   a. Sp 516 Theories of Communication (unless previously taken as Sp 416)
   b. Sp 511 Introduction to Graduate Studies (must be taken no later than fall term of the first year of graduate studies)
   c. At least one course in research methods:
      Sp 521 Quantitative Methods of Communication Research or
      Sp 531 Qualitative Methods of Communication Research or
      Sp 541 Methods of Rhetorical Criticism or equivalent courses in other department

2. Areas of Emphasis. All graduate students are expected to develop a theoretical competency in at least two areas of emphasis. For the thesis, areas of emphasis will be designed in consultation with the student's program adviser or thesis director. Coursework in support of the thesis must be approved by the student's thesis director in consultation with the thesis committee. For the communication project, areas of emphasis and coursework to support the project are designed in consultation with the communication project director. In the case of the coursework-only master's, students will select, with approval from the student's program adviser, the most appropriate final integrative course to complete their coursework. Areas of emphasis currently supported in this department include: organizational communication, critical studies, interpersonal communication, intercultural communication, international communication, political communication, and mass communication. Other areas of emphasis may be developed, according to particular student needs, in consultation.

G R A D U A T E  P R O G R A M S

The Department of Speech Communication offers graduate work leading to the degrees of Master of Arts and Master of Science with specialization in communication studies or speech and hearing sciences.

For admission to graduate study, the student's background and preparation should reflect an ability to pursue graduate work in communication studies or speech and hearing sciences. It is not required that the applicant have an undergraduate degree in speech communication; students with undergraduate backgrounds in related disciplines are encouraged to apply. Should the student's preparation be deemed inadequate in certain areas, the student will be required to overcome those deficiencies through formal coursework and/or directed readings. All such work is separate from work toward the master's degree.

Applicants to the communication studies program must submit letters to the director explaining their reasons for pursuing an advanced degree in the communication studies discipline. Additionally, each applicant must submit three letters of recommendation from individuals closely acquainted with the applicant's academic career and, where applicable, with the applicant's professional background and competencies.

All students are admitted to the program on conditional status. Regular status and retention in the graduate program requires the satisfactory completion of 12 graduate credits with a minimum grade of 3.00 in each course and evidence of satisfactory progress toward the degree.

Applicants to the speech and hearing sciences program must submit a statement of their professional philosophy and purpose to the director of the program. In addition, each applicant must submit three letters of recommendation from individuals closely acquainted with the applicant's academic or work background. Finally, scores from the Graduate Record Examination must be submitted.

All students are admitted to the program on conditional status. Regular status and retention in the graduate program require attainment of 3.00 or higher GPA for 12 graduate credits of speech and hearing sciences coursework as an admitted graduate student, and attainment of at least a B- in each of two consecutive or concurrent clinical practica totaling at least 4 credit hours in the student's major professional area (speech-language pathology or audiology).

Degree Requirements. University master's degree requirements are listed on page 65.

COMMUNICATION STUDIES

Master of Arts or Master of Science

Students entering this program are expected to develop an understanding and appreciation of the theoretical, conceptual, and methodological breadth of the discipline and to develop expertise in the pursuit of their particular interests in the study of communication. In conjunction with the student's adviser, each student will design a program based upon particular concerns with interpersonal, group, organizational, public, mass media, intercultural, international, and political communication, and which provides the student with the appropriate research competencies—critical, qualitative, or quantitative—to pursue independent inquiry under faculty guidance. The master's program in communication studies includes three options: thesis with 45 credits, communication project with 45 credits, or coursework-only with 56 credits.

The master's degree program requires a minimum of 45 credits of coursework for those students who elect to complete the thesis or communication project option. Six credits of the 45 total are to be taken for the thesis or communication project. Students electing the thesis option will take Sp 503 Thesis, while students electing the communication project will take Sp 506 Communication Project.

The third option, a coursework-only master's program, consists of a minimum of 56 credits of coursework with 4 credits to be taken as an advanced theory or research seminar designated as a final integrative course to be taken during one of the final two quarters of study.

Each student's program must be based upon the following courses or their transfer equivalencies.

1. Theory, History, and Methods. Complete a, b, and c.
   a. Sp 516 Theories of Communication (unless previously taken as Sp 416)
   b. Sp 511 Introduction to Graduate Studies (must be taken no later than fall term of the first year of graduate studies)
   c. At least one course in research methods:
      Sp 521 Quantitative Methods of Communication Research or
      Sp 531 Qualitative Methods of Communication Research or
      Sp 541 Methods of Rhetorical Criticism or equivalent courses in other department

2. Areas of Emphasis. All graduate students are expected to develop a theoretical competency in at least two areas of emphasis. For the thesis, areas of emphasis will be designed in consultation with the student's program adviser or thesis director. Coursework in support of the thesis must be approved by the student's thesis director in consultation with the thesis committee. For the communication project, areas of emphasis and coursework to support the project are designed in consultation with the communication project director. In the case of the coursework-only master's, students will select, with approval from the student's program adviser, the most appropriate final integrative course to complete their coursework. Areas of emphasis currently supported in this department include: organizational communication, critical studies, interpersonal communication, intercultural communication, international communication, political communication, and mass communication. Other areas of emphasis may be developed, according to particular student needs, in consultation.
with the program adviser, project director, or thesis director.

3. Core Coursework. Students are required to complete core coursework in speech communication. Students are encouraged to take relevant courses outside the department in support of their core coursework. Courses taken outside the department must be approved by student’s program adviser in order to count toward the minimum requirements of the degree.

4. Complete Thesis. Students who are interested in an academic career or anticipate advanced graduate work, leading toward a Ph D., may prefer to elect the thesis option. Each student who elects the thesis option will complete a thesis and pass a final oral examination on the thesis. The thesis director and thesis committee will usually be selected, in consultation with the program adviser, during the first three terms of study. Prior to beginning work on the thesis, students must demonstrate proficiency in relevant theories and research methods.

5. Graduate Communication Project. The graduate communication project is intended to meet the needs of graduate students whose primary interests are applied rather than academic, and who expect to be employed in business, industry, or government, either directly or as consultants. Each student who elects the graduate communication project option will complete a communication project undertaken as an individual or team activity. The project will focus on application of acquired knowledge and problem solving to actual communication situations and will be based on an in-depth literature review. Completion of the communication project may take place in 6 credits of Sp 506 Special Project. Sp 510 Communication Consultation may be substituted for 4 credits of Sp 506.

6. Coursework-Only Option. The third option, a coursework-only master’s program, consists of a minimum of 56 credits of coursework, including 4 credits to be taken as the final integrative course. The integrative course should be taken during one of the final two quarters of coursework.

SPEECH AND HEARING SCIENCES
Master of Arts or Master of Science

Degree candidates for the M.A. or M.S. with concentration in speech-language pathology or audiology, in addition to meeting University degree requirements, must meet academic and clinical requirements for the Certificate of Clinical Competence with the American Speech-Language-Hearing Association prior to the granting of a master’s degree.

The master’s degree program consists of a minimum of 48 credit hours inclusive of core coursework and thesis or special project credits. Each student’s program must meet each of the following requirements:

1. Coursework
   Students must complete 42-44 credits of core coursework in their area of emphasis, i.e., speech-language pathology or audiology. Core coursework for an emphasis in speech-language pathology includes: SpHr 550 (2 terms), 551, 560, 562, 563, 565, 566, 581, 582, 583, 584, and 585. Core coursework for an emphasis in audiology includes: SpHr 553, 556, 557, 560, 568, 569, 571, 572, 573, 575, 576, 577, 578, and 579. Students must earn a grade of B- or above for each core course. Enrichment courses outside the department may be approved by the faculty adviser. Undergraduate coursework in statistics (e.g., Stat 243 and 244) is required. However, the statistics coursework does not count toward the minimum credits required for the master’s degree. The statistics requirement is not satisfied by completing SpHr 560. This coursework may be completed prior to enrollment in the graduate program. Students should consult with their academic adviser in determining if statistics courses taken during the undergraduate program or at other institutions satisfy this requirement. Students must also complete a program of three consecutive terms, exclusive of Summer Session, of full-time residency during their first academic year as an admitted student in the Speech and Hearing Sciences Program.

2. Clinical Practicum
   Students must complete a minimum number of direct clinical contact hours in accordance with current Oregon licensure and ASHA certification requirements. A minimum of 50 clinical hours will be completed at the Speech Clinic or Audiology Clinic at Portland State University. The remaining hours will be completed at a minimum of two external practicum sites. Students can accrue clinical hours at the PSU clinic through enrollment in the following courses: SpHr 486/586, 490/590, 498/598, 550, 551, and 569. In order to receive credit for the clinical hours completed in a clinical course, students must receive a course grade of B- or above.

3. Culminating Experience
   Students must complete one of the following culminating experiences. The decision to pursue one or the other of these options is to be made in conjunction with the student’s faculty adviser.
   a. Comprehensive Examinations—The student must pass written comprehensive examinations. Written comprehensive examinations are normally taken during the spring term of the student’s second year of graduate study. Specific details regarding administration and scoring of the examinations will follow current program guidelines. Students must consult with their academic adviser during the first year of their graduate program to begin preparation for the examination. Students will sign up for 3 credits of SpHr 506 during the term in which they write their examination.
   b. Master’s Thesis—The student will complete a thesis and pass a final oral examination before a committee consisting of the student’s faculty adviser and at least two other members of the PSU graduate faculty. The thesis committee members will be selected according to University and Departmental guidelines and in consultation with the student’s academic adviser. Students pursuing this option are required to sign up for at least 6 credits and up to 9 credits of SpHr 503 Thesis.
   c. Master’s Project—The student will complete a major project relating to their major area of study and present the results to faculty and students. The student will comply with current Departmental guidelines for selecting a project topic, project format, project committee, and presentation of the project outcomes. The student will complete the project under the direct supervision of the academic adviser. However, with approval of the academic adviser, another faculty member in the Speech and Hearing Sciences program holding a PSU graduate faculty appointment may supervise the project. In addition to the project supervisor, at least one other faculty member from the Speech and Hearing Sciences program must serve on the project committee. Students pursuing this option are required to sign up for at least 6 credits and up to 9 credits of SpHr 506 Special Project.

Courses

Courses with an asterisk (*) are not offered every year.

Sp 100 Introduction to Communication (4)
Overview of major topical areas in communication, including models of communication, social uses of language, communication codes-verbal/nonverbal, listening and communication in interpersonal, group, intercultural, public, and mass media contexts. Application of theory through skills development and community focused assessments.

Sp 199 Special Studies (Credit to be arranged.)

Sp 212 Mass Communication and Society (4)
A survey of the development of print, broadcast, film, and new communication technology as social, cultural, and economic forces in American society. Examination of news media and their relationship to American political institutions. Discussion of advertising as an economic and popular cultural force. Survey of major
trends in mass communication research. Class requires projects that assess content of contemporary commercial media.

Sp 215 Introduction to Intercultural Communication (4) Designed to give a theoretical understanding of the process and role of communication (both mass and interpersonal) when faced with cultural plurality. Provides a background of classical theories in intercultural communication, and in interdisciplinary areas (cultural studies, gender studies, cultural anthropology, political science, and international development) where cultural communication have been theorized. Discussions will focus on the changing cultural terrain in the United States and upon internationalization and globalization of mass or popular culture as it impacts other parts of the world.

Sp 218 Interpersonal Communication (4) Study of communication concepts, processes, and practices in interpersonal contexts with application of principles and concepts to actual interpersonal communication situations. Includes situational management and behavioral repertoire development, verbal/nonverbal code features structuring conversation and relationships, characteristics of functional relational systems, intercultural/inter-ethnic factors.

Sp 220 Public Speaking (4) Research, writing, and delivery skills for oral presentation in a variety of settings, including multicultural. Equal consideration given to speech preparation and delivery with critical thinking, argument forms, and audience analysis emphasized. Includes focus on technology as a presentational component. Issues of speech anxiety addressed.

Sp 227 Nonverbal Communication (4) The study of nonverbal communication as related to verbal communication. Course emphasis on theories and typologies of nonverbal behavior. Consideration of the influence of such factors as para-language, body movement, eye behavior, touch space, time, and physical and social environments. Course requires completion and report of a personal research project.

Sp 230 Listening (4) Development, review, analysis, training, and practice in the “five motives for listening”—discriminative, comprehensive, critical, appreciative, and therapeutic. Opportunity to evaluate listening efficiency. Listening projects are designed for application in business, interpersonal, and social contexts.

Sp 311 Communication Inquiry (4) Introduction to the assumptions and methods of inquiry in the study of human communication. Students will learn to design and conduct practical research projects and improve their ability to understand, evaluate, and use reports of research and scholarship encountered in future coursework and in everyday life.

Sp 312 Media Literacy (4) Focuses on building critical skills for evaluating mass media, going beyond the ways that messages represent the world to the ways that messages and the institutions that produce them actually constitute the social world. Primary issues include cultural domination and empowerment, public opinion and the legitimizing role of the media; mass culture and ideology, cultural opposition, the political-economy of news media, and the general role of media in political socialization. Extensive in-class and small-group media analysis.

Sp 313 Communication in Groups (4) Focuses on communication processes in small, decision-making groups. Students examine the relation between actual communicative behaviors of group members and group structure, functions, and outcomes. Topics include leadership emergence and enactment, quality of problem solving strategies utilized, the impact of socio-cultural and institutional features on small group communicative practices. Theoretical application in the critical analysis of various group settings and effective communication in ongoing group projects. Includes focus on teleconferencing and videoconferencing. Prerequisite: Sp 100 or Sp 218.

Sp 314 Persuasion (4) A consideration of concepts, principles, and theories related to persuasion, and a consideration of the role of persuasive communication in public discourse. Opportunity for practical application of principles in student projects. Sp 100 or Sp 220 recommended.

Sp 318 Family Communication (4) Focuses on the study of families from a communication perspective; that is, how families create, maintain and reinforce patterns of interaction through daily living, story-telling and other habitual forms of communication. Course applies theoretical frameworks such as family systems theory, social construction theory, and dialectical theory to issues of coupleship and relational development, the changes in the life of families, and family roles.

Sp 320 Advanced Public Presentation (4) Designed for students who have basic experience in choosing, researching, organizing, and presenting speeches, and who wish to augment their skills in being a more dynamic and effective public speaker. The course requirements will include several speeches presented in class, one speech which must be presented in a different setting, written rhetorical analysis, practice in impromptu speech making, having one speech video taped for discussion and critique, and as well sharpening skills in audience-centeredness. Prerequisite: Sp 220.

Sp 322 Political Communication (4) An analysis of the relationship of communication to the exercise of politics and political power. Topics may include the ethics and practices of electoral politics, political ideologies, political advertising, propaganda, public opinion formation, the role of mass media as a source and form of political communication, speech writing, public policy writing and analysis, political news writing, and political campaigning. The focus is on how communication strategies and media can be used to organize consent or dissent to ruling parties, representatives, and ideas. Sp 212 recommended.

Sp 324 Critical Thinking and Argumentation (4) A study of the relationship among evidence, reasoning, and argument. Course examines formal reasoning as well as practical argument in its actual forms and uses in everyday life. Primary emphasis upon students’ ability to analyze evidence, forms of reasoning, and arguments that structure public issues of the day. Strongly recommended for all speech majors.

Sp 329 Oral Presentation and Performance (4) The oral interpretation of the literature of prose and poetry. Concerned with the study of meaning in selected pieces of literature, and the development of vocal skills for the effective communication of meaning to others. Projects in public presentation and program development.

Sp 337 Communication and Gender (4) An examination of similarities and differences in male and female communication styles and patterns. Particular attention given to the implications of gender as social construct upon perception, values, stereotyping, language use, nonverbal communication, and power and conflict in human relationships. Discussion of influence of mass communication upon shaping and constructing male and female sex roles. Course requirements include completion and report of a personal research project.

Sp 340 Interviewing (4) A study of principles for effective interviewing with emphasis upon information-gathering, in-depth interviewing. Examine interview structures, preparation of interview schedules, question phrasing, approaches to interviewer-interviewee relationship. Specific interview contexts will vary among employment, performance appraisal, helping, and focus group, and will be examined from both interviewer and interviewee perspectives. Prerequisite: upper-division standing. Sp 218 recommended.

Sp 370 Forensics: Competitive Public Speaking and Debate (4) Development of advanced public speaking and argumentation skills. Each student will attend college tournaments and engage in a variety of forensics events, including platform speeches, limited-preparation speeches, interpretive speeches, and team debate.

Sp 399 Special Studies (Credit to be arranged.)

Sp 401/501 Research (Credit to be arranged.) Consent of instructor. Speech Communication Laboratory.

Sp 404/504 Cooperative Education/Internship (Credit to be arranged.)

Sp 405/505 Reading and Conference (Credit to be arranged.) Consent of instructor.
Sp 406/506
Special Projects (Credit to be arranged.)
Consent of instructor.

Sp 407/507
Seminar (Credit to be arranged.)
Consent of instructor: Rhetoric of Protest.

Sp 408/508
Workshop (Credit to be arranged.)

Sp 409/509
Practicum (Credit to be arranged.)
Students must show proof of professional liability insurance.

Sp 410/510
Selected Topics (Credit to be arranged.)

Sp 412/512
Empirical Theories of Mass Communication (4)
Surveys social scientific theories of mass communication. Prerequisite: Sp 212, Stat 243, Sp 314, or Psy 342 recommended.

Sp 415/515
Problems of Intercultural Communication (4)
Builds upon the theories and issues discussed in the introductory course by including contemporary and classical literature on multicultural and intercultural communication. Identifies and analyzes politically constructed categories of race, class, gender in society against the backdrop of debates on multiculturalism in the United States. Examines these categorizations of race, class, etc. in their historical, social, and cultural context, and how these have influenced mass-mediated and interpersonal communication. Uses mass media (television, radio, daily print media, music) texts to provide examples of how we understand “difference” and “otherness” in our daily lives. Sp 215 recommended.

Sp 416/516
Theories of Communication (4)
Examines the major lines of theoretical development in the study of human communication, as well as examining their diverse and alternative assumptions bases for theory construction and critical analysis. Particular attention given to questions of causal or practical necessity, and reductionistic or holistic analysis of communication process and phenomena. Required participation of students in a group project to investigate and report to class on a specific theory. Prerequisite: 6 credits upper-division speech communication. Course offered at least one term every year.

Sp 417/517
Communication and Conflict (4)
Examines assumptions underlying the selection of communicative behaviors in conflict situations, and the assessment of choices for expected or desired consequences. Interpersonal, group, organizational, intercultural and international settings are examined. Examination of traditional and nontraditional approaches to conflict management. Required development of case study applying concepts of the course, and class presentation. Sp 218, 313, 314, or 324 recommended.

Sp 418/518
Advanced Interpersonal Communication (4)
Theory course in which students analyze current concepts and theories related to interpersonal communication, comparing and contrasting various models and their relative adequacy in representing the complexity of communication processes. The impact on actual communicative practices is examined. The influence of particular historical perspectives and contemporary issues and trends on interpersonal communication is analyzed through evaluation of empirical data and general cultural texts. Research project required.

Sp 422/522
Critical Theories in Mass Communication (4)
Surveys critical institutional theories of mass communication. Primary focus is analysis of the relationship between media and communication institutions and the state and other social institutions.

Sp 423/523
Organizational Communication (4)
Application of communication theory to the study of human interaction in the organizational context. Examination of the relationships between structural variables in the organization and informal communication channels, including analysis of leadership style, decision-making, conflict management, and computer-mediated communication. Course requirements include completion and report of a personal research project. Prerequisite: upper-division standing. Sp 218 and Sp 313 recommended.

Sp 426/526
The Rhetorical Tradition (4)
Survey of the major contributors, themes, and theory development in the 2500 year rhetorical tradition examining public discourse in the management of human affairs. Among the periods examined will be Classical, Enlightenment, contemporary 20th century, and post-modernist. Special attention given to the significance of earlier treatments of rhetoric to contemporary circumstances. Prerequisite: Sp 314 or Sp 324.

Sp 427/527
Issues in International Communication (4)
A study of historical and contemporary theories and practices in the conduct of trans-border communication. Topics may include international communication issues of law, diplomacy, conflict, the Cold War, international organizations, mass media, information, advertising and news flows, and social-economic development, as well as discussions of specific cases of cultural and institutional communication, spoken, written and produced, in various industrial and developing societies. Prerequisite: upper division standing or graduate standing.

Sp 436/536
Communication and Cognition (4)
Exploration of cognitive science as it applies to theories of human communication, with particular attention to the interaction between communication and consciousness. Prerequisite: upper-division standing or Sp 416 (or equivalent) and consent of instructor.

Sp 437/537
Urban Communication (4)
Course utilizes a cultural, contextual approach to the study of urban communication structures, processes and practices. Macro and micro features are examined with the goal of understanding the role of communication in structuring social life in urban environments. Relevant theoretical perspectives on urban life are examined and multiple dimensions of verbal and nonverbal communication codes analyzed for their meaning features and particular configurations in urban contexts. Theoretical and empirical approaches taken recognize urban centers as multicultural environments. Research project required. Prerequisites: upper division standing or graduate standing.
Introduction to the development and scope of the speech communication discipline, including a critical examination of the lines of inquiry and methods of investigation that shape the discipline. Emphasis is placed on those elements of scholarly inquiry that enable students to become competent consumers of current research and contribute to their ability to conduct original research in speech communication.

Sp 503
Thesis (Credit to be arranged.)

Sp 511
Introduction to Graduate Studies (4)
Introduction to the development and scope of the speech communication discipline, including a critical examination of the lines of inquiry and methods of investigation that shape the discipline. Emphasis is placed on those elements of scholarly inquiry that enable students to become competent consumers of current research and contribute to their ability to conduct original research in speech communication.

Sp 513
Seminar: Communication in Institutional Contexts (4)
Various configurations and features of institutional life are examined. The impact of culture, politics, media on organizational communicative structures and processes, communication consultation, institutional-community interface are among the topics covered. Current research is examined. Students conduct an organizational research project. Prerequisite: graduate standing or instructor permission. Repeatable for credit.

Sp 531
Seminar: Communication, Culture, and Community (4)
Examination and analysis of human symbolic activity as the management of meaning, with the capacity to shape and influence thought, action, and world view. Particular attention given to assumptions regarding intent, effects, meaning, understanding, and interpretation, and their implications for studying persuasion from modernist and post-modernist perspectives.

Sp 521
Quantitative Methods in Communication Research (4)
An examination of the methods of empirical research in communication. Focus is on understanding the cultural and power contexts and differences among and between peoples and institutions that establish the boundaries in the exchange of meanings, values, and ideas. Emphasis is given to questions of cultural, economic and political sovereignty in the pursuit of national, regional, and personal identity and development.

Sp 528 Seminar: Communication in Relational Contexts (4)
Advanced work in interpersonal communication theories, and concepts such as family, aging, and conflict. Critique of current research in light of such considerations as cultural constraints, shifts in relational definitions and configurations. Research project. Prerequisite: Sp 518, graduate standing or permission of instructor.

Sp 531
Qualitative Methods in Communication Research (4)
An examination of naturalistic methods of communication research and their assumptions. Particular attention given to descriptive, interpretive, and critical approaches for analysis, and to specific techniques of participant observation, interviewing, and textual analysis. Critical examination of selected research as models for original student research. Prerequisite: Sp 511.

Sp 533 Seminar: Organizational Communication (4)
Examines the implications of evolving perspectives in organizational theory, as well as cultural factors which may influence communication processes in the organizational context. Different approaches to assessing organizational communication processes are considered with relevance to enhancing organizational effectiveness and facilitating organizational transition and change. Course requirements include completion and report of a research project.

Sp 541
Methods of Rhetorical Criticism (4)
An examination of philosophical and conceptual bases of contemporary rhetorical theory and their implications for the conduct of rhetorical criticism. Selected approaches to criticism examined, along with exemplars for analysis. Special attention given to critical invention, and to the social positioning of the critic. Students will select and examine a specific example of contemporary rhetoric. Prerequisite: Sp 511.

Sp 556
Seminar: Language, Meaning, and Interpretation (4)
Exploration of cognitive, linguistic, and interpretive approaches of emerging interest in the study of human communication. Specific topics vary with instructor. Prerequisites: Sp 511 and Sp 516 (or equivalent courses from other departments), graduate standing or consent of instructor.

SpHr 199
Special Studies (Credit to be arranged.)

SpHr 262
Voice and Diction (4)
Study and practice of principles of voice production and articulation of speech sound, with attention to elementary speech physiology and phonetics. Intended for students who desire to develop more effective speech and for meeting special needs of teachers, radio and television speakers, public speakers, and others who require special competence in speaking. Emphasis on both theory and practice. Two hours per week of laboratory work required.

SpHr 370
Phonetics and Acoustics (4)
A study of sounds used in speech, their acoustic properties, and their transcription utilizing the IPA, description of sounds, their symbolic nature, their production, and physical and psychological problems involved in their perception. The acoustical bases of speech and hearing will also be addressed. Prerequisite: SpHr 262.

SpHr 371
Anatomy and Physiology of Speech and Hearing (4)
A study of the anatomical and physiological bases of speech, language, and hearing. Prerequisite: SpHr 262.

SpHr 372
Speech and Language Development in Children (4)
Provides students with a foundation of knowledge regarding basic processes of language acquisition. In addition to the study of normal language development from a theoretical, developmental, and clinical perspective, related areas of study include cognition, social interactions, play, and literacy. Bilingual and multicultural issues are also addressed.

SpHr 380
Disorders of Communication I (4)
An overview of speech-language pathology and audiology as professions and historical perspectives. Normal development of speech, language, and hearing systems will be described. Most speech, language, and hearing disorders will be examined in terms of etiology, incidence, and characteristics. Multicultural issues will be addressed. Directed clinical observations are required (about five hours of practicum observation).

SpHr 389
Sign Language: Theory and Practice (4)
Basic mastery of American Sign Language (ASL) and the manual alphabet. Discussion of ASL rules and grammatical structures. Study of cultural, social, vocational, and other related issues associated with deafness. Comparison of a variety of sign language systems and overview of the controversies between total communication and
oralism. Includes ASL practice in class and lab assignments. Prerequisite: upper-division standing.

SpHr 399
Special Studies (Credit to be arranged.)

SpHr 401/501
Research (Credit to be arranged.)
Consent of instructor. Speech Communication Laboratory.

SpHr 404/504
Cooperative Education/Internship (Credit to be arranged.)

SpHr 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

SpHr 406/506
Special Projects (Credit to be arranged.)
Consent of instructor.

SpHr 407/507
Seminar (Credit to be arranged.)
Consent of instructor. Rhetoric of Protest.

SpHr 408/508
Workshop (Credit to be arranged.)

SpHr 409/509
Practicum (Credit to be arranged.)
Students must show proof of professional liability insurance.

SpHr 410/510
Selected Topics (Credit to be arranged.)

SpHr 452/552
Screening in the Schools (1)
Students will participate, under supervision, in screening school-aged students for speech, language, and/or hearing disabilities. Prerequisites: SpHr 498/598; 25 clock hours of practicum.

SpHr 461/561
Neurology of Speech and Hearing (4)
A course specifically designed for speech and hearing majors to provide a study in-depth of the neurology of the speech and hearing mechanisms with special attention given to the major deviations affecting verbal communication. Prerequisites: SpHr 370, 371.

SpHr 464/564
Articulation/Phonological Disorders (4)
Discussion of phonological development, types and causal patterns of articulation/phonological disorders, description of and practice with assessment tools and techniques, presentation of intervention principles, and descriptions and practice with intervention techniques and approaches. Prerequisites: SpHr 370, 380.

SpHr 470/570
Hearing Screening (1)
Students will participate, under supervision, in the hearing screening of children and adults. Prerequisites: SpHr 488/588, 498/598.

SpHr 487/587
Basic Audiology (4)
Introductory course in audiology emphasizing basic acoustics and psychoacoustics, anatomy and physiology of the ear, hearing measurement, and types and causes of hearing impairment. Prerequisite: SpHr 371.

SpHr 488/588
Advanced Audiology (4)
Introduction to the audiological test battery. Topics include bone-conduction, masking, speech audiometry, and objective tests. Auditory pathologies and their audiometric correlates are also covered. Prerequisite: SpHr 487/587.

SpHr 498/598
Aural Rehabilitative and Educational Audiology (4)
Theoretical course covering the role of speech-reading (lip reading) and auditory training as it relates to speech, language, and communication. Historical perspectives and philosophies considered, communication systems, speech acoustics and perception, amplification and hearing aids, speech reading, and auditory training. Educational issues for hearing-impaired children will also be addressed. Multicultural issues will be included. Prerequisite: SpHr 488/588.

SpHr 499/599
Survey of Speech, Language, and Hearing Disorders (4)
Designed as an overview of speech, language, and hearing in children and adults. Topics to include: cleft palate, stuttering, hearing impairment, and multi-cultural differences. Recommended for general speech, education, and special education students. Prerequisite: upper division or graduate standing.

SpHr 503
Thesis (Credit to be arranged.)

SpHr 530
Advanced Speech Disorders Practicum (2)
Students will participate in the evaluation and treatment of children and adults with disorders of speech under the supervision of faculty. Prerequisite: SpHr 498/598. Prerequisite or corequisite: SpHr 581 or 582. Maximum: 6 credits.

SpHr 551
Advanced Child Language Disorders Clinic (2)
This on-campus practicum provides students with an opportunity to apply methods covered in SpHr 584 to a practicum experience. Students will evaluate language skills and design and deliver language intervention under faculty supervision to preschool and school-age children with speech/language delays/disorders. Various models of language intervention will be stressed. This is a prerequisite for SpHr 591. Prerequisite: SpHr 498/598, 580. Corequisite: SpHr 584 or permission of instructor.

SpHr 552
Counseling in Communication Disorders (2)
Designed for speech-language pathology and audiology majors to receive an introduction into the major theories of counseling techniques and how they can implement these techniques throughout their careers. Prerequisite: SpHr 498/594.

SpHr 553
Directed Clinical Assistant Lab (2)
Designed to acquaint preprofessional students with the direct management of speech, language, and hearing cases in cooperation with advanced clinicians and under the direction of a qualified clinical supervisor. Students enrolled in this course will participate in all phases of clinical operation, inclusive of: scheduling, diagnostic management, parent conferencing, report writing, material preparation, etc. Prerequisites: SpHr 370; may be taken in conjunction with SpHr 494/594, 495/595, or 496/596.

SpHr 494/594
Introduction to Clinical Management (4)
Provides an introduction to management of persons with communication disorders in terms of assessment and treatment of persons with speech, language, and hearing disorders. Administration and interpretation of standardized tests, interviewing, and case-history taking will be covered. Methods, materials, and techniques in the treatment of communication disorders will be addressed. Terminology and basic techniques of modifying speech, language, and hearing disorders, with specific application to clinical management, will be given, with special consideration of program design and delivery. Theoretical considerations and practical applications of behavior modification theory as applied to children and adults with speech, language, and hearing problems. Prerequisites: SpHr 370, 372, 380, 495/595.

SpHr 498/598
Speech-Language Practicum (2)
Supervised clinical work with speech and/or language disordered children and adults enrolled for assessment and intervention in the PSU Speech and Hearing Clinic and/or associated clinical programs; group discussion of clients, clinical techniques and clinical principles. Prerequisites: SpHr 380, 464/564, 494/594, 496/596 (with grade B- or better).

SpHr 503
Thesis (Credit to be arranged.)

SpHr 550
Advanced Speech Disorders Practicum (2)
Students will participate in the evaluation and treatment of children and adults with disorders of speech under the supervision of faculty. Prerequisite: SpHr 498/598. Prerequisite or corequisite: SpHr 581 or 582. Maximum: 6 credits.

SpHr 552
Advanced Child Language Disorders Clinic (2)
This on-campus practicum provides students with an opportunity to apply methods covered in SpHr 584 to a practicum experience. Students will evaluate language skills and design and deliver language intervention under faculty supervision to preschool and school-age children with speech/language delays/disorders. Various models of language intervention will be stressed. This is a prerequisite for SpHr 591. Prerequisite: SpHr 498/598, 580. Corequisite: SpHr 584 or permission of instructor.

SpHr 553
Counseling in Communication Disorders (2)
Designed for speech-language pathology and audiology majors to receive an introduction into the major theories of counseling techniques and how they can implement these techniques throughout their careers. Prerequisite: SpHr 498/594.

SpHr 554
Advanced Speech Sound Disorders (2)
Severe Speech Sound disorders in children will be addressed with an emphasis on developmental apraxia of speech and phonological disorders. Various assessment instruments and intervention approaches will be described. Prerequisite: SpHr 464/564.

SpHr 555
Hearing Aids I (4)
Introduction to amplification for the hearing impaired. Topics include: types of hearing aids and their components, electroacoustic character-
istics of hearing aids, coupler and real-ear measurements, output limitation, programming and earmolds. Prerequisite: SpHr 488/588.

SpHr 536
Hearing Aids II (4)
Advanced topics in amplification for the hearing impaired. Topics include: hearing aid evaluation, prescription of electroacoustic characteristics, fitting procedures, and post-fitting counseling. Prerequisite: SpHr 555.

SpHr 537
Hearing AIDS Laboratory (2)
Provides practical experience in hearing aid testing, repair and modification.

SpHr 538
Computer Applications in Communication Disorders (2)
Provides students with basic information on using computerized resources in diagnosis, treatment, and data management. Internet information resources will also be explored.

SpHr 560
Research Methods in Speech-Language Pathology and Audiology (4)
Introduction to research methods in communication disorders, including clinical efficacy studies. Students become familiar with the scientific method, issues in hypothesis tests, approaches to literature review, data collection, reduction, and analysis. Background in statistics is helpful. Questions of current interest in the fields of speech, language, and hearing are presented. Students are encouraged to focus on one as a thesis topic and develop a mini-prospectus for a thesis through class assignments. Computer applications in research also outlined. Prerequisites: Mth 243, 244.

SpHr 562
Instrumentation in Speech Sciences (4)
Designed for speech-language pathology majors to enable exploration of current instrumentation in the speech sciences. Provides exposure to recording equipment, flexible and rigid endoscopes, spirometry digital speech analysis as well as to a variety of computer applications for use in evaluation and therapeutic settings. Prerequisites: SpHr 380, 464/564, 495/595, 560.

SpHr 563
Adult Language Disorders (4)
Serves as an introduction to neurogenic communication disorders. Topics include aphasia, dementia, right-hemisphere disorders, and brain injury. Causes, symptoms, and multicultural issues in assessment and treatment will be discussed. Prerequisite: SpHr 495/595.

SpHr 565
Dysphagia (4)
Designed to provide in-depth study of anatomy and physiology of swallowing mechanism. Assessment and treatment of dysphagia and feeding disorders in neonatal through older adult populations to be addressed. Prerequisite: SpHr 563.

SpHr 566
Special Populations (4)
Advanced discussion regarding diagnosis and treatment of dysarthria and apraxia. Issues related to augmentative/alternative modes of communication and tracheostomy to be addressed. Prerequisite: SpHr 495/595, 563, 565.

SpHr 567
Craniomaxillofacial Disorders and Speech (3)
Acquaints students with clinical management of cleft palate and other craniofacial anomalies, particularly the role of speech-language pathology. Students gain exposure to analysis of articulation and resonance disorders of persons with pharyngeal incompentence. Prerequisite: SpHr 495/595.

SpHr 568
Medical Audiology III (2)
Continues examination of medical aspects of audiology from SpHr 577 and 578. Specific topics to be addressed include central auditory processing and tinnitus. Evaluation and management of both pathological conditions will be included. Prerequisite: SpHr 578

SpHr 569
Advanced Audiology Practicum (2)
Supervised clinical practicum in the PSU Speech and Hearing Clinic. Students provide assessment of hearing and hearing aid evaluation and fittings for children and adults. Prerequisites: SpHr 488/588, 578.

SpHr 571
Advanced Hearing Science I (4)
Psychoacoustics and the fundamentals of acoustics. Topics include simple harmonic motion, simple and complex sounds, decibel scales, and impedance. Also covered are psychophysical measurement, auditory sensitivity, pitch and loudness perception, masking, auditory nonlinearities, and binaural hearing. Prerequisite: SpHr 487/587.

SpHr 572
Advanced Hearing Science II (4)
Anatomy and physiology of the auditory system, including transmission properties of the middle ear, cochlear mechanics and transduction, and processing of auditory information from cochlea to cortex. The course begins with an introduction to basic electricity, including Ohm’s Law, series and parallel circuits, alternating and direct currents. Prerequisite: SpHr 487/587.

SpHr 573
Industrial Audiology (2)
This course focuses on the role of audiology in hearing conservation in industry. Includes effects of noise on the auditory system, noise measurement, and medical-legal aspects of noise exposure. Prerequisites: SpHr 487/587, 488/588, 572.

SpHr 575
Pediatric Audiology (2)
This course covers the embryology of the ear, the development of hearing, the etiology and pathology of hearing loss in children, and the assessment of hearing in children. It also covers amplification for hearing impaired children, and management of children with hearing losses. Prerequisite: SpHr 488/588.

SpHr 576
Geriatric Audiology (2)
The study of hearing in aging. Physiological changes in the hearing mechanism associated with primary and secondary aging. Audiologic assessment of the prehyastic patient, as well as intervention procedures are emphasized. Psychosocial forces associated with hearing impairment during the aging years are examined. Prerequisite: SpHr 488/588.
issues will also be included. Family-centered practice techniques will be emphasized. Prerequisites: SpHr 408/598, 580. Corequisite: SpHr 551.

SpHr 585 Assessment and Treatment of Language Disorders in School-aged Children and Adolescents (4) Provides information on assessment and intervention of language and learning disorders in children, aged six through adolescence. Formal, informal, dynamic, and curriculum-based assessment of language difficulties will be covered. Treatment topics will include service delivery models, including consultation and collaboration with other school personnel, and intervention strategies. The relationship of language and learning disabilities will be addressed, with a focus on the assessment and treatment of language-based disorders of reading and writing.

issues of assessment and treatment in culturally diverse populations will be presented. Prerequisites: SpHr 583, 584.

SpHr 585L Consultation and Collaborative Services in Schools (2) Provides students with an opportunity to deliver language intervention with school-aged children in classroom settings. The practicum will emphasize developing language remediation activities based on school curricula, working in mainstream settings rather than one-to-one therapy, and integrating reading and writing with oral language skill development. Prerequisites: SpHr 551, 580, 584.

SpHr 591 Student Teaching: Speech-language Pathology (10) Practicum in speech-language pathology in the public school setting under the direction of a supervising speech-language clinician (ASHA CCC-SP). Students participate in the following activities: diagnosis and evaluation; section of caseload and scheduling; management of an entire caseload; maintaining appropriate records; handling both incoming and outgoing referrals; and parent/teacher/staff conferences. Concurrent registration in SpHr 592 required. Prerequisites: admission to teacher education program, 3 terms of clinical practicum to include one completed at PSU, 3.00 GPA in speech major. Admission by approved application only, one full academic term in advance.

SpHr 592 Seminar: Speech-language Pathology in Schools (2) Survey of current methods and materials available to and appropriate for the public school speech-language pathologist. Specific problems encountered in the practicum experience are utilized as topics of discussion. Prerequisite: SpHr 585. Concurrent registration in SpHr 591 required.

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**ECONOMICS**

241 Cramer Hall
503-725-3915
www.econ.pdx.edu/

B.A., B.S.
Minor in Economics
Minor in International Economics
Secondary Education Program—Social Science
M.A., M.S.
M.A.T. and M.S.T. (General Social Science)
Ph.D. in Systems Science-Economics
Ph.D.—Participating department in Urban Studies Doctoral Program

**UNDERGRADUATE PROGRAMS**

The program in economics is designed to meet four major objectives: to provide a basic knowledge of economic analysis for the student intending to do undergraduate work in preparation for a professional career in business or government; to serve as the core of a liberal arts program for students planning to enter business or industry directly upon graduation; to provide courses preparing students for graduate work in economics; and to present courses that offer insight into the economic problems of the day.

The major in economics is required to take 42 credits in economics courses, plus specified courses in basic accounting, mathematics, and statistics. Many majors concentrate their electives so that they in effect establish a minor in either business administration, engineering, or one of the other fields in the social sciences.

As soon as students decide to become economics majors, they should consult the department secretary for referral to the appropriate adviser. Economics majors who anticipate that they may do graduate work in economics should consult their adviser to develop a proper background program.

**Requirements for Major.** In addition to meeting the general University degree requirements, the major in economics must meet the following departmental requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ec 201, 202 Principles of Economics</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Ec 375 Macroeconomic Theory</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Ec 376 Microeconomic Theory</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Ec 456, 457, 460 (any one course)</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

A minimum total of 22 credits of 400-level coursework including not more than two courses numbered 401 to 410. Ec 370, 456, 457, and 460 may be counted toward these credits when not used to satisfy the 4-credit requirement immediately above. 22

Total in economics (minimum) 42

Mth 241 Calculus for Management and Social Sciences; Stat 243, 244 Introduction to Probability and Statistics; Stat 366 Introduction to Experimental Design 16

Total in other fields 16

Majors must take a minimum of 16 credits of coursework in residence from this department and must maintain at least a 2.00 grade point average in work completed in this department.

All courses used to satisfy the departmental major requirements, whether taken in the department or elsewhere, must be graded C- or above.

**Requirements for a Minor in Economics.** To earn a minor in economics a student must complete 26 credits (12 credits of which must be taken in residence at PSU), to include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ec 201, 202 Principles of Economics</td>
<td>8</td>
</tr>
<tr>
<td>Upper-division economics electives</td>
<td>18</td>
</tr>
</tbody>
</table>

Total 26

No more than 6 credits of Ec 410 will be accepted (no other omnibus courses will be accepted).

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling department minor requirements.

*Additional prerequisites may be required.*
Requirements for a Minor in International Economics. To earn a minor in international economics a student must complete 28 credits (12 credits of which must be taken in residence at PSU), to include the following:

Required Courses
Ec 201, 202 Principles of Economics ............... 8
Ec 440 International Trade Theory and Policy 4
Ec 441 International Monetary Theory and Policy 4

Electives
Upper-division economics electives .................. 12
Chosen from:
Ec 442 The Multinational Enterprise in the World Economy
Ec 445 Comparative Economic Systems
Ec 446 Economic Systems of East Asia
Ec 447 Economics of Transition
Ec 450 Third-World Economic Development

Total 28

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward filling department minor requirements.

SECONDARY EDUCATION PROGRAM
Adviser: T. Potiowsky
(See General Studies: Social Science page 131.)

GRADUATE PROGRAMS

The Department of Economics offers graduate work leading to the Master of Arts and Master of Science degrees. The department also participates in the Urban Studies Doctoral Degree Program. Specialized theoretical and applied courses in economics, when combined with urban studies general seminars, partially fulfill the requirements for the Ph.D in Urban Studies with an emphasis in economics. The Department of Economics participates in the Systems Science Ph.D. Program. Candidates for the Ph.D. in Systems Science-Economics are encouraged to enroll in advanced courses in economics, and may elect economics as a major or minor field of study within that program. For information relating to the Ph.D. programs, see pages 67 and 304.

Admission to the master's program in the Department of Economics requires, in addition to the University admissions requirements:
1. A minimum of a 3.00 GPA in overall coursework and a minimum of a 3.00 GPA in economics coursework.
2. Completion of the core undergraduate courses in the Economics program at Portland State University, including theory, statistics, and econometrics, or present equivalent competence.

3. Have a cumulative GPA of 3.50 in all graduate credit earned at accredited institutions.

MASTER OF ARTS OR MASTER OF SCIENCE
Students must complete a minimum of 52 credits (11 courses and a research project). Each student completes an eight-course core requirement, a research project, and three major elective courses. The research project will normally be undertaken in the student's second year of study, after completion of course requirements.

Degree Requirements
First Year
Fall
Ec 560 History of Economic Thought ............... 4
Ec 576 Advanced Microeconomics ............... 4
Ec 570 Econometrics ............................. 4
Winter
Ec 575 Advanced Macroeconomics ............... 4
Ec 571 Advanced Econometrics ................... 4
Economics Elective .................................. 4
Spring
Ec 590, Ec 591, or Ec 595 Applications of Advanced Microeconomic, Macroeconomic, or Advanced Econometrics ............... 4
Economics Elective .................................. 4

Second Year
Fall
Ec 590, Ec 591, or Ec 595 Applications of Advanced Microeconomic, Macroeconomic, or Advanced Econometrics ............... 4
Winter
Ec 590, Ec 591, or Ec 595 Applications of Advanced Microeconomic, Macroeconomic, or Advanced Econometrics ............... 4
Fall/Winter/Spring
Ec 590 Research Project I .......................... 4
Ec 597 Research Project II .......................... 4

Total 52

In order to complete the research project, each student must submit a written paper on a subject to be approved and supervised by two faculty members specializing in the field and methodology. (Note that field requirements have been eliminated.)

Courses outside of economics may be used to meet the elective requirements, subject to approval by a faculty adviser. A working knowledge of mathematics and statistical methods is required for all students. This requirement may be fulfilled by examination or by the successful completion of courses in mathematics and statistics approved by the department. Differential and integral calculus and linear algebra are highly recommended.

Conditionally admitted students must fulfill all conditions within the first two terms of their program unless special exemption is granted by the department graduate committee.

In addition to the general requirements for advancement to candidacy, the student must complete 12 credits in residence work for graduate credit in economics with a GPA of at least 3.00 and be recommended by the graduate committee of the department.

Any transferred graduate credits that satisfy University requirements may be applied toward major electives. Under no circumstances can the core and field requirements be waived or substituted for with coursework from other PSU departments or from other institutions. Students with questions concerning transferred credits should contact the departmental office for advising.

PH.D. IN SYSTEMS SCIENCE—ECONOMICS

The Department of Economics participates in the Systems Science Ph.D. Program. Students interested in seeking a Ph.D. in systems science-economics should contact the Department of Economics for further information. Elective fields include: international economics, urban-regional economics, mathematical economics, and economic development. Applicants must be admitted simultaneously to the economics graduate program and the Systems Science Ph.D. Program.

Courses

Courses with an asterisk (*) are not offered every year. Economics does not allow credit for Ec 201, 202 after credit has been earned in an upper-division economics class for which Ec 201, 202 is a prerequisite.

Ec 101 Colloquium on Economic Issues (4)
Designed to introduce students to the importance of economics and to serve as a precursor to the Principles of Economics. Rather than getting lost in technical jargon, the course will focus on the most pressing economic problems of the current era, including: trade and jobs, economic development and poverty; corporate power; globalization and competitiveness, economic growth and the environment; government versus the market; women in the economy; unemployment; inflation; and education, health and medical policies.

Ec 201 Principles of Economics (4)
A study of the market system, involving the essentials of demand and supply analysis; competition and monopoly; labor public policy towards business; the distribution of income; international trade and commercial policy; comparative advantage, tariffs, and quotas.

Ec 202 Principles of Economics (4)
A study of factors affecting the level of national income: the essentials of money and banking; the role of government expenditure and taxation in achieving economic stability, growth, and
development; international monetary issues including exchange rates and the balance of payments.
Ec 315 Economics of Sports (4) Investigates the application of economic theory to the particular arena of sports. Emphasis is placed on the theories of labor, industrial organization, and quantitative methods and their application to such topics as player compensation and movement, stadium financing, team relocation, and racial discrimination.
Ec 316 Introduction to Health Care Economics (4) Provides an introduction to basic economic concepts that are most relevant to the study of the health care system. Examines the efficiency and equity implications of providing health care under the traditional fee-for-service system versus providing health care under the relatively new systems of health care delivery such as health maintenance organizations (HMOs), preferred provider organizations (PPOs), etc. Compares the American health care system to the systems employed in other developed countries. Special attention will be paid to the delivery of health care in Oregon.
Ec 332 Environmental Economics (4) Describes the basic economic approach to the environment, laying out the underlying values, as well as the procedures used to translate those values into policy-relevant principles. Analyzes the flow of materials and energy from the environment into the economy as well as the flow of waste products into the environment. Examines sustainable development and explores environmentally compatible means of lifting the world's poor out of poverty.
Ec 340 International Economics (4) Examines trade and financial relations among countries with an emphasis on policy perspectives. Outlines international policy options and the principles that govern world trade and financial arrangements. Regional and international trade organizations and currency arrangements will be discussed. Prerequisites: Ec 201, 202.
Ec 345 Marxist Political Economy (4) An inquiry into the contribution to social and economic thought advanced by Karl Marx. Based on reading and interpreting primary sources. Considers the legacy of Marx's ideas on the course of history in the 20th century, and the potential influence in the 21st century.
Ec 370 Introduction to Quantitative Economics (4) General survey of quantitative techniques useful for economic analysis. Focus on the applications of mathematical tools and simple regression analysis in economics. Quantitative topics will be introduced systematically with hands-on case studies and examples. Prerequisites: Ec 201, 202, Mth 241, Stat 243 and 244.
Ec 376 Microeconomic Theory (4) Theories of consumer behavior and demand, production and cost, the firm and market organization and functional income distribution. Prerequisites: Ec 201, 202.
Ec 399 Special Studies (Credit to be arranged.) Ec 401/501 Research (Credit to be arranged.) Consent of instructor.
Ec 404/504 Cooperative Education/internship (Credit to be arranged.) Consent of instructor.
Ec 405/505 Reading and Conference (Credit to be arranged.) Consent of instructor.
Ec 407/507 Seminar (Credit to be arranged.) Consent of instructor.
Ec 409 Practicum (Credit to be arranged.) By prior arrangement with the department, economics majors may receive a maximum of 3 credits in their total undergraduate program for economics research done in the community in conjunction with guided reading and regular consultations with the practicum instructor. Prerequisites: Ec 201, 202, and consent of instructor.
Ec 410/510 Selected Topics (Credit to be arranged.)
Ec 411/511 Cultural Economics (4) Focus is on a general theory of economic development and growth, in the conceptual framework of culture and its evolution. The economic process led by the dynamics of technological change is analyzed in cultural and social terms in the tradition of institutional and/or evolutionary economics. This framework is relevant and will be applied to current issues such as: globalization, trade, jobs and the environment, sustainable development, corporate power, culturallags and social justice.
Ec 414 Public and Private Investment Analysis (4) Procedures to analyze categories of investments such as stocks, bonds, and real estate are demonstrated for individual decisions and for firms or public organizations. The interaction needed among managers, accountants, engineers, planners, and other disciplines to successfully plan complex investments in either private or public sector firms and organizations is demonstrated through case studies of various types of investments. Students will prepare a case study of an investment in a college education, stocks, bonds, real estate, equipment or structures, and similar investments.
Ec 415 Engineering Economics (4) An examination of the role of investment analysis for the specific needs of engineers. The formulation, techniques, and methods to analyze engineering projects and proposals are developed along with adjustments that need to be considered for taxes, inflation, and risk. Calculation of the appropriate interest rate is demonstrated to determine the minimum attractive rate of return. Special issues related to replacement of existing equipment and structures and special issues related to engineering economics for public sector organizations are included.
Ec 416/516 Managerial Economics (4) Managerial economics studies the application of microeconomic theories to management decisions. The potential for economic theory to improve business decisions is emphasized throughout this course. The foundation for applying economic theories to managerial decisions is developed and demonstrated through examples of application of these procedures to business decision-making.
Ec 417/517 Women in the Economy (4) Different economic theoretical perspectives are presented to account for women's particular economic roles currently and historically. Emphasis on women's responsibility for child rearing and housework, women's relatively low wages, occupational segregation by gender, economic differences among women due to ethnicity, generation, and class; and policy issues with particular importance for women's economic situation. Prerequisites: Ec 201, 202.
Ec 419/519 Economics of Race and Ethnicity (4) Survey of the economic history of ethnic groups in the United States, various economic theoretical perspectives advanced to account for past and current experience of people of color in the U.S. economy, and examination of selected economic policy issues. Prerequisites: Ec 201, 202.
Ec 425/525 Economics of Industrial Organization (4) Study based upon the application of microeconomic theory to the analysis of firms, markets, and industries. Search for economic explanations for the structure of markets and for the behavior of the firms which trade in them. Seeks also to explain the internal organization of firms and to assess the efficiency of the market in determining organization. Prerequisite: Ec 201, Ec 376 recommended.
Ec 426/526  
Economics of Regulation (4) 
Study of government regulation designed to control—or at least to influence—the performance of the market in specific ways. Historical and economic analyses of three main forms of regulation: direct regulation of monopoly and competition, and social regulation to protect the environment and the individual. Prerequisites: Ec 201.

Ec 431/531  
Urban Economics (4) 
Functions of the urban economy: the market sector and the public sector. Economic analysis of issues such as land use, environmental quality, transportation, housing, income distribution, and the organization and financing of urban public services. Prerequisites: Ec 201, 202.

Ec 432/532  
Environmental Economics (4) 
An examination of the alternative and sometimes conflicting evaluation and decision-making criteria of economics and physical sciences as they pertain to the material environment. An evaluation of policy alternatives. Prerequisites: Ec 201, 202.

Ec 433/533  
Natural Resource Economics (4) 
An examination of the economic concepts and theories for analyzing natural resource use and related environmental pollution, including the economics of sustainability. Discussion of renewable and non-renewable natural resource issues in the Pacific Northwest and policy alternatives. Prerequisite: Ec 201.

Ec 434/534  
Business Environmental Management Economics (4) 
Examines the economic costs and benefits that affect the decisions of business firms to develop integrated environmental management systems. Analysis of policy options to foster business environmental management for public goods. Case studies of selected firms. Prerequisite: Ec 201.

Ec 435/535  
Public Spending and Debt Policy (4) 
Analysis of the role of the state in a competitive economy: Development of decision rules for state economic action. Includes a detailed study of the principles of voting, public budgeting including cost benefit analysis and PPBS, the theory of fiscal federalism and the theory and principles of public debts. Prerequisites: Ec 201, 202.

Ec 436/536  
Taxation and Income Policies (4) 
Principles and problems of government financing. Critical analysis of alternative taxes as sources of public revenue with emphasis on theories of incidence and economic effect. Prerequisites: Ec 201, 202.

Ec 440/540  
International Trade Theory and Policy (4) 
Theories of international trade. Analysis of the normative aspects of trade including the gains from trade and the effect of trade on economic welfare. Examination of international trade policy and issues of economic integration, economic growth, and current trade problems. Prerequisites: Ec 201, 202, Ec 376 recommended.

Ec 441/541  
International Monetary Theory and Policy (4) 
Balance of payments theory including balance of payments accounting and foreign exchange market; theoretical models of fixed and flexible exchange rate systems using both Neoclassical and Keynesian approaches. Historical evolution of the international monetary system. Current international monetary policies and problems. Prerequisites: Ec 201, 202, Ec 375 recommended.

Ec 442/542  
The Multinational Enterprise in the World Economy (4) 
The study of the multinational (transnational) enterprise as a form of direct foreign investment. Analysis of theories of direct investment; the impact of the multinational enterprise on the national and international economy and the relationship of such firms to the concept of the nation-state. Prerequisites: Ec 201, 202.

Ec 443/543  
Global Environmental Economics (4) 
An examination of economic forces and theories to understand the causes of global environmental problems and to evaluate policy options to remedy serious problems. Analyses of the economic effects of global environmental agreements and the environmental effects of trade and global commerce in developed and developing countries.

Ec 445/545  
Comparative Economic Systems (4) 
Introduces the evolutionary-institutional method of analysis, incorporating history, the legacy of ideas, and the dynamics of change over time. Using this method, we shall examine economic systems of Ancient Rome, Medieval Feudalism, the Laissez-Faire Market Economy, Fascist Command Economy, and others. Prerequisites: Ec 201, 202.

Ec 446/546  
Economic Systems of East Asia (4) 
Explores theories of economic crises. Examines flaws built into Japan’s post-war reconstruction that have led to the undoing of its economic “miracle.” Considers Japan as the regional powerhouse with successes and failures affecting other economies such as South Korea’s, and a host of economies in Southeast Asia. China’s transition is examined. Postulates potential paths and prospects for regional recovery. Ec 445 is recommended.

Ec 447/547  
Economics of Transition (4) 
Examines the formation of the Soviet-type economic system in the 1920s and 30s and its dissemination after World War II to Eastern Europe, China, and other selected countries. Emphasis is placed on the history of ideas and the historical setting which gave rise to the Soviet model. Includes the examination of the internal contradictions of the model, the “unwinding” of planned socialism, and the prospects for the move toward mixed market economies. Prerequisite: Ec 201, 202.

Ec 450/550  
Third-World Economic Development (4) 

Ec 451/551  
Microenterprises in Developing Areas (4) 

Ec 453/533  
Theory of Economic Growth (4) 
Introduction to the theory of economic growth. This course will emphasize the theoretical basis and the models developed to measure growth and change in modern industrial societies. Prerequisites: Ec 201, 202.

Ec 456/556  
American Economic History: the First Century (4) 
The economic background of the War of Independence and the seeds of the Civil War. Industrialization, urbanization, and development of the frontier. Rise of big business and organized labor. Laissez-faire, federalism, and the gradual emergence of the national government in economic policy: Changes in foreign trade and in the international position of the U.S. Prerequisites: Ec 201, 202.

Ec 457/557  
American Economic History: the 20th Century (4) 

Ec 460/560  
History of Economic Thought (4) 
Selections from the economic writings of various thinkers from antiquity through the Reformation. A survey of the work of the most important economic theorists of the 18th, 19th, and 20th centuries including Adam Smith, Ricardo, Marx, Marshall, Veblen, and Keynes. Readings include original writings and interpretations by later economists. Scholars will be studied in terms of their historical context and the contemporary relevance of the theories and policy recommendations. Prerequisites: Ec 201, 202.

* Ec 342/542  
Comparative Economic Systems (4) 
Introduces the evolutionary-institutional method of analysis, incorporating history, the legacy of ideas, and the dynamics of change over time. Using this method, we shall examine economic systems of Ancient Rome, Medieval Feudalism, the Laissez-Faire Market Economy, Fascist Command Economy, and others. Prerequisites: Ec 201, 202.

† Ec 456/556  
American Economic History: the First Century (4) 
The economic background of the War of Independence and the seeds of the Civil War. Industrialization, urbanization, and development of the frontier. Rise of big business and organized labor. Laissez-faire, federalism, and the gradual emergence of the national government in economic policy: Changes in foreign trade and in the international position of the U.S. Prerequisites: Ec 201, 202.

‡ Ec 457/557  
American Economic History: the 20th Century (4) 

§ Ec 460/560  
History of Economic Thought (4) 
Selections from the economic writings of various thinkers from antiquity through the Reformation. A survey of the work of the most important economic theorists of the 18th, 19th, and 20th centuries including Adam Smith, Ricardo, Marx, Marshall, Veblen, and Keynes. Readings include original writings and interpretations by later economists. Scholars will be studied in terms of their historical context and the contemporary relevance of the theories and policy recommendations. Prerequisites: Ec 201, 202.
Labor Economics and Industrial Relations (4)
After a survey of the history of American labor market institutions including unions, this course investigates the big questions in labor economic theory including the sources of unemployment, wage determination, and the reasons demographic groups fare differently in the labor market. Also considered are appropriate policies for current developments in the labor market, such as increasing wage inequality, globalization, and the widespread use of new technologies. Prerequisite: Ec 201.

Econometric Forecasting and Simulation (4)
This course covers time series analysis and simulation, emphasizing techniques of identification, estimation, forecasting and econometric simulation. Various techniques of moving average, differencing, and autocorrelation adjustment will be introduced in order to identify the time series. Estimation methods and diagnostic checking following the identification will provide the base model for forecasting and simulation. Prerequisite: Ec 201.

Mathematical Economics (4)
Mathematics for economists. Applications of differential calculus and matrix algebra to economics. Topics include consumer theory, production functions, and applied general equilibrium models. Prerequisites: Ec 201, 202.

Cost-Benefit Analysis (4)
Identification and estimation of direct and indirect inputs and outputs. Valuation of commodities and of factors. Present social value and time discounting. Uncertainty. Prerequisite: Ec 201.

Project Evaluation (4)
Cost and benefit evaluation. Choice of projects. Case studies related to water resources, transportation, and industrial projects. Prerequisite: Ec 201.

Economic Planning (4)
Aspects of the economic planning process including target setting, tests of feasibility, consistency, optimality, and plan implementation. Prerequisite: Ec 201.

Thesis (Credit to be arranged.)

Public Finance (4)

Money, Financial Markets, and the Economy (4)
Study of the financial component of macroeconomics: financial institutions and markets that facilitate the flow of savings to investment. Interest rate determination, structure of interest rates, changing scope of financial instruments, and impact of regulation and legislation. The Federal Reserve's role in controlling the money supply and monetary and fiscal policy effects on financial markets and aggregate economic activity. Prerequisite: limited to students admitted to graduate programs in business administration.

Applied Energy Economics (4)
Covers applications of microeconomics to energy. Consumer behavior, demand, production, costs, market structure, and price theory (including tariff design). Prerequisite: bachelor's degree.

Energy Modeling (4)
Covers applications of energy modeling. Optimization with linear programming as well as statistical models including regression analysis and econometrics. Prerequisite: bachelor's degree.

Energy Regulation and Policy (4)
Covers the creation and enforcement of legislation as it affects the production, distribution, and consumption of energy. Social and economic forces along with technical change are examined for their roles in the creation of regulations for the energy industry. Current policy issues, such as deregulation of the energy industry, are analyzed. Prerequisite: bachelor's degree.

Energy Economics Practicum (4)
Students will take classroom knowledge into the field. A current topic in energy economics and/or policy will be selected. Students will work with private and public agencies, collecting and processing information and offering advice on improvements in the energy industry. Prerequisites: Ec 527, 528.

Regional Economic Structure (4)
This course focuses on methods of analyzing why regions differ economically, how they interrelate and why and how they react to changes in economic policies and conditions. Part of the course will be devoted to a study of models of regional structure and growth, such as economic base or input-output, and the strengths and weaknesses of each in modeling the regional economy. The remainder of the course will be concerned with the development of models for use in regional forecasting and/or evaluation of policy changes on regional development. Prerequisite: Ec 430.

Seminar in Public Finance (4)
Analysis of the role of government spending and taxation in a market economy. Discussion of the various methods of measurement of the size and influence of the government. Evaluation of the principal schools of thought on the role of the government in the economy. Review of the literature on the principles of taxation and the analysis of its shifting and incidence. Prerequisite: Ec 201.

Seminar in Third-world Economic Issues (4)
Discussion in a seminar context of the meaning of underdevelopment, the relevance of the historical experience of more developed countries, theories of development and underdevelopment, agricultural and industrial development, and external economic relations. Prerequisite: Ec 450.

Econometrics (4)
Covers the theory and application of statistical regression, hypothesis testing, and simulation of econometric models. Emphases are placed on model construction and efficient use of econometric data. Problems of multicollinearity, heteroscedasticity, autocorrelation, and distributed lags are discussed. Some familiarity with calculus, matrix algebra, and computer applications are assumed. Prerequisite: Ec 201.

Advanced Econometrics (4)
Advanced econometrics topics including systems of linear equations, panel data, nonlinear models, nonparametric estimation and prediction, and applications in consumption and production models. Data resources available to the practicing economist will be covered. Prerequisite: Ec 201.

Advanced Microeconomics (4)
Theories of national income, employment and price levels with special emphasis on recent developments in analytical techniques and empirical findings. Prerequisite: Ec 301.

Poverty, Welfare, and Income Distribution (4)
An in-depth study of poverty standards and measures of income and wealth inequality. Impact of taxes and welfare transfers on the distribution of income in the U.S. Prerequisite: graduate status in urban studies or economics.

Impact Assessment (4)
Empirical techniques employed in measuring the impacts associated with land use change. Topics: goals achievement matrix approaches to impact assessment; trade-offs between community and regional welfare; distance and times in urban analysis; estimating the social profitability of land development; cost-benefit analysis applied to freeway location techniques for valuation of nonpriced resources; measuring municipal revenue and expenditure impacts; gravity models and transport demand estimation, economic base analysis for employment and population impact assessment; and estimating air and noise pollution associated with land development. Prerequisite: Ec 201.

Applications of Advanced Macroeconomic Theory (4)
Coverage includes current topics of interest in macroeconomics. The focus is on the applications of neoclassical and Keynesian theories of macroeconomic theory to a variety of real world problems. The various sub-disciplines of macroeconomics that may be covered include: financial economics, monetary economics, economic growth models, labor economics, public finance, international economics, and radical macroeconomic thought. Prerequisite: Ec 201.
Courses to be selected from any upper-division English course (with the exception of Eng 474) or from any adviser-approved lower- and upper-division credits may be substituted for some or all of these lower division credits.

The study of English has long been considered one of the best ways to obtain a liberal education. Courses are designed to develop students’ critical capabilities, to deepen their understanding of diverse cultural issues, and to improve their abilities to analyze and produce complex texts. The department prepares its majors for careers in writing and teaching, as well as for a variety of professions in which high levels of literacy and critical thought are required.

Various concentrations in literature and writing allow students flexible ways to combine interests in the literary arts with personal and professional goals. Community-based learning courses encourage students to integrate their academic skills with experience in the metropolitan area. Indeed, the breadth of knowledge and the communication skills that English majors typically acquire make them attractive to many potential employers and prepare them for graduate work leading to professions such as law.

For those who wish to teach, the English Department prepares majors for graduate work leading to teaching certification or for entry into graduate master’s or doctoral programs in English. PSU graduates in English have gone on to succeed in advanced degree programs at many major universities.

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### Group B: Ethnicity, Gender, Class, Culture

- Eng 305 Topics in Film
- Eng 306 Topics in Literature and Popular Culture
- Eng 308 Cultural Studies in Literature
- Eng 309 American Indian Literature
- Eng 351, 352 African-American Literature
- Eng 420 Caribbean Literature
- Eng 421, 422 African Fiction
- Eng 443, 444 British Women Writers
- Eng 445, 446 American Women Writers
- Eng 449 Advanced Topics in Cultural Studies
- Eng 467, 468 American Literature and Culture

### Group C: Period Studies and Pre-1800

(*indicates pre-1800 course)

- Eng 311* Tragedy
- Eng 312* Comedy
- Eng 314* The Epic
- Eng 317* Greek Mythology
- Eng 318* Bible as Literature
- Eng 319* Northern European Myth
- Eng 320*, 321 The English Novel
- Eng 364, 365 American Fiction
- Eng 384, 385 Contemporary Literature
- Eng 411*, 412* English Drama
- Eng 426*, 427* Medieval Literature
- Eng 430*, 431* Literature of the Renaissance
- Eng 440*, 441* Seventeenth-Century Literature
- Eng 447 Major Forces in Literature
- Eng 448 Major Figures in Literature
- Eng 450*, 451* Eighteenth-Century Literature
- Eng 456*, 459* Literature of the Romantic Period
- Eng 460*, 461* American Literature: Beginnings to 1865
- Eng 463, 464 American Literature: 1865-1935
- Eng 475, 476 Literature of the Victorian Period
- Eng 477, 478 American Poetry
- Eng 480 Modern British Literature
- Eng 482 Contemporary British Literature
- Eng 485 Contemporary Drama
- Eng 486 Contemporary American Novel
- Eng 487 Contemporary American Short Story
- Eng 488 Contemporary American Poetry

### Group D: Writing, Rhetoric, Composition, Linguistics

- Eng 413 Teaching and Tutoring Writing
- Eng 414 Contemporary Composition Theories
- Eng 415 Research Methods in Composition
- Eng 425 Practical Grammar
- Eng 490 Rhetoric
- Eng (appropriate adviser-approved course)
- Ling 390 Introduction to Language
- Wr 312 Intermediate Fiction Writing
- Wr 313 Intermediate Poetry Writing
- Wr 319 Planning and Producing Publications
- Wr 327 Technical Report Writing
- Wr 328 News Editing
- Wr 330 Desktop Publishing I
- Wr 333 Advanced Composition
- Wr 412 Advanced Fiction Writing
- Wr 420 Writing: Process and Response
- Wr 425 Advanced Technical Writing
- Wr 427 Technical Editing
- Wr 428 Advanced News Writing
- Wr 430 Desktop Publishing II
- Wr (appropriate adviser-approved, upper-division course)

### Alternate Omnibus Courses:

The following courses, depending on their content, may fulfill major requirements in Groups A, B, C, and D. Students should consult specific offerings each term and consult with their adviser to have them approved:

- Eng 305 Topics in Film
- Eng 306 Topics in Literature and Popular Culture
- Eng 308 Cultural Studies in Literature
- Eng 399 Special Studies
- Eng 407 Seminar
- Eng 410 Special Topics
- Eng 447 Major Forces in Literature
- Eng 448 Major Figures in Literature
- Eng 449 Advanced Topics in Cultural Studies
- Eng 494 Topics in Critical Theory and Methods
- Wr 399 Special Studies
- Wr 410 Special Topics

### General:

- English majors in upper-division English courses are expected to be able to write a library research paper when required. The department recommends that majors without prior training in research paper writing enroll in Wr 222.
- Upper-division credits may not include Wr 472 or Eng 474.
- Any course used to satisfy departmental major requirements, whether taken in the department or elsewhere, must be taken under the differentiated grading option and must have been assigned a grade of C or above.
- No more than 12 credits of coursework taken for the Professional Writing Minor may be applied to the English major.
- A minimum of 24 credits in English and/or writing at PSU is required.

### Typical Freshman Program

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Eng 211 Writing Practice, Wr 221 Introduction to Technical Writing, Wr 324 Information Technology for Writers, Wr 326 Information Technology for Writers, Wr 327 Technical Report Writing, Wr 328 News Editing, Wr 427 Technical Editing, Wr 428 Advanced News Writing</td>
</tr>
</tbody>
</table>

### Requirements for a Minor

To earn a minor in English, a student must complete 28 adviser-approved credits (12 credits of which must be taken in residence at PSU), to include the following:

#### Group I: Foundation courses

<table>
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<tr>
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</table>

Students interested in technical writing may obtain a minor in professional writing for students interested in technical writing in science and industry are encouraged to take Wr 227, Wr 327, and Wr 427, Technical Editing.

#### Group II: Electives

<table>
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<tr>
<th>Credits</th>
<th>Course(s)</th>
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</thead>
</table>

#### Note: The following courses will not count as part of the English minor:

- Wr 115 Introduction to College Writing
- Wr 121 English Composition
- Wr 211 Writing Practice
- Wr 222 Writing Research Papers
- Wr 323 English Composition

### Requirements for a Minor in Professional Writing

To earn a minor in professional writing, a student must complete 28 credits (12 credits of which must be taken in residence at PSU), to include the following:

#### Group I: Foundation courses

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<thead>
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#### Note: The following courses will not count as part of the English minor:

- Wr 115 Introduction to College Writing
- Wr 121 English Composition
- Wr 211 Writing Practice
- Wr 222 Writing Research Papers
- Wr 323 English Composition

### SECONDARY EDUCATION PROGRAM

At the time of entering, the time of completing student teaching, and the time of completing the secondary teaching program, the student must hold a minimum 3.00 GPA in English and writing courses. Those who do not meet this GPA requirement may request that their adviser initiate proceedings for a special evaluation by the Department of English teacher education committee.

Students who complete a major in English and wish to teach English in secondary schools must be accepted into the program in the Graduate School of Educa-
tion and complete specific requirements in both English and education.

Students must consult with an English education adviser to learn the requirements for the initial teaching license.

**GRADUATE PROGRAMS IN ENGLISH**

The Department of English offers graduate work leading to the Master of Arts and the Master of Arts in Teaching degrees.

**Degree Requirements.** University master's degree requirements are listed on page 62. Department requirements are described in detail in the Department of English brochure, *M.A. in English*, which is available upon request.

**ADMISSION REQUIREMENTS: M.A.**

- Application deadline February 1.
- Applications received after this date may not be reviewed.

Students accepted to the master's program normally hold the B.A. in English, with a minimum GPA of 3.25 in all English courses.

Applicants whose bachelor's degree is not in English may still be considered for admission if they have taken 20-30 credit hours in British and American literature and in writing (to include British and American literature survey courses, as well as upper-division coursework in literature and writing), with a 3.25 GPA, and submit an analytical essay from one of their literature courses.

Those who do not meet either of these requirements may be considered for conditional admission. They will need to provide satisfactory evidence of preparedness to undertake advanced work, to include some combination of:

- 3.25 GPA in four or five graduate English courses
- three letters of academic recommendation
- satisfactory GRE scores
- explanation of undergraduate record and purpose of study
- two samples of written work from recent English courses

Students whose native language is not English must score at least 600 on the TOEFL examination.

**MASTER OF ARTS**

For the M.A., the department requires a minimum of 32 graduate credits in English, including Eng 596 Problems and Methods of Literary Study and Eng 507 Seminar. The remainder of the student's program may, with the approval of the adviser, include coursework in fields related to English. A minimum of 45 graduate credits is required for the M.A. in English.

In every case, the student's program must be approved by the departmental adviser and the coordinator of graduate studies. The student will have a choice of three tracks:

I. The three-area, non-thesis option, emphasizing general coverage of literary material.

II. The thesis option, permitting more specialized research.

III. The creative thesis option, available only in truly exceptional cases, and with specific faculty permission. For students pursuing tracks II or III, the thesis may count for a maximum of 9 credits upon proper registration.

Students pursuing option I must complete at least 8 graduate credits in literature before 1780. They must also select for their final written examinations three areas chosen from the list below. One of these areas must be in British literature. Students who write theses also take a three-hour general examination testing their overall knowledge of English and American literature. The examination areas are as follows:

**British Literature:** Beginnings to 1500; 1500-1660 (excluding Milton); 1660-1780 (including all of Milton); 1780-1830 (Romantics); 1830-1910 (Victorian/Edwardian), 1910-present.

**American Literature:** 1607-1798 (Colonial/Puritan); 1798-1890 (19th Century); 1890-1940; 1940-present.

**Other areas:** Literary criticism; rhetoric and composition; women's literature; ethnic literatures; post-colonial literature; genre studies (poetry/drama/prose fiction); or, by petition, other special topics.

Successful completion of the written examination makes the student eligible for the final oral examination.

For students in theses options, the thesis defense will form part of this oral examination. Students in the three-areas...
(non-thesis) option must submit to their examination committee two substantial papers written in regular graduate coursework in English at PSU.

**MASTER OF ARTS IN TEACHING**

The department requires a minimum of 28 credits in English at the graduate level. The distribution of these credits is determined by the student in conference with the adviser. A final written examination is required, based upon a reading list distributed by the department. Successful completion of the written examination makes the candidate eligible for the final oral examination. Prior to the oral exam, the student submits to his or her committee two substantial papers written in regular graduate courses at PSU. In addition, the student's program must present a minimum of 8 graduate credits in education and an initial teaching license from the state of Oregon. One cannot teach with a B.A. and an M.A.T. in Oregon. One must also have an initial teaching license, which at PSU is earned in the Fifth Year Program in the Graduate School of Education. The M.A.T. is considered a terminal degree.

The student who also seeks continuing licensure must present academic credits that will satisfy the PSU licensure program as well as the minimum state department norm for the field; the student must specifically determine with the aid of the adviser whether the program is satisfactory. Final approval of the program must be agreed upon by both the Department of English and the Graduate School of Education. For continuing licensure requirements see page 205.

**GRADUATE PROGRAMS IN WRITING**

The Department of English offers graduate work leading to the Master of Arts in writing and the Master of Science in writing degrees.

**Degree Requirements.** University master's degree requirements are listed on page 62. Department requirements are described in detail in the Department of English brochure, M.A./M.S. in Writing, which is available upon request.

**ADMISSION REQUIREMENTS: M.A./M.S. IN WRITING**

Students accepted into the master's program must provide satisfactory evidence of preparedness to undertake advanced work, to include a B.A. or B.S. degree from an accredited college or university and the following:

- Departmental application form
- One transcript from each post-secondary institution attended
- 3.25 GPA in undergraduate work

- Three letters of recommendation
- One-page personal introduction, including background as a writer, statement of goals, and proposed plan of study.
- Typed or word-processed manuscript(s) in the applicant's primary genre(s) or form(s). Previously published, single-authored work will be accepted in the form in which it was originally published.

**IN creative writing:** 15 pages of poetry, 30 pages of fiction, double-spaced as in manuscript form. Manuscripts should demonstrate mastery of basic craft and unmistakable literary promise.

**In nonfiction writing:** 30 pages of news features, magazine articles, or creative nonfiction, double-spaced as in manuscript form. Manuscripts should demonstrate mastery of basic craft and promise of success in nonfiction writing.

**In professional/technical writing:** 15-30 pages from customary genres, including (but not limited to) descriptions, specifications, computer documentation, proposals, memoranda, formal reports, newsletters, on-line documentation, Web pages. Manuscripts should demonstrate mastery of basic craft and promise of success in professional/technical writing.

While there is no conditional admission to this program, applications not fulfilling the requirements stated above may be reconsidered after the student has met certain conditions (e.g., additional preliminary coursework) as specified by the coordinator of graduate studies or his/her designee.

**MASTER OF ARTS/MASTER OF SCIENCE**

For the M.A. and the M.S., the department requires a minimum of 32 graduate credits in writing. The remainder of the student's program may, with the approval of the adviser, include coursework in fields related to writing. A minimum of 48 graduate credits is required for the M.A./M.S. in writing. The M.S. differs from the M.A. in that students completing the M.S. are not required to demonstrate proficiency in a language other than English. The M.S. option applies to the professional/technical strand.

In every case, the student's program must be approved by the departmental adviser and the coordinator of graduate studies or his/her designee. The student will have a choice of three tracks: I, creative writing; II, nonfiction writing; and III, professional/technical writing. For students pursuing tracks I and II, the thesis may count for a maximum of 8 credits upon proper registration.

**Creative Writing.** Students typically will complete 24 core credits (6 courses), 16 elective credits (4 courses), and 8 thesis credits (2 courses). Core courses include workshops, craft-seminars, and literature courses in the Department of English. Writers are encouraged to supplement their core courses in creative writing with electives from within professional/technical writing, nonfiction writing, or literature. Adviser-approved courses from outside the department may also count as electives. Credits taken while completing the creative thesis must be distributed over two or more terms. A creative thesis will be supervised by one of the creative writers in the department. After completing their workshops, students should draw up a thesis proposal in collaboration with one of these faculty members. The length of a creative thesis will depend upon its genre and format. The student will take final written and oral exams in defense of the creative writing thesis.

**Nonfiction writing.** Students typically will complete 24 core credits (6 courses), 16 elective credits (4 courses), and 8 thesis credits (2 courses). Core courses include workshops, craft-seminars, and literature courses in the Department of English. Writers are encouraged to supplement their core courses with electives from within creative writing, professional/technical writing, or literature. Adviser-approved courses from outside the department may also count as electives. Credits taken while completing the nonfiction thesis must be distributed over two or more terms. A nonfiction thesis will be supervised by one of the nonfiction writers in the department. After completing the workshops, a student should draw up a thesis proposal in collaboration with an appropriate faculty member who has expertise in the genre of the student's choice. The length of the thesis will depend upon its genre and format; with adviser approval, a student can substitute a series of shorter works in place of a book-length thesis. As with the creative writing emphasis, the student's work must be of publishable quality in a professional context. The student will take final written and oral exams in defense of the nonfiction thesis.

**Professional and Technical Writing.** Students typically will complete 16 core credits (4 courses), 16 elective credits (4 courses), and 16 credits (4 courses) in a specialization that may involve coursework in another discipline (e.g., Management, Marketing, Information Systems). Students will be required to submit a final project in addition to completing their coursework. This project typically will be a portfolio of their work demonstrating com-
petence at a professional level, but with adviser approval, may be a single, substantive work. The student will take final written and oral exams in defense of the final project. Note that core courses include Management 550, Organizational Management, which is offered through the School of Business Administration. Electives include seminars and workshops on a variety of topics. Writers are encouraged to supplement their core courses in creative writing with electives from creative writing, nonfiction writing, or literature. Adviser-approved courses from outside the department may also count as electives.

### COURSES

Courses with an asterisk (*) are not offered every year.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Eng 100</td>
<td>Introduction to Literature (4)</td>
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<tr>
<td></td>
<td>Introduction to the study of short stories, plays,</td>
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<td></td>
<td>poems, and essays. Includes representative approaches</td>
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<td></td>
<td>for studying literature and writing about it.</td>
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<td>Recommended especially for students with no previous</td>
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<tr>
<td></td>
<td>college-level coursework in literature. Credit for</td>
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<td>Eng 100 will not be allowed if student has previously</td>
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<td></td>
<td>taken more than one literature course. No prerequisites.</td>
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<tr>
<td>Eng 104</td>
<td>Introduction to Fiction (4)</td>
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<td></td>
<td>Reading, analysis, and appreciation of significant</td>
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<td></td>
<td>works of fiction, especially short stories, with</td>
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<td>emphasis on the fiction writer's craft.</td>
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<tr>
<td>Eng 105</td>
<td>Introduction to Drama (4)</td>
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<td></td>
<td>Reading, analysis, and appreciation of significant</td>
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<td>works of drama, from classical times to the present.</td>
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<tr>
<td>Eng 106</td>
<td>Introduction to Poetry (4)</td>
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<tr>
<td></td>
<td>Reading, analysis, and appreciation of significant</td>
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<td></td>
<td>poems, how they are written and how they speak to</td>
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<td>human concerns.</td>
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<tr>
<td>Eng 107, 108</td>
<td>World Literature (4, 4)</td>
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<tr>
<td></td>
<td>Narrative prose, drama, and poetry. Complete books</td>
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<td></td>
<td>are included so that the student may become familiar</td>
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<td></td>
<td>with some of the masterpieces in Western world</td>
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<td></td>
<td>literature.</td>
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<tr>
<td>Eng 199</td>
<td>Special Studies (Credit to be arranged.)</td>
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<tr>
<td>Eng 201, 202</td>
<td>Shakespeare (4, 4)</td>
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<td></td>
<td>Study of the important plays: Eng 201, the early</td>
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<td></td>
<td>plays, Eng 202, the later plays.</td>
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<td>Eng 204, 205</td>
<td>Survey of English Literature (4, 4)</td>
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<td></td>
<td>From Beowulf to 1900: Eng 204, Beowulf to Milton,</td>
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<td></td>
<td>Eng 205, Enlightenment through Victorian period.</td>
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<td>Eng 233, 234</td>
<td>Survey of American Literature (4, 4)</td>
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<td></td>
<td>American literature from its beginnings to the</td>
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<td></td>
<td>present.</td>
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<tr>
<td>Eng 256</td>
<td>Introduction to African-American Literature (4)</td>
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<tr>
<td></td>
<td>An overview of African-American fiction, poetry,</td>
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<td></td>
<td>drama and expository prose.</td>
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<td>Eng 260</td>
<td>Introduction to Women's Literature (4)</td>
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<tr>
<td></td>
<td>Introduction to the texts and contexts of</td>
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<td>women's literature.</td>
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<td>Eng 300</td>
<td>Critical Approaches to Literature (4)</td>
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<td></td>
<td>Study of analytical and evaluative methods</td>
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<td></td>
<td>through application of critical theories to literary</td>
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<td>works. Recommended for, but not restricted to,</td>
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<td></td>
<td>English majors. Prerequisite: upper-division</td>
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<td>standing and 8 credits in literature.</td>
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<td>Eng 305</td>
<td>Topics in Film (4)</td>
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<tr>
<td></td>
<td>Study of film as text, including genre, auteur,</td>
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<td>formalist, historical, and cultural perspectives.</td>
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<td>Topics may include: film noir, the western,</td>
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<td>famous directors, and critical approaches to cinema.</td>
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<td>Eng 306</td>
<td>Topics in Literature and Popular Culture (4)</td>
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<tr>
<td></td>
<td>Study of a variety of expressive forms in relation</td>
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<td>to popular culture. Such topics as Detective Fiction,</td>
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<td>Film, American Humor, and Frontier Literature.</td>
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<td>Eng 307</td>
<td>Science Fiction (4)</td>
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<td></td>
<td>Study of recent science fiction, both novels and</td>
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<td>shorter fiction by American, European and other</td>
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<td></td>
<td>writers.</td>
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<td>Eng 308</td>
<td>Cultural Studies in Literature (4)</td>
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<td></td>
<td>Study of a variety of cultural and historical issues</td>
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<td>as they appear in literary texts. Such topics as</td>
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<td>Literature of the Holocaust, the Literature of</td>
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<td>Aging, and the Immigrant Experiences in American</td>
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<td></td>
<td>Literature.</td>
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<td>Eng 309</td>
<td>American Indian Literature (4)</td>
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<td></td>
<td>An introductory survey of traditional and recent</td>
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<td>literature by American Indian people. Poetry,</td>
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<td>legends, myths, oratory, short stories, and novels,</td>
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<td>as well as background (historical and political)</td>
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<td>materials.</td>
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<td>Eng 311</td>
<td>Tragedy (4)</td>
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<td></td>
<td>A study of the nature of tragedy in world literature.</td>
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<td>Eng 312</td>
<td>Comedy and Satire (4)</td>
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<td></td>
<td>Study of drama and other literature that expresses</td>
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<td>comic social judgment, either to satire or to</td>
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<td></td>
<td>celebrate.</td>
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<td>Eng 314</td>
<td>The Epic (4)</td>
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<td></td>
<td>Reading in epic literature in the Western tradition</td>
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<td>and world literature, beginning with the Illiad and</td>
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<td></td>
<td>Odyssey.</td>
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<td>Eng 315</td>
<td>The Shorter Poem (4)</td>
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<td></td>
<td>Shorter poems in world literature. Primary attention</td>
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<td></td>
<td>will be given to poems in the English language, but</td>
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<td>the classics of other languages will be read in</td>
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<td>translation as appropriate to tracing of forms and</td>
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<td></td>
<td>themes.</td>
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<td>Eng 316</td>
<td>The Short Story (4)</td>
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<td></td>
<td>A survey of the short story as it developed from the</td>
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<td>tale, the legend, and the anecdote to its modern form</td>
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<td></td>
<td>Although fiction from many literatures will be studied,</td>
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<td>all works will be read in English.</td>
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<td>Eng 317</td>
<td>Greek Mythology (4)</td>
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<td></td>
<td>Greek mythology as recorded by Homer, Hesiod, Ovid,</td>
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<td></td>
<td>and various of the Greek playwrights and philosophers.</td>
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<td>Special attention is given to the Greek legacy of</td>
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<td></td>
<td>ideas, themes, figures, and images.</td>
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<td>Eng 318</td>
<td>The Bible As Literature (4)</td>
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<td>A study of the various kinds of literature contained</td>
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<td>in the Bible. An analysis of the ways in which the</td>
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<td>Biblical expression reflects the cultural and</td>
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<td></td>
<td>historical milieu of the Hebraic-Christian experience.</td>
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<td>Eng 351, 352</td>
<td>African-American Literature (4, 4)</td>
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<td></td>
<td>A study of African-American literature from its oral</td>
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<td></td>
<td>and folk beginnings to the present. Prerequisites:</td>
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<td></td>
<td>Eng 256 or Bt 221 and upper-division standing.</td>
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<tr>
<td>Eng 364, 365</td>
<td>American Fiction (4, 4)</td>
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<td></td>
<td>American narrative, short story, and novel, with</td>
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<td>emphasis upon the major novelists of the 19th and</td>
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<td>early 20th centuries.</td>
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<td>Eng 371</td>
<td>The Novel (4)</td>
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<td></td>
<td>The novel as a literary form, exemplified by</td>
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<td>works written in languages other than English.</td>
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<tr>
<td>Eng 384, 385</td>
<td>Contemporary Literature (4, 4)</td>
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<td>Prose, poetry, and drama from contemporary world</td>
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<td>literatures.</td>
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<tr>
<td>Eng 399</td>
<td>Special Studies (Credit to be arranged.)</td>
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<tr>
<td>Eng 401/501</td>
<td>Research (Credit to be arranged.)</td>
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<tr>
<td>Eng 404/504</td>
<td>Cooperative Education/Internship (Credit</td>
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<td>to be arranged.)</td>
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<td>Eng 405/505</td>
<td>Reading and Conference (Credit to be arranged.)</td>
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<td>Consent of instructor.</td>
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<tr>
<td>Eng 407</td>
<td>Seminar (Credit to be arranged.)</td>
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<td>Consent of instructor.</td>
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<tr>
<td>Eng 408/508</td>
<td>Workshop (Credit to be arranged.)</td>
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<td>Eng 409/509</td>
<td>Practicum (Credit to be arranged.)</td>
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<td>Eng 410/510</td>
<td>Selected Topics (Credit to be arranged.)</td>
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<td></td>
<td>Prerequisite: Eng 411/511, 412/512 English Drama (4, 4)</td>
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<td></td>
<td>Development of English drama from the beginnings to the</td>
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<td>present. From liturgical drama through the Renaissance</td>
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<td>Eng 412/512, from the Restoration to Shaw: Prerequisite:</td>
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<td>12 credits in literature.</td>
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Eng 413/513
Teaching and Tutoring Writing (4)
Examines current practices of tutoring and teaching writing in all subject areas. Focuses on the process theory of writing to foster thinking and learning in subject areas and the problems and issues surrounding individual composing. Prerequisite: at least junior standing.

Eng 414/514
Contemporary Composition Theories (4)
Examines theories of composition as they conflict and converge to form our prevailing theories of writing. Focuses on contemporary theories of composing written discourse. Prerequisite: at least senior standing.

Eng 415/515
Research Methods in Composition (4)
Examines current methodologies used in the field of composition and asks students to design and implement a research project which will add to the cumulative knowledge of the discipline. It serves as the foundation course in design and implementation of qualitative research. Prerequisite: at least senior standing.

Eng 420/520
Caribbean Literature (4)
A selection of poetry and fiction from the English and French speaking Caribbean (in translation where necessary). Prerequisites: One previous African-American literature course and 12 additional literature credits.

Eng 421/521, 422/522
African Fiction (4, 4)
Readings in African fiction in regional, cultural, generational, and gender contexts. Prerequisites: One previous African-American literature course and 12 additional literature credits.

Eng 425/525
Practical Grammar (4)
Designed to enable students to understand, and therefore consciously to make effective, the structures of their written sentences. The course examines grammatical categories, structures, and terminology; relationships between grammatical structures and punctuation; and prescriptive grammars for written texts. Prerequisites: successful completion of 12 credits of English or writing.

Eng 426/526, 427/527
Medieval Literature (4, 4)
Eng 426: Old English literature (in translation); Eng 427: Middle English literature (in translation if appropriate), in its European context. Prerequisite: 12 credits in literature.

Eng 430/530, 431/531
Literature of the Renaissance (4, 4)
Emphasis on the prose and poetry of the period. Prerequisite: 12 credits in literature.

Eng 440/540, 441/541
Seventeenth Century Literature (4, 4)
Cavalier and metaphysical poetry; the prose styles of the period. Prerequisite: 12 credits in literature.

Eng 443/543, 444/544
British Women Writers (4, 4)
Study of the works of British women writers with attention to themes, styles, and characteristic concerns in the light of feminist criticism and scholarship. Prerequisite: 12 credits in literature. Eng 260 recommended.

Eng 445/545, 446/546
American Women Writers (4, 4)
Study of American women writers, with attention to themes, styles, and characteristic concerns, in the light of feminist criticism and scholarship. Prerequisite: 12 credits in literature. Eng 260 recommended.

Eng 447/547
Major Figures in Literature (4)
A study of literary forms, theories, and movements: i.e., The Comic Novel, Literature and Theology, Southern American Women Writers. Prerequisite: 12 credits in literature.

Eng 448/548
Major Figures in Literature (4)
Concentrated study of the canon of one or more major writers: for example, Chaucer, The Brontës, James Joyce, Hemingway and Fitzgerald. Prerequisite: 12 credits in literature.

Eng 449/549
Advanced Topics in Cultural Studies (4)
Interdisciplinary study of modern culture and media. The courses offered under this number use a range of theoretical approaches to analyze the role of cultural texts, their production and reception. Specific topics include: Major Figures/Concepts in Social Theory, Politics of Consumer Culture, Globalization and American Culture, and Culture. Gender, Race, Sexuality. Recommended for graduate students and undergraduates with at least junior standing. May be repeated with different topics; maximum of 8 hours may be applied to the master’s degree.

Eng 450/530, 451/531
Eighteenth Century Literature (4, 4)
English prose and poetry from 1660-1800. Prerequisite: 12 credits in literature.

Eng 458/538, 459/539
Literature of the Romantic Period (4, 4)
The major writers of the period, with attention paid to the early romantics. Prerequisite: 12 credits in literature.

Eng 460/560, 461/561
American Literature: Beginnings to 1865 (4, 4)
Advanced historical study of major figures and movements in American literature to 1865. Prerequisite: 12 credits in literature.

Eng 463/563, 464/564
American Literature 1865-1955 (4, 4)
Advanced historical survey of major figures and movements in American literature, 1865-1955. Prerequisite: 12 credits in literature.

Eng 467/567, 468/568
American Literature and Culture (4, 4)
Studies based on primary sources of American literature and culture from Bradford’s History of Plymouth to the present. The approach is thematic rather than chronological. Prerequisite: 12 credits in literature.

Eng 474/574
Teaching High School Literature (4)
Emphasizes methods and materials for the teacher of literature. Prerequisite: admission to the School of Education. May not be used to satisfy any requirements for the B.A. or M.A. in English.

Eng 475/575, 476/576
Literature of the Victorian Period (4, 4)
Major Victorian writers in the context of the history, ideas, and culture of the period. 475/575: Earlier Victorian Poetry and Prose. 1830s through the high Victorian period. 476/576: Later Victorian Poetry and Prose from the 1870s through the 1890s and the early Edwardians. These courses include some fiction but do not emphasize the novel. Prerequisite: 12 credits in literature.

Eng 477/577, 478/578
American Poetry (4, 4)
Tradition and innovation in American poetry from the beginnings to the mid-20th century. Prerequisite: 12 credits in literature.

Eng 480/580
Modern British Literature (4)
Advanced historical survey of the main figures and movements in British literature from 1900-1950. Prerequisite: 12 credits in literature.

Eng 482/582
Contemporary British Literature (4)
The study of texts, authors, and trends in British literature from 1950 to the present. Prerequisite: 12 credits in literature.

Eng 484/584
Modern Drama (4)
Examines major European, English, and American plays in the period 1880-1940. Prerequisite: 12 credits in literature.

Eng 485/585
Contemporary Drama (4)
Examines major developments in world drama since World War II. Prerequisite: 12 credits in literature.

Eng 486/586
Contemporary American Novel (4)
American novel since 1965, with emphasis on traditions, themes and trends. Prerequisite: 12 credits in literature.

Eng 487/587
Contemporary American Short Story (4)
The American short story from mid-20th century to the present. Prerequisite: 12 credits in literature.

Eng 488/588
Contemporary American Poetry (4)
Study of significant trends in contemporary American poetry and poetics. Prerequisite: 12 credits in literature.

Eng 490/590
Rhetoric (4)
An examination of classical and modern traditions in rhetoric with attention to central concepts and perspectives on writing. Prerequisites: 12 credits in English, philosophy, speech, and/or writing.

Eng 491/591, 492/592
Literary Criticism (4, 4)
Study of the history, principles, and practice of literary criticism. Prerequisite: 12 credits in literature.

Eng 494/594
Topics in Critical Theory and Methods (4)
A course in critical theories and techniques, to complement offerings in literary history and textual analysis. This course will focus on the critical or methodological topic selected by the instructor. Recommended for advanced students in literature and theory. Prerequisite: 12 credits in literature.

Eng 503
Thesis (Credit to be arranged.)
Eng 507 Seminar (Credit to be arranged.)
Variable topics. Graduate only or consent of instructor. At least one Eng 507 seminar is required of M.A. candidates in English.

Eng 517 Middle English (4)
Introduction to Middle English language through study of (largely non-Chaucerian) 12th to 15th century literature in the original. Graduate only or consent of instructor.

Eng 518 College Composition Teaching (2)
Introduces and develops the theoretical and practical expertise of the graduate teaching assistant in the area of college composition teaching. Prerequisite: appointment to teaching assistantship in English Department.

Eng 532, 533, 534
532: An introduction to the history and grammar of Old English. 533: Old English translation, poetry, and prose. 534: Special attention to Beowulf in Old English. Prerequisite: Eng 532 is prerequisite for Eng 533 or 534. Graduate only or consent of instructor.

Eng 592 Contemporary Critical Theory (4)
Literary criticism in theory and practice in the 20th century. Graduate only or consent of instructor.

Eng 596 Problems and Methods of Literary Study (3)
Bibliography and the methods of literary study as an introduction to graduate work: three hours lecture and at least two additional hours of library research. Required for M.A. candidates in English.

WRITING COURSES

Wr 115 Introduction to College Writing (4)
Course is designed to help students increase fluency and confidence in writing and learn conventions of writing for college. Will also help students deal with college-level reading. Recommended as a companion to Freshman Inquiry for those who need or want intensive work on reading and/or writing. Offered pass/no pass only.

Wr 121 English Composition (3)
Freshman-level composition course. A study of effective and appropriate communication. Includes frequent writing assignments and other activities designed to help the student understand the writing process, with special attention to invention, revision, and critical reading. Recommended for any student wanting additional writing experience and, in particular, any student intending to transfer from PSU. The Department of English may do an in-class diagnostic test to determine whether the student needs placement in Wr 115 prior to work in Wr 121.

Wr 199 Special Studies (Credit to be arranged.)
May be repeated for a maximum of 12 credits.

Wr 200 Writing About Literature (4)
Introduces students to appropriate approaches for writing about literature. Focuses on ways of responding to literature, ways of explicating literature, ways of analyzing literature through writing, and ways of integrating formal research into a written analysis of literature. Special attention will be paid to the writing process, including multiple drafting and revision.

Wr 211 Writing Practice (4)
Writing Practice is a writing elective. Students proceed at their own pace through an individualized writing program that emphasizes the writing process and revision. Class time is spent writing and in conference. Prerequisite: Wr 121 or Freshman Inquiry.

Wr 212 Introductory Fiction Writing (4)
Introduces the beginning writer of fiction to basic techniques of developing character, point of view, plot, and story idea in fiction. Includes discussion of student work. Prerequisite: C or above in Wr 121 or Freshman Inquiry.

Wr 213 Introductory Poetry Writing (4)
Introduces the beginning writer of poetry to basic techniques for developing a sense of language, meter, sound, imagery, and structure. Includes discussion of professional examples and student work. Prerequisite: C or above in Wr 121 or Freshman Inquiry.

Wr 221 Writing Research Papers (4)
An elective course. The techniques for compiling and writing research papers. Attention to available reference materials, use of library, taking notes, critical evaluation of evidence, and conventions for documenting academic papers. Practice in organizing and writing a long expository essay based on use of library resources. Prerequisite: Wr 121 or Freshman Inquiry. May not be used to fulfill English major requirements, nonmajor distribution requirements, or the University composition requirement.

Wr 227 Introductory Technical Writing (4)
Practical experience in forms of technical communication, emphasizing basic organization and presentation of technical information. The course focuses on strategies for analyzing the audience and its information needs. Prerequisite: Wr 121 or Freshman Inquiry. May not be used for the nonmajor distribution requirement or for the composition requirement.

Wr 228 News Writing (4)
A basic course in journalistic writing style. Emphasis on forms most appropriate to business and institutional communications. Prerequisite: Wr 121 or Freshman Inquiry.

Wr 312 Intermediate Fiction Writing (4)
Continues the study of fictional techniques introduced in Wr 212. Includes such advanced instruction as variations on the classic plot, complex points of view, conventions of genre, and development of ideas for future use. Emphasizes discussion of student work. Prerequisite: C or above in Wr 212. May be repeated once for credit. Consent of instructor required.

Wr 313 Intermediate Poetry Writing (4)
Continues the study of poetry writing techniques introduced in Wr 213. Includes additional instruction in poetic forms, variations on traditional forms, and experimental forms. Emphasizes discussion of student work. Prerequisite: C or above in Wr 213. May be repeated once for credit. Consent of instructor required.

Wr 323 English Composition (3)
Junior-level composition course. Advanced study of rhetorical modes emphasizing exposition and argument, giving special attention to various methods of organization, to critical reasoning, and to more sophisticated elements of style. The course will include the writing of essays of increasing complexity. Prerequisite: satisfactory completion of Wr 121 or Freshman Inquiry. May not be used for fulfilling requirements of any major program or for nonmajor distribution requirements.

Wr 327 Technical Report Writing (4)
Strategies for presenting technical information from the technician, management, and lay person’s perspectives, rhetorical theory and techniques for adapting technical prose to nontechnical audiences; and techniques for emphasizing and de-emphasizing information. Prerequisite: Wr 323.

Wr 328 News Editing (4)
Preparation of written and visual materials for publication. Emphasis is on copyreading and headline writing. Photo cropping and scaling, page design, and page make-up. Prerequisites: Wr 228 and Wr 323.

Wr 329 Planning and Producing Publications (4)
Manages the publishing needs of businesses, governmental agencies, and nonprofit organizations. Includes choosing technologies, budgeting, selecting materials, scheduling, and distribution. Prerequisite: Wr 327.

Wr 330 Desktop Publishing I (4)
Integrates writing, design, and visual communication with computer technology, with emphasis on preparing students to produce a variety of shorter products combining writing and design elements.

Wr 333 Advanced Composition (4)
Essay writing with particular attention to student’s area of specialization. Advanced practice in essay writing. Prerequisite: Freshman Inquiry or two writing courses.

Wr 399 Special Studies (Credit to be arranged.)

Wr 404/504 Cooperative Education/Internship (Credit to be arranged.)

Wr 405/505 Writing and Conference (Credit to be arranged.) Consent of instructor.

Wr 407/507 Writing Seminar (Credit to be arranged.) Consent of instructor.

Wr 410/510 Selected Topics in Writing (Credit to be arranged.)
Wr 412/512
Advanced Fiction Writing (4)
Further refines technical skills by demanding longer and more ambitious works of fiction by the advanced writer. Students will have an opportunity to do research and can expect to confront a variety of technical problems emerging from class discussion. Prerequisite: Wr 312. Consent of instructor required.

Wr 416/516
Screenwriting (4)
Students will be introduced to the process of conceiving, structuring, writing, rewriting, and marketing a screenplay for the contemporary American marketplace. “Screenplay paradigms” will be discussed, and a variety of movies will be analyzed. May be repeated for credit.

Wr 420/520
Writing: Process and Response (4)
Provides opportunities for students to write in various genres. Includes language attitudes, writing process, and reader response. Prerequisite: one upper-division writing course.

Wr 425/525
Advanced Technical Writing (4)
Emphasis on a problem-solving approach to adapting technical documents to audiences and organizations. The course includes strategies of organization for complex technical documents, such as proposals and professional articles, strategies for discussing tables and figures, and the use of metaphor to communicate technical information to lay audiences. Prerequisite: Wr 327.

Wr 426/526
Document Design (4)
Emphasis on rewriting documents and on the uses and abuses of language in business, government, insurance, and law. Characterizes the Plain English Movement and its legislation, to evaluate documents in terms of readability and efficiency; to analyze styles of documents, and to develop skills in revising documents to improve their readability and appropriateness to the audience. Prerequisite: Wr 327.

Wr 427/527
Technical Editing (4)
Gives technical writers practice in technical editing by exposing them to samples of a variety of documents from the files of organizations in the surrounding community. As a community-based learning course, it requires students to interact with community partners in collaborative student teams.

Wr 428/528
Advanced News Writing (4)
A course in writing and marketing freelance nonfiction. Attention given to idea generation and development as well as to the study of the scope and nature of the markets. Writing instruction focuses on shaping materials to best suit appropriate market outlets. Prerequisite: Wr 328.

Wr 429/529
Writing Computer Documentation (4)
Develops skills in writing computer documentation, primarily user manuals and system specifications. The course focuses on analyzing informational needs of the audience, and defining and explaining computer terms and concepts for non-technical and semi-technical audiences. Prerequisites: Wr 327, ISQA 111 or CS 105 or equivalent, word processing skills.

Wr 430/530
Desktop Publishing II (4)
Builds from the foundation in Desktop Publishing I to explore further the skills needed to produce publications in the computer age. Topics include typography, page layout, photography, and informational graphics, with a special emphasis on hands-on project production of a 12-page newsletter or magazine.

wr 472/572
Teaching High School Composition (4)
Emphasizes methods and materials for the teacher of writing. Prerequisite: admission to the School of Education. May not be used to satisfy any requirement for the B.A. or M.A. in English.

Wr 513
Fiction Writing (4)
An intensive course for writers who are currently embarked on a project involving the writing of fiction, whether short story, novella, or novel. Prerequisites: Wr 212, 312, 412 or their equivalents. Consent of instructor required.

Wr 514
Poetry Writing (4)
Traditional workshop format in which students write, revise, and respond to the poems of others. May be repeated for credit.

Wr 515
Poetry Writing II (4)
Advanced poetry writing at the graduate level. Builds on Wr 514, assumes students will submit their work for publication. Traditional workshop format in which students write, revise, and respond to the poems of others. May be repeated for credit. Prerequisite: Wr 514.

Wr 552
Writing About Lives (4)
Examines theories, methodologies, and issues of composing personal narrative throughout the life span. Forms to be considered may include: biography, autobiography, memoir, the personal essay, and the recording and transcribing of oral narrative. Following an introduction to appropriate theories and methodologies, the course focuses on writing and response to the chosen form in a workshop atmosphere. May be repeated for credit.

Wr 553
Writing About Places (4)
Examines theories, methodologies, and issues involved with writing about place. Topics include strategies for writing about history and geography, travel writing to nature writing, from traditional journalistic approaches to creative nonfiction. Following an introduction to appropriate theories and methodologies and examination of professional models, this course centers on writing and response to the chosen form in a workshop atmosphere. May be repeated for credit.

Wr 554
Writing About Events (4)
Examines theories, methodologies, and issues involved with writing about events. Topics include strategies for writing about history and geography, travel writing to nature writing, from traditional journalistic approaches to creative nonfiction. Following an introduction to appropriate theories and methodologies and examination of professional models, this course centers on writing and response to the chosen form in a workshop atmosphere. May be repeated for credit.

Wr 555
Writing About Ideas (4)
Focuses on writing to foster inquiry into topical issues in nonfiction, whether scientific, philosophical, or ethical. Following an introduction to appropriate theories and methodologies, the course centers on writing and response to the chosen form in a workshop atmosphere. May be repeated for credit.
The Environmental Studies Program allows students to develop the skills and interdisciplinary understanding needed to deal with environmental issues. Environmental studies includes the interaction of natural and social sciences needed to understand environmental systems. The program offers degree tracks in environmental science and in environmental policy/management. Students should consult with a program adviser to assure proper course planning.

The B.A./B.S. degrees in environmental studies rest on an interdisciplinary curriculum that develops understanding and expertise in environmental science and environmental policy/management by building on a foundation in mathematics, natural sciences, and social sciences. The requirement of earning a minor in a recognized department assures depth in a particular area. The curriculum emphasizes problem solving and hands-on experience. Students complete field experiences working on projects in the University, metropolitan community, and region.

The Environmental Studies Program cooperates with several departments and centers, including the departments of Anthropology, Biology, Chemistry, Civil Engineering, Economics, Geography, Geology, History, Mathematics, Physics, Political Science, Sociology, the Center for Science Education, and the School of Business Administration and the College of Urban and Public Affairs.

**Requirements for Major.** In addition to satisfying general University requirements (45 credits), a student majoring in environmental studies must complete at least 36 credits of environmental studies courses and must meet program requirements for foundation courses (43 credits), courses supporting the policy or science track (20 credits), and courses in a minor area of study (at least 24 credits). All courses used to satisfy the Environmental Studies major requirements, whether taken in the program or in other departments, must be graded C- or above. Program requirements are listed below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR 150 Environmental Studies Orientation</td>
<td>1</td>
</tr>
<tr>
<td>ESR 220 Introduction to Environmental Systems</td>
<td>4</td>
</tr>
<tr>
<td>ESR 221 Applied Environmental Studies: Problem Solving</td>
<td>4</td>
</tr>
<tr>
<td>ESR 222 Applied Environmental Studies: Policy Considerations</td>
<td>4</td>
</tr>
<tr>
<td>ESR 320, 321 Analysis of Environmental Systems I, II</td>
<td>8</td>
</tr>
<tr>
<td>ESR 322 Environmental Risk Assessment</td>
<td>4</td>
</tr>
<tr>
<td>ESR 407 Environmental Seminar</td>
<td>3</td>
</tr>
<tr>
<td>ESR 420, 429 Advanced Environmental Topics</td>
<td>4</td>
</tr>
<tr>
<td>Internship or capstone course</td>
<td>4-6</td>
</tr>
</tbody>
</table>

**Total 36-38**

Students must complete the foundation courses listed below. All foundation courses should be completed before a student enrolls in the upper-division sequence (ESR 320, 321, 322).

### Foundation Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 251, 252, 253 Principles of Biology</td>
<td>15</td>
</tr>
<tr>
<td>Ch 221, 222, 223, 227, 228 General Chemistry</td>
<td>14</td>
</tr>
<tr>
<td>Ec 201 Microeconomics</td>
<td>4</td>
</tr>
<tr>
<td>G 201, 204 Geology</td>
<td>4</td>
</tr>
<tr>
<td>Mth 251, 252 Calculus I, II</td>
<td>8</td>
</tr>
<tr>
<td>Stat 243, 244 Introduction to Probability and Statistics or Stat 460 Statistics for Scientists and Engineers</td>
<td>4-8</td>
</tr>
<tr>
<td>Ph 201, 204 or Ph 211, 214 General Physics</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total 54-58**

### Science and Policy/Management Tracks

Students must complete 20 credits of supporting courses in science and policy. Students in the environmental science track must select at least 12 credits of additional science courses and at least 8 credits of additional policy courses from the lists below. Students in the environmental policy track must select at least 12 credits of additional policy courses and at least 8 credits of additional science courses from the lists below.

#### Policy/Management Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR 404, 429</td>
<td></td>
</tr>
<tr>
<td>Geog 345, 347, 348, 445, 488</td>
<td></td>
</tr>
<tr>
<td>Ec 432, 433, 434, 443</td>
<td></td>
</tr>
<tr>
<td>Soc 465</td>
<td></td>
</tr>
<tr>
<td>Ps 319, 449</td>
<td></td>
</tr>
<tr>
<td>USP 311, 333, 455</td>
<td></td>
</tr>
</tbody>
</table>

#### Science courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR 404, 420, 424, 425, 426, 427, 445, 475, 479</td>
<td></td>
</tr>
<tr>
<td>Bi 357, 413, 414, 415, 423, 471</td>
<td></td>
</tr>
<tr>
<td>Geog 411, 413, 415, 416, 420, 482, 488</td>
<td></td>
</tr>
<tr>
<td>G 351, 374, 443, 460, 461</td>
<td></td>
</tr>
</tbody>
</table>

**Minor Course of Study.** Each student in the Environmental Studies program must complete a minor in one of the participating programs. Policy/management-related minors include anthropology, business administration, community development, economics, geography, history, political science, and sociology. Science-related minors include biology, chemistry, environmental engineering, geology, mathematics, and physics. Minor requirements, including special departmental recommendations to environmental studies students, are available from the Environmental Sciences and Resources office. Minor program requirements include a minimum of 24 credits.

### Requirements for a Minor in Environmental Studies

To obtain a minor in environmental studies a student must complete at least 28 credits (at least 12 of which must be taken in residence at PSU). At least 4 credits each in biological science, physical sciences (physics, chemistry, geology), economics, and Mth 241 or 251 are expected before admission to the minor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR 201 Applied Environmental Studies</td>
<td></td>
</tr>
<tr>
<td>Science and Policy</td>
<td></td>
</tr>
<tr>
<td>ESR 320, 321 Analysis of Environmental Systems I, II</td>
<td>8</td>
</tr>
<tr>
<td>ESR 322 Environmental Risk Assessment</td>
<td>4</td>
</tr>
<tr>
<td>Upper-division environmental policy/management courses</td>
<td>4</td>
</tr>
<tr>
<td>Upper-division environmental sciences courses</td>
<td>8</td>
</tr>
</tbody>
</table>

Environmental policy/management courses (minimum 4 credits) include selected upper-division courses from programs in economics, geography, history, philosophy, political science, sociology, and urban studies and planning. Environmental sciences courses (minimum 8 credits) include selected upper-division courses from programs in biology, chemistry, geology, geography, physics, and public health. A list of approved courses is available from the Environmental Programs Office.

Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling minor
requirements. Courses with omnibus numbers 403, 404, 405, 406, and 407 are not allowed for the minor. Additional courses may be required as prerequisites.

**GRADUATE PROGRAMS IN ENVIRONMENTAL SCIENCES AND RESOURCES**

The Environmental Sciences and Resources (ESR) graduate program provides a curriculum that will develop scientists and managers able to analyze and understand environmental systems, predict environmental change and participate in the management of the environment. Each student conducts research and completes a thesis or project; each student develops depth in a specific academic area; and each student develops breadth through a set of core courses that include concepts in physical sciences, life sciences, and social sciences. ESR participates in the joint campus program in environmental sciences, studies, and policy in collaboration with Oregon State University and the University of Oregon. Students may take appropriate courses at other participating campuses.

**MASTER'S PROGRAMS**

**Admission Requirements.** In addition to the instructions for admission to the graduate program as they appear on page 56, ESR master's programs require the following information from each applicant.

1. Satisfactory scores on the Graduate Record Examination (GRE) aptitude test. A satisfactory score on the Test of English as a Foreign Language (TOEFL) is required for international students.
2. Three letters of evaluation from persons qualified to assess the applicant's promise as a graduate student.
3. Evidence of undergraduate or graduate course work in biology, chemistry, economics, geology, physics, and mathematics (including differential and integral calculus) equivalent to the foundation course requirements for undergraduate students in environmental studies.

Prospective students should contact the program for a statement of current admission policy. A high GPA and acceptable GRE scores do not guarantee admission to master's programs in Environmental Sciences and Resources, because admission is contingent on the availability of program resources and the identification of an appropriate adviser for each student.

**Degree Requirements.** University master's degree requirements are listed on page 62. Specific degree program requirements are listed below.

**MASTER OF SCIENCE, MASTER OF ENVIRONMENTAL MANAGEMENT**

The graduate study program is developed through discussions involving the graduate student, the student's adviser, and the student's graduate committee. The M.S. or M.E.M. graduate committee consists of at least three members including the major adviser, and, for the M.S. committee, a representative of the Office of Graduate Studies. The major adviser must be a member of the graduate faculty affiliated with ESR masters programs. The graduate committee must be approved by the ESR Director.

To encourage the development of interdisciplinary graduate study programs, guidelines for course selection are flexible. Students must complete at least 45 graduate credits. The program of study consists of the following minimum credit requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR 620, 621, 622 Environmental Science</td>
<td></td>
</tr>
<tr>
<td>ESR 507 Seminar (three terms)</td>
<td>3</td>
</tr>
<tr>
<td>Advanced statistical analysis (selected from program list)</td>
<td>3</td>
</tr>
<tr>
<td>Area of concentration</td>
<td>15</td>
</tr>
<tr>
<td>Elective and supporting courses</td>
<td>6-9</td>
</tr>
<tr>
<td>Thesis/project</td>
<td>6-9</td>
</tr>
</tbody>
</table>

**Quantitative Analysis.** A course in research methods, experimental design, or statistical analysis, is required to ensure students have sufficient skills for environmental research.

**Areas of Concentration (Tracks).** Sets of courses that constitute an area of concentration have been established within the ESR graduate program to give focus to study and research. Areas of concentration for M.S. students consist of at least 15 credits of graduate course work (courses numbered 500 and above) in areas where the student's adviser and graduate committee recommend to support planned thesis research work. Areas of concentration for M.E.M. students consist of at least 15 credits approved by the student's adviser and graduate committee in one of the areas described below. Lists of approved courses are available from the ESR office.

- **Air Resources**—coursework in the chemistry and physics of the atmosphere, including trace gas chemistry, the movement of air masses, climatology and topics related to air pollutants.
- **Water Resources**—coursework concerning the distribution, quantity, and quality of surface and ground water, including course work in hydrology, water quality, chemistry, and aquatic ecology.
- **Land Resources**—coursework on the analysis of lands and landscapes based on soils, underlying geology, and terrestrial vegetation, including course work in geographic information systems and terrestrial ecosystem ecology.

**Elective Courses.** Elective courses are to be defined in the student's program of study, and agreed upon by the student's adviser and graduate committee. Courses may be selected to provide additional background, to explore new areas, and to add depth to a scholastic program.

**Thesis or Project.** A central purpose of the M.S. and M.E.M. degree is to teach students the process of problem solving and research. A minimum of 6 credits is required. Students working toward the M.S. degree will be required to complete original research leading to a thesis, that complies with standards established by the Office of Graduate Studies and Research. Students working toward the M.E.M. degree will be required to complete a project in lieu of a thesis. This project is expected to be the product of original work in an agency, organization, or firm involved in environmental management activities. The project plan, approach, and project report must be approved by the advisory committee in a manner parallel to that for thesis research. The project report must be presented at a public seminar to be followed by an oral defense of the work conducted by the student's graduate committee.

**MASTER OF SCIENCE IN TEACHING**

The College of Liberal Arts and Sciences offers the M.S.T. degree in science/environmental science. The M.S.T. program in science/environmental science is offered jointly by the Environmental Sciences and Resources program and the Center for Science Education. In consultation with the graduate adviser, the student should establish the degree program before the completion of 15 credits of coursework. The program must include a minimum of 45 credits in approved graduate courses, to include a minimum of 24 credits in the area of concentration. At least 9 credits, but no more than 15 credits, must be in education courses. In order to fulfill requirements for the degree, the student must satisfactorily complete the degree programs and pass both a final written examination and a final oral examination. Specific requirements for the M.S.T. in science/environmental science follow.

**Required courses:***

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR 620, 621, 622 Environmental Science</td>
<td>9</td>
</tr>
<tr>
<td>ESR 607 Seminar (three terms)</td>
<td>3</td>
</tr>
<tr>
<td>ESR 570 Environmental Education</td>
<td>3</td>
</tr>
<tr>
<td>Advanced statistical analysis (selected from program list)</td>
<td>3</td>
</tr>
<tr>
<td>Graduate level science courses selected from biology, chemistry, geology, and physics</td>
<td>12</td>
</tr>
</tbody>
</table>

(Selected courses in geography and public health may be substituted with the approval of the adviser and program director.)
Select one of the following options:
Environmental Education Research Option
or
Environmental Education Curriculum Development Option
Required courses for these options will be arranged between the adviser and student:

Students seeking degrees in the curriculum development option may elect to substitute courses required to obtain the continuing secondary teaching license. Approval of the ESR program director, the Graduate School of Education, and the director of educational licensing is required.

PH.D. PROGRAM
The Environmental Sciences and Resources (ESR) Doctoral Program provides an opportunity for the student interested in studies of environmental sciences and resources to engage in relevant research while acquiring advanced academic training in either the Environmental Sciences and Resources Program or one of the cooperating departments—biology, chemistry, civil engineering, economics, geography, geology, or physics. One of the goals of the program is to provide a broadly based understanding of the fields of environmental science coupled with scientific training in one or more specialty areas. Students are encouraged to engage in research programs which cross the boundaries between disciplines. The student will follow a program of study and research approved by the ESR Coordinating Committee. The graduating student will be awarded a degree in environmental sciences and resources.

The following procedures are designed to assure both the student and the faculty that the student is qualified to pursue both the program itself and a successful career in environmental sciences or resources.

Admission. Applicants for admission to the ESR Doctoral Program normally will be expected to have completed an undergraduate degree with a major in biology, chemistry, civil engineering, environmental science, geology, or physics. The ESR Program director will therefore require an evaluation of the applicant’s academic record by the department or program in which the applicant intends to obtain advanced academic training. Admission to the program requires that the department or program find the applicant prepared to undertake study at the doctoral level. Questions about specific procedures of evaluation should be directed to the department or program through which the applicant seeks admission to the program. Applicants may also obtain, upon request, a list of faculty research interests in which dissertation research can be pursued.

Advising. Prior to initial registration each admitted student should obtain information from the appropriate department on the following subjects:
1. Scheduling of diagnostic examinations (if any).
2. Advising procedures prior to selection of research adviser.
3. Procedure for selection of research adviser.

PROGRAM REQUIREMENTS
In addition to the requirements listed under General Requirements for Doctoral Degrees, page 62, each student must complete the following:

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESR 620, 621, 622</td>
<td>9</td>
</tr>
<tr>
<td>ESR 607 (six terms)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Departmental Dissertation (minimum)</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>42</td>
</tr>
</tbody>
</table>

In addition to the above general requirements, each student will be required to complete that coursework necessary to indicate competence at the graduate level of the appropriate program or department(s). These courses will be recommended by the student’s dissertation committee and approved by the ESR Coordinating Committee.

Other Requirements. Prior to advancement to candidacy, a student must have taken advisory committee-approved courses in Statistics and Computer Programming Language.

Comprehensive Examination. These examinations are administered by the student’s major department or program. The student should contact that department for information.

Dissertation. The student must submit a prospectus outlining a proposed research project suitable for the doctoral dissertation in environmental sciences and resources. This is done under the guidance of the student’s major adviser and is approved by the dissertation committee and the ESR Coordinating Committee. The research for the dissertation is conducted under the guidance of the student’s dissertation committee. After the dissertation is complete and after advancement to candidacy (see below), a final oral examination will be conducted, open to the public, within the subject area of the dissertation.

Advancement to Candidacy. As soon as the student has successfully completed the course and comprehensive examination requirements and has had the dissertation prospectus approved, the student is recommended for advancement to candidacy for the degree of Doctor of Philosophy. This recommendation is approved by the dean of Graduate Studies.

Financial Support. There are a limited number of teaching assistantships and research assistantships available. The student should contact the appropriate department or program about the availability of these positions.

Withdrawal. Any student who ceases to be enrolled for more than one academic term without formal leave of absence will be assumed to have withdrawn from the degree program and will be formally dropped from it. Students who fail to make satisfactory progress toward the degree may be dropped from the program.

The student can be readmitted only by formal application, subject to all current admission requirements. In addition, completion of the degree will be subject to the student’s meeting all current degree requirements.

Leave of Absence. Under special circumstances, requests for a leave of absence may be approved.

COURSES

Courses with an asterisk (*) are not offered every year.

ESR 150 Environmental Studies Orientation (1)
Introduction to environmental information using computer and library resources. Introduction to program planning and professional preparation.

ESR 199 Special Studies (Credit to be arranged.)

ESR 220 Introduction to Environmental Systems (4)
Introduction to the structure and function of terrestrial, aquatic, and atmospheric systems, including the human actions that affect them. Includes a lab section that introduces basic quantitative techniques for collecting and analyzing data from environmental systems; 2 lecture periods, one 3-hour lab. Prerequisite: ESR 150 (may be taken concurrently).

ESR 221 Applied Environmental Studies: Problem Solving (4)
Environmental sampling, sampling design, and measurement. Prerequisite: ESR 220, Stat 243 recommended.

ESR 222 Applied Environmental Studies: Policy Considerations (4)
Introduction to environmental laws and the regulations promulgated under them. Includes an examination of the genesis of these laws (e.g., NEPA, Clean Air and Water Acts, RCRA, Endangered Species Act) and their history of compliance and violation. Prerequisites: ESR 220 and 221.

*ESR 223 Applied Environmental Studies: Project (4)
Project work involving work with an environmental agency, industry, service, or research organization. Prerequisite: ESR 221.
ESR 320
Analysis of Environmental Systems I (4)
Structure and function of environmental systems, with an emphasis on physical and environmental system dynamics. Includes a laboratory section using quantitative techniques for conceptualizing and analyzing environmental processes. 3 hours lecture, one 3-hour lab. Prerequisites: Mth 241 or 251, and four credits each in biology, chemistry, and physics or geology.

ESR 321
Analysis of Environmental Systems II (4)
Introduction to the structure and function of environmental systems with an emphasis on ecological processes and human impacts. Includes a laboratory focusing on the use of quantitative techniques for whole system analysis; 3 hours lecture, one 3-hour lab. Prerequisite: ESR 320.

ESR 322
Environmental Risk Assessment (4)
Overview of risk assessment applied to environmental problems, including the impact assessment process, application of cost-benefit analysis, hazard identification, risk characterization, risk assessment, and risk management. Prerequisites: Ec 201, ESR 201, ESR 321.

ESR 323
Environmental Systems Laboratory I (2)
Laboratory work to accompany Environmental Systems I (ESR 320). One 4-hour laboratory period. Requires concurrent enrollment in ESR 320.

ESR 324
Environmental Systems Laboratory II (2)
Laboratory work to accompany Environmental Systems II (ESR 321). One 4-hour laboratory period. Requires concurrent enrollment in ESR 321.

ESR 325
Environmental Risk Assessment Lab (2)
Provides an overview of the main techniques used for environmental risk assessment. Emphasis is on laboratory acute and chronic toxicity testing and field biological stream assessment. Prerequisites: ESR 321, 322, 324.

ESR 326
Understanding the Environment (4)
Study of the scientific and ecological principles that govern human interactions with the physical and biological systems of the earth, with emphasis on the role of energy. Ecosystem properties, earth system properties, human population dynamics, and the roles of technological and ethical decisions.

ESR 327
Understanding Environmental Conservation (4)
Introduction to the concepts and principles necessary to understand the complex relationship between humans and environmental conservation. Topics will include human impacts on natural ecosystems, urbanization, conservation of resources, and ecosystem restoration. Not intended for science majors.

ESR 399
Special Studies (Credit to be arranged.)
Consent of instructor and program director.

ESR 401
Research (Credit to be arranged.)
Consent of instructor and program director.

ESR 404
Cooperative Education/Internship (Credit to be arranged.)

ESR 405
Reading and Conference (Credit to be arranged.)

ESR 407
Environmental Seminar (1)
Weekly seminar series involving student-led discussion of topical environmental issues. May be repeated for up to 3 credits.

ESR 410
Selected Topics (Credit to be arranged.)
Consent of instructor.

ESR 420/520
Ecological Toxicology (4)
Effects of environmental contaminants at the individual, population, and ecosystem level. Topics will include toxicity test methods, environmental fate of contaminants, and the physiological and ecological effects of selected heavy metals, chlorinated organics, and pesticides.

ESR 424/524
Wetland Ecology (4)
Structure and function of wetland ecosystems, with an emphasis on the diversity of regional wetland systems. Topics also include wetland soils, plants, and hydrologic setting and requirements for wetland delineation.

ESR 425/525
Watershed Hydrology (4)
Study of the movement and storage of water in watersheds, emphasizing physical processes. Includes systems analysis of watersheds, precipitation, snowmelt, infiltration, evapotranspiration, groundwater flow, streamflow generation, open channel flow, hydrograph analysis and an introduction to watershed hydrologic modeling. Prerequisites: Mth 252, Ph 201, Stat 244; recommended: ESR 320.

ESR 426/526
Ecology of Streams and Rivers (4)
Evaluation of streams and rivers from an ecosystem perspective, including stream development, biological communities, ecological processes, and methods of assessment as applied to evaluation of common environmental problems.

ESR 427/527
Terrestrial Biogeochemistry (4)
Study of the chemistry of terrestrial ecosystems, emphasizing physical processes and quantitative modeling. Mechanisms of atmospheric inputs, rock weathering and soil development, cycling of minerals, carbon and nutrients in terrestrial ecosystems; and impacts of management on biogeochemical processes in watershed-based ecosystems. Prerequisites: Bi 253, Ch 223, Mth 252, Recommended: ESR 320, Mth 256.

ESR 429/529
Environmental Impact Assessment (4)
Environmental assessments and impact assessment techniques; regulatory and technical requirements of impact assessment. The National Environmental Policy Act, its implementation, implications and uses.

ESR 433/533
Natural Resource Economics (4)
An examination of the economic concepts and theories for analyzing natural resource use and related environmental pollution, including the economics of sustainability. Discussion of renewable and nonrenewable natural resource issues in the Pacific Northwest and policy alternatives. Prerequisite: Ec 201. This course is the same as Ec 433/533, course may be taken only once for credit.

ESR 434/534
Business Environmental Management Economics (4)
Examines the economic costs and benefits that affect the decisions of business firms to develop integrated environmental management systems. Analysis of policy options to foster business environmental management for public goods. Case studies of selected firms. Prerequisite: Ec 201. This course is the same as Ec 434/534; course may be taken only once for credit.

ESR 443/543
Global Environmental Economics (4)
An examination of the economic forces and theories to understand the causes of global environmental problems, and to evaluate policy options to remedy serious problems. Analyses of the economic effects of global environmental agreements and the environmental effects of trade and global commerce in developed and developing countries. This course is the same as Ec 443/543, course may be taken only once for credit.

ESR 450
Case Studies in Environmental Problem Solving (6)
Evaluation of selected cases of environmental problems, including field studies and project work with government and private agencies. Prerequisites: ESR 320, 321, 322.

ESR 471/571
Atmospheric Physics (4)
Cycles of trace gases in the Earth's atmosphere and their role in the environment. Emission, dispersal, and removal of natural and man-made trace constituents in the atmosphere that determine the Earth's climate and stratospheric ozone layer. Prerequisites: one year each of calculus and calculus-based physics. Recommended: introductory course in differential equations. This course is the same as Ph 471/571, may only be taken once for credit.

ESR 473/573
Phytoplankton Ecology (4)
Examination of photosynthesis, nutrient uptake, regulation and cell growth processes in the context of algal growth in natural waters. Prerequisites: Bi 251, ESR 321 or Bi 357.

ESR 475/575
Limnology and Aquatic Ecology (4)
Kinds, origins, and ecological features and dynamics of freshwater environments. Prerequisite: Ch 223.

ESR 477/577
Limnology Laboratory (2)
Techniques in field and laboratory analysis of freshwater systems. Pre- or corequisite: ESR 475/575.

ESR 478/578
Aquatic Vascular Plants (4)
Classification, biology, ecology, and management of aquatic vascular plants. Course will focus on freshwater systems and include a laboratory featuring field identification and laboratory experimentation. Prerequisite: Bi 357.

ESR 479/579
Fate and Transport of Toxics in the Environment (4)
Chemical, physical, and biological principles that govern the behavior of toxic materials such as heavy metals and synthetic organic compounds in the environment. Course emphasizes practical ways to represent chemical processes in models of pollutant behavior. Topics include:
adsorption of pollutants on soils and sediments; transport across sediment-water and air-water interfaces; bioamplification of pollutants; multiphase fugacity models of organics; case studies of contaminated surface water, sediment and groundwater. Prerequisite: senior or graduate standing. This course is the same as CE 479/579; course may be taken only once for credit.

ESR 501 Research (Credit to be arranged.) Consent of instructor and program director.

ESR 503 Thesis (Credit to be arranged.) All aspects of research and thesis writing for master's students.

ESR 504 Cooperative Education/Internship (Credit to be arranged.)

ESR 505 Reading and Conference (Credit to be arranged.)

ESR 506 Special Projects (Credit to be arranged.)

ESR 507 Seminar (1) Weekly seminar series on topical environmental issues. May be repeated for up to 3 credits.

ESR 509 Practicum (Credit to be arranged.)

ESR 510 Selected Topics (Credit to be arranged.) Consent of instructor.

ESR 549 Applied Environmental Statistics (4) Analysis of environmental data (mostly observational data) and the presentation of data and results using graphics. Statistical estimation and testing (including nonparametric procedures), analysis of variance, linear models, tree-based models, nonparametric regression models, and Bayesian decision making.

ESR 550 Multivariate Analysis of Environmental Data (4) Biological and environmental data are usually complex, consisting of many observations and variables. This course provides an overview of the main techniques of multivariate data analysis that are relevant and useful in ecology and environmental sciences. Emphasis is on ordination and cluster analysis. Prerequisite: one college-level statistics course.

ESR 570 Environmental Education (3) Overview of the purpose and scope of environmental education. Provides an educational framework and examples of the variety of sites where environmental education is practiced. Specific examples of teaching strategies, materials, and methods will be presented. Students will be expected to carry out a site-based project utilizing some of the materials developed in class.

The Environmental Sciences and Resources Doctoral Program consists of graduate courses available through the Departments of Biology, Chemistry, Civil Engineering, Geology, and Physics that are approved by the student's advisory committee.

ESR 601 Research (Credit to be arranged.) Research that is not normally part of the thesis.

ESR 603 Dissertation (Credit to be arranged.) All aspects of thesis including thesis research and writing the dissertation.

ESR 604 Cooperative Education/Internship (Credit to be arranged.)

ESR 605 Reading and Conference (Credit to be arranged.) Scholarly examination of literature including discussion between student and professor.

ESR 607 Seminar (1) Environmental Sciences Seminar. Consent of instructor. Pass/no pass only.

ESR 610 Selected Topics (Credit to be arranged.)

ESR 620, 621, 622 Environmental Science (3, 3, 3) A course in fundamental aspects of science and technology as they relate to environmental problems. Primarily for students in the graduate program in Environmental Sciences and Resources. Prerequisites: graduate standing in science; major's level introductory courses in biology, chemistry, civil engineering, geology, and physics, or equivalent.

FOREIGN LANG UAGES AND LITERATURES

B.A.—Concentration in one or more of the following languages: Chinese, French, German, Japanese, Russian, or Spanish

Minor—Concentration in Chinese, French, German, Japanese, Russian, or Spanish

Certificate in Teaching Japanese as a Foreign Language

Secondary Education Program

M.A.—Foreign Language: French, German, or Spanish

M.A.—Foreign Literature and Language: primary languages—French, German, Spanish; secondary languages—French, German, Japanese, Russian, or Spanish

UNDERGRADUATE PROGRAMS

The Department of Foreign Languages and Literatures offers undergraduate major and minor programs in Chinese, French, German, Japanese, Russian, and Spanish, and non-degree, 2 or 3-year programs in the above languages, as well as in Arabic, Hebrew, Hungarian, Italian, Korean, Latin, Portuguese, and Turkish. Other languages may be offered from time to time.

Two-Year Programs: Foreign Language Proficiency Requirement for the B.A. Degree. Two-year language programs are designed to help the student reach a designated proficiency in speaking a foreign language and an equivalent proficiency in listening and reading comprehension. Each language program determines what level is ordinarily reached after two years of foreign language study. The average level will be higher in the Indo-European languages than in Arabic, Chinese, or Japanese, in which the pace of advancement for English speakers is somewhat slower.

PSU requires that all candidates for the Bachelor of Arts degree demonstrate proficiency at the second-year level in a foreign language. The same proficiency is also required for the minor in International Studies; for the certificates in European, Latin-American, and Middle East Studies; for the International Business Studies Certificate; and for certain other degree options. Most candidates for graduate degrees at PSU must also demonstrate competence at this level, but in reading knowledge only.

Proficiency at the second-year level may be demonstrated in the following ways:

1. Students with no previous knowledge of the foreign language are advised to com-
Students who already possess the necessary ability may demonstrate proficiency by:

1. Registering in a course numbered 203 or higher, and completing it with a grade of at least C- (or Pass). Note: Departmental courses taught in English, such as literature in translation and certain linguistics courses are not acceptable for this purpose.

b. Taking an examination, for credit:
   i. In French, German, or Spanish, the only languages for which it is available, by passing the national CLEP test (College-Level Examination Program, see page 28 of this Bulletin) with a score of 64 or higher. This will earn a maximum of 12 credits for second-year language. CLEP fees apply. Students who did not have the Advanced Placement Program available to them in high school may also meet the requirement and earn credit by passing the AP test (available in French, German, or Spanish) with an appropriate score. See page 29.
   ii. In other languages currently taught in the Department of Foreign Languages and Literatures, by passing a departmental examination with a score high enough for second-year level credit. A maximum of 15 credits may be earned through such an exam. Credit by exam fees apply.
   c. Taking an examination, not for credit: In any language for which the Department of Foreign Languages and Literatures has a qualified examiner, the student may demonstrate competence by passing either a written or an oral test, at the department’s option. There is no charge for such a test, and no credit will be granted.

3. Students who completed their secondary education in a language other than English are considered to have met the second-year proficiency requirement. Such students may not enroll in first- or second-year courses in the language in which they received their secondary education, nor earn credit by examination for such courses. (Some programs extend this restriction to enrollment in upper-division language courses. Please consult the department.)

Three-year Programs: Proficiency Requirement for International Studies and for Foreign Language Minors. Each language program determines the proficiency level which is expected for graduation with a major in International Studies, or with a minor in a foreign language; this level is also a condition for formal acceptance into a major program in a foreign language.

The three-year requirement may be met by examination only. The student will be given an oral interview by an examiner, a brief writing test, and a test of listening and reading comprehension. The expected performance level will vary by language, according to relative difficulty. Normal preparation for the examination is two to three courses (8-12 credits, depending on the language) at the third-year level (numbered 300-399). Credit may be given for such an examination, if appropriate, for those who did not receive equivalent credit through coursework (credit by exam fees apply).

Credit by Examination. Except as described above, the department does not give credit by examination. In special cases, credit by examination may be allowed for fourth-year language (but not literature) courses. Please consult the department.

Placement in Language Courses. Students are encouraged to consult an adviser before placing themselves in a language course. As a rule, those who have completed a minimum of two (preferably three) years of high school language should enter the second year at the university level. Note: The language sequences 101, 102, 103 (or 150, 151) and 201, 202, 203 must be taken in order. Those who have received credit for any one of these may not subsequently receive credit for any of the lower-numbered courses. This also applies to transfer credits, or credits earned by examination.

Overseas and Intensive Programs. Students of foreign languages are encouraged to improve their language skills by participating in one of the many study-abroad and overseas internship opportunities offered through Portland State and the Oregon State System of Higher Education. Programs ranging from one term to a full academic year are available in several foreign countries, including China, Ecuador, France, Germany, Hungary, Japan, Mexico, Russia, and Spain (see page 319 of this Bulletin for a comprehensive list). The Department of Foreign Languages and Literatures and the University’s Office of International Education Services will counsel and assist students in planning their overseas experience with their courses of academic study.

In German, Portland State offers intensive summer work in its nationally famous Deutsche Sommerschule am Pazifik.

Requirements for a Minor. To earn a minor in Chinese, French, German, Japanese, Russian, or Spanish, students must demonstrate proficiency in the language (see above, under “Three-Year Programs”) and have completed 20 upper-division credits (numbered 300 or above) in language, culture, or literature courses taught in the minor language. In addition, they will have to complete one course in general linguistics (e.g. Ling 290, 390), or a phonetics or linguistics course taught in the Department of Foreign Languages and Literatures. Total minimum: 24 credits, 12 of which must be taken in residence in the department (i.e., excluding credits by examination, but including coursework taken in overseas programs in which the department participates).

Summary of requirements:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Language, Literature, and Culture</th>
<th>Linguistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Total (minimum) 24

Note: Candidates for a minor in a foreign language must schedule their program with an adviser.

All courses used to satisfy the departmental minor requirements must be graded C or above (C- and P are not acceptable), with a minimum GPA of 2.50.

Requirements for Majors: B.A. in a Foreign Language. At present the department accepts candidates for the degree of Bachelor of Arts in Chinese, French, German, Japanese, Russian, and Spanish. Proficiency (see above, under “Three-Year Programs”) is expected for formal admission into the program.

A major in a foreign language must complete a minimum of 40 upper-division credits in the language (in courses numbered 300 and above). These credits should be distributed as evenly as possible between language courses on the one hand, and literature and culture courses on the other. In addition, the student must complete 4 credits in linguistics (Ling 290, 390, or a course in phonetics or linguistics taught through the department) and eight credits in upper-division, adviser-approved courses chosen from literature (English or American literature or literature in translation) or area courses (for example, art, history, geography, music, philosophy, political science). Total minimum: 52 credits, 20 of which must be taken in residence in the department (i.e., excluding credits by examination, but including coursework taken in overseas programs in which the department participates).

Summary of requirements:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Language, Literature, and Culture</th>
<th>Adviser-approved courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Total (minimum) 52

Before being recommended for the degree, a major in a foreign language will be expected to demonstrate proficiency in the major language at a level designated by the particular language program.

Note: Candidates for a major in a foreign language must schedule their program with an adviser.

All courses used to satisfy the departmental major requirements must be graded C or above (C- and P are not acceptable) with a minimum GPA of 2.50.
Certificate in Teaching Japanese as a Foreign Language (TJFL). This program is designed to familiarize participants with principles of instructional methods in teaching Japanese to speakers of languages whose orthography is not kanji-based. It will fit into the program of majors in a wide variety of fields, including Japanese, education, linguistics, speech, and the social sciences. Candidates may enroll as postbaccalaureate students or while completing undergraduate degree requirements in another field.

Admission requirements
1. Admission to Portland State University
2. Japanese proficiency at the ACTFL “Intermediate High” level. Students whose proficiency is lower may be provisionally admitted; they will need to study Japanese while taking other courses in the certificate program.

Course requirements
To qualify for the TJFL certificate, the student must complete the following adviser-approved coursework:

Theoretical and applied linguistics (through the departments of Foreign Languages or Applied Linguistics) .................................................. 16
Japanese-area studies (literature, history, anthropology, etc.) .......................................................... 16
TJFL Methods (Jpn 477, 478) .................................................. 8

All courses used to satisfy certificate course requirements must be graded C- or above.

SECONDARY EDUCATION PROGRAM
Advisers: French, S. Walton; German, W. Fischer; Japanese, P. Wetzel; Russian, S. Rosengrant; Spanish, G.T. Cabello

Students who wish to teach a foreign language in Oregon secondary schools must be admitted into the Graduate Teacher Education Program (GTEP) at Portland State’s Graduate School of Education and complete the requirements for an Oregon Teaching License. Admission to GTEP as a foreign-language specialist requires a bachelor’s degree in a foreign language taught in Oregon schools, and the recommendation of the Department of Foreign Languages and Literatures. For other criteria, please refer to the Graduate School of Education section of this Bulletin.

In order to be recommended by the Department, the applicant must have:
1. Applied for admission to the Graduate Teacher Education Program in the Graduate School of Education (see page 205).
2. Completed a B.A. or B.S. which includes coursework equivalent to the 52 credits required for a major in one foreign language at Portland State University.
3. Have maintained a 3.00 GPA in the last 40 of the above 52 credits earned.
4. Obtained an Oral Proficiency Rating of Advanced High or higher on the ACTFL scale in French, German, or Spanish, or a rating of Intermediate High or better in Japanese or Russian.

The Department of Foreign Languages and Literatures highly recommends that applicants earn upper-division credits in their chosen language beyond the minimum of 52 required; that they spend time in a relevant program abroad; and that their coursework include as many of the following fields as possible: Phonetics, General Linguistics, Applied Linguistics, Culture and Civilization, Praxicum, and Methods of Teaching Foreign Languages.

GRADUATE PROGRAMS

On the graduate level, the Department of Foreign Languages and Literatures offers degree programs leading to the M.A. in Foreign Language with a major in French, German, or Spanish; and the M.A. in Foreign Literature and Language, with a concentration in two foreign languages and in linguistics.

MASTER OF ARTS IN FOREIGN LANGUAGE
The M.A. in Foreign Language is a graduate degree with a major in French, German, or Spanish language and literature. It is available with a thesis and a non-thesis option. The thesis option is generally recommended for students who intend eventually to obtain a doctorate. The non-thesis option is often appropriate for those who intend to use their M.A. coursework as direct preparation for secondary-school language teaching or another career. Students should consult with their adviser to determine the best option.

Admission to the Program. Applicants for admission must meet the University admissions requirements (page 56) as well as the following departmental requirements.
1. A Bachelor of Arts degree or its equivalent in the major language, with a minimum GPA of 3.00 in all coursework.
2. Oral and written proficiency: Advanced High on the ACTFL scale.

Degree Requirements. A candidate for the Master of Arts in a Foreign Language must:
1. Complete a minimum of 45 graduate credits, of which 30 must be taken in residence after admission to the degree program. The 45 credits are to be distributed as follows:
Thesis Option
560 Principles of Scholarly Research .................. 4
551, 552, 553 (Poetry, Drama, Prose—any two) ....... 8
FL 593 (Testing) or FL 598 (Methods) .................. 4
503 Thesis .............................................. 6-9
Additional adviser-approved coursework
(German must include Ger 554 Middle High German) .................. 20-23
Total 45

Non-thesis Option
560 Principles of Scholarly Research .................. 4
551, 552, 553 (Poetry, Drama, Prose—any two) ........ 8
FL 593 (Testing) or FL 598 (Methods) .................. 4
501 Research, or other adviser-approved credits ........ 6-9
Additional adviser-approved coursework
(German must include Ger 554, Middle High German) .................. 20-23
Total 45

Note: The student’s program may include, with adviser’s approval, a maximum of 12 credits in 501 and/or 505 and a maximum of 9 credits in 508 and/or 509 combined. See Credit Distribution and Limitations for Master’s Degrees, page 60.

2. Demonstrate reading competence in a second foreign language.
3. Thesis option: Submit a thesis, written in either the foreign language or in English, and pass a final examination in accordance with University requirements.
4. Non-thesis option: Submit two research papers in different adviser-approved subject areas, written either in the foreign language or in English, and pass a final written and oral examination.

MASTER OF ARTS IN FOREIGN LITERATURE AND LANGUAGE
The M.A. in Foreign Literature and Language is a graduate degree with concentration in a primary language, a secondary language, and in linguistics. The primary language may be French, German, or Spanish, while the secondary language may be Chinese, French, German, Japanese, Russian, or Spanish.

Admission to the Program. Applicants for admission must meet the University admissions requirements (page 56), as well as the following additional requirements:
1. In the primary language:
   a. Bachelor of Arts in the language with a 3.00 GPA in the literature courses, or its equivalent as determined by the Department Graduate Committee; and
   b. Oral proficiency: Advanced Plus (ACTFL/ETS scale); written proficiency: Advanced Plus
2. In the secondary language: Demonstration of third-year proficiency.
Degree Requirements. A minimum of 60 credits, of which 40 must be earned in residence, distributed among the following areas:

1. In the primary language: 28 graduate credits to include:
   - History of the Language 590 ................. 4
   - Principles of Scholarly Research 560 .......... 4
   - Eight credits chosen from courses numbered 551, 552, 553 .......... 8
   - Other adviser-approved courses on the 500-level ................................ 12
   
   Total 28

2. In the secondary language: 20 credits to include:
   - Phonetics 325 ........................................ 4
   - Advanced Language 511, 512 ................... 4
   - Eight graduate credits chosen from:
     - 500-level literature (not including Literature in Translation) and/or Linguistics 594, 595,
     - and/or Stylistics 584 ............................... 8
   
   Total 20

   Note: If upper division courses in phonetics and/or fourth-year language have been successfully completed at the undergraduate level (with a GPA of 3.00 or above), they can be waived, reducing the total credits required by a maximum of 12.

3. In Linguistics and Methods: 12 graduate credits chosen from:
   - FL 593 Language Proficiency Testing and Teaching
   - FL 598 Methods of Teaching Foreign Languages
   - Fr 594 French Linguistics
   - Fr 597 Applied French Linguistics
   - Ger 594 German Linguistics
   - Ger 597 Applied German Linguistics
   - Span 594 Spanish Linguistics
   - Span 597 Applied Spanish Linguistics
   - Other adviser-approved courses

   Total 12

4. In addition to the required coursework, the candidate will have to:
   - a. Submit two research papers to the graduate committee, one dealing with the primary, the other with the secondary area. These may be written either in the primary or secondary languages, respectively, or in English.
   - c. Pass a final comprehensive written and oral examination over coursework taken in the primary and secondary areas and over the research papers.

MASTER OF ARTS IN TEACHING

The M.A.T. degree program, while designed especially for those who wish to strengthen their preparation to teach French, German, or Spanish in secondary schools and two-year colleges, is open to anyone wishing to pursue graduate work in these languages.

Admission to the Program. Applicants for admission must meet the University admissions requirements (page 56), as well as the following departmental requirements:

1. A Bachelor of Arts degree or its equivalent in the major language, with a minimum GPA of 3.00 in all coursework.

2. Oral and written proficiency: Advanced High on the ACTFL/ETS scale, or 2+ on the FSI scale.

   Degree Requirements. A candidate for the M.A.T. in foreign languages must:

   1. Complete a minimum of 45 graduate credits, to include:
      - Principles of Scholarly Research .................. 4
      - Two of the following: 551, 552, 553
        (Poetry, Drama, Prose) .............................. 8
      - FL 593 (Testing) or FL 598 (Methods) ........... 4
      - Adviser-approved education courses ............ 9-15
      - Other adviser-approved courses ................. 14-20
   
      Total 45

2. Demonstrate reading competence in a second foreign language.

3. Submit two research papers: one in the area of language or language pedagogy, the other in literature.

4. Complete a comprehensive written and oral examination.

MASTER OF ARTS IN TEACHING WITH INITIAL LICENSE

The M.A.T. in foreign languages with initial license represents a unique partnership between the Graduate School of Education and the Department of Foreign Languages and Literatures.

Admission to the Program. Enrollment in this program is limited to practicing educators in the fields of French, German, Spanish, or Japanese (those already teaching in Oregon secondary schools, but who are not yet licensed).

Applicants for admission must meet the University admissions requirements on page 56, as well as the following departmental requirements:

1. A Bachelor of Arts degree or its equivalent in the major language, with a minimum GPA of 3.00 in all coursework.

2. Oral and written proficiency: Advanced High on the ACTFL/ETS scale, or 2+ on the FSI scale.

Requirements. To qualify for the M.A.T. in foreign languages with initial license, students must complete, in lieu of the courses listed under number 1 of the “Master of Arts in Teaching,” the following:

   Credits
   - CI 548 Advanced Secondary Methods: Reading and Composition in Secondary Schools ........ 3
   - CI 512 Teaching and Learning ........................................ 3
   - CI 511 Classroom Management ........................................ 3
   - SPED 518 Survey of Exceptional Learners .................. 3
   - CI 509 Practicum: Supervised Teaching in Foreign Language (Concurrent with FL 509) ......... 3
   - FL 593 Practicum: Supervised Teaching in Foreign Language (concurrent with CI 509) .......... 4

   Plus a minimum of 28 graduate credits in subject area ........................................... 28
   
   Total 50

Students in this program must also complete the requirements detailed in numbers 2-4 of the “Degree Requirements” section under “Master of Arts in Teaching.”

STUDY ABROAD PROGRAMS

Graduate students are especially urged to participate in approved study abroad programs. Credits earned in such programs will apply toward their M.A. requirements with prior permission of the department.

DEUTSCHE SOMMERSCHULE AM PAZIFIK

Graduate credits earned in German through the Deutsche Sommerschule am Pazifik can be accepted as in-residence credit at Portland State University only if taken after formal admission to the M.A. in Foreign Language program in German, or to the M.A. in Foreign Literature and Languages. Graduate credit earned at the DSAP prior to admission to either program is normally limited to 15 credits, in accordance with the University's transfer regulations.

An M.A. degree in German earned solely by attendance at the Sommerschule normally entails four summers' work plus thesis.

GRADUATE READING EXAMINATIONS

All M.A. and M.A.T. students, as well as certain doctoral candidates must demonstrate reading (or oral) proficiency in a foreign language (see page 55). Graduate students whose degree programs require foreign language competence should contact the Department of Foreign Languages and Literatures immediately upon admission for information on how the requirement may be met.

COURSES

Courses with an asterisk (*) are not offered every year. With the exception of classical languages, all upper-division courses are taught in the target language, unless otherwise noted.

FOREIGN LANGUAGES

- CI 548 Advanced Secondary Methods: Reading and Composition in Secondary Schools ........ 3
- CI 512 Teaching and Learning ........................................ 3
- CI 511 Classroom Management ........................................ 3
- SPED 518 Survey of Exceptional Learners .................. 3
- CI 509 Practicum: Supervised Teaching in Foreign Language (Concurrent with FL 509) ......... 3
- FL 593 Practicum: Supervised Teaching in Foreign Language (concurrent with CI 509) .......... 4

Total 50

Special Studies (Credit to be arranged.)
FL 290
Special Studies (Credit to be arranged.)

FL 331
Women in the Middle East (4)
Aims to explore the role and status of women in the contemporary Middle East with respect to institutions such as the family, law, education, work and politics—areas which intersect and overlap with broader cultural questions about women and their place in tradition, modernity, nation-building, Islam and the West. This course is the same as Intl 331 and WS 331; course may only be taken once for credit.

FL 399
Special Studies (Credit to be arranged.)
FL 401/501
Research (Credit to be arranged.)
FL 403/503
Thesis (Credit to be arranged.)
FL 404/504
Cooperative Education/Internship (Credit to be arranged.)
FL 405/505
Reading and Conference (Credit to be arranged.)
FL 407/507
Seminar (Credit to be arranged.)
FL 408/508
Workshop (Credit to be arranged.)
FL 409/509
Practicum (Credit to be arranged.)
FL 410/510
Selected Topics (Credit to be arranged.)
FL 447/547
Major Forces in World Literature (4)
A study of literary forms, theories, and movements, such as Classical Drama, Medieval Romance, Existentialism, Structuralism, The Absurd, Nationalism, and Roots. Prerequisite: 12 credits of literature. Conducted in English.

FL 448/548
Major Figures in World Literature (4)
Concentrated study of the canon of one or more major writers; for example, Dostoevsky, Cervantes, Goethe. Prerequisite: 12 credits of literature. Conducted in English.

FL 449/549
Major Topics in World Literature and Culture (4)
Study of the treatment of topics in one or more of the cultures of the world. Such topics as Europe as self and other, Don Juan, exile, the quest, outlaws and bandits, ghosts, fairies and gods. Prerequisite: 12 credits of literature. Conducted in English.

FL 493/593
Language Proficiency Testing and Teaching (4)
Application of proficiency standards in testing and teaching at the novice and intermediate levels. Introduction to ILR/ACTFL/ETS/FSI guidelines and compatible testing methods. Discussion of pragmatic issues, testing technique and test validity; use of teaching materials; logistics. Prerequisite: three years of a foreign language. Conducted in English.

FL 498/598
Methods of Teaching Foreign Languages (4)
Study and analysis of various pedagogical theories as applied to the learning and teaching of foreign languages. Special emphasis on discourse and content analysis. Recommended for prospective language teachers. Prerequisite: three years of a foreign language. Conducted in English.

ARABIC
Ar 101, 102, 103
First-year Standard Arabic (4, 4, 4)
Introduction to modern literary Arabic. Emphasis on basic grammar, syntax, writing, translation, listening comprehension, and oral communication. For non-native speakers of Arabic only.

Ar 199
Special Studies (Credit to be arranged.)
Ar 201, 202, 203
Second-year Standard Arabic (4, 4, 4)
Continued work in modern literary Arabic with emphasis on basic grammar and syntax, reading prose texts, writing compositions, translation, listening comprehension, and conversation. Prerequisite: Ar 103. For non-native speakers of Arabic only.

Ar 204, 205, 206
Common Spoken Arabic (2, 2, 2)
Practical panArab language used in business, social, and intellectual gatherings in lieu of limited local dialects, or the Fus-ha (classical eloquent literary Arabic of the intellectuals), understandable by any Arab, and usable anywhere in the Arab world. Prerequisite: Ar 101.

Ar 299
Special Studies (Credit to be arranged.)
Ar 301, 302, 303
Third-year Standard Arabic (4, 4, 4)
Ar 301 emphasizes Arabic texts in modern prose, complex syntax and writing. Ar 302 emphasizes media and business materials, translation, and viewing videos. Prerequisite: Ar 203.

Ar 399
Special Studies (Credit to be arranged.)
Ar 401
Research (Credit to be arranged.)
Ar 404
Cooperative Education/Internship (Credit to be arranged.)
Ar 409
Practicum (Credit to be arranged.)
Ar 410
Selected Topics (Credit to be arranged.)

Ar 411
Topics in Modern Arabic Prose (4)
Reading advanced Arabic essays and short stories by prominent authors presenting various genres of Arabic literature. Analysis and critique of texts. Prerequisite: Ar 301.

Ar 412
Topics in Classical-modern Arabic Poetry (4)
Reading light poetry by master poets from the Abbasid, Andalusian, Mahjar, and modern times. Prerequisite: Ar 301.

Ar 417
Folk Literature of the Arabs (4)
Topics include popular poetry, folktales, proverbs, and jokes. Analysis of texts in their socio-cultural context. Prerequisite: Ar 301.

Ar 418
Folk Poetry of the Arabs (4)
Topics include muwashshahat, modern lyrics, folk songs, and improvised sung poetry-Zajal. Analysis of texts in the socio-cultural context. Prerequisite: Ar 301.

Ar 441
Major Arabic Works in Translation (4)
Study of selected masterpieces of Arabic literature in English translation: short stories, novels, women's essays, poetry, folk literature, and introduction to Arab culture. Readings, lectures, and discussions in English. Prerequisite: 4 credits of upper-division literature. Course may be repeated for credit if content varies.

CHINESE
Chn 101, 102, 103
First-year Chinese (5, 5, 5)
An introduction to Mandarin: listening, speaking, reading, and writing. Characters and spoken language presented concurrently throughout the year.

Chn 199
Special Studies (Credit to be arranged.)
Chn 201, 202, 203
Second-year Chinese (5, 5, 5)
Continued work in Mandarin, with emphasis on mastering all basic grammatical structures, developing conversation skills, and building vocabulary in characters with correct pronunciation.

Chn 299
Special Studies (Credit to be arranged.)
Chn 301, 302, 303
Third-year Chinese (4, 4, 4)
Intermediate conversation, reading, writing, vocabulary building, and grammar. Introduction to literary and expository texts. Prerequisite: Chn 202.

Chn 304
Chinese Newspaper Readings (4)
Practical introduction to the reading and accurate understanding of Chinese newspapers and related specialized styles of writing. Recommended as a complement to third-year Chinese. Prerequisite: Chn 203.

Chn 306
Business Chinese (4)
Practice in oral and written Chinese at the upper-intermediate level, with emphasis on business vocabulary and procedures. Recommended as a complement to third-year Chinese. Prerequisite: Chn 203, Chn 303 and 304 recommended.

Chn 311, 312
Introductory Classical Chinese (4, 4)
Readings in the traditional literary language, designed to provide familiarity with essential particles and structures, build vocabulary, and introduce works from all genres and periods. Recommended as a complement to third-year Chinese; preparation for advanced work in either modern or classical Chinese. Prerequisite: Chn 203.

Chn 341
Topics in Chinese Literature and Thought: Service and Retreat (4)
Interdisciplinary readings from the core of the written tradition, including history, poetry, classical anecdotes and essays, related to the central issues facing the Chinese elite throughout history: whether, how, and under what conditions to serve the state. Conducted in English.
Chinese Vernacular Literature (4, 4)
342 emphasizes traditional poetry and fiction from 700 BC to the late nineteenth century. 343 emphasizes influential works of the twentieth century, from semi-traditional to avant-garde. Conducted in English.

**DANISH**

Danish 101, 102, 103
First-year Danish (4, 4, 4)
Beginning Danish. Emphasis on communication skills: listening, speaking, reading, writing.

Danish 199
Special Studies (Credit to be arranged.)

Danish 201, 202, 203
Second-year Danish (4, 4, 4)
Intensive review of basics introduced in first-year courses and further development of communication skills. Prerequisite: one year of college Danish.

Danish 299
Special Studies (Credit to be arranged.)

**FINNISH**

Finnish 101, 102, 103
First-year Finnish (4, 4, 4)
Beginning Finnish. Emphasis on communication skills: listening, speaking, reading, writing.

Finnish 199
Special Studies (Credit to be arranged.)

Finnish 201, 202, 203
Second-year Finnish (4, 4, 4)
Intensive review of basics introduced in first-year courses and further development of communication skills. Prerequisite: one year of college Finnish.

Finnish 299
Special Studies (Credit to be arranged.)

**FRENCH**

French 101, 102, 103
First-year French (4, 4, 4)
An introduction to elementary French. Emphasis on listening comprehension and oral practice, including the elements of grammar, vocabulary building, and elementary readings.

French 150, 151
First-year French (Intensive) (6, 6)
A two-term course covering the content of Fr 101, 102, 103.

French 199
Special Studies (Credit to be arranged.)

French 201, 202, 203
Second-year French (4, 4, 4)
Advanced French Grammar (4)
Intensive review of basics introduced in First-Year French and further development of communication skills.

French 299
Special Studies (Credit to be arranged.)

French 301, 302
Third-year French (4, 4, 4)
Development of speaking, listening, reading and writing skills and a review of grammar through study of appropriate texts, conversation, activities, and written assignments. Prerequisite: Fr 203.

French 325
French Phonetics and Phonology (4)
The structure of French and the influence of phonological factors on pronunciation. Prerequisite: Fr 203.

French 330
Topics in Culture and Civilization (4)
The development of French life, thought, and arts of different periods, from the Middle Ages to the 20th century: for example, Pre-Revolution, Revolution through 19th century, and contemporary. Prerequisite: Fr 203. 4 hours of 300-level French strongly recommended.

French 340
Fundamentals of French Literary Studies (4)
An introduction to the study of French literature. Lectures and discussion on French prosody, genres, fundamentals of literary analysis, and criticism. To be taken concurrently with, or prior to, Fr 341, 342, 343. Prerequisite: Fr 203.

French 341, 342, 343
Introduction to French Literature (4, 4, 4)
Literature from the Middle Ages to the present. Poetry, theater, and prose readings from representative authors. Prerequisite: Fr 203. Fr 301 or 302 strongly recommended.

French 399
Special Studies (Credit to be arranged.)

French 401/501
Research (Credit to be arranged.)

French 404/504
Cooperative Education/Internship (Credit to be arranged.)

French 405/505
Reading and Conference (Credit to be arranged.) Consent of instructor.

French 407/507
Seminar (Credit to be arranged.) Consent of instructor.

French 408/508
Workshop (Credit to be arranged.) Consent of instructor.

French 409/509
Practicum (Credit to be arranged.)

French 410/510
Selected Topics (Credit to be arranged.)

French 411/511, 412/512
Advanced Chinese (4, 4)

French 413/513
Advanced Classical Chinese (4)
Readings from classical works of various genres and historical periods, designed to solidify the structures introduced in Chn 311 and 312, build further vocabulary and introduce the fundamentals of classical Chinese literary history. Prerequisite: third-year coursework in Chinese, preferably including Chn 311 and 312.

French 420/520, 421/521
Readings in Chinese Literature (4, 4)
Reading, analysis, and discussion of representative literary texts. Chn 420 focuses on pre-modern topics such as "Traditional Chinese Fiction" and "Chinese Classical Masterpieces," while Chn 421 addresses primarily twentieth-century topics such as "Chinese Nativist Literature" or "Chinese Urban Literature." Prerequisite: Fr 303. Fr 304, 311, 312 also recommended.

French 423/523
Eighteenth-century French Literature (4)
Reading, analysis and critique of the major works written in the Age of Enlightenment. Prerequisites: at least 8 credits from Fr 341, 342, or 343.

French 427/527, 428/528
Nineteenth-century French Literature (4, 4)
Selected works of prose, poetry, and drama from the 19th century writers. Prerequisites: at least 8 credits from Fr 341, 342, or 343.

French 433/333, 434/334
Twentieth-century French Literature (4, 4)
Readings in poetry, drama, and prose. Prerequisites: at least 8 credits from Fr 341, 342, or 343.
Fr 435/535 Francophone Literature of the 20th Century (4)
Readings in 20th century literature of French expression from outside metropolitan France: i.e., Africa, Quebec, and the Caribbean.

Fr 441/541 Major Works In Translation (4)
Study of texts representative of major French authors, periods, themes or genres in translation; such topics as Classical drama, Realism, contemporary novel, Flaubert, and Camus. Readings, lectures, and discussions in English. Prerequisite: 4 credits of upper-division literature.

Fr 442/542 Medieval Works in Translation (4)
Study of texts from the French middle ages. Readings, lectures, and discussions in English. Prerequisite: 4 credits of upper-division literature.

Fr 490/500 History of the French Language (4)
Study of the development of the French language in terms of phonological, morphological, and syntactical changes. Prerequisite: Fr 302.

Fr 494/594 French Linguistics (4)
Introduction to the basic concepts of linguistics and their application to the French language. Emphasis on practical analysis of the sound and the grammatical systems. Brief survey of the historical development, followed by an analysis of the phonetics, phonontology, morphology, and syntax of modern French. Conducted in English. Prerequisites: Fr 203, 325.

Fr 497/597 Applied French Linguistics (4)
A practical application of linguistics to modern French. Emphasis on a contrastive analysis of the structures of French and English. Prerequisites: Fr 302 and 4 credits of linguistics.

Fr 503 Thesis (Credit to be arranged.)
Fr 551 French Poetry (4)
Study of French poetry. Analysis of form and content.

Fr 552 French Drama (4)
Critical study of representative works of French drama.

Fr 553 French Prose (4)
Study of representative works of French fiction according to genre, period, theme, or authors.

Fr 560 Principles of Scholarly Research: French (4)
A theoretical and practical introduction to the resources and techniques essential to advanced work in French language, pedagogy, and area studies. Investigation of bibliographic materials, primary texts, secondary literature, and major forms of literary criticism. To be taken in first year of graduate study.

Fr 584 French Stylistics (4)
A study of vocabulary, sentence structure, metaphor, and other elements that characterize the style of a writer, a period, or a movement.

GERMAN

Ger 101, 102, 103 First-year German (4, 4, 4)
Beginning German. Emphasis on communication skills: listening, speaking, reading, writing.

Ger 150, 151 First-year German (Intensive) (6, 6)
A two-term course covering the content of Ger 102, 102, 103.

Ger 190 Special Studies (Credit to be arranged.)

Ger 201, 202, 203 Second-year German (4, 4, 4)
Intensive review of basics introduced in first year courses and further development of communication skills. Prerequisite: one year of college German or equivalent.

Ger 299 Special Studies (Credit to be arranged.)

Ger 301 Listening and Speaking (4)
Continued intensive practice in listening and speaking German. May be taken concurrently with Ger 302. Prerequisite: Ger 203.

Ger 302 Reading and Writing (4)
Continued intensive practice in reading and writing German. May be taken concurrently with Ger 301. Prerequisite: Ger 203.

Ger 320 German for the Business and Professional World (4)
Intensive practice in scholarly, technical, and business language. Prerequisite: Ger 203.

Ger 325 German Phonetics and Phonology (4)
Introduction to the sounds of German: their place and manner of articulation (phonetics) as well as how they pattern with respect to each other and as influenced by morphological and syntactic factors (phonology). Conducted in English. Prerequisite: Ger 203.

Ger 330 Topics in Culture and Civilization (4)
Study of the historical development of life, thought, and the arts in German-speaking lands in times and places such as the Middle Ages, 19th-century Vienna, 20th-century Berlin, the Weimar period, or in fields such as film. Prerequisite: Ger 203.

Ger 340 Fundamentals of German Literary Studies (4)
An introduction to the study of German literature. Lectures and discussion on German prose, poetry, genres, fundamentals of literary analysis and criticism. Conducted in German. Prerequisite: Ger 203.

Ger 341, 342 Introduction to German Literature (4, 4)
Readings from representative German authors from the Middle Ages to the present. Prerequisite: Ger 203. Ger 340 is also strongly recommended.

Ger 399 Special Studies (Credit to be arranged.)

Ger 401/501 Research (Credit to be arranged.)

Ger 404/504 Cooperative Education/Internship (Credit to be arranged.)

Ger 405/505 Reading and Conference (Credit to be arranged.)
Consent of instructor.

Ger 407/507 Seminar (Credit to be arranged.)
Consent of instructor.

Ger 408/508 Workshop (Credit to be arranged.)
Consent of instructor.

Ger 409/509 Practicum (Credit to be arranged.)

Ger 410/510 Selected Topics (Credit to be arranged.)

Ger 411/511, 412/512 Advanced German (4, 4)
Special lectures on German. Selected reading and writing assignments, discussion. Prerequisite: Ger 302.

Ger 414/514 Advanced German Grammar (4)
Structural review of German morphology and syntax. Prerequisite: Ger 302.

Ger 415/515 Business German (4)
Advanced work in the language of business and economics. Prerequisite: Ger 302.

Ger 421/521 German Short Prose (4)
Study of the German Novelle and other shorter prose of the 19th and 20th centuries. Prerequisites: at least 8 credits from Ger 340, 341, or 342.

Ger 422/522 18th Century German Literature (4)
Study of the poetry, drama, and prose of the German Enlightenment and the Sturm und Drang. Prerequisites: at least 8 credits from Ger 340, 341, or 342.

Ger 427/527 The Age of Goethe (4)
Study of German poetry, drama, and prose from the Sturm und Drang and classicism to the beginning of romanticism. Prerequisites: at least 8 credits from Ger 340, 341, or 342.

Ger 428/528 German Romanticism (4)
Study of the literature, art, and aesthetic theories of late 18th and 19th century Germany. Prerequisites: at least 8 credits from Ger 340, 341, or 342.

Ger 429/529 German Realism and Naturalism (4)
Study of the poetry, drama, and prose of the second half of the 19th century. Prerequisites: at least 8 credits from Ger 340, 341, or 342.

Ger 433/533, 434/534 German Literature of the 20th Century (4, 4)
Readings in modern poetry, drama, and prose: Ger 433/533: from the turn of the century to the end of World War II; Ger 434/534: from the post-war years to the present. Prerequisites: at least 8 credits from Ger 340, 341, or 342.

Ger 441/541 Major Works in Translation (4)
Study of selections from masterpieces of German literature in translation, such as Goethe, the Weimar period, German Intellectual History, Ancient Myth in German Literature. Readings, lectures, and discussions in English. Prerequisite: 4 credits of upper-division literature.
Ger 442/542
Medieval Works in Translation (4)
Study of texts from the German Middle Ages. Readings, lectures, and discussions in English. Prerequisite: 4 credits of upper division literature.

Ger 490/590
History of the German Language (4)
A general historical survey showing the development of German grammar, word formation, vocabulary, and syntax with reference to the history of other Germanic languages. Conducted in English. Prerequisite: Ger 302.

Ger 494/594
German Linguistics (4)
Introduction to the basic concepts in linguistics and their application to German. Review of sound system, focus on morphology and syntax. Conducted in English. Prerequisite: Ger 302.

Ger 497/597
Applied German Linguistics (4)
A practical application of linguistic method to modern German. Emphasis on contrastive analysis of German and English. Prerequisites: Ger 302 and 4 credits in linguistics.

Ger 503
Thesis (Credit to be arranged.)

Ger 531
German Poetry (4)
Study of German lyric poetry. Analysis of form and content.

Ger 532
German Drama (4)
Critical study of representative works of German drama.

Ger 533
German Prose (4)
Study of representative works of German prose fiction.

Ger 534
Middle High German (4)
Linguistic and literary study of representative Middle High German texts. Conducted in English.

Ger 360
Principles of Scholarly Research: German (4)
Theoretical and practical introduction to the resources and techniques essential to advanced work in language, literature, pedagogy, and area studies. Investigation of bibliographic materials, primary texts, secondary literature, and major forms of literary criticism. To be taken during the first year of graduate study.

Ger 584
German Stylistics (4)
A study of the stylistic aspects of fictional and nonfictional writings within the context of the cultural and philosophical history of modern Germany.

HEBREW

Heb 101, 102, 103
First-year Modern Hebrew (4, 4, 4)
Introduction to modern Hebrew; emphasis on basic grammar, syntax, noun and verb formation, listening and reading comprehension, translation, writing, and speaking. For non-native speakers of Hebrew only.

Heb 199
Special Studies (Credit to be arranged.)

Heb 201, 202, 203
Second-year Modern Hebrew (4, 4, 4)
Continued study of grammar and syntax, reading intermediate literary texts, translation, conversation, writing, and speaking. Prerequisite: Heb 103. For non-native speakers of Hebrew only.

Heb 299
Special Studies (Credit to be arranged.)

Heb 301, 302
Modern Hebrew Readings (4, 4)
301 emphasizes essays, short stories, and selected poems. 302 emphasizes modern media Hebrew. Translation and writing. Prerequisite: Heb 203. For non-native speakers of Hebrew only.

Heb 399
Special Studies (Credit to be arranged.)

Heb 401
Research (Credit to be arranged.)
Consent of instructor.

Heb 404
Cooperative Education/Internship (Credit to be arranged.)

Heb 410
Selected Topics (Credit to be arranged.)

HUNGARIAN

Hun 101, 102, 103
First-year Hungarian (4, 4, 4)

Hun 199
Special Studies (Credit to be arranged.)

Hun 201, 202, 203
Second-year Hungarian (4, 4, 4)
Intensive review of materials introduced in first-year course and further development of communicative skill and reading comprehension. Elementary writing.

Hun 299
Special Studies (Credit to be arranged.)

Hun 301, 302, 303
Third-year Hungarian (4, 4, 4)
Composition, conversation, readings in literature, grammar review. Prerequisite: Hun 203.

Hun 399
Special Studies (Credit to be arranged.)

Hun 404
Cooperative Education/Internship (Credit to be arranged.)

Hun 410
Selected Topics (Credit to be arranged.)

ITALIAN

It 101, 102, 103
First-year Italian (4, 4, 4)
An introduction to elementary Italian. Emphasis on listening comprehension and oral practice, the elements of grammar, vocabulary building, and elementary readings.

It 199
Special Studies (Credit to be arranged.)

It 201, 202, 203
Second-year Italian (4, 4, 4)
Intensive review of basic materials introduced in first-year program and further development of communicative skills.

It 299
Special Studies (Credit to be arranged.)

It 301, 302
Third-year Italian (4, 4)
Composition and conversation at the intermediate level. Prerequisite: It 203.

It 399
Special Studies (Credit to be arranged.)

It 404
Cooperative Education/Internship (Credit to be arranged.)

It 409
Practicum (Credit to be arranged.)

It 410
Selected Topics (Credit to be arranged.)

JAPANESE

Jpn 101, 102, 103
First-year Japanese (5, 5, 5)
An introduction to the Japanese language with emphasis on listening comprehension, speaking, grammatical patterns, the syllabaries, and characters in elementary reading and writing.

Jpn 150, 151
First-year Japanese (Intensive) (7, 8)
A two-semester course covering the content of Jpn 101, 102, 103.

Jpn 199
Special Studies (Credit to be arranged.)

Jpn 201, 202, 203
Second-year Japanese (5, 5, 5)
Continued work in the Japanese language with emphasis on listening comprehension, speaking, grammatical patterns, the syllabaries, and characters in elementary reading and writing.

Jpn 299
Special Studies (Credit to be arranged.)

Jpn 301, 302
Third-year Japanese: Speaking and Listening (4, 4)
Continued work in the Japanese language with emphasis on listening and speaking skills in a variety of contexts. Students enrolled in this course are encouraged to sign up for Jpn 304, 305 concurrently. Either sequence (Jpn 301, 302 or Jpn 304, 305) satisfies the requirement for third-year Japanese. Prerequisite: Jpn 203.

Jpn 304, 305
Third-year Japanese: Reading and Writing (4, 4)
Continued work in the Japanese language with emphasis on reading and writing skills in different kinds of texts. Students enrolled in this course are encouraged to sign up for Jpn 301, 302 concurrently. Either sequence (301, 302 or 304, 305) satisfies the requirement for third-year Japanese. Prerequisite: Jpn 203.

Jpn 325
Japanese Phonetics and Phonology (4)
Introduction to the sounds of Japanese: their place and manner of articulation (phonetics) as well as how they pattern with respect to each other and as influenced by morphological and syntactic factors (phonology). Prerequisite: Jpn 203.

Jpn 341, 342
Topics in Japanese Literature (In Translation) (4, 4)
Introductory survey of Japanese literature from its beginnings to the present, including such works as The Man’yoshu, The Tale of Genji, plays by Zeami and Chikamatsu, Basho’s haiku, and masterpieces of modern fiction. Jpn 341 focuses on classical and medieval literature; Jpn
KOREAN
Kor 101, 102, 103
First-year Korean (3, 3, 3)
An introduction to the Korean language with emphasis on listening comprehension, speaking, elementary reading and writing, and grammatical patterns.
Kor 199
Special Studies (Credit to be arranged.)

Kor 201, 202, 203
Second-year Korean (3, 3, 3)
Continued work in the Korean language with emphasis on listening comprehension, speaking, reading and writing, and grammatical patterns.
Kor 299
Special Studies (Credit to be arranged.)
Kor 301, 302
Third-year Korean (3, 3)
Continued work in the Korean language in a widening variety of contexts. 301 emphasizes listening and speaking skills; 302 reading, writing, and vocabulary development. Prerequisite: Kor 203.
Kor 399
Special Studies (Credit to be arranged.)
Kor 404
Cooperative Education/Internship (Credit to be arranged.)
Kor 409
Practicum (Credit to be arranged.)
Kor 410
Selected Topics (Credit to be arranged.)

LATIN
Lat 101, 102, 103
First-year Latin (4, 4, 4)
An introduction to elementary Latin. Emphasis on the elements of grammar, vocabulary building, and elementary readings.
Lat 199
Special Studies (Credit to be arranged.)
Lat 201, 202, 203
Second-year Latin (4, 4, 4)
Intensive review of basic materials introduced in first-year program and further development of reading skills.
Lat 299
Special Studies (Credit to be arranged.)
"Lat 301, 302, 303
Third-year Latin (2, 2, 2)
Survey of classical Latin syntax; extensive practice in prose composition; close study of poetic techniques. Prerequisite: Lat 203.
Lat 399
Special Studies (Credit to be arranged.)
Lat 401
Research (Credit to be arranged.)
Lat 404
Cooperative Education/Internship (Credit to be arranged.)
Lat 407
Seminar (Credit to be arranged.)
Consent of instructor.
Lat 410
Selected Topics (Credit to be arranged.)

*NORWEGIAN
Norw 101, 102, 103
First-year Norwegian (4, 4, 4)
Introduction to spoken and written Norwegian. Grammar, reading, and simple conversation.
Norw 199
Special Studies (Credit to be arranged.)
Norw 209
Special Studies (Credit to be arranged.)

*PERSIAN
Per 101, 102, 103
First-year Persian (4, 4, 4)
Introduction to spoken and written Persian. Grammar, reading, and simple conversation.
Per 199
Special Studies (Credit to be arranged.)
Per 201, 202, 203
Second-year Persian (4, 4, 4)
Graded readings in the modern literary language. Conversation and prose composition. Prerequisite: Per 103.
Per 299
Special Studies (Credit to be arranged.)
Per 301, 302
Third-year Persian (4, 4)
Reading in literature, composition, expository writing, and conversation. Prerequisite: Per 203.
Per 401
Research (Credit to be arranged.)
Consent of instructor.
Per 404
Cooperative Education/Internship (Credit to be arranged.)
Per 410
Selected Topics (Credit to be arranged.)

*PORTUGUESE
Port 101, 102, 103
First-year Portuguese (4, 4, 4)
An introduction to elementary Portuguese. Emphasis on listening comprehension and oral practice, the elements of grammar, vocabulary building, and elementary readings.
Port 199
Special Studies (Credit to be arranged.)
Port 201, 202, 203
Second-year Portuguese (4, 4, 4)
Intensive review of basic materials introduced in first-year program and further development of communication skills.
Port 299
Special Studies (Credit to be arranged.)
Port 301, 302
Third-year Portuguese (4, 4)
Continued work on the Portuguese language. Port 301 emphasizes listening comprehension and speaking, 302 grammatical patterns, reading, and writing. May be taken concurrently. Prerequisite: Port 203.
Port 399
Special Studies (Credit to be arranged.)
Port 404
Cooperative Education/Internship (Credit to be arranged.)
Port 409
Practicum (Credit to be arranged.)

RUSSIAN
Rus 101, 102, 103
First-year Russian (4, 4, 4)
An introduction to elementary Russian. Emphasis on listening comprehension and oral practice, the elements of grammar, vocabulary building, and elementary readings.
"Rus 130, 151
First-year Russian (Intensive) (6, 6)
Two-term course covering the content of Rus 101, 102, 103.
Rus 199  
Special Studies (Credit to be arranged.)

Rus 201, 202, 203  
Second-year Russian (4, 4, 4)  
Intensive review of basic materials introduced in  
first-year program and further development of  
communication skills.

Rus 290  
Special Studies (Credit to be arranged.)

Rus 301, 302, 303  
Third-year Russian (4, 4, 4)  
Focus on acquisition of vocabulary, practical  
application. Intensive practice in speaking listen-

*Rus 325  
Russian Phonetics and Phonology (4)  
Introduction to the sounds of Russian: their  
place and manner of articulation (phonetics) as  
well as how they pattern with respect to each  
other and as influenced by morphological and  
syntactic factors (phonology). Prerequisite:  
Rus 203.

Rus 330  
Russian Culture and Civilization (4)  
A multimedia survey of major developments in  
Russian art, architecture, music, dance, theater,  
cinema and literature. The class focuses on ways  
major works relate to the artistic atmosphere of  
their times and on how subsequent generations  
have reinterpreted and reused them. Taught in  
English.

Rus 341, 342  
Introduction to Russian Literature (4, 4)  
Study of selected short stories of the 19th cen-
tury. For non-native speakers only. Prerequisite:  
Rus 203.

Rus 399  
Special Studies (Credit to be arranged.)

Rus 401  
Research (Credit to be arranged.)

Rus 404/504  
Cooperative Education/Internship (Credit to  
be arranged.)

Rus 405/505  
Reading and Conference (Credit to be  
arranged.)  
Consent of instructor.

Rus 407/507  
Seminar (Credit to be arranged.)  
Consent of instructor.

Rus 408  
Workshop (Credit to be arranged.)  
Consent of instructor.

Rus 409  
Practicum (Credit to be arranged.)

Rus 410/510  
Selected Topics (Credit to be arranged.)

Rus 411/511, 412/512, 413/513  
Advanced Russian (4, 4, 4)  
Special problems of Russian grammar; selected  
writing and reading assignments and discussion.  
For non-native speakers of Russian only.

Rus 416  
Readings in Russian (2)  
A variable-content course designed to give  
advanced students of Russian experience reading  
in a variety of content areas. Rus 421 is to be  
taken in conjunction with regularly scheduled  
corequisite courses. Students taking a corequi-
site course will do part of the required reading  
for that course in Russian. Prerequisite: Rus 342.
*Span 423/523
Major Topics: Peninsular Poetry (4)
Study, analysis, and critique of the poetry of Spain by authors such as Bérero, Góngora, Quevedo, Machado, Jiménez, and Cernuda. Prerequisite: at least 8 credits of Span 341, 342, or 343.

*Span 427/527
Major Topics: Latin American Prose (4)
Study, analysis, and critique of major prose works of Latin America by authors such as García Márquez, Fuentes, Paz, Vargas Llosa, Mastretta, and Borges. Prerequisite: At least 8 credits of Span 341, 342, or 343.

*Span 428/528
Major Topics: Latin American Drama (4)
Study, analysis, and critique of major dramatic works of Latin America by authors such as Gamarra, Benedetti, Usigli, Díaz, and de la Parra. Prerequisite: At least 8 credits of Span 341, 342, or 343.

*Span 429/529
Major Topics: Latin American Poetry (4)
Study, analysis, and critique of major poetic works of Latin America, by authors such as Darío, Huidobro, Vallejo, Neruda, Guillén, and Mistral. Prerequisite: at least 8 credits of Span 341, 342, or 343.

*Span 441/541
Major Works in Translation (4)
Study of selections from masterpieces in translation by authors such as Cervantes, Neruda, Borges, Lisperctor, and García Márquez. Readings, lectures, and discussions in English. Prerequisite: 4 credits of upper division literature.

*Span 490/590
History of the Spanish Language (4)
Study of the development of the Spanish language in terms of phonological, morphological, and syntactical changes. Prerequisite: Span 302.

*Span 494/504
Spanish Linguistics (4)
Introduction to the basic concepts of linguistics and their application to the Spanish language. Emphasis on practical analysis of the sound system and the grammatical system. Brief survey of the historical development, followed by an analysis of the phonetics, phonemics, morphology, and syntax of modern Spanish. Must be taken in sequence. Prerequisite: Span 302.

*Span 497/597
Applied Spanish Linguistics (4)
A practical application of linguistics to modern Spanish. Emphasis on a contrastive analysis of the structure of Spanish and English. Prerequisites: Span 302 and 3 credits of linguistics.

Span 503
Thesis (Credit to be arranged.)

*Span 551
Hispanic Poetry (4)
Study of the lyric poetry of Latin America and/or Spain.

*Span 552
Hispanic Drama (4)
Critical study of representative works of Latin American and/or Spanish drama.

*Span 553
Hispanic Prose (4)
Study of representative works of the prose of Latin America and/or Spain.

Span 560
Principles of Scholarly Research: Spanish (4)
A theoretical and practical introduction to the resources and techniques essential to advanced work in Spanish language, literature, pedagogy, and area studies. Investigation of bibliographic materials, primary texts, secondary literature, and major forms of literary criticism. To be taken in first year of graduate study.

SWEDISH

*Swed 101, 102, 103
First-year Swedish (4, 4, 4)
Beginning Swedish. Emphasis on communication skills: listening, speaking, reading, writing.

Swed 199
Special Studies (Credit to be arranged.)

*Swed 201, 202, 203
Second-year Swedish (4, 4, 4)
Intensive review of basics introduced in first-year courses and further development of communication skills. Prerequisite: one year of college Swedish.

Swed 299
Special Studies (Credit to be arranged.)

TURKISH

*Tur 101, 102, 103
First-year Turkish (4, 4, 4)
Introduction to Turkish. Emphasis on elements of grammar, vocabulary building, and conversation. Elementary reading.

Tur 199
Special Studies (Credit to be arranged.)

*Tur 201, 202, 203
Second-year Turkish (4, 4, 4)
Intensive review of materials introduced in first-year course and further development of communicative skill and reading comprehension. Elementary writing.

Tur 299
Special Studies (Credit to be arranged.)

*Tur 301, 302, 303
Third-year Turkish (4, 4, 4)
Composition, conversation, readings in literature, and grammar review. Prerequisite: Tur 203.

Tur 401
Research (Credit to be arranged.)
Consent of instructor.

Tur 404
Cooperative Education/Internship (Credit to be arranged.)

Tur 410
Selected Topics (Credit to be arranged.)

GENERAL STUDIES/LIBERAL STUDIES

491A Neuberger Hall
503-725-3822

B.A., B.S.
Education Programs-Elementary, Integrated Science, and Social Studies
M.A.T., M.S.T. (General Studies: Arts and Letters, Science, Social Science)

Programs which are of an interdisciplinary nature and which do not conveniently fit within the normal department areas are listed under General Studies.

UNDERGRADUATE PROGRAM

ARTS AND LETTERS, SCIENCE, SOCIAL SCIENCE, AND LIBERAL STUDIES PROGRAMS

Advisers: R.C. Mercer, K. Hanson, F. McClurken-Talley

Students interested in general studies will complete their major requirements by taking a concentration of courses in the arts and letters or science or social science academic area. There are no specific courses required for the major. To take full advantage of the opportunities afforded this major, students should plan a program

which includes a coherent set of courses providing an in-depth study in the area of special interest as well as providing for enhancement of the student's problem-solving and communication skills.

The arts and letters academic distribution area consists of courses taken in applied linguistics, architecture, art, black studies (BST 221, 351, 352, 353, 421, 424, 425, 426, 427 only). English (except for WR 115, 120, 121, 222, 227, 323), foreign languages and literatures, music, philosophy, speech communication, and theater arts.

The science academic distribution area consists of courses taken in biology, chemistry, environmental studies, geology, math-
matics/statistics, physics, and science education.

The social science academic distribution area consists of courses taken in administration of justice (AJ 220 and 330 only), anthropology, black studies (except Bst 221, 351, 352, 353, 421, 424, 425, 426, 427), economics, geography, history, international studies, political science, psychology, sociology, urban studies and planning, and women's studies.

Requirements for Major in Arts and Letters, Science, or Social Science. In addition to meeting all of the nonmajor and general education baccalaureate degree requirements, a student in one of the above majors must complete 52 credits in one of the following areas: arts and letters or science or social science. A minimum of 32 of the 52 credits must be upper division with at least 8 upper-division credits in each of two departments.

Credits

Upper-division credits from one department in the major academic area .................................. 8
Upper-division credits from a second department in the major academic area .............................. 8
Additional upper-division credits from any department(s) in the major academic area ........... 16
Additional credits in the major academic area 20

Total 52

Courses used to satisfy the major requirements, whether taken at PSU or elsewhere, must be graded C- or above. A maximum of 12 credits may be graded P.

For students completing two majors with one being arts and letters, or science, or social science, or earning a second baccalaureate degree in one of those majors, the major is 52 credits as outlined above.

Requirements for Major in Liberal Studies. A student majoring in liberal studies must complete (1) University requirements (except general education requirements), (2) specific requirements for Bachelor of Arts or Bachelor of Science degree, (3) either Wr 323 or an approved Writing Intensive Course, and (4) the following requirements for the liberal studies major:

Credits

Upper-division credits from the arts and letters (except Wr 323), science and/or social science academic distribution area(s) ........................................ 81

Courses used to satisfy the major requirements, whether taken at PSU or elsewhere, must be graded C- or above. A maximum of 12 credits may be graded P.

Students majoring in Liberal Studies and also in a second major must meet the general education requirement and the upper-division requirement in the academic distribution areas for the second major.

EDUCATION PROGRAMS

The professional education program for teacher licensure is to be completed after the student has a bachelor's degree. It is highly recommended that students major in the subject they want to teach, or complete as part of their bachelor's degree a set of courses appropriate for the subject to be taught and the level at which the student wants to teach. Students who already have a bachelor's degree should see an adviser before taking additional courses. Additional information about undergraduate preparation for the Graduate Teacher Education Program (GTEP) may be found under the preprofessional listing on page 205.

Elementary

Advisers: R.C. Mercer, F. McClurken-Talley

Students who want to be elementary teachers should major in one of the departments in the arts and letters, sciences, or social sciences areas or in arts and letters, science, or social science. It is highly recommended that the following courses be included in the undergraduate program. A course from two of the following departments: Anthropology, Black Studies, Sociology, Women's Studies (Anth 103, Bst 302, Soc 337, WS 101 recommended).

† Art 312
Bi 101/104, 102/105, 103/106 or Sci 201, 320, 350
G 201/204, 202/205
A course from Economics (Ec 201 is recommended)
† Ed 420 Introduction to Education and Society
† Geography—two courses from the following:
Geog 210, 230, 346, 350
Hst 201, 202
Literature—8 credits
† Children's Literature - Lib 428
† Mth 211, 212, 213 or satisfactory completion of equivalency tests given by the Mathematics Department. Students taking the 4-credit Mth 211 and 212 at PSU fall 98/99 or later are not required to take Mth 213.
† Mus 381 or approved alternates
A course from Political Science (PS 101 recommended)
Psy 200 or 204
† Psy 311
Sp 100, 215, 220, 324, 329, or SpHr 262

Courses in the recommended program are to be taken for differentiated grades; exceptions are to be approved by the adviser. Students must have at least a 3.00 GPA in the recommended program and earn at least a C- in each course of the recommended program.

Courses having multicultural and multi-ethnic content or approach should be included in the preprofessional program.

Integrated Science

Adviser: A. Johnson

The integrated science endorsement is valid for teaching all science except biology, chemistry, or physics and, thus, is the endorsement for teaching science in middle and intermediate schools. It is recommended that students wanting an integrated science endorsement either major in geology and include a year-long introductory biology course and a course in astronomy, meteorology, and oceanography, or major in general studies in science and include the following courses.

Required Courses

Credits

Stat 243 Introduction to Probability and Statistics .................................................. 4
G 201, 202 Geology .................................................................................. 6
G 204, 205 (may substitute one G 200)  Geology Lab ............................................... 2
G 351 Introduction to Oceanography ......................................................... 4
G 452 Geology of the Oregon Country .................................................. 4
ESR 150 Environmental Studies Orientation ........................................... 1
ESR 220 Introduction to Environmental Systems ........................................... 4
ESR 355 Understanding the Environment ............................................... 4
Ph 121 General Astronomy ........................................................................... 4
Bi 251, 252, 253 .................................................................................. 15
Ch 221, 222, 223, 227, 228, 229 or Ph 201, 202, 203, 204, 205, 206 .......................................................... 15-16
Geog 311 Climatology .......................................................................... 4
Psy 200 or 204, Psy 311 ................................................................................. 8
Ed 420 Intro to Education and Society .................................................. 4

Total 79-80

Electives

Credits

Select 8 credits from the following: .................................................. 8
Bi 360, 361 Marine Biology (4)
Bi 357 General Ecology (4)
Bi 341 Introduction to Genetics (4)
G 312 Mineralogy (5)
G 454 Cascade Volcanoes (2)
G 455 Minerals in World Affairs (4)
G 456 Astrogeology (4)
ESR 221 Applied Environmental Studies: Problem Solving (4)
ESR 222 Applied Environmental Studies: Science and Policy (4)
ESR 320 Analysis of Environmental Systems I (4)
ESR 321 Analysis of Environmental Systems II (4)
Ph 122 General Astronomy (4)
Ph 367 Cosmology (4)

Total 87-88

Basic Social Studies

Adviser: R.C. Mercer

Students who major in social science (or in anthropology, economics, geography, history, political science, psychology, or sociology) and wish to teach social studies in secondary schools are recommended to include the following courses in their undergraduate program:

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* Indicates courses that fulfill prerequisites to certain courses in the professional program in the Graduate School of Education and that must be completed before the deadline date for application to the Graduate School of Education.
Social Studies Endorsement

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ec 201, 202 Principles of Economics</td>
<td>8</td>
</tr>
<tr>
<td>Geog 210 Physical Geography</td>
<td>4</td>
</tr>
<tr>
<td>Hst 101, 102 Western Civilization</td>
<td>8</td>
</tr>
<tr>
<td>Hst 201, 202 History of the United States</td>
<td>8</td>
</tr>
<tr>
<td>Ps 101, 102 United States Government</td>
<td>8</td>
</tr>
<tr>
<td>Ps 204 Comparative Politics</td>
<td>4</td>
</tr>
<tr>
<td>Psy 200 or 204, Psy 311 Human Development</td>
<td></td>
</tr>
<tr>
<td>Anth 101, 102, 103 Introductory Anthropology; or Bst 302 African-American Experience in the 20th Century; or Bst 424 African-American/African Culture in Cinema; or Soc 200 General Sociology; or WS 101 Introduction to Women’s Studies, WS 342 History of Feminism</td>
<td>8</td>
</tr>
<tr>
<td>Bst 412 Oregon African-American History; or Soc 337 Minorities, or Sp 115 Introduction to Intercultural Communication</td>
<td>4</td>
</tr>
<tr>
<td>Sp 100, 220, 324, 329, or SpHr 262</td>
<td>4</td>
</tr>
<tr>
<td>Ed 420 Introduction to Education and Society</td>
<td></td>
</tr>
</tbody>
</table>

Concentration in Economics, Geography, History, or Political Science

Courses are to be taken for differentiated grades. Students must have at least a 3.00 GPA in the recommended courses and must earn at least a C- in each course.

A list of acceptable upper-division substitutes is available for many of the above lower division courses. Equivalent courses sometimes are accepted in substitution for certain of those specified, upon prior approval of the social studies secondary adviser.

Graduate Programs

Standard Teaching License

The College of Liberal Arts and Sciences offers graduate work leading to the Standard Secondary Teaching License. Appropriately prepared students may complete the requirements for the Standard Secondary License and for a Master of Arts in Teaching or a Master of Science in Teaching at the same time. The requirements for the Standard Secondary Teaching License include previous completion of the requirements for a bachelor’s degree and for a basic secondary license; admission as a graduate student (see page 56); 45 credits of upper-division or graduate work subsequent to receipt of the bachelor’s degree; completion of a standard endorsement or two basic endorsements other than combined endorsements; 15 credits (of the 45 credits) to be approved education courses; 15 credits for the endorsement(s) to be at the graduate level; and two years of successful teaching experience in Oregon schools while holding a basic teaching license. See page 205 for the required education courses.

Standard Social Studies Endorsement

The requirements for the Standard Social Studies Endorsement include at least 24 upper-division or graduate level credits in social science in addition to those required for the Basic Secondary Teaching License and the Basic Social Studies Endorsement. At least 15 of these credits must be at the graduate level. Combined undergraduate and graduate preparation should include at least 36 credits in one of the following: anthropology, economics, geography, history, political science, or sociology. No specified courses are required for the standard endorsement. Each student’s program is tailored to meet the needs of the individual and the requirements of the standard endorsement and the standard license.

Other Standard Endorsements

See the appropriate department for the requirements for other standard endorsements.

Master of Arts in Teaching or Master of Science in Teaching

The College offers the degrees of Master of Arts in Teaching and Master of Science in Teaching with a major in English (M.A.T. only), social science, mathematics, science, science/biology, science/chemistry, and science/geology.

Degree Requirements. University master’s degree requirements are listed on page 62. Major requirements are:

Social Science. The student’s program must include a minimum of 45 credits in approved graduate credits, to include a minimum of 30 credits in the social science area (economics, geography, history, political science, and sociology), and at least 9 but not more than 15 credits in education courses. Of the minimum 30 credits in social sciences, 12 credits must be earned in each of two fields of concentration; a maximum of 12 combined credits may be in courses numbered 501 and 505. Students electing the thesis option must take a minimum of 6 and a maximum of 9 credits of 503. With consent of the adviser, the two fields may be within a single social science department.

Students may elect a thesis or nonthesis (two research papers or equivalent) program. The adviser, in cooperation with an appropriate faculty member, will establish standards for thesis and research paper requirements for students working in more than one department. All students, whether in a thesis or nonthesis program, must satisfactorily complete the course of study and pass both written and final oral examinations in both the social science fields of study as well as in education.

Science. In consultation with the graduate adviser, the student should establish the degree program before the completion of 15 credits of course-work. The program must include a minimum of 45 credits in approved graduate courses, to include a minimum of 24 credits in the science area (biology, chemistry, geology, mathematical sciences, and physics). At least 9, but not more than 15 credits, must be in education courses. In order to fulfill requirements for the degree, the student must satisfactorily complete the degree program and pass both a final written and a final oral examination.
GEOGRAPHY

Geography is concerned with the earth’s thin film of life—the biosphere—and with the location of things: what accounts for the great clusters of population and for the empty areas, the forests and the cutover, the great clusters of population and the location of things: what accounts for

The geography program leads the student to an appreciation and understanding of the human environment on world, regional, and local scales; provides background and requisite training for careers in the resource, planning, environmental, or education fields; and contributes to a richer and more satisfying personal life. Geography majors are involved with activities such as urban planning and problem solving, cartography, display, statistical analysis, field study in Pacific Northwest mountains and deserts, and regional studies.

Through sharing of staff, the Department of Geography is affiliated with the College of Urban and Public Affairs, International Studies, and the PSU Center for Population Research and Census, Environmental Sciences and Resources, and other departments on campus.

The geography major requires a minimum of 52 credits in geography courses, including 8 credits in each of the following areas: geographic skills, physical geography, regional geography, and human geography.

The Department of Geography can arrange internships for majors in public agencies and businesses in such fields as planning, environmental management, GIS, or cartography. Students may earn up to 12 credits of practicum credit while they gain insights into applications of the knowledge they are gaining in the University. Student assistantships are also available, providing part-time employment.

Majors in geography may obtain information on the Geography Honors Option in the departmental office.

Requirements for Major: In addition to meeting the general University degree requirements, the major in geography must complete at least 52 credits of coursework as detailed in the four areas listed below. Of the courses presented for the major, at least a minimum of 16 credits must be at the 400-level.

- Physical Geography: 8 credits
  - Geog 210 Physical Geography (4)
  - Geog 310 Climate and Water Resources (4)
  - Geog 311 Climatology (4)
  - Geog 312 Climatic Variability (4)
  - Geog 313 Biogeography (4)
  - Geog 322 Alpine Environments (4)
  - Geog 407 Seminar in Physical Geography (4)
  - Geog 411 Climatic Analysis (4)
  - Geog 412 Geomorphology (4)
  - Geog 413 Biogeography of the Pacific Northwest (4)
  - Geog 414 Hydrology (4)
  - Geog 415 Soils and Land Use (4)
  - Geog 417 Periglacial Geomorphology (4)
  - Geog 418 Advanced Topics in Biogeography (4)

Geographic Skills: 8 credits
- Geog 380 Maps and Geographic Information (4)
- Geog 407 Seminar in Research Skills (4)
- Geog 420 Field Methods in Physical Geography (4)
- Geog 475 Digital Compilation and Database Design (4)
- Geog 480 Visual Image Analysis (4)
- Geog 481 Satellite Digital Image Analysis (4)
- Geog 485 Map Design and Production (4)
- Geog 488 Geographic Information Systems I: Introduction (4)
- Geog 490 Cartographic Studio (4)
- Geog 492 Geographic Information Systems II: Applications (4)
- Geog 495 Maps and Models (4)

Regional Geography: 8 credits
- Geog 230 Environment and Society: Global Perspectives (4)
- Geog 350 Geography of World Affairs (4)
- Geog 351 Pacific Northwest (4)
- Geog 352 The Himalaya and Tibet (4)
- Geog 353 Pacific Rim (4)
- Geog 354 Europe (4)
- Geog 356 Russia and Its Neighbors (4)
- Geog 360 Latin America (4)
- Geog 363 Africa (4)
- Geog 364 The Middle East (4)
- Geog 366 Historical Geography of North America (4)
- Geog 368 United States and Canada (4)
- Geog 407 Seminar in Regional Geography (4)
- Geog 453 Japan (4)

Human Geography: 8 credits
- Geog 230 Environment and Society: Global Perspectives (4)
- Geog 331 Economic Geography (4)
- Geog 332 Urban Geography (4)
- Geog 345 Resource Management (4)
- Geog 346 World Population and Food Supply (4)
- Geog 347 Environmental Issues (4)
- Geog 348 Cultural Ecology (4)
- Geog 349 Mountains—Cultural Landscapes (4)
- Geog 407 Seminar in Human Geography (4)
- Geog 430 Cultural Geography (4)
- Geog 432 Urban Landscapes (4)
- Geog 445 Resource Management Topics (4)
- Geog 446 Water Resource Management (4)
- Geog 448 The Urban Forest (4)
- Geog 462 Sense of Place (4)

Total credits in geography (minimum) 52

Course taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department major requirements. Geog 230 may be taken for either human geography or regional geography, but not both.

All courses used to satisfy the department major requirements must be graded C- or above.

Requirements for a Minor: To earn a minor in geography a student must complete a minimum of 28 credits in geography (at least 12 credits of which must be taken in residence at Portland State University); and 16 credits of which must be upper division), to include the following:

- Geog 210 Physical Geography ................. 4
- Geog 230 Environment and Society: Global Perspectives ..................... 4
- Geog 380 Maps and Geographic Information .... 4
- Geography electives (upper division) .... 16

Total (minimum) 28

All courses used to satisfy the department minor requirements must be graded C- or above.

SECONDARY EDUCATION PROGRAM
Adviser: D. Johnson
(See General Studies: Social Science page 131.)
GRADUATE PROGRAMS

The Department of Geography offers the degrees of Master of Arts, Master of Science, Master of Arts in Teaching, and Master of Science in Teaching (General Social Science). The department also participates in the Environmental Sciences and Resources Ph.D. program, see page 119.

Areas of primary concentration are urban geography, physical geography, resource management, culture, environment and society, GIS, and cartography. The M.A. and M.S. degrees are in part designed to meet the needs of students preparing for careers in research or administration in government and industry, urban and regional planning, and in secondary education and community college teaching. The M.A. and M.S. degrees also provide a predoctoral program in geography for students planning to take advanced work leading to professional careers in university teaching, research, or public service. Students are encouraged to follow a program that combines breadth of knowledge with depth in one field of interest.

For admission to graduate study for the M.A. and M.S. degrees, a student normally should have completed the minimum preparation for an undergraduate major in geography with a 3.00 grade point average in all work. Students with majors in other fields are encouraged to apply. Normally such students are admitted on a conditional basis, with the student required to take courses to remedy deficiencies.

In addition to the general University admission requirements for advanced degrees the student must provide the Graduate Record Examination scores and letters of recommendation from three faculty members of colleges previously attended.

Degree Requirements. University master's degree requirements are listed on page 62. Specific departmental requirements are listed below.

MASTER OF ARTS OR MASTER OF SCIENCE

The student will plan a program of study with an adviser and other members of the supervisory committee during the first term of residence.

The program of study must include a minimum of 30 graduate credits in geography for the thesis option or 36 for the nonthesis option, including the following: Geog 521 and Geog 522. All graduate students are encouraged to attend the department's colloquia.

After a student has completed at least 27 graduate credits, the student is required to take the comprehensive review, which is provided by and graded by the student's committee. If failed, the student may be allowed to retake portions of the examination or may be advised to take additional coursework.

Students seeking the M.A. degree must demonstrate their competence in the use of a foreign language for geographic research; those preparing for an M.S. degree must show proficiency in advanced skills in geography or an equivalent research technique (8 credits). Upon successful completion of the comprehensive examination and successful demonstration of the required competence, the student is advanced to candidacy.

Students in the M.A. program must complete a thesis. Those in the M.S. program may choose between thesis and nonthesis options. The thesis option is appropriate for students intending to pursue Ph.D. studies, whereas the nonthesis option is designed for students who are preparing for careers in such areas as government service or private industry. Candidates who elect to write a thesis take a minimum of 45 credits including 6 credits in Geography Thesis. The thesis option requires the presentation of the student's independent research into a topic approved by the student's graduate committee. It normally involves field work and is an original contribution to knowledge in the field of geography. A final oral examination by the student's committee includes defense of the thesis.

Candidates electing the nonthesis option take a minimum of 54 credits. Two 2-credit sections of 501 Research are undertaken to rewrite, edit, and revise two papers, at least one of which must evolve from graduate coursework in geography at PSU. A final oral presentation of one of the papers is required for completion of the degree.

Foreign students for whom English is a second language must present a score of at least 550 in the Test of English as a Foreign Language (TOEFL) with their application for admission.

MASTER OF ARTS IN TEACHING OR MASTER OF SCIENCE IN TEACHING

For information on the Master of Arts in Teaching and the Master of Science in Teaching (General Social Science), see page 133.

COURSES

Courses with an asterisk (*) are not offered every year.

Geog 199 Special Studies (Credit to be arranged.)

Geog 210 Physical Geography (4)

An introduction to the physical elements of geography and the environment in which people live. The focus is on natural processes that create physical diversity on the earth. Major topics are weather and climate, vegetation and soils, landforms, ecosystems, their distribution and significance.

Geog 230 Environment and Society: Global Perspectives (4)

An introduction to the ways in which humans, acting through social constraints and structures, have lived in and modified their environment. The spatial patterns produced from human activities (such as population growth, transportation systems, urban structure, economic development, resource use and management, and the evolution of political patterns) are considered in a global context. Case studies from several world regions illustrate the processes by which humans modify their world to create distinctive cultural landscapes.

Geog 310 Climate and Water Resources (4)

An inquiry-based examination of the principal controls on climate and hydrology, with emphasis on processes and interactions; students will do fieldwork, data analysis, and laboratory work. Prerequisite: Natural Science Inquiry. Also listed as Sci 333; course may be taken only once for credit.

Geog 311 Climatology (4)

A study of the physical processes which comprise the climatic system, from the global scale to the local scale. Particular attention is given to the nature of climatic variability, its causes, and its implications for human activity. Prerequisite: Geog 210.

Geog 312 Climate Variability (4)

Examines the role of climate variability in the Pacific Northwest, including the nature of natural and human-induced variability and the effects on water resources of the region. Students will learn by gathering data, analyzing the data, and reporting on their results. Reading and discussion will accompany the data/laboratory portions of the course. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry. Also listed as Sci 334; course may be taken only once for credit.

Geog 313 Biogeography (4)

The study of the distribution and characteristics of major plant/animal communities and soil types on a global scale. Interrelationships between organisms and their environment are stressed, as is the role of human populations in the maintenance and future of these environments. There is a full-day field trip across the Cascades to study changing vegetation types. Prerequisite: Geog 210.

Geog 320 Geomorphic Processes (4)

Study of landform processes at the earth's surface including the work of water, wind, and ice in erosion, transportation, and deposition on land and sea. The significance of geomorphic processes to human activities is included. A one- to two-day weekend field trip is required. Three lectures; one 3-hour lab. Prerequisite: Geog 210 and Mth 111.
Geog 322
Alpine Environments (4)
Examines the geocology of high elevation environments in tropical, mid-latitude, and high altitude regions with a special emphasis on the alpine environment of the Pacific Northwest.

Prerequisite: upper division standing.
The primary objective is to promote understanding of the features and processes found in alpine areas including their susceptibility to human alteration. Topics include an examination of high elevation weather and climate, geomorphology, vegetation, soils, fauna, and physical adaptations of humans to alpine conditions. Prerequisite: upper division standing.

Geog 331
Economic Geography (4)
An introduction to theories and methods of locational analysis of economic activities within agriculture, manufacturing and selected services. The course focuses on North America and includes geographic distributions, areal interaction among urban and regional economies, the processes of regional economic development, and international economic linkages. Prerequisite: upper division standing.

Geog 332
Urban Geography (4)
Introduction to the geographical factors affecting the development of the modern city. Topics include urban systems and the location of cities; residential, commercial, and industrial structure; social and physical characteristics of cities; the built environment, the urban economy; and planning the urban environment. Prerequisite: upper division standing.

Geog 335
Resource Management (4)
Survey of natural resources, their occurrence, and their management. Primary focus will be on the United States, with case studies from other countries and regions. Prerequisite: upper division standing.

Geog 336
World Population and Food Supply (4)
An introduction to the dynamics of the current national and international problems associated with population growth, unemployment, major population migrations, shortages of food and other critical commodities, and the present and potential adjustments to these situations. Prerequisite: upper-division standing.

Geog 345
Environmental Issues and Action (4)
Examines environmentalism as a phenomenon reflecting cultural appraisals of nature and society's relationship to it. Explores the history and ideology of the environmental movement, and investigates the contemporary structure, concerns, effects, critiques, and directions of environmentalism. Prerequisite: upper division standing.

Geog 348
Cultural Ecology (4)
Introduction to geographic perspectives on cultural ecology. Investigates cultural adaptation and environmental change from an ecological perspective, focusing on biomes and cultural adaptations within them. Particular attention to traditional societies and the impacts of development. Prerequisite: upper division standing.

Geog 349
Mountains—Cultural Landscapes (4)
Mountains as cultural landscapes. Exploration of the human occupation and use of mountain environments, including the long-settled mountains of Eurasia and Latin America as well as North America's mountains. Topics include human adaptation, mountain resource management and policy, and development and its impacts in highland environments. Prerequisite: Geog 322 or 348.

Geog 350
Geography of World Affairs (4)
Examines the major world trouble spots in light of long-standing political-geographical rivalries, including ethnic group rivalries, economic disparities, and conflicting historical claims. Particular emphasis will be placed on political organization of territory, nationalism, boundary conflicts, colonialism, and, where relevant, metropolitan political fragmentation. Prerequisite: upper division standing.

Geog 351
Pacific Northwest (4)
Study of the Pacific Northwest as a region of the United States. Overview of the region and its relationship to other parts of the world will be followed by an analysis of the physical environment, natural resources, agriculture, manufacturing, transportation, population, and urban development. Special attention will be paid to theoretical developments in contemporary regional geography issues. Prerequisite: upper division standing.

Geog 352
The Himalaya and Tibet (4)
Survey of the physical and cultural landscapes of the Himalaya-Hindu Kush and the Tibetan Plateau. It investigates not only the places and peoples within it but also ideas about it and their influence on its history and present situation.

Geog 353
Pacific Rim (4)
Provides a comprehensive look at the events and people shaping the last 150 years of Asia-Pacific history and relates them to Pacific Basin relationships today. Reveals how, from the 19th century onward, modern nations have emerged from the rich and varied cultures and society of Pacific Asia. Particular emphasis is placed on political and economic geography of East Asia in relation to contemporary American and Japanese interests in the region. Prerequisite: upper division standing.

Geog 354
Europe (4)
Focuses on the changing economic and political geography of Europe, post World War II, and the adjustments to changing world conditions. Analysis of the geographic conditions of individual countries. Examines their population, urban and rural settlements, physical geography, agriculture, and industry. Prerequisite: upper division standing.

Geog 356
Russia and Its Neighbors (4)
An exploration of the USSR by topic and region. The course looks at the nature and significance of the country's huge size and diversified physical environment, examines the origins and implications of its multinational character, and analyses patterns of agricultural production and industry, with consideration of the distinctive institutions that have shaped them. Prerequisite: 6 credits in appropriate social science.

Geog 360
Latin America (4)
Analysis of changing landscapes and lifeways in Latin America. The focus is on physical, cultural, and economic forces that have interacted to create a distinctive world region. Particular attention is given to the impact of large scale issues such as global climate change, trade, the environment, and the debt crisis on the lands and lives of everyday people in the region. Prerequisite: upper division standing.

Geog 363
Africa (4)
A survey course on the physical and human geography of the continent of Africa, focusing on the variability of the physical landscape, including geomorphology, vegetation, and climate and on the patterns and implications of cultural diversity. Examines links between natural resources, economic development, and environmental management on location, national and regional scales. Case studies from various countries and regions will be used. Prerequisite: upper division standing.

Geog 364
The Middle East (4)
A survey of the physical and cultural landscapes of southwestern Asia and North Africa, emphasizing the interaction of environmental factors and dynamic economic and political forces in the region as a whole. Problems common to the nations of the region are examined, including the difficulties of political cohesion, urbanization, and ecological impacts of tradition and contemporary land-use practices. Prerequisite: upper division standing.

Geog 366
Historical Geography of North America (4)
A survey of the evolving geography of North America during the last four centuries, the formation and growth of regions from the initial period of European exploration and colonization to the present. Topics include the acquisition of geographical knowledge; cultural transfer and acculturation; westward expansion; resource exploitation; regional and national integration; and landscape change. Prerequisite: upper division standing.

Geog 368
United States and Canada (4)
Survey of the evolving geography of North America during the last four centuries, the formation and growth of regions from the initial period of European exploration and colonization to the present. This course includes the acquisition of geographical knowledge; cultural transfer and acculturation; westward expansion; resource exploitation; regional and national integration; and landscape change. Prerequisite: Geog 366.

Geog 380
Maps and Geographic Information (4)
Examines maps as communicative tools, analytical devices, and cultural artifacts. Fundamental concepts such as scale, projection, coordinate systems, are reviewed and applied to higher level measurement and analytical methods with thematic and topographic maps. The data requirements and information content of maps are considered with respect to emerging digital geospatial technology.
Geog 309  Spatial Studies (Credit to be arranged.)
Geog 401/501  Research (Credit to be arranged.)
Consent of instructor.
Geog 403/503  Thesis (Credit to be arranged)
Consent of instructor.
Geog 404/504  Cooperative Education/Internship (Credit to be arranged.)
Geog 404 Pass/no pass only. Consent of instructor.
Geog 405/505  Reading and Conference (Credit to be arranged.)
Consent of instructor.
Geog 407/507  Seminar (Credit to be arranged.)
Geog 409/509  Practicum (Credit to be arranged.)
Geog 409 Pass/no pass only. Consent of instructor.
Geog 410/510  Selected Topics (Credit to be arranged.)
Geog 411/511  Climatic Analysis (4)
Nature of climatic data sets, methods of acquisition, and techniques of analysis. The emphasis will be on the study of climate variability and its implications for the management of natural resources. Prerequisite: Geog 311 and Stat 243 and 244.

Geog 413/513  Biogeography of Pacific Northwest (4)
Study of the character and distribution of natural environments of the Pacific Northwest with focus on vegetation, wildlife, and soils. Classical problems in biogeography are discussed, e.g., origin of grasslands, and relationship between needleleaf and broadleaf forests. Vegetation types are studied within the context of climatic climax zones. There are two half-day and two full-day field trips. Prerequisite: Geog 313.

Geog 414/514  Hydrology (4)
A detailed analysis of the physical processes of the hydrologic cycle, emphasizing an applied approach for the purposes of resource management and environmental analysis: precipitation, runoff processes, evapotranspiration, soil water, flooding and floodplain utilization, and techniques of hydrologic data analysis. Prerequisites: Geog 210 and Mth 243 and 244.

Geog 415/515  Soils and Land Use (4)
The origin, development and distribution of soils and the significance of soil to man. Examines the importance of soil to landforms, vegetation, and ecological development. Major emphasis is given to land use potentials and limitations on various kinds of soils with focus on urban and agricultural settings. There are two half-day field trips. Prerequisite: Geog 210.

Geog 416/516  Extreme Environments (4)
Deals with the tundra, desert, and tropical rainforest. Stress will be placed on comparing and contrasting ecologic and environmental processes operative in these environments. Topics of discussion include such things as: life strategies and adaptive processes, concepts of succession and climax, rates of biomass productivity, weathering, and erosional processes, and landscape evolution. Prerequisite: Geog 313.

Geog 417/517  Periglacial Geomorphology (4)
Deals with landscapes of the cold climate areas of the world, i.e., polar regions, high mountains, and former areas around the margins of the continental glaciers. The course involves in-depth readings and discussions of a wide range of topics from the distribution and origin of permafrost, to an analysis of specific landforms, to the impact of humans on these environments. There are two full-day field trips to visit and observe periglacial phenomena in the Pacific Northwest. Prerequisite: Geog 412.

Geog 418/518  Advanced Topics in Biogeography (4)
Seminar course examines new developments in biogeography and their relationship to established biogeographic theory. Each offering will investigate one or more advanced topics in biogeography such as vegetation dynamics (plant succession and disturbance), island biogeographic theory, biodiversity, and ecotones, ecoclines, and edges. May be repeated with different topics. Prerequisites: Geog 313, Bi 357, or graduate standing.

Geog 420/520  Field Methods in Physical Geography (4)
Introduces students to field methods in physical geography. The goal is to familiarize the student with field techniques including research and sampling design, field measurements and mapping, data analysis and report writing and the use of field equipment. Field and lab exercises will focus on the examination of natural patterns and processes and those resulting from human activity. Techniques involving vegetation sampling, soil description, microclimatic conditions, and geomorphologic processes will be covered. Prerequisite: eight hours of upper-division physical geography or graduate standing.

Geog 430/530  Cultural Geography (4)
explores cultural geography as a subfield of the discipline. Examines the major organizing concepts of cultural geography—cultural ecology, region, landscape, and cultural landscapes. Focus is on how these concepts are used in cultural geography, the evolution of research in each area, how the use and application of the concepts have changed over time, current theoretical developments, and how this subfield of geography fits into the discipline. Includes field work project. Prerequisite: Geog 230.

Geog 432/532  Urban Landscapes (4)
Analysis of the contemporary built environment of metropolitan areas; social, cultural, political, and economic forces that have given cities their form and image; historical processes of urban development; and messages and meanings of our surroundings. Focuses on common urban landscapes as well as designed spaces. In individual and group projects, students analyze the interrelationships of land use, residential density, street pattern, homes and yards, and open spaces in the Portland metropolitan area. Prerequisite: Geog 332.

Geog 434/534  Metropolitan Economic Geography (4)
Study of how North American metropolitan areas are organized economically and geographically and how spatial distributions are altered under the impact of socioeconomic and technological change. Topics include industrial location, retail trade, public services, and housing. Prerequisite: Geog 331.

Geog 443/545  Resource Management Topics (4)
Focuses on advanced topics in administration and management of natural resources. Reviews historical issues and today’s struggles for a sustainable approach in the development of natural resource policy. Emphasis will vary, e.g. water resources, energy resources, public lands. Prerequisite: Geog 345.

Geog 446/546  Water Resource Management (4)
Analysis of the distribution, use and management of water resources, emphasizing the systems of water rights, legislation, and regulations which govern water resources. Issues of water development and water quality are examined. Focus is on U.S. water resource, with case studies from other countries and regions. Examples are drawn from local, regional, and international water resource management schemes. Prerequisite: Geog 345.

Geog 448/548  The Urban Forest (4)
Examination of issues related to trees in the urban environment. Topics will include the values and roles of urban trees, species identification, site selection, spatial structure of the urban forest, management and regulation of urban trees, and techniques for evaluating the health of the urban forest and public and governmental efforts to promote urban trees. Prerequisite: one or more of Geog 313, 413, 415, 432/532, Bi 334.

Geog 450  Geography of Portland (4)
Analysis of the geography of Portland. Lectures and guided field work. Students will work on group projects on specific topics involving research, data collection and analysis with oral and written presentations. Prerequisite: 12 credits of geography.

Geog 453/553  Japan (4)
The course focuses on the major geographical factors underlying Japan’s rise to industrial and economic greatness in the present day. The main emphasis is upon the rise and development of cities and industry, the agricultural characteristics of Japan, and its contemporary trade relationship with the Pacific Northwest. Prerequisite: Geog 335.

Geog 462/562  Sense of Place (4)
Places are created by people, infused with meaning, and tied to personal experience. This course explores meaning in landscapes and identity in places, regions, and localities. It looks at places through three frameworks: place description and depiction (in media images, popular narratives, scholarly writings, photography, and art); the meanings and messages of places; and our personal experience and connections to places. Topics include: the distinctiveness of places,
bioregional influences, personal memory and place, creating meaning in places, global-local tensions, territoriality, and contested places.

Geog 475/575
Digital Compilation and Database Design (4)
Class in applied geographic information systems featuring the project development of new digital geo-spatial data. Students learn to digitize existing map documents, design information databases to be used with these data, and employ a standardized documentation format to describe the database. Prerequisites: Geog 488/588, prior or concurrent enrollment in Geog 492/592.

Geog 480/580
Visual Image Analysis (4)
Visual interpretation and measurement from remotely sensed imagery used for mapping and spatial data development. Analysis of air photo pattern recognition and scale distortions. Examination of various satellite imaging platforms and product characteristics. Prerequisite: Geog 380.

Geog 481/581
Satellite Digital Image Analysis (4)
Interpretation and measurement from digital satellite imagery used for interpretation of the earth's surface. Analysis will be largely based on the application of computer technology to imagery. The emphasis will be on natural landforms and vegetative cover. Prerequisite: Geog 480.

Geog 485/585
Map Design and Production (4)
Introduction to the planning and execution of a map, with special emphasis on the arrangement of its graphic elements. Students will use cartographic and illustration software in the compilation, design and production of maps. Prerequisite: Geog 380.

Geog 488/588
Geographic Information Systems I: Introduction (4)
Use of computers in Geographic Information Systems (GIS) and mapping. Includes theory of data bases related to geographic information management and practical aspects of database design. Students will use a variety of programs for mapping and spatial analysis of geographic information. Each student completes a series of lab exercises demonstrating a variety of approaches to the analysis and display of spatial data. Students enrolling in this class also must register for a computer lab section. Also listed as USP 591. Prerequisite: Geog 380 or equivalent experience in cartography.

Geog 490
Cartographic Studio (4)
Advanced workshop course on cartographic design, production, and analytical methods. Students in this class will demonstrate their ability to plan and execute a major cartographic project. Suitable projects could include but are not limited to: a unique map design, a series of maps illustrating a theme, or an analytical model. Prerequisites: Geog 380 and 480, 481, or 488.

Geog 492/592
Geographic Information Systems II: Applications (4)
Analysis and applications of geographic information systems concepts and technology to land planning and management issues. The multipurpose land information systems concept is used as an organizing device for spatial registration of data layers to achieve data sharing and compatibility among functions. User needs assessment and systems design provides the basis for systems procurement, implementation, and use. Students enrolling in this class also must register for a computer lab section. Also listed as USP 592. Prerequisite: Geog 488/588 or USP 591.

Geog 495/595
Maps and Models (4)
Analysis and display of spatial data, emphasizing environmental topics within the framework of the raster data model. Topics include the nature of systems and models, cartographic model development, model implementation procedures, raster-to-vector data conversion, and the incorporation of digital remote sensing data into map models. Prerequisite: consent of instructor.

Geog 521
Geographic Thought (4)
Geography as a professional field. The first half of the course deals with the history of geographic thought and literature. The second half focuses on the role of geography among the arts and sciences and on more recent developments in the field. Required of all graduate students in geography.

Geog 522
Research Design (4)
A guided program for preparing graduate research papers and theses in geography. Attention is given to formulating topics, developing hypotheses, determining researchability, acquiring and analyzing data, developing conclusions, and organizing and writing reports.

Geog 542
Livable Cities (4)
Analysis of social geography, quality of life, and sustainability in metropolitan areas. Topics include geographical patterns of ethnicity, class, and gender, relationships of homes and workplaces, provision of services; and design of the built environment. Emphasis on the processes and meanings that underlie the spatial patterns and dynamics of social issues in American central cities and their suburbs. Prerequisite: Geog 332 and 432/532.

Geog 586
Geographic Conversations (2)
Exploration and critical evaluation of contemporary research in geography. Focus is on reading and group discussion of recent journal literature aimed at understanding the development of ideas, methodologies, and philosophies. Themes will vary each term: cartography, physical geography, resource issues, human geography and other topics. Pass/no pass only, maximum 6 credits may be used toward graduate degree program.

Geog 601
Research (Credit to be arranged.)

Geog 603
Thesis (Credit to be arranged.)

Geog 605
Reading and Conference (Credit to be arranged.)

Geog 607
Seminar (Credit to be arranged.)

Geology

17A Cramer Hall
725-3022
www.geol.pdx.edu/

B.A., B.S.
Minor
Secondary Education Program
M.A., M.S.
M.A.T. and M.S.T. (Science/Geology)
Ph.D.—Environmental Sciences and Resources: Geology

UNDERGRADUATE PROGRAMS

The Department of Geology offers programs leading to the bachelor's and master's degrees in geology, as well as studies in geophysics, geochemistry, geomicrobiology, hydrogeology, engineering, and environmental geology.

The programs serve both majors and nonmajors in geology: those who may wish to broaden their science background; those preparing to teach general or earth sciences or geology in elementary or secondary schools; and those preparing for a master's or a doctoral degree.

Postbaccalaureate students (with a bachelor's degree, not in geology) who wish to become professional geologists may complete this curriculum while doing both undergraduate and graduate work in geology.

Geologists are employed by government agencies at federal, state, county, and city levels, by independent consulting firms to work with engineers, architects and plan-
ners; in the construction, mining, and petroleum industries; and as teachers in elementary and high schools and at the college level.

Geologists who have graduated from PSU are employed, for example, as environmental regulators; in environmental cleanup; drainage basin analysis; evaluating the effects of forest roads and quarries; determining the dangers of ground water contamination by a proposed industrial site; prospecting for geothermal power sites; water supply; GIS, and in teaching at all levels.

A student majoring in geology should plan to complete the required mathematics, chemistry, and physics courses as early in their program as possible.

### Requirements for Major Leading to the B.S. Degree in Geology

In addition to meeting the general University degree requirements, the major leading to the B.S. degree in geology must meet the following departmental requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>G 201, 202 Geology</td>
<td>6</td>
</tr>
<tr>
<td>G 204, 205 Geology Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>G 312 Mineralogy</td>
<td>5</td>
</tr>
<tr>
<td>G 313 Petrology</td>
<td>5</td>
</tr>
<tr>
<td>G 318 Processes in the Surface</td>
<td></td>
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<tr>
<td>G 326 Numerical Modeling of Earth Systems</td>
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<tr>
<td>G 324 Computer Applications and Information Technology</td>
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<tr>
<td>G 326 Numerical Modeling of Earth Systems</td>
<td>4</td>
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<tr>
<td>G 485 Field Studies in Geoscience</td>
<td>4</td>
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</tbody>
</table>

**At least 24 credits of electives must be chosen from upper-division geology courses (excluding G 333, G 351, G 355, G 430, G 441, G 452, G 454, G 455, G 456, and G 457). This may include up to 6 credits of upper-division science or engineering courses approved by the undergraduate adviser. Students may use up to 4 credits from an approved summer field camp course.**

**Subtotal** 42

### Supporting Courses

| Mathematics through calculus to include Mth 251, 252, 253, 254       | 16      |
| One year of college chemistry or equivalent with labs               |         |
| One year of 200-level biology with labs                             | 13-16   |
| One year of 200-level biology with labs, or Ph 211, 212, 213, 214  | 8-15    |

**Subtotal** 41-51

### Requirements for Major Leading to a B.A. Degree in Geology

In addition to meeting the general University degree requirements, the major leading to the B.A. degree in geology must meet the following departmental requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>G 201, 202 Geology</td>
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<tr>
<td>G 204, 205 Geology Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>G 312 Mineralogy</td>
<td>5</td>
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<tr>
<td>G 314 Petrology</td>
<td>5</td>
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<tr>
<td>G 318 Processes in Surface Environments</td>
<td>5</td>
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<tr>
<td>16 credits selected from the following courses</td>
<td>16</td>
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<tr>
<td>G 374 Geomorphic Processes</td>
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<td>G 420 Applied Geophysics</td>
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<td>G 440 Volcanology</td>
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<tr>
<td>G 442 Igneous Petrogenesis</td>
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<td>G 443 Groundwater Geology</td>
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<td>G 445 Geochemistry</td>
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<td>G 447 Environmental Sediment Transport</td>
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<tr>
<td>G 448 Chemical Hydrogeology</td>
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<tr>
<td>G 460 Morphology and Genesis of Soils</td>
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<tr>
<td>G 470 Engineering Geology</td>
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<tr>
<td>G 475 Introduction to Seismology and Site Evaluation</td>
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<tr>
<td>G 484 Field Geophysics</td>
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<tr>
<td>8 credits from the following courses</td>
<td>8</td>
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<tr>
<td>G 333 Evolutionary Concepts</td>
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<tr>
<td>G 351 Introduction to Oceanography</td>
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<tr>
<td>G 430 Life of the Past</td>
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<tr>
<td>G 451 Geology of the Portland Area</td>
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<tr>
<td>G 452 Geology of the Oregon Country</td>
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<tr>
<td>G 454 Cascade Volcanoes (3 credits maximum)</td>
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<tr>
<td>G 455 Minerals in World Affairs</td>
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<tr>
<td>G 456 Astrogeology</td>
<td></td>
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<tr>
<td>G 457 Volcanoes and Earthquakes</td>
<td></td>
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<tr>
<td>G 461 Environmental Geology</td>
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</tbody>
</table>

**Subtotal (minimum)** 48

### Requirements for a Minor

**To earn a minor in environmental geology, a student must complete 29 credits (at least 14 credits of which must be taken in residence at PSU) to include the following:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>G 200 Field Studies</td>
<td>1</td>
</tr>
<tr>
<td>G 201, 202 Geology</td>
<td>6</td>
</tr>
<tr>
<td>G 204, 205 Geology Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>Fifteen upper-division credits chosen from:</td>
<td>15</td>
</tr>
<tr>
<td>G 312 Mineralogy</td>
<td></td>
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<tr>
<td>G 314 Petrology</td>
<td></td>
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<tr>
<td>G 318 Processes in Surface Environments</td>
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<td>G 333 Evolutionary Concepts</td>
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<td>G 351 Introduction to Oceanography</td>
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<tr>
<td>G 420 Applied Geophysics</td>
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<td>G 430 Life of the Past</td>
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<td>G 440 Volcanology</td>
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<td>G 442 Igneous Petrogenesis</td>
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<td>G 443 Groundwater Geology</td>
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<td>G 445 Geochemistry</td>
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<td>G 447 Environmental Sediment Transport</td>
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<td>G 448 Chemical Hydrogeology</td>
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<tr>
<td>G 451 Geology of the Portland Area</td>
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<tr>
<td>G 452 Geology of the Oregon Country</td>
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<tr>
<td>G 454 Cascade Volcanoes (3 credits maximum)</td>
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<tr>
<td>G 455 Minerals in World Affairs</td>
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<td>G 456 Astrogeology</td>
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<td>G 457 Volcanoes and Earthquakes</td>
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<tr>
<td>G 461 Environmental Geology</td>
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<tr>
<td>G 470 Engineering Geology</td>
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</tbody>
</table>

**Total** 28

### Supporting Courses

12 Upper-division credits chosen from geology, urban studies and planning, and economics preapproved by the undergraduate adviser.

**Students may qualify to teach geology or geology.**

**Upper-division or geology courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling departmental major requirements.**

### SECONDARY EDUCATION PROGRAM

**Advisor: M.L. Cummings**

Students may qualify to teach geology and general science in middle and high schools by completing the education requirements listed on page 132 for integrated science.

Courses are to be taken for differentiated grades, except for those offered only on a pass/no pass basis. Students must have at least a 2.50 GPA in the endorse-
ment and must earn at least a C in each course of the endorsement.

It is recommended that students who want to teach science in grades K-9 major in geology and include a year-long introductory course in biology and a course in meteorology, astronomy, and oceanography, or major in general studies in science and complete the integrated science program on page 132.

Science courses are to be taken for differentiated grades, except for those offered only on a pass/no pass basis. Students must have at least a 2.75 GPA in science courses and must earn at least a C in each course.

**GRADUATE PROGRAMS**

The Department of Geology offers programs leading to the Master of Arts or Master of Science in geology, an option in geohydrology, the Master of Arts in Teaching or Master of Science in Teaching (Science), and to the Ph.D. degree in environmental sciences and resources.

The M.A./M.S. program is designed to train geology students beyond the baccalaureate degree for professional employment or for advanced graduate work. The M.A./M.S. program is offered for teachers in secondary schools and community colleges.

The department is an active participant in the Environmental Sciences and Resources Doctoral Program. Specialized studies in hydrogeology, geomicrobiology, economic geology, environmental geology, engineering geology, and applied stratigraphy, along with multidisciplinary environmental sciences courses and seminars, will partially fulfill the requirements for the Ph.D. in environmental sciences and resources. For information relative to the Ph.D. program in environmental sciences and resources/geology, see page 117.

To be admitted to the graduate degree program, the student must have a baccalaureate degree in geology or its equivalent, as determined by the departmental graduate committee. It is recommended that the General and Advanced Graduate Record Examination in Geology be taken before admission.

**Degree Requirements.** University master's degree requirements are given on page 62. Specific departmental requirements for the M.S./M.A. are:

1. Completion of a minimum of 45 credits in approved graduate courses.
   a. Students must take G 553 Regional Geology.
   b. Students must take G 523 Computer Application in Geology unless already taken as G 423 as an undergraduate.
   c. Students must take three quarters of G 507 Graduate Seminar (P/NP only).
   d. Students must take at least 8 credits in geology courses numbered 610 or higher.
   e. Students must take at least another 12 credits (16 credits if G 423 Computer Application in Geology was completed as an undergraduate) in the field of geology from G 510 or higher level courses.
   f. A maximum of 9 credits will be allowed for courses numbered 501 Research, 504 Cooperative Education/Internship, 505 Reading and Conference, or 506 Special Problems.
   g. Students must complete at least 6 credits of G 503 Thesis (P/NP only); up to 9 credits can count for the degree.
2. Completion of the Advanced Graduate Record Examination in Geology, taken before the second term of regular admission; scores will be evaluated for deficiencies.
3. Completion of field camp (could have been taken as an undergraduate) or equivalent as approved by the field camp director.
4. Presentation of a thesis.
5. Completion of a final oral examination on the subject area and the research project.

**M.S. in Teaching or Master of Science in Teaching**

The College of Liberal Arts and Sciences offers the M.A.T./M.S.T. degrees in Science/Geology. To be admitted to the M.A.T./M.S.T. program in Science/Geology, a student must hold a bachelor's degree in geology, or in the physical or life sciences—including the equivalent of a minor in geology. Students must take the general Graduate Record Examination and submit scores before admission for advising purposes.

In consultation with the graduate adviser, the student should establish the degree program before the completion of 15 credits of coursework. The program must include a minimum of 45 credits in approved graduate courses, to include a minimum of 30 credits in geology and related sciences, 6 credits in G 506, and 6 credits in courses numbered G 510 and above. At least 9 credits, but no more than 15 credits, must be in education courses. In order to fulfill requirements for the degree, the student must satisfactorily complete the degree program and pass both a final written examination and a final oral examination.

**Courses**

Courses with an asterisk (*) are not offered every year.

G 199 Special Studies (Credit to be arranged.)
G 200 Field Studies (1)

Participation in field trip exercises to enhance the understanding of materials and processes taught in corresponding lower division geology courses. Field studies areas include: coast, mountains; Portland area, Eastern Oregon, etc. Lecture, field trip, and completion of workbook required. Maximum of one credit in each field studies area. Prerequisite: Previous or concurrent enrollment in the corresponding lower-division geology course.

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*The Graduate Record Examination in Geology must be taken before the second term of regular admission to graduate work (see Degree Requirements, see above).*
G 201, 202
Geology (3, 3)
G 201, 202 Physical Geology: study of earth's materials, structures, and the processes that have changed the earth's surface throughout geologic time, in the light of the unifying Plate tectonics model. Requires concurrent enrollment in G 204 for G 201, and G 205 for G 202. Classes will meet the requirements for science with an integrated laboratory experience

G 204, 205
Geology Laboratory (1, 1)
Laboratory work to accompany G 201, 202 involving basic geologic principles and processes emphasizing rocks, minerals, topographic and geologic maps. One 2-hour laboratory period. Concurrent enrollment in G 201, 202 respectively is required.

G 301
Geology for Engineers (3)
A study of the origin, interior, and crustal materials of the earth: the natural processes which have built it up, deformed, and torn down the crust throughout geologic time: the environmental interrelationships between man and geologic processes and resources stressing application to engineering. For majors in civil engineering.

G 311
Mineralogy (5)
Description, classification, and genesis of minerals. Introduction to optical mineralogy. Three lectures, two 2-hour laboratory periods. Prerequisite: one year of general chemistry.

G 314
Petrology (3)
Origin, classification, and distribution of igneous, metamorphic, and sedimentary rocks. Composition of the earth crust and mantle. Emphasis on rock type assemblages and their genesis occurring at major plate tectonic environments as represented by active/passive continental margins, rift zones, ocean basins and trenches, ocean islands, continent-continent collision belts, and stable cratons. Three lectures, two 2-hour laboratory periods. Prerequisite: G 312.

G 318
Processes in the Surface Environment (5)
Physical processes occurring in the upper crust including tectonic provenances, weathering, mass transport, fluid-sediment transport, depositional environments, stratigraphic sequences, and intrastatal diagenees. Three lectures, two 2-hour laboratory periods. Prerequisite: G 312.

G 322
Global Biogeochemical Cycles (5)
A survey course in biogeochemistry from an earth history perspective. Study of the origin and evolution of Earth and its biogeochemical cycles; survey of the microbial and chemical reactions that occur within the atmosphere, lithosphere, hydrosphere and the biosphere; study of the mechanistic understanding of biogeochemical interactions to a large-scale, synthetic view of global biogeochemical cycles. Three lectures and two 2-hour laboratories. Prerequisite: one year of chemistry.

G 324
Computer Applications and Information Technology (5)
Application of digital computers to problems in geology through familiarization with software and hardware for collecting, processing, analyzing, and presenting data. Topics covered include use of databases, spreadsheets, programming, analysis of data collected along a traverse, over a map area, and multivariate data. Applications to stratigraphic sections, chart recordings, sample locations, mapping, trend surfaces, and clustering. Three lectures and two 2-hour laboratories. Prerequisite: Mth 251 or concurrent enrollment.

G 326
Numerical Modeling of Earth Systems (5)
Application of modeling software to chemical, biological and physical global systems. Introduction to numerical methods, such as finite-elements and finite-differences, for solving systems of equations that describe geological processes. Three lectures and two 2-hour laboratories. Prerequisite: Mth 252 or concurrent enrollment.

G 333
Evolutionary Concepts (4)
Designed to provide background in evolutionary concepts for non-majors and to address current issues in evolution as they are perceived and are being investigated by scientists in biology and geology. This is a combined lecture and discussion class and will include occasional guest lecturers presenting their research and views on various topics in evolution. A recitation is included for discussion and assistance with the required research paper. Credit can only be earned in one sponsoring department.

G 344
Geology and the National Parks (4)
Covers the geology that one finds in our national park system. Parks will be grouped by similar geologic basins. This course includes several laboratory experiences. Useful for general studies, teachers and environmental science majors. Prerequisite: upper-division standing.

G 355
Geosciences for Elementary Educators (4)
An integrated survey of concepts from geology, astronomy, and climatology for students interested in elementary education. Course will be designed around suggested content in the Oregon Content Standards.

G 374
Geomorphic Processes (4)
A study of landform processes at the earth's surface including the work of water, wind, and ice in erosion, transportation, and deposition on land and sea. The significance of geomorphic processes to human activities is included. A one to two-day weekend field trip is required. Three lectures and one 3-hour laboratory. Prerequisite: G 202.

G 399
Special Studies (Credit to be arranged.)

G 401/501
Research (Credit to be arranged.)
Prerequisite: G 405.

G 404/504
Cooperative Education/Internship (Credit to be arranged.)

G 405/505
Reading and Conference (Credit to be arranged.)

G 407/507
Seminar (Credit to be arranged.)

G 410/510
Selected Topics (Credit to be arranged.)
Consent of instructor.

G 420/520
Applied Geophysics (4)
Principles of geophysical measurement and interpretation, seismology, gravimetry, isostasy, geomagnetism, terrestrial electricity. Includes a survey of geophysical exploration techniques. Three lectures, one 2-hour lab. Prerequisites: one year of general physics, one year of calculus.

G 423/523
Computer Application in Geology (4)
Application of digital computers to problems in geology. Topics covered are analysis of data collected along a traverse, over a map area, and multivariate data. Application to stratigraphic sections, chart recordings, sample locations, mapping, trend surfaces, and clustering. Two lectures and one 4-hour laboratory. Prerequisite: one year of calculus.

G 424/524
Geographical Information Systems for the Natural Sciences (4)
Spatial data are input, analyzed and displayed. Techniques covered include data management, projections and reference datum, digitizing, raster and vector operations, spatial statistics. Class projects apply data management and analysis techniques to the natural sciences. Weekly professional quality lab reports are required. GIS tutorial followed by a gateway exam is used to demonstrate mastery of introductory material. Prerequisite: science background, basic statistics assumed.

G 430/530
Life of the Past (4)
Origin and development of plants, animals and man on earth, as interpreted from the study of fossils and the sedimentary rocks in which they occur. Includes integrated laboratory and field experience.

G 434
Structure - Stratigraphy (4)
Study of origin, interpretation, and mapping of major and minor geologic structures. Principles and techniques of recognition, interpretation, and correlation of stratified rock units used to establish time histories of tectonic, volcanic, and surficial processes, environments of deposition. Two lectures and two 2-hour laboratories. Prerequisite: G 318.

G 437/537
Analytical Methods (4)
Fundamentals, applications, and use of analytical methods in the analysis of earth materials. Analytical methods will include optical and X-ray methods and introduction to microthermometric analysis, differential thermal analysis, and granulometry. Two lectures; two 2-hour labora-
tory periods. Prerequisite: G 312, one year of general physics, radiation safety certification (acceptable as a corequisite).

G 440/540 Volcanology (4)
Classification of volcanic rocks and volcanic stratigraphic units; eruptive mechanisms; modes of volcanic deposition; recognition, mapping, and correlation of volcanic units; and stratigraphic syntheses of volcanic terranes. Two 75-minute lectures, one 2-hour laboratory. Field trip is required. Prerequisite: G 314.

G 442/542 Igneous Petrogenesis (4)
Investigation into the origin and evolution of magmas and igneous rocks suites using geochemical and petrographic methods, differentiation of the earth through time, global element cycles driven by igneous processes. Two lectures; two 2-hour laboratory periods. Prerequisite: G 314.

G 443/543 Ground Water Geology (4)
Study of the physical and chemical properties of underground water; the physical properties of aquifers and their control and effect on the contained waters; water movement and the conservation and utilization of existing ground water bodies as well as development of new water bodies and rejuvenation of depleted and starved aquifers. Prerequisites: one year of calculus, general physics, general chemistry.

G 444/544 Well Dynamics (4)
Study of the interactions of water wells and an aquifer system, including all types of aquifer systems and pump tests to analyze those systems, well drilling and design, pump selection, and groundwater explorations. Prerequisite: G 443.

G 445/545 Geochemistry (4)
A survey of geochemistry. Emphasis on distribution of elements in the earth, nuclear geochemistry and thermodynamics of geologic systems. Prerequisite: G 314.

G 447/547 Environmental Sediment Transport (4)
The study of low temperature aqueous ground-water geochemistry with emphasis on factors which change chemical composition of ground-water and factors which influence the transport of both inorganic and organic contaminants. Topics will include geochemistry of equilibrium reactions, mineral solubility, complexing, oxidation-reduction reactions, surface reactions and vadose zone processes. Prerequisites: one year of chemistry, G 443/543.

G 451/551 Geology of the Portland Area (2)
A survey of the geology of the Portland area through a combination of lectures and field trips. An intensive study of published and unpublished information on the geology of the greater Portland area including stratigraphy, structure, geomorphology, and historical geology. Primarily designed for geology majors, professional geologists/engineers, and geology teachers. A basic knowledge of general geology, equivalent to G 201 and 202 is assumed.

G 452/552 Geology of the Oregon Country (4)
Origin and geologic history of landscape features in Oregon and the Pacific Northwest. Two lectures; one 2-hour laboratory period; one hour recitation. Prerequisites: upper-division standing and one of the following: G 202, 351, 430, 455.

G 454/554 Cascade Volcanoes (1)
Field course in the study of one or more Cascade volcanoes-origin and development of volcano, eruptive mechanism, deposits, rock types, and hazards. Course may be repeated for different volcano studies. Offered summers. Prerequisites: upper-division standing and one prior course from the following: G 201, 202, 452/552. May be used to meet requirements for the B.A. in geology. May not be used to meet requirements for the B.S. in geology.

G 455 Minerals in World Affairs (4)
The geologic origin and occurrence of metals, fuels, and industrial minerals and rocks; their geographic distribution and relative abundance or lack among nations; the rules and principles which influence their past, present, and future exploration, development, and use. Prerequisite: upper-division standing.

G 456/556 Astrogogeology (4)
Geology and astronomy are combined to explore the evolution of the Universe and the Solar System. Comparative geologic evolution of the planets is emphasized. A significant component of the course is hands-on geologic field investigations and astronomical observations.
Astrobiology focuses on issues surrounding the origin and evolution of life on earth, the environmental conditions required for life elsewhere, and the potential for life on other planets and satellites in our solar system. Additional topics include the discovery, occurrence, and habitability of extrasolar planets, and the philosophical and societal implications of searching for life beyond earth.

G 457/557
Volcanoes and Earthquakes (4)
A study of volcanoes and earthquakes as they affect humans and the development of landscapes. A field trip is required. Prerequisite: an introductory science course.

G 458/558
Astrobiology (4)
Astrobiology focuses on issues surrounding the origin and evolution of life on earth, the environmental conditions required for life elsewhere, and the potential for life on other planets and satellites in our solar system. Additional topics include the discovery, occurrence, and habitability of extrasolar planets, and the philosophical and societal implications of searching for life beyond earth.

G 460/560
Soil Geomorphology (4)
Effects of climate, vegetation, parent material, topography, and time on the development, weathering, classification, and chemistry of soils. Two 75-minute lectures and one 2-hour laboratory included. Prerequisites: G 201, 202, Ch 200-level (1 year).

G 461/561
Environmental Geology (4)
Study of natural hazards and related land use planning (floods, landslides, earthquakes, volcanic, coastal) waste disposal and pollution in the geological environment, water supply, mineral and energy resources, environmental law related to geology, medical geology, climatic change. Two 75-minute lectures and one 2-hour laboratory included. Prerequisites: general chemistry (1 year), G 201, 202.

G 465/565
Glacial Geomorphology (4)
The investigation of the importance of glaciers to landscape modification and global environmental change via an understanding of their formation, structure, mass and energy exchange, and movement. Erosion and deposition processes will also be examined. This class adopts the process perspective whereby understanding the physical processes provides significant insight into the relative importance of the controlling mechanisms of change. Field trip is required. Prerequisites: introductory geology, physical geography, or geomorphology course.

G 470/570
Engineering Geology (4)
Applications of geological information to engineering problems: soil mechanics, rock mechanics, construction materials, groundwater and construction, instrumentation, exploration, terrain models, landslide analysis. Three hours of lecture and two hours of lab per week. Labs stress quantitative analyses. One day field trip explores landslides of the Portland area. Prerequisites: G 202, Ph 203.

G 473/573
Introduction to Seismology and Site Evaluation (4)
Earthquakes and exploration seismology, the origin and occurrence of earthquakes, nature and propagation of seismic waves in the earth, earthquakes as a hazard to life and property. Uses of reflection and refraction exploration seismology, borehole velocity measurements, seismic remote sensing, and direct measurement techniques. Earthquake hazard assessment including liquefaction, ground failure, and site amplification. Techniques for evaluating the susceptibility, potential, and severity of the hazards and other science and engineering applications. Prerequisite: senior/graduate standing. This course is the same as CE 443/543; course may be taken only once for credit.

G 477/577
Earthquake Accommodation and Design (4)
Effects of earthquake shaking in the design of buildings, pipelines, bridges, and dams. Incorporating the earthquake hazard assessment for a project in the design process. The goal of this course is to allow geologists, geotechnical engineers, structural engineers, and architects to see how their particular tasks are impacted by the earthquake effects. Types of analysis used to evaluate earthquake design requirements in the several disciplines including geology, geotechnical engineering, structural engineering, and architecture. Prerequisite: G 475/575 or CE 443/543. This course is the same as CE 448/548; course may be taken only once for credit.

G 481/581
Field Geology I (6)
Geologic mapping in sedimentary and volcanic rocks or metamorphic and plutonic rocks during a summer field camp. A charge will be made for the expenses of the field camp. Approximately 64 hours of field work per week for three weeks in the summer. Prerequisites: G 485.

G 482/582
Field Geology II (3)
Geologic field studies of selected projects during a summer field program. A charge will be made for the expenses of the field project. Approximately 80 hours of field work during one and a half to two weeks in the summer. May be repeated for credit when offered as a substantially different project. Prerequisite: G 481/581.

G 483/583
Anatomy of Landslides (4)
Investigation of landslides. Slope Stability Analysis, field mapping, and description of landslides and related features. Studies of the morphology of landslides from the literature. Prerequisites: Ph 203, Mth 252.

G 484/584
Field Geophysics (4)
Applications of geophysical techniques to solving a field problem. Methods applied include gravity, resistivity, refraction, and magnetics. Includes at least one weekend in the field and production of a final report with data and conclusions. Prerequisite: G 420.

G 485
Field Methods in Geosciences (4)
Principles of geologic mapping, and data collection using optical surveying instruments, Global Positioning System, and aerial photographs, preparation of reports and maps. Two lectures and two 3-hour laboratories. One-week field exercise at end of term. Prerequisite: G 324.

G 491/591
Physical Processes in Geology (4)
Application of mechanics to physical processes in geology, such as igneous intrusion, rock folding, debris flow, lava flow, groundwater, and glaciation. Prerequisites: Mth 254, Ph 203.

G 503
Thesis (Credit to be arranged.)
Pass/no pass only.

G 506
Special Problems (Credit to be arranged.)
In attaining the objectives of a liberal education, the historical perspective is essential at every stage of development. Through a study of history, the student is provided not only with an opportunity to integrate knowledge of the subject matter of other disciplines but also to engage in critical thought and research. An undergraduate education in history provides the opportunity to acquire these skills of scholarship. The study of history, furthermore, reveals the diversity of human existence and allows students in the liberal arts to develop greater tolerance, understanding, creativity, and intellectual insight. Students interested in the Secondary Education Program in Social Science discover that historical study establishes a context for each of the human sciences: psychology, anthropology, sociology, economics, geography, and political science.

The History Department curriculum provides basic historical knowledge for the student of ability who plans to go on to graduate work and a professional career in the field. The curriculum satisfies the needs of students interested in the subject as the core of a broad liberal education and offers background knowledge of historical development for the student with a major in the social sciences or in a professional area such as business, education, journalism, law, medicine, or the ministry. History courses compose a professional base for students planning to teach at the high school level; to enter government service, museum, or archival work; to work in a research capacity in connection with book or magazine publishing; or to write professionally.

The Department of History has offerings in the following geographic areas: Africa, Ancient Greece and Rome, Britain and the Commonwealth, Colonial America and the United States, East Asia, Europe, Latin America, Russia and the Soviet Union, and West Asia. History students can design a major course of study emphasizing one of these areas, or alternatively focus their studies thematically in, for example, political, diplomatic, social, or intellectual and cultural history. Similarly, the major in history can be broadly comparative across geographic regions or focused on a specific historical period such as the ancient, medieval, early modern, or modern periods. Because of the flexibility in the history major, the department emphasizes student advising.

While students can declare a major in history at any point in their undergraduate career, for advising purposes they are asked to contact the Department of History (441 Cramer Hall) as soon as possible.

Requirements for the Major. In addition to meeting the general University degree requirements, the major in history must meet the departmental requirements listed below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hst 495 Comparative World History</td>
<td>4</td>
</tr>
<tr>
<td>Hst 407 Seminar</td>
<td>8</td>
</tr>
<tr>
<td>Hst 495 Comparative World History</td>
<td>4</td>
</tr>
<tr>
<td>Upper-division electives in history. Selected in consultation with major adviser, geographic, thematic, or period-based</td>
<td>24-44</td>
</tr>
<tr>
<td>Upper-division electives outside of history applied to major requirements. Selected in consultation with major adviser (maximum)</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
</tr>
</tbody>
</table>

- All courses are to be taken for differentiated grades and the history major must earn at least a C- in each course presented to meet major requirements.
- Of the electives students apply to the history major requirements, at least two courses must examine a non-Western European and non-U.S. subject, and at least two courses must examine either Western Europe or the United States.
- A maximum of 12 lower-division credits in history may be applied to the major requirements.
- A minimum of 32 credits in history must be taken outside of history. This is provided to encourage students to design interdisciplinary history majors.

History Honors Option. The Department of History offers an Honors Option. Students who wish to pursue this option must apply to do so before they have attained senior standing. The History Honors Option requires a 3.50 GPA in History prior to admission to the program. It includes an undergraduate thesis on which students work in their junior and senior years. In the first term—during the junior year—the student investigates thesis topics in a reading and conference course directed by a faculty member who has agreed to supervise the student’s honors thesis. In the senior year, the first term is devoted to research, the second term to writing, and the third to presentation and revision of the thesis.

Requirements for a Minor. To earn a minor in history a student must complete 32 credits, including the following:

- Hst 300 Historical Imagination: 4 credits
- Hst 407 Seminar: 8 credits
- Hst 495 Comparative World History: 4 credits
- History Electives: 20 credits

Total 32 credits

- All courses are to be taken for differentiated grades and the history minor must earn at least a C- in each course presented to meet minor requirements.
- A maximum of 12 credits from lower-division history courses can be applied to the minor requirements.
- A minimum of 16 credits in history in residence at Portland State University is required.

SECONDARY EDUCATION PROGRAM
(See General Studies: Social Science page 131).

GRADUATE PROGRAMS
The Department of History offers a Master of Arts degree. The degree program is designed to develop historians with special competence by systematic training in the content, methods, and interpretation of history. Although each degree program will vary, as will the individual’s purpose for pursuing graduate work, the same level of scholarly competence and intellectual attainment is expected of all students.
To be considered for admission to graduate study, the student should normally have the minimum preparation undertaken by an undergraduate major in history and have maintained a minimum GPA of 3.25 in upper-division history courses. In addition to the University application for graduate studies, students are required to submit their score on the Aptitude section of the Graduate Record Examination, two letters of recommendation from faculty who can evaluate their preparation for graduate studies, a statement of purpose describing their objectives in graduate study, and two examples of their writing, preferably history research papers. Foreign students must comply with the University requirement of a minimum grade of 530 in the Test of English as a Foreign Language (TOEFL).

For information on the Master of Arts in Teaching or the Master of Science in Teaching (General Social Science), see page 133.

Degree Requirements. University master's degree requirements are listed on page 62. Specific departmental requirements are listed below.

MASTER OF ARTS
A minimum of 48 credits of approved graduate-level courses are required for the M.A. in history. Of these 48 credits students must complete a minimum of 36 credits in history, to include two seminars (Hst 507) and 8 credits of thesis writing. With the approval of their thesis adviser, students can apply to their M.A. program a maximum of 12 credits from graduate courses taken outside of history. Students are normally admitted for the fall term and are strongly advised to complete Hst 500 (Introduction to the Master's Program in History) in the first term of study. While Hst 500 is strongly recommended for all entering graduate students, it is required for those who have not completed an undergraduate course in Historiography (Hst 300 or equivalent).

Coursework for the M.A. must include two historical fields. The first field will consist of a minimum of 12 credits of coursework, and the second field a minimum of 8 credits. These fields are defined geographically, although, with the adviser's approval and where appropriate to the student's thesis project, the second field may be defined thematically for example, social history, intellectual history, political history. The geographic fields offered in the graduate program are: Africa; Ancient Greece and Rome; Britain and the Commonwealth; Colonial America and the United States; East Asia; Medieval; Early Modern Europe; Modern Europe; Latin America; Russia; and the Soviet Union, and West Asia.

The Master of Arts in history focuses upon the preparation and defense of a thesis that is based upon primary source research that follows from a program planned in consultation with the student's adviser.

The department stresses the importance of adequate preparation in foreign languages to be utilized by students in their advanced study and research. Graduate students should demonstrate proficiency in a foreign language germane to their thesis field no later than the point at which they have completed 32 credits of graduate study.

All students are required to take written examinations covering their chosen fields of concentration. The written examination in the student's first field should be passed before the end of the first year of graduate study (i.e., 24 credits). Students should pass the written examination in the second field before the completion of 32 credits. For graduation, each student must successfully defend their thesis in an oral examination before their thesis committee and an outside examiner appointed by the Dean of Graduate Studies.

MASTERS OF ARTS IN TEACHING OR MASTER OF SCIENCE IN TEACHING
For information on the Master of Arts in teaching and the Master of Science in Teaching (General Social Science), see page 133.

Courses with an asterisk (*) are not offered every year.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hst 101, 102, 103</td>
<td>History of Western Civilization (4, 4, 4)</td>
</tr>
<tr>
<td>Hst 104, 105, 106</td>
<td>Survey of the origins and development of Western civilization from ancient times to the present. Hst 101: ancient times to 1300; Hst 102: 1300-1800; Hst 103: 1800-present.</td>
</tr>
<tr>
<td>Hst 199</td>
<td>Special Studies (Credit to be arranged)</td>
</tr>
<tr>
<td>Hst 201, 202</td>
<td>History of the United States (4, 4)</td>
</tr>
<tr>
<td>Hst 300</td>
<td>The Historical Imagination (4)</td>
</tr>
<tr>
<td>Hst 312</td>
<td>African History Before 1800 (4)</td>
</tr>
</tbody>
</table>

Courses with an asterisk (*) are not offered every year.
Hst 330
The American Revolution and Constitution, 1763-1789 (4)
The Revolutionary Movement, the American Revolution, Confederation, and Constitution. Prerequisites: Hst 201, Sophomore Inquiry (American Studies), or consent of instructor.

Hst 331
The Early Republic, 1789-1815 (4)
The Early Republic years of the United States, including the presidencies of Washington, Adams, Jefferson, and Madison. Prerequisites: Hst 201, Sophomore Inquiry (American Studies), or consent of instructor.

Hst 332, 333
The United States in the 19th Century (4, 4)
Hst 332: Era of Good Feelings; Jacksonian democracy, reformism, economic change, expansion and Manifest Destiny, slavery and the crisis of the 1850s, outbreak of the Civil War. Hst 333: Civil War and Reconstruction; industrialization and urbanization, political patterns; the problems of labor and radicalism; and problems of assimilation (Native American, African American, and the so-called “New Immigration”).

Hst 334
Slavery, Civil War, and Reconstruction, 1850-1877 (4)
Slavery and the coming of the Civil War, domestic and military aspects of the war, the collapse of slavery; Southern Reconstruction—problems of reunion and adjustment to the end of slavery.

Hst 337
History of American Cities (4)
Traces the evolution of urban centers from the colonial period to the present. Focuses on the developing system of cities, on growth within cities, and on the expansion of public responsibility for the welfare of urban residents. Particular attention is given to the industrial and modern eras. Prerequisite: upper division standing.

Hst 338
Oregon History (4)
This course surveys the history of Oregon from the time of the European discoveries until the present. Topics considered are the era of colonization; the diplomacy of the Oregon Question; the Christian missionaries; the pioneers’ migration and their institutions; the formation of the constitutional; the Oregon system; minority groups, and modern politics and economics. A biographical approach will be taken where appropriate.

Hst 339
The Environment and History (4)
Introduction to the theme of the environment in the study of history and the history of environmental ideas, from the 16th century to the present, with special focus on the impact of science, philosophy, literature, and history on our understanding of the environment. Designed as an introductory course for students of all majors.

Hst 340
Women and Gender in America, Colonial Era to 1865 (4)
This course explores women’s lives and work in America from European contact with the New World through the end of the Civil War. Through primary and secondary material, students will confront the diversity of female experience as well as the ways in which gender shaped the economic, political, and social life of the emerging nation. Possible themes include women and colonial settlement, Puritan religion, the household economy, the American Revolution, evangelicism, and the rise of the Victorian home, women and the westward movement, slavery and race, gender and industrialization, and the emergence of women’s rights.

Hst 341
Women and Gender in America, 1865 to the Present (4)
Who was a suffragette? A flapper? Rosie the Riveter? What do these images hide as well as reveal about American women’s recent past? This course surveys the making of modern American women by focusing on gender, family, work, and political arrangements from 1865 to the present. Students will explore the diversity of women’s lives through the ideas and institutions—both the outstanding and everyday—forged by women in this period. Themes include missionariness and reform in the Gilded Age, higher education and the professions, women workers and labor organizing, the rise of sexual modernism, gender in the Jim Crow South, postwar domesticity and the “feminine mystique,” feminism’s roots in the Civil Rights movement, and “second wave” feminism and its discontents.

Hst 342
History of Feminism in the U.S. (4)
After a review of Western feminism’s Enlightenment roots and Victorian variations in the United States, this course focuses on the shaping of modern feminism as a diverse body of questions, ideas, and experiments in American life. Themes include political equality, the emergence of sexual politics, issues of race and difference, women workers and class conflict, the civil rights movement and gender struggles, radical feminism, conservative women and “backlash,” and feminist internationalism.

Hst 343
American Family History (4)
History of the American family from the colonial period to the present. The course will draw upon textual sources and oral histories in examining changes in families in the colonial period, and the nineteenth and twentieth centuries. Prerequisite: Hst 201, 202, Sophomore Inquiry (American Studies), or consent of instructor.

Hst 350, 351
English History (4, 4)
A general survey covering political, economic, social, intellectual, and religious development.

Hst 354
Early Medieval Europe: 300-1100 (4)
A survey of political, cultural, intellectual, religious, social, and economic aspects of this 800-year period, including among other topics the decline of Roman power in Western Europe, the spread of Christianity, the rise of the Franks, the Carolingian Empire, the growth of feudal ties, and the gradual creation of a high-level civilization.

Hst 355
Late Medieval Europe, 1100-1550 (4)
An examination of the late Middle Ages through primary sources with an emphasis on cultural, social, political, and intellectual transformations. Subjects to be treated include the twelfth-century cultural “renaisance,” the emergence of the European state and papal monarchy, the rise of religious dissent and antisemitism, the transformation of medieval spirituality, the Crusades, European expansion and external encounters, growth of cities and the university, the debate between faith and reason, the Black Death, and late medieval decline.

Hst 356
Renaissance and Reformation Europe, 1400-1600 (4)
Surveys the cultural, social, intellectual and political aspects of the European Renaissance and Reformation. Emphasis placed on learning to read and analyze contemporary source materials, and examination of the growth of urban culture and civic humanism in Italy; the rediscovery of classical literature and philosophy, course life and mores, the rise and institutionalization of religious reform, the institutional transformations of Church and State, and European exploration and exploitation of the Atlantic.

Hst 357, 358
Europe Since the Renaissance (4, 4)
Political, social, economic, and cultural trends from the 16th century to the present. Hst 357: 1555-1815. Hst 358: 1815 to the present.

Hst 359
Early Modern France (4)
A survey of the history of France during the Reformations, the Age of Absolutism, and the Enlightenment, 1515-1778. Prerequisites: Hst 101, 102.

Hst 360
The French Revolution and Napoleon (4)
A survey of the history of France during the Revolution and Napoleonic era, 1778-1815. Prerequisites: Hst 101, 102.

Hst 365, 366
Latin America (4, 4)
A survey from pre-Columbian times to the present. Hst 365: Period of discovery and conquest, colonial institutions, the age of reform. Hst 366: Independence and rise of the new nations, the recent period. Prerequisite: Hst 101, 102, or Sophomore Inquiry (Latin America).

Hst 385, 386
The Middle East in Modern Times (4, 4)
A survey of social, cultural, and political trends in the Middle East from 1300 to the present. Hst 385: the Ottomans, Safavid Iran, the Age of later Islamic empires, Middle East Reforms, imperialism in the 18th and 19th centuries. Hst 386: Middle Eastern industrial society, mass culture and nation states in the 20th century. Prerequisite: Hst 102.

Hst 387
Science in Society: Historical Perspectives (4)
Examines the interplay between two different aspects of science: science understood as a system of knowledge about the world and science understood as the social institutions (disciplines, laboratories, etc.) by which that knowledge is produced and transmitted. Through reading, discussion, lectures, and independent research, the course explores ways in which the scientific endeavor has affected and been affected by the political, social, and cultural milieu in which it is carried out. The primary focus is on modern Europe and America.

Hst 399
Special Studies (Credit to be arranged.)
Hst 401/501
Research (Credit to be arranged.)
Consent of instructor.

Hst 404/504
Public History Internship (4)
Intensive, on-the-job internships with public agencies, private businesses, non-profit firms, and other groups in public history work. Each internship is by special arrangement and terms. Prerequisite: Hst 496/596, or consent of instructor.

Hst 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor. Directed reading for honors students and history majors. 

Hst 407/507
Seminar (Credit to be arranged.)
Study and application of the techniques of historical research and writing.

Hst 409/509
Practicum (Credit to be arranged.)

Hst 410/510
Selected Topics (Credit to be arranged)

Hst 412/512
Topics in African/Caribbean History and Culture (4)
An in-depth exploration of selected topics in African and/or Caribbean cultural history. Special attention will be given to thematic issues of broad application to the understanding of cultural interaction, continuity and change.

Hst 415/515
Topics in Greek History (4)
An advanced look at specific topics in Greek history from the Bronze Age to the death of Cleopatra. Topics will include social, political, economic, intellectual, and religious history. The subject matter will vary from term to term. (Maximum number of credits is 12; 4 credits each for three courses with different topics.) Prerequisite: Hst 315, Sophomore Inquiry (Greek Civilization), or permission of instructor.

Hst 416/516
Topics in Roman History (4)
An advanced look at specific topics in Roman history from the Etruscans to the Dark Ages. Topics will include social, political, economic, and intellectual history. The subject matter will vary from term to term. (Maximum number of credits is 12; 4 credits each for three courses with different topics.) Prerequisite: Hst 316 or permission of instructor.

Hst 420/520
Topics in Early Japanese History (4)
Selected themes in early Japanese history (to about 1600), including myth and archaeology, Shinto and the formation of the early state, Buddhism and the impact of Chinese civilization, the medieval court and society, and the rise of military government and warrior society. Prerequisite: upper-division standing. Hst 320.

Hst 421/521
Topics in The History of Early Modern Japan (4)
Selected themes in Tokugawa (1600-1850) history, including rural life and urbanization, merchants and commerce, political thought and institutions, women and family life, neo-Confucianism, religious beliefs and practices, popular culture, arts, and literature. Prerequisite: upper-division standing. Hst 320.

Hst 422/522
Modern Japan, 1850-present (4)
History of Japan from Perry Expedition in 1853 to the present. Emphasis on Tokugawa foundations for rapid transformation of Japan beginning with the Meiji Restoration, Westernization, evolution of modern political institutions; rise of Japanese military forces and imperialism in Asia. Modern literature, postwar social change, and status of Japan as leading industrial nation. Prerequisite: upper-division standing. Hst 320 or consent of instructor.

Hst 423/523
Topics in Chinese Social History (4)
This course will examine institutions and themes—relating to the family, urban and rural life, education and the like—in Chinese social history. The subject matter will vary from term to term. (Maximum number of credits is 12; 4 credits each for three courses with different topics.) Prerequisite: Hst 320.

Hst 424/524
Topics in Chinese Thought and Religion (4)
Chinese intellectual history, including popular thought as well as elite philosophy. The subject matter will vary from term to term. (Maximum number of credits is 12; 4 credits each for three courses with different topics) Prerequisite: Hst 320.

Hst 425/525
Modern China, 1830-Present (4)
History of China from decline of imperial system through century of revolution that culminated in founding of the People's Republic of China, to death of Mao in 1976. Course is organized around concepts of imperialism, nationalism, revolution, and modernization analyzed in context of chronological presentation of major events in modern Chinese history, including the 1911 Revolution, the May 4th Movement, the genesis of Chinese Communism, the decade of Nationalist rule from Nanling, and the Sino-Japanese War. History of postrevolutionary state treated in terms of consolidation of power and implementation of revolutionary ideals. Prerequisite: Hst 320 or Hst 321.

Hst 427/527
Topics in the History of Science (4)
An in-depth investigation of a selected theme in the history of science and its cultural, social, or intellectual history. The subject matter will vary from term to term. Topics include: science and religion, science under Nazism, science and Modernism, the Darwinism and social Darwinism, Scientific Revolution, and changing physical world pictures. Some previous study in history is recommended; a background in science is welcome, but not required or expected. Hst 320/520.

Hst 430/330, 431/531, 432/532
U.S. Cultural History (4, 4, 4)
U.S. Cultural History (4, 4, 4)
The relation of cultural attitudes, values, and belief to the American historical experience. Hst 430/330: 1600-1860, European legacy and Native Americans; Puritanism and mission; race, class, and ethnicity in Colonial America, American Enlightenment and Revolution, Cultural Nationalism in the New Republic; Industrial Ethnic and Pastoralism, Jacksonian Democracy and the Cult of the Self-Made Man; Manifest Destiny and Native Americans; Slavery and African-American Culture; Protestant Evangelicalism, Social Reform, Abolitionism, and Feminism. Hst 431/531: 1860-1945, Cultural Civil War and Reconstruction; Age of Incorporation, Labor Reform, and Utopian Thought; Populism and the Crisis of the 1890s; Purchased Reform and Intellectual Ferment; Two Cultures of the 1920s, Depression Realism and Radicalism; World War II and the Judeo-Christian Consensus. Hst 432/532: Anti-Communist, Nationalist, and Anticorporate Insurgence in the 1950s; Antiswar, Racial, Counterculture, and Feminist Ferment in the Protest Era, New Age and Postmodernist Thought, Populist Conservatism and Traditional Values, 1980-present. Recommended prerequisite: Hst 410 or 332. Hst 431: 202, 333, 335, or 436; Hst 432: 336.

Hst 433/333, 434/534
Colonial American and U.S. Social and Intellectual History (4, 4)
Hst 433/333: 1600-1800. 434/534: 1800-present. Each term will examine three or four aspects of American social and intellectual history—such as race, class, religion and philosophy, ideology and politics, community, region, or labor. Prerequisites: Hst 433: Hst 410, Sophomore Inquiry (American Studies), or consent of instructor; Hst 434: Hst 410, Sophomore Inquiry (American Studies), or consent of instructor.

Hst 435/335, 436/536, 437/537
American Diplomatic History (4, 4, 4)

Hst 438/538
American Economic History: the First Century (4)

Hst 439/539
American Economic History: the 20th Century (4)
Hst 440/540, 441/541
American Environmental History (4, 4)
A survey of North American history to 1900 from an environmental perspective with special reference to the development of environmental thought, interdisciplinary topics in environmental history, and the history of ecological thinking. Prerequisites: Hst 441/541. A survey of North American history since 1900 from an environmental perspective with special reference to conservation and environmentalism, interdisciplinary topics in environmental history, political action, and contemporary environmental thought.

Hst 442/542, 443/543
History of the Westward Movement (4, 4)
A description of the westward movement into the various geographical regions of the nation and an evaluation of the significance of this phenomenon for the American people, both contemporaneously and subsequently. Social, cultural, economic, and political aspects of the migration process will be examined. Hst 442/542: the Atlantic seaboard to the Mississippi. Hst 443/543: the trans-Mississippi West. Prerequisite: upper-division standing.

Hst 444/544
History of the Pacific Northwest (4)
The social, cultural, economic, and political aspects of the development of civilization in Oregon and Washington. The history of the region is related to national and international contexts. Prerequisites: Hst 201, 202.

Hst 445/545
History of Portland (4)
The historical growth of Portland and its metropolitan region, with major attention given to the 20th century. Emphasis is placed upon the process of urbanization and the consequences of the past decisions and actions as they relate to recent developments. Prerequisite: upper-division standing.

Hst 446/546
Topics in the History of American Professions (4)
Historical analysis of the roots and development of the intellectual, economic, social, and political power and authority of representative professions in America and the West. Topics include: Foundations of American Medicine; American Medicine in the Twentieth Century; American Lawyering; American Technology. Course may be repeated for credit with different topic.

Hst 450/550
Medieval England (4)
An advanced examination of England from the Anglo-Saxon to 1450 covering selected topics in political, religious, social, and intellectual history.

Hst 451/551
Tudor England (4)
An advanced examination of political, intellectual, and social change in Tudor England including the Henrician revolution in government, the English Reformation, the Elizabethan renaissance and the crisis of the aristocracy.

Hst 452/552
Irish History (4)
A survey of Irish history from Celtic times to the present which attempts to increase understanding of the complexities of 20th century Irish problems through an examination of the historical roots-social, religious, political, economic, and intellectual.

Hst 453/553
Topics in Renaissance History (4)
The purpose of this course is to identify and examine those special aspects of Western European civilization that matured roughly between 1300 and 1550 and that begin to set it apart from the medieval era. Thus the class is not a survey of life during a period of time but a study of selected phenomena. Among topics for consideration are the revival of antique (above all Latin and Greek) letters and attitudes, types of Humanism, new education ideals, secular outlook, the functions of Renaissance patrons, political theory and the growth of the “early modern state,” Neoplatonism, and the spread of the Renaissance from Italy to Northern Europe. There is much opportunity for class discussion.

Hst 456/556
The Protestant and Catholic Reformations of the 16th Century (4)
A survey of the religious revolutions that occurred in Europe during the first two thirds of this century, up until the end of the Council of Trent (1563), the so-called Reformation era. It will treat religious, intellectual, political, social and economic developments that helped create the setting for the Reformation, as well as the course of events that constitutes the Reformation, the doctrines and intentions of the major reformers (among others, Martin Luther, John Calvin, Ignatius Loyola), the beliefs of the common people, and the consequences of reform.

Hst 457/557, 458/558
History of Germany (4, 4)

Hst 459/559, 460/560
European Intellectual History (4, 4)
A lecture course that examines major developments in European thought. Each term, writings of three or four authors will be used to investigate the relationship between ideas and their social context. Prerequisites: Hst 101, 102.

Hst 465/565
Twentieth Century Latin America (4)
Recent political, social, and economic developments with emphasis on the period since World War II. Prerequisites: Hst 365, 366, or Sophomore Inquiry (Latin America).

Hst 466/566
The Caribbean (4)
The history of the Caribbean island republics and adjacent areas with emphasis on the period since independence. Prerequisites: Hst 365, 366, or Sophomore Inquiry (Latin America).

Hst 467
Latin American Culture and Society (4)
Topics include historico-cultural disputes, elite cultural movements, literary, artistic, and intellectual currents, popular culture, external influences, race relations, miscegenation, sectoral relations, gender relations, and modernization. Prerequisites: Hst 330, 331, or Sophomore Inquiry (Latin America).

Hst 468/568, 469/569, 470/570
History of Mexico (4, 4, 4)
A survey of Mexico’s beginnings from pre-Columbian times through the colonial period. The origins of Mexican culture, society, economy, and political institutions will be examined in the context of Hispanic and indigenous contributions. Hst 469/569: A study of Mexico’s history from the revolutions for independence until 1876. Emphasis will be placed upon the development of constitutional government, the era of reform, foreign interventions, and the restoration of the republic. Hst 470/570: Mexico’s emergence as a modern nation during the Porfirian dictatorship. The 20th century revolutionary upheaval and consolidation. Prerequisites: Hst 365 or 366.

Hst 473/573
Topics in Russian Socio-Cultural History (4)
Examines social conditions and their depiction in high and popular culture. Selected themes include the social conditions of the peasantry and their representation in urban culture, the
The International Studies Program offers a B.A. degree in international studies based on an interdisciplinary curriculum that provides both a global perspective and a comprehensive view of a selected geographic region of the world. This degree affords an excellent foundation for careers in which an understanding of international economic, political, social, and cultural affairs is of importance; it also provides a solid foundation for graduate work in the field.

Requirements for Major. In addition to the general University requirements and those for the B.A. degree, majors must complete an individualized curriculum in their areas of geographic concentration, to include:

International Studies—29 credits required

Intl 101 Introduction to International Studies
Intl 205 Introduction to Regional Studies
Intl 395 Colloquium (one credit in each of three terms)

* Students may not substitute UnSt 299 for Intl 205 (and vice versa); the appropriate mentor section is required.
MINOR IN INTERNATIONAL STUDIES

Requirements for a Minor. To earn a minor in international studies a student must: 1) demonstrate competence in an appropriate foreign language either by completing the second year of the language in the final term or by passing a departmentally administered proficiency exam at the same level, and 2) complete 31 credits (8 of which must be taken in residence at PSU and 11 credits of which must be upper division) to include the following:

International Studies—15 credits required
Intl 101 Introduction to International Studies 4
Intl 395 Colloquium (one credit in each of three terms) 3
Intl 386 The United States and the World 4
Intl 407 Seminar 4

Connected Learning—16 credits required
16 credits from adviser-approved area-specific or thematic courses.

Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department minor requirements.

CERTIFICATE PROGRAMS

The University awards certificates for language and area specialization to students who have completed the requirements for a bachelor's degree in any field. Certificates are currently available in European Studies, Latin American Studies, and Middle East Studies. The specific courses needed for a certificate in each area differ; interested students should consult the International Studies Program in the Sixth Avenue Building.

Students in both the International Studies and certificate programs are encouraged to consider overseas study opportunities available through the Office of International Education Services, Sixth Avenue Building.

Language and area studies certificate programs focus on the study of a group of countries or a geographical area having common linguistic and/or cultural characteristics. The course of study is designed to broaden the student’s understanding of a particular world area.

Students must take 30 credits (two years) of one adviser-approved language appropriate to the geographic area of concentration (or demonstrate equivalent proficiency in that language), and they must successfully complete 30 credits of specified area courses.

COURSES

Intl 101 Introduction to International Studies (4)
A survey of the main concepts, analytical tools, fields of study, global problems, and cross-cultural perspectives that comprise international studies.

Intl 195 Colloquium (1)
Lectures by PSU and visiting scholars on major world issues.

Intl 199 Special Studies (Credit to be arranged.)

Intl 205 Introduction to Regional Studies (4)
In-depth interdisciplinary or topical study of one of the regional loci in the International Studies degree program: Africa, East Asia, Europe, Latin America, the Middle East.

Intl 331 Women in the Middle East (4)
Aims to explore the role and status of women in the contemporary Middle East with respect to institutions such as the family, law, education, work, and politics–areas which intersect and overlap with broader cultural questions about women and their place in tradition, modernity, nation-building, Islam, and the West. This course is the same as FL 331 and WS 331, may only be taken once for credit.

Intl 395 Colloquium (1)
Lectures by PSU and visiting scholars on major world issues.

Intl 396 The United States and the World (4)
Interdisciplinary study and analysis of the role of the United States in world affairs with emphasis on the twentieth century, relations between the U.S. and the Third World, the era of the Cold War, American globalization, diplomatic, economic, and geopolitical issues.

Intl 397 Understanding the International Experience (4)
Examination of communication-based cultural, economic, emotional, physical, political, religious and social aspects of an overseas or community-based international or intercultural experience. Presentation of strategies for the development of appropriate levels of preparation required to meet challenges of working, traveling or researching in an international/intercultural setting. This course is the same as BST 397; course may only be taken once for credit.

Intl 399 Special Studies (Credit to be arranged.)

Students may substitute Hu 435/436/437 or PS 345 or PS 445 for Intl 396 with approval of adviser; Ling 471 for Intl 397 with approval of adviser. Substitutions for, or waivers of, all other Intl courses must be approved by the program director as well as the adviser.

The Senior Capstone requirement will normally be fulfilled by taking Intl 499. Students who elect to satisfy the Senior Capstone requirement in another department or program may be required to take a comprehensive examination.

Demonstration of three years’ foreign-language equivalency may be through examination, three years’ coursework includes a departmentally administered proficiency examination.
The Senior Capstone requirement will normally be fulfilled by taking Intl 499. Students who elect to satisfy the Senior Capstone requirement in another department or program will sit a comprehensive examination.

Mathematical Sciences

334 Neuberger Hall
503-725-3621
www.mth.pdx.edu/

B.A., B.S.—Mathematics
Minor
Mathematics Education Programs
M.A., M.S.—Mathematics
M.A., M.S.—Mathematics with a Concentration in Statistics
M.A.T., M.S.T.—Mathematics
Ph.D. in Mathematics Education
Ph.D. in Systems Science—Mathematics

UNDERGRADUATE PROGRAMS

The mathematical sciences have long provided the necessary languages of the physical sciences, but are now also recognized as important components of study for students in computer science, social science, business administration, education, and the biological sciences. Mathematics is also a discipline itself and may be studied purely for the excitement and discovery it brings to those who study it. To meet these needs the department offers an array of courses in pure and applied mathematics and statistics.

The department office is in 334 Neuberger Hall and its Website is at www.mth.pdx.edu. Students, prospective students, and all persons having an interest in the department are welcome at the office and are encouraged to visit the Website. The Website provides information about the department’s faculty, programs, courses, other services, and its current activities.

In order to help students plan their programs the Mathematical Sciences Department provides placement assistance and the opportunity to meet with an adviser. All students are urged to avail themselves of these services, especially those students who are enrolling in their first mathematics or statistics course.

Students interested in majoring in mathematics are urged to meet with a department adviser. Students who have decided to major in mathematics should inform both the department and the registrar’s office of that decision. Mathematics majors are encouraged to participate in the activities of the department and to meet on a regular and continuing basis with a departmental adviser.

For mathematics majors: The degree program requires a basic core of courses, but it also has the flexibility that allows students to pursue special areas of interest in mathematics. The program is designed to provide a foundation for more advanced work and/or a basis for employment in government, industry, or secondary education. A joint degree in mathematics with computer science, business administration, economics, physics, or some other area may give a student better opportunities for employment upon graduation.

The department attempts to offer as many courses as possible after 4 p.m. on a rotating schedule so that a degree may be pursued by either day or evening enrollment.

Those students majoring in mathematics who intend to do graduate work in the subject are strongly advised to complete two years of study in at least one of the following languages: German, French, or Russian.

† The Senior Capstone requirement will normally be fulfilled by taking Intl 499. Students who elect to satisfy the Senior Capstone requirement in another department or program will sit a comprehensive examination.
Requirements for Major. In addition to meeting the general University degree requirements, the major in mathematics must complete the following requirements:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Mth 251, 252, 253, 254</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calculus I, II, III, IV</td>
</tr>
<tr>
<td></td>
<td>Mth 256 or Mth 421 Differential Equations</td>
</tr>
<tr>
<td></td>
<td>Mth 311, 312 Advanced Calculus</td>
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<tr>
<td></td>
<td>Mth 343 Applied Linear Algebra</td>
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<tr>
<td></td>
<td>Mth 344 Group Theory</td>
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<tr>
<td></td>
<td>One of the following</td>
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<tr>
<td></td>
<td>Mth 345 Ring Theory and Field Theory</td>
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<tr>
<td></td>
<td>Mth 346 Number Theory</td>
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<td></td>
<td>Mth 338 Modern College Geometry</td>
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<td></td>
<td>Mth 444 Advanced Linear/Multilinear Algebra</td>
</tr>
<tr>
<td>†</td>
<td>One approved two-term 400-level Mth or Stat course</td>
</tr>
<tr>
<td>†</td>
<td>Two additional approved 400-level Mth or Stat courses</td>
</tr>
<tr>
<td>†</td>
<td>Additional approved elective courses</td>
</tr>
<tr>
<td></td>
<td>CS 161 or CS 208</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
</tr>
</tbody>
</table>

All courses used to satisfy the departmental major requirements, whether taken in the department or elsewhere, must be graded C-, P, or above, but no more than 4 courses graded P will count toward these requirements. Transfer students majoring in mathematics are required to take a minimum of 15 credits of PSU upper-division mathematics or statistics courses in residence.

In addition to the specific required courses listed above, the following options are intended to help the student plan a program of study with a specific goal or career in mind.


Requirements for a Minor. To earn a minor in mathematics, a student must complete 35 credits (12 of which must be upper division, 9 of these 12 upper-division credits must be taken in residence at PSU), to include the following:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Mth 251, 252, 253, 254</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calculus I, II, III, IV</td>
</tr>
<tr>
<td></td>
<td>Mth 311 Advanced Calculus or Mth 344</td>
</tr>
<tr>
<td></td>
<td>Group Theory</td>
</tr>
<tr>
<td></td>
<td>Additional approved elective courses</td>
</tr>
<tr>
<td></td>
<td>Only grades of C-, P, or above count toward satisfying the department minor requirements. No more than three courses with a grade of P may be counted toward these requirements.</td>
</tr>
</tbody>
</table>

MATHMATICS EDUCATION PROGRAM

Advisers: M.A. Enneking, J.R. Palmer, J.M. Shaughnessy

Students interested in teaching mathematics should consult one of these advisers early to design an approved mathematics program.

After completing a baccalaureate degree, a student must complete the year-long Graduate Teacher Education Program (GTEP) through the School of Education to receive a teaching certificate/license from PSU.

Only grades of C-, P, or above count toward satisfying the mathematics requirements for teacher certification/licensing.

Elementary Education. Students planning to earn an elementary teaching certificate/license (grades K-8) must complete Mth 211, 212, 213 before admission to the GTEP.

Secondary Education. Students planning to earn a secondary teaching certificate/license (grades 5-12) in mathematics must obtain a recommendation for admission to the GTEP from the Mathematical Sciences Department. To assure this recommendation, the student’s program should include the courses required for the major and those listed in Option IV above.

Middle School Mathematics Program. This program is intended for those who will teach first-year algebra and below. The program leads to a middle school endorsement in mathematics to add to a current Oregon teaching license. Before entering the program a student must consult a mathematics adviser. Prerequisite courses are Mth 111, 212. Information about the Graduate Certificate Program in Mathematics for Middle School Teachers can be found in the Graduate Studies Section, see page 56.

Community College Teaching. The M.S./M.A. or the M.S.T./M.A.T. graduate degrees are normally required to teach at the community college level. The department provides a special seminar on teaching at this level. Consult with a mathematics adviser.

GRADUATE PROGRAMS

The Department of Mathematical Sciences offers work leading to the degrees of Master of Arts, Master of Science, Master of Arts in Teaching, Master of Science in Teaching, the Ph.D. in Mathematics Education, and the Ph.D. in Systems Science—Mathematics. The M.A./M.S. programs are designed for the student who wishes to prepare for community college teaching, industrial work in mathematics, or further advanced work toward a Ph.D. in mathematics. The M.A./M.S.T. programs offer advanced training and specialized courses for secondary school teachers of mathematics.

In addition to meeting the University admission requirements, students seeking regular admission status in master’s programs are expected to have completed courses in linear algebra, abstract algebra, and analysis, and, for the M.A./M.S. programs, differential equations.

Degree Requirements. University master’s degree requirements are listed on page 62. Specific departmental requirements are listed below.

MASTER OF ARTS OR MASTER OF SCIENCE

Candidates must complete an approved 45-credit program which includes at least 30 credits in mathematics or statistics. These 30 credits must include courses distributed as follows: two 9-credit sequences at the 600 level and either the 3-credit Mth 501 Mathematical Literature and Problems or the 3-credit Stat 501 Statistical Literature and Problems. In addition, the student must pass written examinations.

MASTER OF ARTS OR MASTER OF SCIENCE WITH A CONCENTRATION IN STATISTICS

Candidates must complete an approved 45-credit program which includes at least 30 credits in courses with the Stat prefix. These 30 credits must include courses distributed as follows: two 9-credit sequences at the 600 level, 3 credits of Topics in Statistical Consulting, and 3 credits of Stat 501, Statistical Literature and Problems. In addition, the student must pass written examinations.
MASTER OF SCIENCE IN TEACHING
OR MASTER OF ARTS IN TEACHING
The Master of Science in Teaching or the Master of Arts in Teaching of mathematics are designed for individuals interested in strengthening their understanding of mathematics to enrich the teaching of mathematics. The program prepares teachers in subjects such as geometry, algebra, analysis/calculus, history of mathematics, probability, statistics, discrete mathematics, and use of technology in the classroom. The program is intended for individuals with a mathematics degree or a strong background in mathematics.

An M.S.T./M.A.T. candidate must complete an approved program of 45 graduate credits and complete an approved mathematics curriculum project. The program may also lead to the Standard Teaching Certificate/License. University requirements for a Standard Teaching Certificate/License are listed on page 205.

PH.D. IN MATHEMATICS EDUCATION
The Department of Mathematical Sciences offers a Ph.D. in Mathematics Education. The main objective of this program is to develop educators with an understanding of mathematics and its teaching and learning, and with the capabilities for research and professional practice in the field. This program provides a balance between mathematics and mathematics education to help in the development of mathematics educators who may become: (1) Faculty members in mathematics education in mathematics departments or schools of education in universities, four-year colleges, or community colleges; (2) Curriculum specialists in mathematics, supervisors of mathematics at the middle school level or secondary school level, or mathematics specialists in state or local departments of education; (3) Private sector specialists in mathematics education.

General Degree Requirements. Candidates must complete an approved program of 84 credit hours which consists of three major components: coursework, a research practicum experience, and dissertation research. Coursework must include 18 credit hours mathematics education research courses (Mth 690-695), 18 credit hours of other 500-600 level mathematics courses, and 18 hours of graduate coursework in supporting areas outside of mathematics (such as curriculum and instruction, psychology, educational policy, science, computer science, philosophy, sociology, anthropology, etc.). Candidates must pass comprehensive examinations in mathematics and mathematics education. In addition, candidates will be strongly encouraged to demonstrate competency in reading research in mathematics education in at least one language other than English.

Admission to the Ph.D. Program. Candidates in this program must currently have (or complete during their program) a master’s degree in mathematics equivalent to the M.S./M.A. degree or the M.S.T./M.A.T. degree at Portland State University. Applications must be received at least two terms prior to the term of admission. For more complete information on the program, write the Department of Mathematical Sciences at Portland State.

PH.D. IN SYSTEMS SCIENCE: MATHEMATICS
The Department of Mathematical Sciences participates in the Systems Science Doctoral Program offering a Ph.D. in systems science-mathematics. Specialized studies in applied and theoretical mathematics, when combined with core area courses and electives, will partially fulfill the requirements for the Ph.D. in systems science-mathematics. For specific requirements for this degree, contact the Department of Mathematical Sciences, and for general information related to the Systems Science Ph.D. degree, see page 67.

Courses
Courses with an asterisk (*) are not offered every year.

A course can be used as a prerequisite for a subsequent mathematics course only if it has been satisfactorily completed. Satisfactory completion of a course means receiving a C-, C, or above in that course. When courses are required to be taken in sequence (such as the four terms of calculus) each course is regarded as a prerequisite for the next.

Mth 70 Elementary Algebra (4)
This is a basic course covering first-year high school algebra. Credit for enrollment (eligibility) but not toward graduation; satisfies no University or general education requirements. Taught through the School of Extended Studies.

Mth 95 Intermediate Algebra (4)
Topics include problem solving, linear equations, systems of equations, polynomials and factoring techniques, rational expressions, radicals and exponents, quadratic equations. Credit for enrollment (eligibility) but not toward graduation; satisfies no University or general education requirements. Taught through the School of Extended Studies.

Mth 111, 112 Introductory College Mathematics I, II (4, 4)
An integrated treatment of topics from algebra and trigonometry. These courses serve as additional preparation for students with insufficient background who desire to take Mth 251, 252, 253. Neither Mth 111 nor 112 can be taken for credit if a grade of C– or better has been received for a course which requires either of them as a prerequisite. Courses must be taken in sequence. Prerequisite: Mth 111: second year high school algebra or equivalent. Mth 112: Mth 111.

Mth 191, 192, 193 Mathematics Tutoring (3, 3, 3)
Training in one-to-one and small-group tutoring over a wide range of mathematical topics. Mth 191: tutoring in arithmetic and other non-university courses. Mth 192: tutoring in freshman-level mathematics. Mth 193: tutoring in sophomore- junior- and senior-level mathematics. Required field work consists of providing tutoring service in the community or University. Prerequisite: consent of instructor.

Mth 199 Special Studies (Credit to be arranged.)

Mth 211, 212, 213 Foundations Of Elementary Mathematics I, II, III (4, 4, 4)
A constructivist approach to fundamental ideas of mathematics. Courses must be taken in sequence. Prerequisite: second year high school algebra or equivalent.

Mth 241 Calculus for Management and Social Sciences (4)
An introduction to differential and integral calculus, this course is intuitive in approach and emphasizes applications. While intended as a terminal course, the interested student may follow it by the more extensive and rigorous calculus sequence Mth 251, 252, 253, 254. Students may not receive credit for this course if they already have credit for Mth 251. Prerequisite: Mth 111.

Mth 251, 252, 253, 254 Calculus I, II, III, IV (4, 4, 4, 4)
Differential and integral calculus of functions of a single variable, analytic geometry, infinite series, an introduction to differential and integral calculus of functions of several variables and applications. Courses must be taken in sequence. Prerequisite: Mth 112.

Mth 256 Applied Differential Equations I (4)
Solution techniques in ordinary differential equations, applications. Prerequisite: Mth 253.

Mth 301, 302, 303 Elements of Modern Mathematics I, II, III (4, 4, 4)
Topics selected from arithmetic, algebra, geometry, calculus, probability, and statistics. A cultural approach to mathematics in which technical proficiency is not the primary objective. Recommended for liberal arts students. Prerequisite: Mth 111.

Mth 311 Advanced Calculus (4)
Properties of the real numbers, introduction to metric spaces, Euclidean spaces, functions of a real variable, limits, continuity, the extreme and intermediate value theorems, sequences. Prerequisite: Mth 253.

Mth 312, 313 Advanced Multivariate Calculus (4, 4)
Differential and integral calculus of functions of several variables, the inverse and implicit function theorems, infinite and power series, differential forms, line and surface integrals, Green’s, Stokes’ and Gauss’ theorems. Courses must be taken in sequence. Prerequisite: Mth 311.

Mth 322 Applied Differential Equations II (4)
Introduction to equations of mathematical physics, boundary value problems, separation of variables, power series techniques, Fourier series, and applications. Prerequisites: Mth 254, 256.
Mth 324  Vector Analysis (4) Modern vector methods with applications for students of mathematics, physics, and engineering. Prerequisite: Mth 254.

Mth 338  Modern College Geometry (4) Topics in Euclidean and non-Euclidean geometry. Prerequisite: Mth 253.

Mth 343  Applied Linear Algebra (4) Topics in matrix algebra, determinants, systems of linear equations, eigenvalues, eigenvectors, and linear transformations. Selected applications from science, engineering, computer science, and business. Prerequisite: Mth 253.

Mth 344  Introduction to Group Theory and Applications (4) Groups, homomorphisms, factor groups. Selected applications from geometry, combinatorics, computer science, chemistry. Prerequisite: Mth 253.

Mth 345  Introduction to Ring and Field Theory (4) Topics in rings, integral domains, fields, ordered fields, polynomial rings. The development of the real number system. Prerequisite: Mth 344.

Mth 346  Number Theory (4) A presentation of the properties of numbers as found in the theory of divisibility, congruence, diophantine equations, continued fractions, and algebraic numbers. Prerequisite: Mth 253.

Mth 399  Special Studies (Credit to be arranged.) Consent of instructor.

Mth 401/501  Research (Credit to be arranged.) Consent of instructor.

Mth 404/504  Cooperative Education/Internship (Credit to be arranged.) Consent of instructor.

Mth 405/505  Reading and Conference (Credit to be arranged.) Consent of instructor.

Mth 407/507  Seminar (Credit to be arranged.) Consent of instructor.

Mth 410/510  Selected Topics (Credit to be arranged.) Consent of instructor.

Mth 411/511, 412/512, 413/513  Introduction to Real Analysis I, II, III (3, 3, 3) Sequences and series of functions; real-valued functions on topological spaces; the Stone-Weierstrass and Baire category theorems; compact, self-adjoint, and Fredholm operators; Fourier series and integrals; elements of functional analysis. Prerequisites: Mth 254.

Mth 420/520  Introduction to Complexity Theory (3) An introduction to theoretical computer science. Includes a study of models of computation, complexity classes, Cook’s theorem, polynomial and nonpolynomial classes, discrete problems. Prerequisite: Mth 344.


Mth 424/524, 425/525  Elementary Differential Geometry and Tensor Analysis I, II (3, 3) Differential geometry of curves and surfaces; elementary Riemannian geometry; tensors and their algebra; elements of tensor analysis; applications from mechanics and field theory. Courses must be taken in sequence. Prerequisites: Mth 343 and either 256 or 421.

Mth 430/530  Topics in Mathematical Modeling (3) Basic introduction to mathematical model building starting with prototype, model purpose definition, and model validation. Models will be chosen from life, the physical and social sciences. Applications chosen from differential equations, linear programming, group theory, probability or other fields. Prerequisites: Consent of instructor and either Mth 256 or 421. With approval, this course may be repeated for credit.

Mth 431/531, 432/532, 433/533  Topics in Geometry I, II, III (3, 3, 3) Topics selected from projective geometry, non-Euclidean geometry, algebraic geometry, convexity, differential geometry, foundations of geometry, combinatorial topology. With departmental approval, this sequence may be repeated for credit. Prerequisite: Mth 311, 338, or 344.


Mth 441/541, 442/542, 443/543  Introduction to Abstract Algebra I, II, III (3, 3, 3) Groups and rings with homomorphism theorems, vector spaces, modules, algebraic theory of fields and Galois theory, lattices, algebras. Prerequisites: Mth 343, 344. Courses must be taken in sequence.

Mth 444/544, 445/545  Advanced Linear/ Multilinear Algebra I, II (3, 3) A second course in linear algebra. Products, quotients, and duals of vector spaces. Multilinear maps, tensor products, exterior algebra. Minimal and characteristic polynomials, canonical forms. Finite dimensional spectral theory. With departmental approval, this sequence may be repeated for credit. Courses must be taken in sequence. Prerequisites: Mth 343, 344.

Mth 449/549  Topics in Advanced Number Theory (3) A study of advanced topics selected from the areas of algebraic or analytic number theory. With departmental approval, this course may be repeated for credit. Prerequisite: Mth 346.


Mth 467/567, 468/568  Applied Probability I, II (3, 3) Finite probability, Markov chains, queuing theory, renewal theory, optimization under uncertainty. Courses must be taken in sequence. Prerequisite: Stat 461.

Mth 470/570, 471/571, 472/572  Complex Analysis and Boundary Value Problems I, II, III (3, 3, 3) Fundamental concepts of complex variables, partial differential equations and boundary value problems using Fourier series. Prerequisites: Mth 254 and either 256 or 421.

Mth 480/580  Systems Analysis: Calculus of Variations (3) Basic problems of the calculus of variations. Euler equations, Lagrange conditions, Lagrange multipliers. Lagrange equations, Hamilton’s equations, Application to mechanical and electrical systems. Prerequisite: Mth 256 or 422.

Mth 481/581  Probability for Mathematics Teachers (3) Probability, Markov chains, queuing theory, renewal theory, optimization under uncertainty. Courses must be taken in sequence. Prerequisite: Mth 254 or 421.


Mth 483/583  Topics in Geometry for Mathematics Teachers (3) Selected topics in geometry for mathematics teachers. Prerequisite: Mth 338 or 431.

Mth 484/584  Topics in Algebra for Mathematics Teachers (3) Selected topics in algebra for mathematics teachers. Prerequisite: Mth 344 or 441.

Mth 485/585  Topics in Analysis for Mathematics Teachers (3) Selected topics in analysis for mathematics teachers. Prerequisites: Mth 311.
Mth 486/586
Topics in The History of Mathematics (3)
Selected topics in the historical development of mathematics. With departmental approval, this course may be repeated for credit. Prerequisite: at least two upper-division courses approved for major credit.

Mth 487/587
Introduction to Combinatorial Analysis (3)
Permutations and combinations, partitions, generating functions, inclusion and exclusion principles, recurrence relations, Polya’s theory of counting, elementary theory of graphs and trees, block designs. Prerequisite: Mth 344 or 346.

Mth 488/588
Computing Technology for Mathematics Teachers (3)
Hands-on experience in the study of the role of computer software and calculators in the teaching and learning of mathematics. Prerequisite: Mth 344 or 346.

Mth 490/590
Computing in Mathematics for Middle School Teachers (3)
A study of the role of computing in mathematics with emphasis on the use of modern technology. Not approved for major credit. Available for graduate credit toward a master’s degree in education only. Previous computer experience. Prerequisites: Mth 111, 212.

Mth 491/591
Experimental Probability and Statistics for Middle School Teachers (3)
A study of probability and statistics through laboratory experiments, simulations, and applications. Not approved for major credit. Available for graduate credit toward a master’s degree in education only. Prerequisites: Mth 111, 212.

Mth 492/592
Problem Solving for Middle School Teachers (3)
Examination and application of problem-solving techniques and strategies. Problems are drawn from various areas of mathematics. Not approved for major credit. Available for graduate credit toward a master’s degree in education only. Prerequisites: Mth 111, 212.

Mth 493/593
Geometry for Middle School Teachers (3)
Selected topics from informal geometry, both two- and three-dimensional. Not approved for major credit. Available for graduate credit toward a master’s degree in education only. Prerequisites: Mth 111, 212.

Mth 494/594
Arithmetic and Algebraic Structures for Middle School Teachers (3)
The study of the real number system and its subsystems will lead to the introduction of more general algebraic structures and their applications. Not approved for major credit. Available for graduate credit toward a master’s degree in education only. Prerequisites: Mth 111, 212.

Mth 495/595
Historical Topics in Mathematics for Middle School Teachers (3)
A survey of the historical development of topics in mathematics from ancient to modern times, with special emphasis on topics in arithmetic, algebra and informal geometry. Not approved for major credit. Available for graduate credit toward a master’s degree in education only. Prerequisites: Mth 493, 494.
The following in-service courses have limited application toward advanced degrees.

Mth 803 Research (Credit to be arranged.)
Mth 802 Independent Study (Credit to be arranged.)
Mth 804 Cooperative Education/Internship (Credit to be arranged.)
Mth 805 Reading and Conference (Credit to be arranged.)
Mth 806 Special Problems/Projects (Credit to be arranged.)
Mth 807 Seminar (Credit to be arranged.)
Mth 808 Workshop (Credit to be arranged.)
Mth 809 Practicum (Credit to be arranged.)
Mth 810 Selected Topics (Credit to be arranged.)

STATISTICS
Stat 199 Special Studies (Credit to be arranged.)
Stat 243, 244 Introduction to Probability and Statistics I, II (4, 4)
A basic course in statistical analysis including presentation of data, probability distributions, sampling distributions, estimation, tests of significance, experimental design and analysis of variance, regression and correlation, nonparametric statistics, selected topics, applications, and use of statistical computer packages. A broad nontechnical survey designed primarily for nonmath students who need to utilize the subject in their own fields. Not approved for major credit. Courses must be taken in sequence. Prerequisite: second year high school algebra or equivalent, or satisfactory score on the placement exam.

Stat 366 Introduction to Experimental Design (4)
Nonparametric statistics, multiple regression, topics in experimental design analysis of variance, factorial designs, analysis of covariance, other designs. Prerequisite: Stat 244.

Stat 399 Special Studies (Credit to be arranged.)
Stat 401/501 Research (Credit to be arranged.) Consent of instructor.
Stat 404/504 Cooperative Education/Internship (Credit to be arranged.) Consent of instructor.
Stat 405/505 Reading And Conference (Credit to be arranged.) Consent of instructor.
Stat 410/510 Selected Topics (Credit to be arranged.) Consent of instructor.
Stat 460/560 Applied Statistics for Engineers and Scientists (3)
Histograms, binomial, Poisson, normal, t, F, and Chi-square distributions; central limit theorem; testing hypothesis; correlation and regression analysis; analysis of variance; computer applications. Not for major credit. Prerequisite: Mth 254.

Theory of probability, distributions of random variables, central limit theorem, sampling distributions, point and interval estimation, tests of hypotheses, analysis of variance. Courses must be taken in sequence. Prerequisite: Mth 256.

Stat 464/564 Applied Regression Analysis (3)
Basic concepts of regression analysis, matrix approach to linear regression selecting the “best” regression equation, and multiple regression. Computational algorithms and computer software regression packages. Applications in science, engineering, and business. Prerequisites: Mth 343 and either Stat 460/560 or 461/561.

Stat 465/565, 466/566 Experimental Design: Theory and Methods (3, 3)
A theoretical and applied treatment of experimental design, analysis of variance, fixed effect models, random effects models, checking model adequacy, block designs, Latin squares, related designs, incomplete designs, factorial designs, confounding two-level designs, split-plot designs, fractional factorial designs, nested designs, relation to regression analysis, analysis of covariance. All sections will illustrate real world applications with computer usage. Prerequisite: Stat 460/564.

Stat 503 Thesis (Credit to be arranged.)
Stat 601 Research (Credit to be arranged.)
Stat 603 Dissertation (Credit to be arranged.)
Stat 604 Cooperative Education/Internship (Credit to be arranged.)
Stat 605 Reading and Conference (Credit to be arranged.)
Stat 607 Seminar (Credit to be arranged.)
Stat 610 Selected Topics (Credit to be arranged.)
Stat 661, 662, 663 Advanced Mathematical Statistics I, II, III (3, 3, 3)

Stat 664, 665, 666 Theory of Linear Models I, II, III (3, 3, 3)
Multivariate normal distribution, moments and characteristic functions, noncentral Chi-square and noncentral F distributions; distribution of quadratic forms; estimation and distribution of estimators; principles of maximum likelihood and least squares; confidence regions and tests of hypotheses, regression models, Wishart distribution; Hotelling’s T2 statistic. Courses must be taken in sequence. Prerequisite: Stat 463.
UNDERGRADUATE PROGRAM

The basic objective of the philosophy program is to help the student to develop an ability to grasp and critically analyze basic concepts and assumptions made about reality, humanity, knowledge, truth, value, and society, and to evaluate claims about them.

More specifically, philosophy is concerned with such questions as these: How do value judgments differ from other judgments? Are values relative? If so, relative to what? Is beauty in the eye of the beholder? Is there such a thing as knowledge of right and wrong, good and bad, ugly and beautiful? If so, how do we get it? What is it for a situation to be unjust? What is it to have a right to something or to do something? What makes one society better than another? Is there such a thing as one person being a better human being than another? If so, in what does this consist? Is happiness the ultimate value? If not, what other values are there? What is truth? Is it a human creation or is it there to be discovered? Are there really such things as electrons, or is talk about electrons merely a convenient device for making predictions? What is explanation in science? What is the will? Do we have freedom of will? What is the relation between a person’s body and mind?

Requirements for a Major. In addition to meeting the general University degree requirements, the philosophy major must take a minimum of 56 credits in philosophy courses. Specific requirements are as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phl 201 Introduction to Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>Phl 202 Elementary Ethics</td>
<td>4</td>
</tr>
<tr>
<td>Phl 300 Philosophical Methods and Concepts</td>
<td>4</td>
</tr>
<tr>
<td>Phl 301, 302 History of Philosophy</td>
<td>8</td>
</tr>
<tr>
<td>Phl 324 Introduction to Formal Logic</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Philosophy electives (to include a minimum of 4 credits in upper-division courses)</td>
<td>8</td>
</tr>
</tbody>
</table>

Total 56

A maximum of 8 credits of philosophy taken under the undifferentiated grading option (pass/no pass) are acceptable toward fulfilling department major requirements.

Requirements for a Minor. To earn a minor in philosophy a student must complete 28 credits (8 credits of which must be taken in residence at PSU), to include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phl 201 Introduction to Philosophy</td>
<td>4</td>
</tr>
<tr>
<td>Phl 202 Elementary Ethics</td>
<td>4</td>
</tr>
<tr>
<td>Phl 301, 302 History of Philosophy</td>
<td>8</td>
</tr>
<tr>
<td>Phl 324 Introduction to Formal Logic</td>
<td>4</td>
</tr>
<tr>
<td>Philosophy electives (to include a minimum of 4 credits in upper-division courses)</td>
<td>8</td>
</tr>
</tbody>
</table>

Total 28

A maximum of 4 credits of philosophy taken under the undifferentiated grading option (pass/no pass) are acceptable toward fulfilling department minor requirements.

Honors in Philosophy. Requirements: In addition to meeting the general University degree requirements, a student seeking a degree with departmental honors must earn a minimum of 60 credits in philosophy, including Phl 485 Honors Seminar and 4 credits of Phl 401 Honors Research. To be admitted to the Honors Program in Philosophy, a student must have completed 90 hours of coursework with a GPA of at least 3.2. Admission to any honors philosophy course and award of the Honors Degree requires a GPA of at least 3.3 for all philosophy courses taken. No courses taken under the undifferentiated grading option are acceptable toward fulfilling the requirement for the Honors Degree.

GRADUATE PROGRAM

The Department of Philosophy hosts the Master of Arts/Sciences degree program in Conflict Resolution, which is a theoretical and applied philosophy, as well as an interdisciplinary, professional program. The program’s current areas of emphasis are: violence prevention, mediation, negotiation, facilitation, restorative justice, nonviolent social change, international conflict resolution, and dispute systems design and evaluation. Graduate courses in philosophy are also offered in support of graduate programs in fields other than philosophy.

For admission to graduate study, the student’s background and preparation should reflect an ability to pursue graduate work in conflict resolution. It is not required that the applicant’s undergraduate degree be in philosophy or any other specific academic discipline. Because the program is broadly interdisciplinary, students with any undergraduate degree are encouraged to apply for admission. Should the student’s preparation be deemed inadequate in certain areas, the student will be required to overcome those deficiencies through formal coursework and/or directed readings. All such work is separate from work toward the master’s degree.

Each applicant to the conflict resolution graduate program must submit a letter to the director explaining his or her reasons for pursuing an advanced degree, along with an academic writing sample of at least ten pages in length. Additionally, each applicant must submit three letters of recommendation from individuals closely acquainted with the applicant’s academic career and, where applicable, with the applicant’s professional background and competencies.

All students are admitted to the program on conditional status. Regular status and retention in the graduate program requires the satisfactory completion of 12 graduate credits with a minimum grade of 3.00 in each course and evidence of satisfactory progress toward the degree.

Degree Requirements. University master’s degree requirements are listed on page 54. Specific program requirements are listed below.

CONFLICT RESOLUTION

Master of Arts or Master of Science

Students entering this program are expected to develop an understanding and appreciation of the theoretical, conceptual, and methodological breadth of the field and to develop expertise in the pursuit of their own particular interests in the study of conflict resolution. In conjunction with the student’s advisor, each student will design a program based upon particular concerns within the field of conflict resolution, such as violence prevention, media-
tion, negotiation, facilitation, restorative justice, nonviolent social change, international conflict resolution, and dispute systems design and evaluation.

This program will provide the student with the appropriate research competencies—critical, qualitative, or quantitative—to pursue independent inquiry under faculty guidance. The master's degree program consists of a minimum of 63 credits of coursework, including 9 credits of thesis work and 9 credits of practicum work. Each student's program must be based upon the following courses or their transfer equivalencies.

1. Required Core Courses.
   a. CR 512 Perspectives on Conflict Resolution (4 credits)
   b. CR 513 Philosophy of Conflict Resolution (4 credits)
   c. CR 518 Psychology of Conflict Resolution (4 credits)
   d. CR 515 Negotiation and Mediation (4 credits)
   e. CR 524 Advanced Mediation (4 credits)
   f. CR 523 Law and Professional Ethics in Conflict Resolution (4 credits)
   g. CR 522 Thesis Preparation Seminar (1 credit)
   h. At least one 4-credit course in research methods (Several departments offer courses that satisfy this requirement, such as Anth 512, Eng 596, PS 593, Psy 597, Psy 598, Soc 592, Soc 593, Sp 521, Sp 531)

2. Areas of Emphasis. All graduate students are expected to develop a theoretical competency in at least two areas of emphasis. Areas of emphasis will be designed in consultation with the student's program adviser. Areas of emphasis currently supported in this program include: violence prevention, mediation, negotiation, facilitation, restorative justice, nonviolent social change, international conflict resolution, and dispute systems design and evaluation; other areas of emphasis may be developed, according to particular student needs, in consultation with the program adviser.

3. Emphasis Area Coursework. Students must take a minimum of four interdisciplinary elective courses. These four courses, combined with the core courses, must support at least two emphasis areas.

The program director maintains a current list of recommended interdisciplinary elective courses that support emphasis areas.

4. Practicum. Each student will complete a 9 credit, 300-hour practicum (CR 509) that covers at least one of the emphasis areas. The practicum will be set up in consultation with the student's program adviser. Optimally, the practicum will give the student professional experience in an emphasis area, as well as give the student ideas about thesis research topics.

5. Thesis. Each student will complete a thesis and pass a final oral examination on the thesis. Students must complete at least 9 credits of CR 503 Thesis; 9 credits maximum count toward the degree. The thesis director and thesis committee will be selected, in consultation with the program adviser. Prior to beginning work on the thesis, all students will be required to take the Thesis Preparation Seminar where they demonstrate proficiency in relevant theories and research methodology.

**Courses**

Courses with an asterisk (*) are not offered every year.

**Note:** There are no sequences among the lower division courses. Any of Phl 201-210 make a good starting course in philosophy.

**Phl 199 Special Studies (Credit to be arranged.)**

**Phl 201 Introduction To Philosophy (4)**

**Phl 202 Elementary Ethics (4)**

**Phl 203 Critical Thinking (4)**

**Phl 210 Philosophy of Religion (4)**

**Phl 212 Philosophy in Literature (4)**

**Phl 300 Philosophical Methods and Concepts (4)**

A survey of the major strategies of proof and disproof central to philosophical reasoning, and of the fundamental concepts and distinctions employed in current philosophical discourse. Aimed at providing students who have a serious interest in thinking philosophically with the conceptual tools found to be useful for this purpose. Not recommended as a first course in philosophy.

**Phl 301, 302 History of Philosophy (4, 4)**

Study of Western philosophy during the ancient period (classical Greek through Hellenistic times) and the modern period (17th century to the present).

**Phl 306 Science and Pseudoscience (4)**

An examination of basic issues in philosophy of science through an analysis of creation science, faith healing, UFO abduction stories, and other pseudosciences. Some of the questions addressed: What distinguishes science from pseudoscience? How are theories tested? When is evidence reliable? Must we invoke the supernatural to explain certain aspects of reality?

**Phl 309 Business Ethics (4)**

Study of the ethical aspects of practices and organizational structures in the business world. Course begins with a review of some traditional theories of ethics. The bulk of the course is devoted to specific contemporary topics, for example: the moral status of corporations, the concept of work place rights, responsibility in advertising, environmental constraints on business; affirmative action in hiring; the social roles of profit and private property; role of work in the life of the individual.

**Phl 310 Environmental Ethics (4)**

Critical study of issues raised by the attempt to formulate an adequate environmental ethic. Some of these issues deal with how our treatment of the environment affects other human beings, i.e., future generations. Others have to do with how non-human beings are to be treated. Do animals have rights? Do species have rights? Do our proper moral concerns extend to such things as trees, rivers, and possibly the planet itself? A number of current problems will be considered, such as population control, limits to growth, global warming, and endangered species. Prerequisite: Phl 202 or the relevant Sophomore Inquiry.

**Phl 311 The Morality of Punishment (4)**

The focus will be on the nature and proper aims of punishment, moral considerations that bear on the justice and wisdom of punishment. Consideration will be given to the main theories of punishment: retributionism, utilitarianism, paternalism, and the view that punishment should be replaced by therapy. Prerequisite: Phl 202 or the relevant Sophomore Inquiry.

**Phl 312 Feminist Philosophy (4)**

Critically examines traditional schools of philosophical thinking from a feminist perspective. Prerequisite: one philosophy course other than Phl 306, 324
Phl 313
Life and Death Issues (4)
Cluster course consisting of philosophical aspects of moral problems dealing with life and death issues. Such issues may include abortion, euthanasia, the death penalty, starvation, and nuclear war.

Phl 321
Existentialism (4)
Introduction to a number of philosophers and literary figures gathered (or confused) together under the name “existentialism.” Works of Nietzsche, Kierkegaard, Dostoyevsky, Heidegger, Camus, Sartre, and de Beauvoir will be read and discussed, as much for their dissimilarities as for similar themes. In particular, Sartrean existentialism will be contrasted with what Heidegger calls existential phenomenology. Questions addressed: What is it to be human? What is consciousness? Does anything have intrinsic value (value as an end in itself)? What makes acts right? Does morality presuppose or entail freedom? Prerequisite: one philosophy class.

Phl 324
Introduction to Formal Logic (4)
A course in basic formal logic. Major topics include the method of deduction for showing propositional arguments valid and the method of counter-example for showing such arguments invalid. Truth table methods, tests for consistency, and syllogistic arguments are optional topics.

Phl 325
Predicate Logic (4)
Continuation of Phl 324 Introduction to Formal Logic. Primary emphasis will be on formal methods for dealing with arguments involving the terms “all” and “some.” Major topics include the method of deduction for showing predicate logic arguments valid, and the method of counter-example for showing such arguments invalid. Prerequisite: Phl 324.

Phl 327
Introduction to Quantitative Literacy (4)
Quantitative data are widely used both in support of everyday claims regarding matters ranging from the effectiveness of new drugs to the safety of air travel and as grounds for personal and public policy decisions pertaining to such claims. The goal is to learn to think intelligently and critically about important uses of quantitative data by means of discussion of the following topics: samples, measures, scales, relationships, risks, predictions, graphs, averages, percentages, distributions, random effects, and estimates. Intended for students who do not normally take classes that involve quantitative matters; its mathematical content is kept at an absolute minimum.

Phl 332
Intentionality, Phenomenology, and Existentialism (4)
Examination of the Kantian roots of what becomes known as “intentionality” (i.e., that our conscious acts are directed towards objects, intending them). Various theories of intentionality will be read and discussed (e.g., Husserl, Heidegger, Frege, and Searle). There will be limited discussion of the alleged ties between intentionality and existentialism. Prerequisite: 8 credits in philosophy.

Phl 333
Analytic Philosophy (4)
Examination of the analytic philosophical tradition from Frege and Russell through early Wittgenstein and the Positivists to the present.

Phl 390
Special Studies (Credit to be arranged.)

Phl 404/504
Cooperative Education/Internship (Credit to be arranged.)

Phl 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

Phl 407/507
Seminar (Credit to be arranged.)
Consent of instructor.

Phl 410/510
Selected Topics (Credit to be arranged.)
Phl 414/514
Plato (4)
Study of selected dialogues of Plato with attention to such topics as his theory of forms, moral philosophy, political philosophy, and to the individual topics of the dialogues, as, for example, knowledge, being, virtue, piety, love, friendship, the state, the nature of philosophy. Prerequisite: 8 credits in philosophy.

Phl 415/515
Aristotle (4)
Study of some of the works of Aristotle, such as his Physics, Metaphysics, Ethics, Politics, parts of the Organon Rhetoric. Among topics for attention are substance, essence, categories, cause, the good man, practical reason. Prerequisite: 8 credits in philosophy.

Phl 416/516
The Rationalists: Descartes, Leibniz, Spinoza (4)
Study, with comparisons, of selected works of these philosophers who maintained that knowledge comes primarily from reason. Likely readings: for Descartes, Meditations, or Rules, or Discourse on Method; for Spinoza, Ethics; for Leibniz, a selection from among his many collected works and fragments. Offered approximately every second year. Prerequisite: 8 credits in philosophy.

Phl 417/517
The Empiricists (4)
Study of the British philosophers, Locke, Berkeley, and Hume, who hold that all of the ingredients of thought enter the mind by way of experience and that only what has a definite relation to experience can be thought. Among the particular topics considered will be material substance, spirit, abstract ideas, causation, induction, and skepticism. Prerequisite: 8 credits in philosophy.

Phl 419/519
Kant (4)
Study of Kant’s Philosophy primarily as represented in the Critiques of Pure Reason, Practical Reason, Judgment. Readings from some of these or related works. Possible topics for consideration: necessary connection, the analytic-synthetic distinction, conceptions of science and metaphysics, relation between metaphysics and morality. Prerequisite: 8 credits in philosophy.

Phl 420/520
Wittgenstein (4)
Consideration of some of the major works of Wittgenstein with emphasis on the later work, especially the Philosophical Investigations. Attention will be given to Wittgenstein’s contributions to philosophical method, as well as to his treatment of issues concerning language, meaning, intention, understanding, necessity, and the nature of human persons as language users. Prerequisite: 12 credits in philosophy.

Phl 423/523
Metaphysics (4)
Philosophical examination of traditional metaphysical issues (such as relation of body and mind, free will and determinism) and of the more influential ontologies (idealism, materialism, dualism). Introduction also to contemporary controversies over the feasibility of metaphysics as a rationale discipline (logical positivism and its critics). Prerequisite: 8 credits in philosophy.

Phl 424/524
Epistemology (4)
Philosophical examination of some of the main issues in the theory of knowledge (such as our knowledge of the external world, of the minds of others, of logical and mathematical truths, etc.). Prerequisite: 8 credits in philosophy.

Phl 432/532
Philosophy of Mind (4)
A study of the nature of mental states. Main topics are dualism and various forms of materialism, behaviorism, mind-body identity theories and functionalism; and the nature and content of propositional attitudes (e.g., belief, desire, meaning). Prerequisite: 8 credits in philosophy.

Phl 433/533
Philosophy of Language (4)
A study of the nature of language, and of problems of meaning, reference, and truth. Prerequisite: 8 credits in philosophy.

Phl 443/543
Ethics I (4)
A course in moral epistemology or “meta-ethics” dealing with such matters as the distinction and connections between fact and value, “is” and “ought” descriptivism and evaluation. Prerequisite: 8 credits in philosophy including Phl 202.

Phl 446/546
Ethics II (4)
A course on the nature of moral reasoning dealing with such topics as whether moral reasoning presupposes some completely general and fundamental moral principles, whether moral reasoning involves the apprehension and application of rules, the relevance of consequences to the justification of conduct, and the significance of the moral relations between persons. Prerequisite: 8 credits in philosophy including Phl 202.

Phl 453/555
Health Care Ethics (4)
Examines ethical issues that arise in relation to health care policy, the practice of medicine, and the introduction of new biotechnologies. Topics covered in any given term might include (among other topics): the extent of our right to health care, the rationing of scarce medical technologies, the ethics of abortion and euthanasia, the extent of a patient’s right to privacy, confidentiality, autonomy, the use of human beings as exper-
Philosophy of Conflict Resolution (4)
Introduction to the insights that philosophy offers to the field of conflict resolution. The course will also explore the impact that conflict resolution practice may have on philosophical theory. Additionally, ethical issues that arise during conflict resolution work will be carefully considered. Prerequisite: 3 credits philosophy.

CR 513
Conflict Resolution in Divergent Settings (4)
Examination of the variety of settings where conflict resolution takes place. Guest speakers share their experience and theoretical insights. Prerequisites: CR 512, 513.

CR 514
Negotiation and Mediation (4)
Introduction to collaborative approaches to responding to conflict. A theoretical framework will be established for using negotiation and mediation in diverse settings. Students will learn how to function as a neutral third party focusing on: conflict analysis, communication skills, maintaining a neutral role, creating a safe environment, and ensuring procedural, substantive, and psychological satisfaction. Ethical issues and concerns in the field of mediation will be presented. Prerequisite: 3 credits psychology or sociology.

CR 517
Nonviolence (4)
Designed to acquaint students with the theories and history of nonviolence from ancient times to the present, with some speculation as to future use. Prerequisite: 3 credits of philosophy.

CR 518
Psychology of Conflict Resolution (4)
Introduction to the psychological research and insights that illuminate conflict resolution theory and practice. A dual focus on both methods and research will be maintained throughout the curriculum. Prerequisite: 3 credits psychology.

CR 522
Thesis Preparation Seminar (1)
Introduction to a variety of approaches to thesis writing and research. Students examine completed master's degree theses in conflict resolution. Prerequisite: one year completed in the master's degree program.

CR 523
Legality and Professional Ethics in Conflict Resolution (4)
Students examine theories and insights about the role of law and professional ethics in the fields of conflict resolution. A historical account of the evolution of law and professional ethics raises interesting questions about how the fields of conflict resolution challenge law and ethics. Prerequisite: three credits of ethics.

CR 524
Advanced Mediation (4)
Focus on the qualities of the practitioner that enhance the practice of mediation. The practice of mediation involves a particular kind of presence, that of a non-judgmental observer. To maintain such a presence while in the midst of emotions, intense interactions, hostility, and conflict requires much clarity, steadiness, and stability. Students will learn ways to achieve these qualities through the cultivation of mindfulness. Prerequisites: CR 515.

CR 525
Conflict Resolution Systems Design (4)
Acquaints the student with a systems approach to designing conflict resolution services. These services are designed for a wide variety of settings to handle conflicts effectively at the lowest cost. Students learn to diagnose and correct problems in an existing system, as well as create and implement a wholly new system.

CONFLICT RESOLUTION

CR 512
Perspectives in Conflict Resolution (4)
Introduction to full scope of the master's degree program. Since the program is intended to embrace both humanities and social science orientations, students need to become acquainted with the methods and terms of criticism arising from these sometimes divergent disciplines. Prerequisite: 3 credits English literature and 3 credits psychology or sociology.

CR 513
Philosophy of Conflict Resolution (4)
Introduction to the insights that philosophy offers to the field of conflict resolution. The course will also explore the impact that conflict resolution practice may have on philosophical theory. Additionally, ethical issues that arise during conflict resolution work will be carefully considered. Prerequisite: 3 credits philosophy.

CR 514
Conflict Resolution in Divergent Settings (4)
Examination of the variety of settings where conflict resolution takes place. Guest speakers share their experience and theoretical insights. Prerequisites: CR 512, 513.

CR 515
Negotiation and Mediation (4)
Introduction to collaborative approaches to responding to conflict. A theoretical framework will be established for using negotiation and mediation in diverse settings. Students will learn how to function as a neutral third party focusing on: conflict analysis, communication skills, maintaining a neutral role, creating a safe environment, and ensuring procedural, substantive, and psychological satisfaction. Ethical issues and concerns in the field of mediation will be presented. Prerequisite: 3 credits psychology or sociology.

CR 517
Nonviolence (4)
Designed to acquaint students with the theories and history of nonviolence from ancient times to the present, with some speculation as to future use. Prerequisite: 3 credits of philosophy.

CR 518
Psychology of Conflict Resolution (4)
Introduction to the psychological research and insights that illuminate conflict resolution theory and practice. A dual focus on both methods and research will be maintained throughout the curriculum. Prerequisite: 3 credits psychology.

CR 522
Thesis Preparation Seminar (1)
Introduction to a variety of approaches to thesis writing and research. Students examine completed master's degree theses in conflict resolution. Prerequisite: one year completed in the master's degree program.

CR 523
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programs in optics, applied physics, engineering physics, and education. Biophysics, material science, atmospheric physics, environmental science, medical physics, and finance are particularly popular fields. Now. Environmental programs, electrical engineering, nuclear engineering, and computer science are common graduate school tracks. Medicine law and are also fields that welcome students with physics degrees. Many physicists are entrepreneurs who start their own companies.

Requirements for the B.A. or B.S. Degree in Physics. It is important that students planning to major in physics contact the Department of Physics prior to the start of their work in order that a coherent program can be planned with their assigned adviser. Students planning to transfer to PSU from community colleges or other universities are strongly advised to contact the Department of Physics well ahead of their proposed date of transfer so that a smooth transition, which avoids course duplication and untimely delays, can be accomplished. Students need to choose between the standard option and the environmental physics option. In addition to meeting the general University degree requirements, the student must meet the following minimal departmental course requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph 201, 202, 203 General Physics</td>
<td>9-12</td>
</tr>
<tr>
<td>Ph 221, 222, 223 General Physics</td>
<td>9-12</td>
</tr>
<tr>
<td>Ph 211, 212, 213 General Physics</td>
<td>9-12</td>
</tr>
<tr>
<td>Ph 204, 205, 206 Lab for Ph 201, 202, 203</td>
<td>3-9</td>
</tr>
<tr>
<td>Ph 214, 215, 216 Lab for Ph 211, 212, 213</td>
<td>3-9</td>
</tr>
<tr>
<td>Ph 221, 222, 223</td>
<td>3-9</td>
</tr>
<tr>
<td>Ph 311, 312 Introduction to Modern Physics</td>
<td>8</td>
</tr>
<tr>
<td>Ph 314, 315 Experimental Physics I</td>
<td>8</td>
</tr>
<tr>
<td>Ph 321 Current Electricity</td>
<td>4</td>
</tr>
<tr>
<td>Ph 322 Computational Physics</td>
<td>4</td>
</tr>
<tr>
<td>Ph 424 Classical Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>Upper-division electives</td>
<td>8</td>
</tr>
</tbody>
</table>

Total in physics (minimum) 47-50

Select one of two options (standard or environmental option):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph 214, 215, 216 Lab for Ph 211, 212, 213</td>
<td>3-9</td>
</tr>
<tr>
<td>Ph 222, 223</td>
<td>3-9</td>
</tr>
<tr>
<td>Ph 311, 312 Introduction to Modern Physics</td>
<td>8</td>
</tr>
<tr>
<td>Ph 314, 315 Experimental Physics I</td>
<td>8</td>
</tr>
<tr>
<td>Ph 321 Current Electricity</td>
<td>4</td>
</tr>
<tr>
<td>Ph 322 Computational Physics</td>
<td>4</td>
</tr>
<tr>
<td>Ph 424 Classical Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>Upper-division electives</td>
<td>8</td>
</tr>
</tbody>
</table>

Total 43

Environmental physics option: Choose 30 credits from the following list: Ph 451, 471, 490, 492, Bi 251, 252, 253, 357, 475, 476, G 443, 444, 448, Ch 426, 427, CE 371.

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling department major requirements except for those major courses offered on a pass/no pass basis only.

Requirements for a Minor. To earn a minor in physics a student must complete 27 credits (9 credits of which must be taken in residence at PSU), and 12 to 15 credits of which must be upper-division), to include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph 201, 202, 203 General Physics or Ph 211, 212, 213 General Physics (with Calculus)</td>
<td>9-12</td>
</tr>
<tr>
<td>Ph 204, 205, 206 Lab for Ph 201, 202, 203 or Ph 214, 215, 216 Lab for Ph 211, 212, 213 or Ph 221, 222, 223</td>
<td>3-9</td>
</tr>
<tr>
<td>Ph 311, 312 Introduction to Modern Physics</td>
<td>8</td>
</tr>
<tr>
<td>Ph 314, 315 Experimental Physics I</td>
<td>8</td>
</tr>
<tr>
<td>Ph 321 Current Electricity</td>
<td>4</td>
</tr>
<tr>
<td>Ph 322 Computational Physics</td>
<td>4</td>
</tr>
<tr>
<td>Ph 424 Classical Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>Upper-division electives</td>
<td>8</td>
</tr>
</tbody>
</table>

Total 27

A maximum of one-third of the courses taken under the undifferentiated grading option (pass/no pass) is acceptable toward fulfilling department minor requirements. Additional courses may be required as prerequisites.

SECONDARY EDUCATION PROGRAM Adviser: M.H. Halka

Students who complete a major in physics can qualify to teach physics and science grades 5-8 in secondary schools by completing the education requirements on page 205.

Courses are to be taken for differentiated grades, except for those offered only on a pass/no pass basis. Students must have at least a 2.75 GPA in the endorsement and must earn at least a C in each course of the endorsement.

GRADUATE PROGRAMS

The department participates in the Environmental Sciences and Resources Doctoral Program. Specialized studies in the basic principles and techniques of the discipline, when combined with a multidisciplinary environmental science course and seminar, will partially fulfill the requirements for the Ph.D. in environmental sciences and resources. For information on the Ph.D. program, see page 117.

The Department offers work leading to the degrees of Master of Arts and Master of Science. The M.A. and M.S. programs are designed to further the development of the student as a professional physicist. Specific programs designed to meet the needs of the individual student are planned in consultation with the graduate advisers.

The department offers graduate courses in the fields of classical mechanics, relativistic hydrodynamics, quantum mechanics, electromagnetism, statistical mechanics, atomic and molecular physics, nuclear physics, physics of condensed matter, and biophysics. Current research areas in theoretical and experimental physics are: statistical physics, surface physics (scanning tunneling microscopy, near-field optical microscopy, Mossbauer spectroscopy), and membrane biophysics (transport in biological and artificial membranes), low temperature physics (heat transfer, phase transitions), atoms and molecules at high temperatures and pressures, electron microscopy (atmospheric aerosols, membrane domains, electrodeposition), and global change science.

Degree Requirements. University master's degree requirements are listed on page 62. Specific departmental requirements are listed below.

MASTER OF ARTS OR MASTER OF SCIENCE

The program must be approved by the student’s adviser and must include a minimum of 45 graduate credits in science, including not fewer than 30 credits in physics. These 30 credits in physics must be in 500- or 600-level courses, distributed as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar (Current Literature)</td>
<td>3</td>
</tr>
<tr>
<td>One of the following three options</td>
<td>6</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>Cooperative Education/Internship</td>
<td>6</td>
</tr>
<tr>
<td>Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Of the additional credits required in physics, at least 12 must be in courses with numbers above 610 or the graduate-level sequence in quantum mechanics (Ph 311, 618, 619)

The student must also pass a qualifying examination and a final oral examination in Thesis, Cooperative Education/Internship, or Project. Typically, a thesis involves research (either experimental or theoretical), Cooperative Education/Internship involves relevant student experiences obtained in industry or government, and a project involves review of the literature in a certain area of physics. In all cases, a written report, a presentation, and oral exam are necessary.

STANDARD TEACHING LICENSE

The requirements for the standard teaching license include 45 graduate or upper-division credits exclusive of those used for either the bachelor’s degree or for the basic teaching license. For the standard endorsement in physics, the student must take at least 15 credits of adviser-approved gradu-
ate subject matter distributed to strengthen the student's background in science. Although no specific courses are required for the standard endorsement, combined undergraduate and graduate preparation must include at least 36 credits in the major area. Each student's program is tailored to meet the needs of the individual and the requirements of the standard endorsement and the standard license. The 45 credits required for the license must also include 15 credits of education courses. See page 205 for the required education courses.

COURSES

Courses with an asterisk (*) are not offered every year. Some lecture courses may be challenged by examination.

Ph 101, 102 Essentials of Physics (4, 4)
An elementary introduction to the basic principles of physics, their interpretation and application. Designed to accommodate all liberal arts students. Three lectures; concurrent enrollment in Ph 104, 105 is encouraged. Prerequisite: high school algebra.

Ph 104, 105 Experimental Investigations for Non-science Majors (2, 2)
Discovery labs for essential laws of physics. Investigate gravity, force, acceleration, momentum, heat, work, energy, electricity, light, and radioactivity. Make simple electrical circuits and an electrical motor. Improve computer literacy by working with graphic models of radioactive decay. One two-hour discussion and laboratory period. Concurrent enrollment in Ph 101, 102 is encouraged. Prerequisite: high school algebra.

Ph 121, 122 General Astronomy (4, 4)
An introductory historical, descriptive, and interpretative study of astronomy. Emphasis is on the basic scientific methods as they apply to astronomical problems. Detailed examination of the earth, followed by a survey of the other members of the solar system. Survey of the stars, their types, grouping, and motions. Models for the evolution of the Universe and the possibility of life elsewhere. The nature of light, the types of information it carries, and the types of devices used to detect it. Need not be taken in sequence.

Ph 190 Special Studies (Credit to be arranged.)

Ph 201, 202, 203 General Physics (4, 4, 4)
Introductory physics for science majors. The student will explore topics in physics including Newtonian mechanics, electricity, and magnetism, thermal physics, optics, and modern physics. Prerequisites: for Ph 201, Mth 112 and Ph 204 concurrently; for Ph 202, satisfactory completion of Ph 201 and Ph 205 concurrently; for Ph 203, satisfactory completion of Ph 202 and Ph 206 concurrently.

Ph 204, 205, 206 Lab for Ph 201, 202, 203 (1, 1, 1)
Introductory laboratory for students in General Physics. One 3-hour laboratory period. Corequisites: concurrent enrollment in Ph 201, 202, 203.

Ph 211, 212, 213 General Physics (with Calculus) (4, 4, 4)
Introductory physics for students majoring in science and engineering. The student will explore topics in physics including statics, dynamics, electromagnetism, thermodynamics, and optics using the methods of calculus. Prerequisites: for Ph 211, Mth 251 and Ph 214 concurrently; for Ph 212, satisfactory completion of Ph 211 and Ph 215 concurrently; for Ph 213, satisfactory completion of Ph 212 and Ph 216 concurrently.

Ph 214, 215, 216 Lab for Ph 211, 212, 213 Or Ph 221, 222, 223 (1, 1, 1)
Introductory laboratory for students in General Physics (with Calculus). One 3-hour laboratory period. Corequisites: concurrent enrollment in Ph 211, 212, 213 or concurrent enrollment in Ph 221, 222, 223.

Ph 221, 222, 223 General Physics (with Calculus) (3, 3, 3)
Introductory physics for students majoring in engineering. The student will explore topics in physics including statics, dynamics, electromagnetism, thermodynamics, and optics using the methods of calculus. Prerequisites: for Ph 221, Mth 251 and Ph 214 concurrently; for Ph 222, satisfactory completion of Ph 221 and Ph 215 concurrently; for Ph 223, satisfactory completion of Ph 222 and Ph 216 concurrently.

Ph 261, 262 General Astronomy (4, 4)
Introductory historical, descriptive, and interpretative study of astronomy. Emphasis is on the basic scientific methods as they apply to astronomical problems. Detailed examination of the earth, followed by a survey of the other members of the solar system. Survey of the stars, their types, grouping, and motions. Models for the evolution of the Universe and the possibility of life elsewhere. The nature of light, the types of information it carries, and the types of devices used to detect it. Includes laboratory and/or fieldwork.

Ph 290 Special Studies (Credit to be arranged.)

Ph 311, 312 Introduction to Modern Physics (4, 4)
The revolution in the concepts of physics in the 20th century. Radioactivity, quanta, black-body radiation, relativity: Bohr’s theory of the atom. Introduction to quantum mechanics. Atomic, molecular spectroscopy, periodic table. Introduction to nuclear and solid state physics, and elementary particles. Three lectures. Prerequisite: Ph 203, or Ph 213 and Mth 252.

Ph 313 Ideas in Modern Physics (4)
Fundamental ideas of the modern physics of this century. Topics include the development of relativity, quantum mechanics, nuclear and particle physics, and cosmology. Prerequisite: one college-level science course.

Ph 314, 315 Experimental Physics I (4, 4)
Experiments in electrical measurements, digital logic circuits with applications to experimental control and computer interfacing, and analog circuits. Two 3-hour lab periods. Ph 314 requires concurrent enrollment in Ph 321.

Ph 316 Experimental Physics I (4)
Students will perform several experiments illustrating quantum and relativistic effects. The emphasis will be on computer-assisted experimentation and data analysis. Experiments will include instrumentation and counting in nuclear physics, measurement of band gap in semiconductors, measurement of ratio of electron charge to electron mass, speed of light, Frank-Hertz experiment and electron spin resonance. Two 3-hour laboratory periods. Prerequisites: Ph 311.

Ph 317, 318 Solid State Physics for Engineering Students (3, 3)
A two-term survey of solid state physics including topics necessary for understanding crystaline solids and their electron transport processes. Topics include crystal lattices, X-ray diffraction, concepts of quantum physics, Schrodinger equation, electron tunneling, physical statistics, free electron theory of metals, effect of periodic potential on electrons, intrinsic and impurity semiconductors and analysis of p-n semiconductor junction. Prerequisites: Ph 213 or 223.

Ph 321 Current Electricity (4)
Electric potential and current; Kirchhoff’s Laws and equivalent circuits. Transient and A C. behavior of circuit elements. Theory of operation of diodes and transistors. Prerequisites: Ph 203 or 213; concurrent enrollment in Ph 314.

Ph 322 Computational Physics (4)
Formulation and numerical solution of physics problems. Use of computers and graphical displays to enhance intuition and supplement analytical procedures. Approaches to complex physical situations, especially those involving dissipative, nonlinear and stochastic phenomena. Recommended prerequisite: Working knowledge of at least one computer language.

Ph 331 Physics of Music (4)
A series of lectures and laboratories illustrating the basic principles of acoustics and their application to string, wind, brass, and percussion/ instruments. Some of the laboratory exercises are adaptable for use in primary and secondary school classes. Prerequisite: one year of music, or one year of a physical science.

Ph 333 Radiation in the Environment (4)
Types of radiation and their interaction with matter, including organic tissue; methods of detection and shielding, evaluation of dosage and risk assessment; methods of energy generation based on nuclear energy; nuclear waste and disposal problems. Prerequisites: Ph 203, Bi 253, Ch 223, or equivalent. Calculus, previously or concurrently, is recommended.

Ph 363 Color Photography (3)
Principles of color photography, including the physics of color and scientific explanations of the formation of color images on light-sensitive materials. Traces uses and history of color photography. Prerequisite: one college-level science or photography course.
Ph 365 Fractals, Chaos, and Complexity (4)
Introduction to the basic physical ideas behind fractals in nature, chaos, complexity, and other current concepts in physics, with emphasis on fractals and chaos. Computer simulations and desktop experiments involving fractals, chaos, and complex systems. Prerequisite: Astronomy, General Physics, or Natural Science Inquiry.

Ph 366 Complexity and the Universe I (4)
Introduction to the basic physical ideas behind complexity and other current concepts in physics. Computer simulations and desktop experiments involving fractals, chaos, and complex systems. Includes laboratory and/or fieldwork. Prerequisite: General Physics or Natural Science Inquiry.

Ph 367 Complexity and the Universe II (4)
Continuation of Sci 318/Ph 366. Emphasizes scientific cosmology with a focus on understanding how insights gained from physics and astronomy affect your view of the universe and your place in it. Students participate actively in seeing how some of the information was gathered, to help critically analyze what to believe about the history and arrangement of the universe and what it means to them. Includes laboratory and/or fieldwork. Prerequisite: Astronomy, General Physics, or Natural Science Inquiry.

Ph 371 Fractals, Chaos, and Other Current Topics in Physics (4)
Introductory survey to current concepts in fractals in the natural world, chaos, complexity, and other related topics in physics. Computer simulations and the use of microcomputers, desktop experiments are an essential part of the course. Prerequisite: one year of general physics.

Ph 375 The Earth's Atmosphere: Global Change and Human Life (4)
An introduction to the global environment and how human activities are causing climatic changes, ozone depletion, and deforestation. Emphasizes the interrelationship between environmental processes. Deals with the qualitative aspects of how the earth's climate works, how it can be altered by burning of fossil fuels (emissions of carbon dioxide) and by the increasing concentrations of other "greenhouse gases", how the ozone layer can be depleted by man-made chemicals, and what is being done, or can be done to avert the undesirable consequences of these global changes.

Ph 378 Science Through Science Fiction (4)
This course uses science fiction literature to examine a wide variety of topics in science. Prerequisite: Astronomy, General Physics, or Natural Science Inquiry. Also listed as Sci 355; course may be taken only once for credit.

Ph 381 Physical Metallurgy for Engineers (3)
Crystal structure of metals and their relationships to properties. Phase diagrams of alloys, heat treatment, mechanical properties, and corrosion. Methods of fabrication of metals. Two lectures, one 3-hour laboratory period. Prerequisites: EAS 213, Ph 213 or 223, Ch 223.

Ph 389 Special Studies (Credit to be arranged.)
Ph 401/501 Research (Credit to be arranged.)
Consent of instructor.

Ph 404/504 Cooperative Education/Internship (Credit to be arranged.)
Ph 405/505 Reading and Conference (Credit to be arranged.)
Consent of instructor.

Ph 406/506 Special Projects (Credit to be arranged.)
Consent of instructor.

Ph 407/507 Seminar (Credit to be arranged.)
Consent of instructor.

Ph 410/510 Selected Topics (Credit to be arranged.)
Consent of instructor.

*Ph 411/511 Introduction to Quantum Mechanics (4)
An introduction to the formulation and application of wave mechanics, the Schrodinger equation and its application to time-independent problems (both one- and three-dimensional problems), identical particles, approximation methods including mainly time-independent perturbations. Brief exploration of the potential applications of quantum mechanics to engineering: quantum nano-structures and quantum computers. Prerequisites: Ph 318 or 311, Mth 256. This course is the same as ECE 398; course may only be taken once for credit.

*Ph 413/513 Introduction to Solid State Physics (4)
Experimental and theoretical survey of the lattice and electronic properties of solids with particular emphasis on the properties of electrons in metals. Prerequisite: Ph 411 or 312.

*Ph 415/515 Experimental Optics (3)
Advanced experiments in physical optics. One 4-hour laboratory period. Prerequisite: Ph 203 or Ph 213.

*Ph 424 Classical Mechanics I (3)

*Ph 425/525 Classical Mechanics II (3)
Advanced formulation of mechanics. Lagrange's and Hamilton's equations. The inertial tensor, free rotations, and rigid body dynamics. Theory of small oscillations, coupled oscillations and normal modes. Prerequisites: Ph 424 and Mth 322.

Ph 426/526 Thermodynamics and Statistical Mechanics (4)
Concepts of temperature, work, and heat; first and second laws of thermodynamics and applications; thermodynamic potentials, heat engines, Carnot cycle, and ideal gases, entropy and its statistical interpretation; kinetic theory of gases; classical and quantum statistics; introduction to statistical mechanical ensembles. Prerequisites: Ph 203 or 213, Mth 254, and Ph 311.

*Ph 431/531, 432/532 Electricity and Magnetism (4, 4)
Advanced study of electricity and magnetism covering field and potential of charge arrays, electrostatic field energy, images, multipoles, Laplace's equation, Biot-Savart and Ampere's laws, magnetic field energy, vector potential, displacement current, dielectrics and their microscopic models, electromagnetic wave equations, boundary conditions, energy radiation, magnetic materials and their microscopic models. Prerequisites: Ph 312 and Mth 236.

*Ph 434/534 Methods of Mathematical Physics (4)
A survey of methods of applied mathematics used in modern physics, to include: vectors, matrices, operators, and eigenvalues; perturbation theory and series expansion; variation and optimization; numerical methods; transforms, and special functions. Prerequisites: Ph 312 and Mth 322.

*Ph 440/540, 441/541 Physics of Solid State Devices (4, 4)
This is a survey intended to provide the foundation necessary for understanding function, technology and design of solid state devices, rather than their application. Topics will include: introduction to and application of concepts of quantum physics to solids, effect of periodicity in solids on electron energy states, electron statistics, metals, insulators, semiconductors and superconductors, thermionic and field assisted electron emission, electron scattering and mobility of charge carriers, intrinsic and extrinsic semiconductors, quantitative treatment of p-n junction, diffusion and recombination of excess carriers, quantitative treatment of electron injection, majority and minority components of the junction current, breakdown, quantitative treatment of bipolar junction transistor, field effect transistor and tunnel diodes, physics of metal-semiconductor and metal-insulator-semiconductor junctions and devices, superconductivity and superconducting devices, DC and AC Josephson effects, Josephson junctions, superconductive quantum interference devices. Prerequisites: Ph 312 or 318.

Ph 451/551, 452/552 Electron Microscopy (4, 4)
Electron optics theory, specimen preparation and experimental work with transmission and scanning electron microscopes. Microchemical analysis with an energy dispersive spectrometer. Specimens from all the sciences. Two lectures, one 3-hour laboratory period. Prerequisites: one year of general physics and one year of any other science.

*Ph 464/564 Applied Optics (4)
An overview of optics and such principal applications as fiberoptics, chemical, biological, and optical sensors, optical information processing, acousto-optics, lasers and detectors. Prerequisites: Ph 203 or 213 or 223, Mth 254. This course is the same as ECE 594; course may only be taken once for credit.
approaches to air pollution modeling when the advantages and disadvantages of the two of receptor and dispersion modeling. Teaches techniques. It teaches the complementary nature problem using dispersion and receptor modeling

Applications of Air Pollution Modeling (4)

Students work in teams to solve an air pollution problem using dispersion and receptor modeling techniques. It teaches the complementary nature of receptor and dispersion modeling. Teaches the advantages and disadvantages of the two approaches to air pollution modeling when either approach is applicable. Students use established computer models and become proficient in their use. Prerequisite: Ph 477/577.

Physical Metallurgy (2, 2, 2)

Introduction to principles of physical metallurgy. Includes the atomic and crystallographic structures of metals and alloys, defects in structure and the importance of them in determining the properties of metals; phase diagrams of alloy systems and examples of important systems; diffusion and phase transformations, emphasizing the solid state; plasticity and fracture of crystals; and corrosion. Prerequisites: Ph 203, Ch 223.

Cellular and Molecular Biophysics (4, 4)

An introduction to the physical ideas and methods in the studies of biological phenomena, organization, structure, and function at the cellular and molecular level. Atomic and molecular structures, energy and interacting forces relating to cellular and molecular biophysics will be discussed. Corequisite: concurrent enrollment in Ph 481, 482, 483.

Thesis (Credit to be arranged.)

Research (Credit to be arranged.)

Dissertation (Credit to be arranged.)

Cooperative Education/Internship (Credit to be arranged.)

Special Problems/Projects (Credit to be arranged.)

Selected Topics (Credit to be arranged.)

Physics of Solids and Liquids (4, 4)

The theory of mechanical, thermal, electrical, magnetic, and optical properties of solids and liquids. Prerequisites: Ph 413.

Quantum Mechanics (4, 4)

A detailed discussion of the approximation methods for solving the time-independent Schrödinger equation, scattering theory in terms of stationary unbound states, time-dependent theory including the perturbation method, the two-level problem and its application to laser operation, Dirac's formulation using bra and ket; different time-evolution pictures; concept of density matrices; Berry's phase; quantum theory of angular momentum; Feynman's path integral formulation; introduction to relativistic quantum mechanics; issues on the fundamental aspects of quantum mechanics including Bell's theorem, the EPR paradox, hidden-variable theory; and Schrödinger's cat problem. Prerequisites: Ph 411/511, 423.

Hydrodynamics (4)

The theory of fluids and continuous media. Equations of continuity. Euler's equation, flow fields, and applications. Prerequisite: Ph 625.

Electromagnetic Fields and Interactions (4, 4, 4)

Classical description of the electromagnetic field: classical electron theory and plasmas. Prerequisites: Ph 624, 625.

Electromagnetic Fields and Interactions (4, 4)

Classical description of the electromagnetic field: classical electron theory and plasmas. Prerequisites: Ph 624, 625.

Statistical Mechanics (4, 4, 4)

Foundations of statistical mechanics and kinetic theory; statistical interpretation of thermodynamics; ensembles in classical and quantum systems; transport phenomena. Prerequisites: Ph 619 or 625.

Advanced Atmospheric Physics (4) Advanced course to provide a working knowledge of base models for studying global change including the greenhouse effect, global warming, stratospheric ozone depletion from man-made chemicals, tropospheric chemistry of HO and O3 and transport modeling. Prerequisite: Ph 578.
Preprofessional Programs

Portland State offers courses which meet the preprofessional requirements of professional schools within the Oregon State System of Higher Education and, in most cases, the requirements of out-of-state professional schools as well. The program schedules in this section are typical and will vary in individual cases. The majority of preprofessional programs are based on the graduation requirements of other institutions. Students choosing to continue at PSU, rather than pursue a preprofessional transfer program should meet with a faculty adviser to determine PSU graduation requirements. All preprofessional students should check with a faculty adviser to keep current on all recent changes and remaining requirements.

### AGRICULTURE
503-725-3851

Adviser: A. Yeakley

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 251, 252, 253 Principles of Biology</td>
<td>5 5 5</td>
</tr>
<tr>
<td>Ch 104, 105, 106 Introductory Chemistry</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Ch 107, 108, 109 Introductory Chemistry Laboratory</td>
<td>1 1 1</td>
</tr>
<tr>
<td>Mth 111, 112 Introductory College Mathematics</td>
<td>4 4</td>
</tr>
<tr>
<td>Mth 241 Calculus for Management and Social Sciences or Mth 251 Calculus I</td>
<td>- 4</td>
</tr>
<tr>
<td>Wr 121 English Composition (any term)</td>
<td>3</td>
</tr>
<tr>
<td>PHE 295 Health and Fitness for Life (any term)</td>
<td>- 3</td>
</tr>
<tr>
<td>Arts and letters or social science electives (any term)</td>
<td>- 3</td>
</tr>
</tbody>
</table>

### ALLIED HEALTH
503-725-3822

Advisers: Chiropractic, Naturopathic, Occupational Therapy, Optometry, Physical Therapy, Physician Assistant, Radiation Therapy, and Veterinary Medicine R. Mercer

Portland State University offers preprofessional programs for students wishing to prepare themselves for admission to a variety of allied health professional schools. These programs consist of a two- to four-year preparatory phase followed by a one- to four-year professional phase, and in most cases admission to the professional school occurs before the award of the baccalaureate degree.

A typical freshman program includes biology, math, chemistry, and general education courses; however, individual programs vary depending on the student’s academic preparation and the unique graduation requirements of the institutions granting the particular professional degrees. It is essential that a student’s academic program be planned with a health sciences adviser, and accessible advising is available in the College of Liberal Arts and Sciences Health Sciences Advising Center, where professional advisers can help with course scheduling, declaring a major, preparing for graduate admission tests, choosing a professional school, and organizing letters of recommendation.

### DENTAL HYGIENE
503-725-3822

Adviser: R.C. Mercer, F. McClurken-Talley, K. Hanson

The School of Dentistry, Oregon Health Sciences University, offers a B.S. degree in dental hygiene. This degree requires 90 credits of college work prior to matriculation in the two-year program at the School of Dentistry. The 90 credits must include the following PSU courses:

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 101, 102, 103 General Biology</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Ch 104, 105, 106 Introductory Chemistry</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Ch 107, 108, 109 Introductory Chemistry Laboratory</td>
<td>1 1 1</td>
</tr>
<tr>
<td>Anth 103 Introduction to Social/ Cultural Anthropology (any term)</td>
<td>- 4</td>
</tr>
<tr>
<td>Soc 200 General Sociology</td>
<td>4</td>
</tr>
<tr>
<td>Mth 111 Introductory College Mathematics (any term)</td>
<td>- 4</td>
</tr>
<tr>
<td>Wr 121 English Composition (any term)</td>
<td>3</td>
</tr>
<tr>
<td>Psy 204 or 200 Psychology as a Social Science or Natural Science</td>
<td>- 4</td>
</tr>
<tr>
<td>Electives (any term)</td>
<td>- 4</td>
</tr>
</tbody>
</table>

### DENTISTRY, MEDICINE, OSTEOPATHY, AND PODIATRY
503-725-3822

Adviser: K. Hanson, Health Sciences Advising Office, 494 Neuberger Hall

Portland State University offers preprofessional programs for students wishing to prepare themselves for admission to dental, medical, osteopathy or podiatry schools. A bachelor's degree is required prior to matriculation by the medical school of Oregon Health Sciences University. Three years' work with at least one year at Portland State University plus the transfer of up to 48 upper-division credits from a dental school upon the satisfactory completion of one year at the dental school will result in the awarding of a Bachelor of Science or a Bachelor of Arts degree in biology or general studies.

A typical freshman program includes biology, math, chemistry, and general education courses; however, individual programs vary depending on the student’s academic preparation. Before planning a curriculum, students must meet with an adviser to determine placement in math and science courses. In most cases a student must also have an academic adviser in their major. While there is no preferred major, a broad education is encouraged. In addition to specific requirements in math and the sciences, students should build a strong foundation in the traditional liberal arts curriculum.

Accessible advising is available in the College of Liberal Arts and Sciences Health Sciences Advising Center, where professional advisers can help with course scheduling, declaring a major, preparing for the MCAT and DAT, choosing a professional school, and organizing letters of recommendation.
PREPROFESSIONAL PROGRAMS: K-12 TEACHER PREPARATION

Portland State University educates prospective K-12 teachers in the Graduate School of Education. Teacher licensing is part of the Master of Education degree and is achieved through the Graduate Teacher Education Program (GTEP) in the Department of Curriculum and Instruction (note: programs in bilingual education, ESL, special education, library/media, counseling, adult education, and administration are also available in the Graduate School of Education and may be contacted by calling 503-725-4619.)

Undergraduates at Portland State University may prepare for competitive admissions by consulting with appropriate advisers, by achieving high academic standards in the recommended and required courses for specialization and in courses in liberal arts, and by documenting successful experience with children in the public schools. Passing scores on teacher exams mandated by the Oregon Teacher Standards and Practices Commission (TSPC) are also required for entry into the GTEP.

PRE-EDUCATION UNDERGRADUATE ADVISING

Early Childhood and Elementary Education: Prospective elementary teachers should consult with the senior academic adviser for the College of Liberal Arts and Sciences, 491 Newberger Hall, (725-3822).

Middle School Education: Prospective middle school teachers who have a preference for teaching multiple subjects (as in elementary education) should follow advice from the senior academic adviser for the College of Liberal Arts and Sciences (723-3822). Those who prefer to get a content area specialization that may also apply to teaching at the high school should contact the pre-education academic adviser in the academic department of choice.

High School Education: Prospective high school teachers should contact the pre-education academic adviser within their major department. Academic majors and their respective secondary endorsements are as follows: biology (biology and general science); physical education (physical education); history, anthropology, sociology, philosophy, political science, geography, and economics (social studies); health (health); mathematics (mathematics); English (English language arts); art (art); foreign languages and literatures (foreign language); music (music); chemistry (chemistry); physics (physics); business and economics (business); drama (drama); speech (speech). Note: A current adviser list is available from the GTEP admissions secretary, 602 School of Education Building.

Graduate Teacher Education Program Advising: Students considering application to the PSU GTEP should make an appointment to attend an advising session for prospective applicants by calling 725-4619 or stop by the information desk on the second floor of the School of Education Building.

Preparatory Coursework

Early Childhood and Elementary Educators:

- Required: Art 312 Art in the Elementary School; Lib 428/528 Children's Literature: K-5; Mth 211, 212 Foundations of Elementary Mathematics (8 credits); Music 381 Music Fundamentals; Psy 311 Human Development; Recommended: ED 420 Introduction to Education and Society; CI 432 Computer Applications for the Classroom.

Middle, Junior, and High School Educators:

- In addition to a strong liberal arts education, all students should complete the requirements for their major in the endorsement area of their choice. Required: Psy 311 Human Development; Recommended: ED 420 Introduction to Education and Society; CI 432 Computer Applications for the Classroom.

Forestry

503-725-3851

Advisers: A. Yeakley

Freshman Year

<table>
<thead>
<tr>
<th>Credits</th>
<th>F</th>
<th>W</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 251, 252, 253 Principles of Biology</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Ch 104, 105, 106 Introductory Chemistry</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Ch 107, 108, 109 Introductory Chemistry Laboratory or</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>for Forest Products or Forest Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 106 Introductory Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 109 Introductory Chemistry Lab III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 221, 222 General Chemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch 227, 228 General Chemistry Laboratory Mth 251, 252, 253 Calculus</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Wr 121 English Composition (any term)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHE 295 Health and Fitness for Life (any term)</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Electives</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Law

For Liberal Arts and Sciences students: T. Garrison, History, 725-3978

For Urban and Public Affairs students: R.W. Lockwood, Administration of Justice, 725-8014

R. Lawrence, Political Science, 725-3921.

Law schools in the United States, unlike medical, dental, and other professional schools, generally do not require specific prelaw majors or particular courses of study in preparation for law school. They do recommend that the prospective law student acquire a broad liberal education providing a sound basic understanding and appreciation of arts and letters, science, and social science.

All three Oregon law schools, Lewis & Clark, Willamette, and the University of Oregon, and the major law schools in other states, now require that applicants for admission have a bachelor's degree. Valuable information about prelaw study and law school admissions is contained in the Pre-Law Handbook, available at bookstores, from Educational Testing Service, Box 944, Princeton, NJ 08540, and in the annual Law School Admission Test/Law School Data Assembly Service Information Book, available in the Department of Political Science and in the Counseling and Testing Services offices.

Prelaw students are free to select their own undergraduate programs (there is no "prelaw" major as such), but they are advised to choose broad cultural fields in which they have keen intellectual interests, such as economics, history, literature, mathematics, philosophy, political science, science, or sociology, to suggest only some examples. Business administration and administration of justice, when strongly supplemented with work in arts and letters, science or social science, are also suitable.

Students are cautioned not to have a large number of ungraded or pass/no pass credits. Law schools also advise against concentration in courses given primarily as vocational training. Whatever the undergraduate program, prelaw students should develop as fully as possible the ability to read with understanding, to think logically, and to express themselves clearly and cogently in written and oral work. The importance of analytical skills in dealing with concepts, abstract ideas, and complex fact situations, and of communications skills, cannot be overemphasized, for lawyers must be able to research, analyze, and communicate.

And since law is a part of the larger social order, the prelaw student should seek to understand the political, social, economic, and cultural institutions within which the legal system functions. As illustrative of specific subjects (with PSU course numbers) which may be helpful toward that end, the following are suggested with a reminder that they are not prerequisites for law school admission: introductory economics (Ec 201, 202); ethics (Phil 202, 445, 446, 447); U.S. history (Hist 201, 202); legal history, constitutional history (Hist 410, 407); political theory (PS 381, 482); constitutional interpretation, constitutional law, the judicial process (PS 321, 422, 423, 407); administration of justice.
A D V I S O R Y  C O M M I T T E E

A. C. Mercer, E. McClurken-Talley

To earn a Bachelor of Science degree in nursing, one must complete a two-year preprofessional phase and a two-year professional phase. The preparatory phase, that is, the required courses that must be completed before entering the professional phase of the program, can be taken at Portland State University. PSU does not offer the professional phase; you must be accepted by a nursing program, such as those at Oregon Health Sciences University (OHSU) in Portland, OHSU-SOC in Ashland, OHSU-OIT in Klamath Falls, OHSU-EOSC in La Grande, Linfield College-Good Samaritan School of Nursing in Portland, the University of Portland in Portland, or the Walla Walla College School of Nursing at Portland Adventist Medical Center, to complete the professional phase. The PSU preparatory phase is designed to meet the requirements for transferring into baccalaureate nursing at one of the state-supported programs (BSN). Although there are many requirements in the preparatory phase common to all nursing programs, each nursing school has some preparatory requirements specific to that program.

Most professional programs require that a C- or above be earned in all preparatory courses. Completion of the preparatory phase does not guarantee acceptance into the professional phase as admission is limited and competitive. You will need to meet the requirements for a bachelor's degree as set by the institution where you complete the professional phase.

For information about requirements and admissions, contact the College of Liberal Arts and Sciences Advising Center, 491 Neuberger Hall, 503-725-3822.

P H A R M A C Y

Adviser: R. C. Mercer, K. Hanson

Portland State University offers a prepharmacy curriculum which prepares the student for admission to the Oregon State University School of Pharmacy.

In September of 1999, OSU School of Pharmacy will begin their new four-year Doctor of Pharmacy degree. Pre-pharmacy students intending to apply to the new program should discuss their academic preparation with the pre-pharmacy adviser.

The required courses for prepharmacy include:
Bi 251, 252, 253 Principles of Biology
Ch 221, 222, 223 General Chemistry
Ch 227, 228, 229 General Chemistry Laboratory
Ph 201, 202, 203 General Physics
Ph 204, 205, 206 General Physics Lab
Mth 241 Calculus for Management and Social Sciences
or Mth 251 Calculus I
Bi 420 Microbiology
Bi 335 Principles of Physiology
Bi 302, 303 Human Anatomy and Physiology
Ch 334, 335, 336 Organic Chemistry with Labs
Wr 121 English Composition
Two of the following: Wr 211, 213, 222, 227, 228, 323, 327, 333, or Sp 100 (If three writing courses are taken, Sp 100 need not be taken.)
Psy 200 Psychology as a Natural Science
or Psy 204 Psychology as a Social Science
Ec 201 Principles of Economics
PHE 252 First Aid
Two additional 3-hour courses chosen from: psychology, sociology, or economics
One 3-hour course in each of the following areas, plus one additional course from any of these areas: Western culture, non-Western culture, and literature and the arts

The set of courses listed above is for entrance into Oregon State University; requirements may vary for other schools of pharmacy.
requirements for a major in psychology, the student majoring in psychology, especially those that are considering graduate work in psychology, are encouraged to plan their program with an adviser from the Department of Psychology no later than the beginning of their first term of junior standing.

It is recommended that freshmen not enroll in psychology courses unless they have a B average (3.00 GPA) or above in high school.

Requirements For Major. In addition to meeting the general University degree requirements, the student majoring in psychology must meet the following requirements:

<table>
<thead>
<tr>
<th>Requirements outside of psychology:</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stat 243</td>
<td>4</td>
</tr>
<tr>
<td>Stat 244</td>
<td>4</td>
</tr>
</tbody>
</table>

Minimum total credits outside of psychology 8

Requirements within psychology:

Required of all majors:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psy 200, 204</td>
<td>8</td>
</tr>
<tr>
<td>Psy 321</td>
<td>4</td>
</tr>
</tbody>
</table>

Plus 36 credits of upper-division psychology courses (300- and 400-level), including 16 credits from courses listed as 410 to 498, and excluding courses numbered 399 and 401 to 409, inclusive. 36

Minimum total within psychology 48

Minimum total requirement for the major 56

Psy 201, 202, and 203 are the equivalents of Psy 200 and 204; therefore, credit will not be given for 200 and 204 if a student has been given credit for 201, 202, and 203.

All majors are encouraged to begin their work in statistics as soon as possible in preparation for Psy 321, which is a prerequisite for many of the upper-division courses. Besides taking courses in a range of subjects in psychology, majors are also encouraged to take courses in human culture and society, human biology, and philosophy of science.

All courses submitted to satisfy the requirements for a major in psychology, including the mandatory math courses, must be passed with a grade of C- or above. In addition, courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department major requirements.

Students considering graduate work in psychology should be especially well prepared in mathematics and should take the sequence in experimental psychology (Psy 454, 455). They should consider participating in research with a faculty member. They are encouraged to develop breadth by pursuing interests in diverse fields outside psychology before beginning the greater specialization of graduate work.

Suggested coursework for students considering graduate work:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>All of the minimum requirements listed above</td>
<td>56</td>
</tr>
<tr>
<td>Plus:</td>
<td></td>
</tr>
<tr>
<td>Mih 241</td>
<td>4</td>
</tr>
<tr>
<td>Bi 101, 102, 103, (104, 105, 106)</td>
<td>12</td>
</tr>
<tr>
<td>Psy 427</td>
<td>4</td>
</tr>
<tr>
<td>Psy 454</td>
<td>5</td>
</tr>
<tr>
<td>Psy 455</td>
<td>4</td>
</tr>
</tbody>
</table>

Suggested total credits 89

Requirements for a Minor. To earn a minor in psychology a student must complete 28 credits (8 credits of which must be taken in residence at PSU), to include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required of all minors: Psy 200, Psy 204</td>
<td>8</td>
</tr>
<tr>
<td>20 credits in 300-level psychology courses (excluding 399)</td>
<td>20</td>
</tr>
</tbody>
</table>

Minimum total within psychology for the minor 28

All courses submitted to satisfy the requirements for a minor in psychology must be passed with a grade of C- or above. Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department minor requirements.

SECONDARY EDUCATION PROGRAM

Adviser: C. Smith

(See General Studies: Social Science, page 131.)

GRADUATE PROGRAMS

The Department of Psychology offers work leading to the degrees of Master of Arts and Master of Science. The department also participates in the Systems Science Doctoral Program, offering a Ph.D. in Systems Science-Psychology. In addition the Department of Psychology participates in the Urban Studies Ph.D. Program. For information relating to the Ph.D. Program in urban studies, see page 304.

Graduate training in psychology at Portland State University provides a sound basis in traditional areas of psychology, while emphasizing applications of psychological theory and research to problems of contemporary society. As part of a multidisciplinary Ph.D. program in Systems Science, the program in applied psychology extends systems perspectives to areas of psychological inquiry.

The program focus is on applied psychology with an emphasis on four areas: Applied Developmental, Applied Experimental, Industrial/Organizational, and Applied Social Psychology. The aim is to prepare graduates for research and service roles in a variety of settings such as government agencies, businesses, educational systems, and hospitals. It should be noted that the graduate program in psychology does not offer training in clinical or counseling psychology.

Applications. Applications may be made to either the doctoral (Ph.D. in Systems Science-Psychology) or the terminal master’s degree (M.A. or M.S. in Psychology) programs. Those admitted to the master’s program may later apply for admission to the doctoral program, conditional upon demonstrated competence at the master’s level. Applicants to either program are expected to have had preparation in experimental psychology and methods of data collection and analysis, in addition to content areas in psychology. Any admissions granted to applicants who do not meet these requirements will be conditional upon completing remedial course work.

Applicants should provide the following documents: Graduate Record Examination scores (i.e., GRE scores for verbal, quantitative, and analytic abilities); three letters of recommendation from individuals knowledgeable about the applicant’s abilities (preferably from faculty members at colleges or universities attended); transcripts; and a 500-word statement of academic and personal goals. Completed applications should be received by February 1 for admission the following academic year.

MASTER OF ARTS OR MASTER OF SCIENCE

Candidates for the master’s degree must earn a minimum of 54 credits in approved graduate courses, including thesis. Proficiency in a foreign language is required for the Master of Arts degree, but not for the Master of Science degree. Students’ individual programs are determined in consultation with their advisers.

The required coursework for the master’s program is as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psy 521/621, 522/622, 523/623</td>
<td>12</td>
</tr>
<tr>
<td>Psy 514/614, 515/615, 516/616, 517/617</td>
<td>12</td>
</tr>
<tr>
<td>(Three from this list)</td>
<td>12</td>
</tr>
<tr>
<td>Electives</td>
<td>20</td>
</tr>
<tr>
<td>Practicum/Research</td>
<td>4</td>
</tr>
<tr>
<td>Thesis</td>
<td>8</td>
</tr>
</tbody>
</table>

Total 56

Thesis. The student must submit and defend the thesis at an oral examination.
PH.D. IN SYSTEMS SCIENCE—PSYCHOLOGY

Candidates for the Ph.D. in Systems Science—Psychology must earn a minimum of 108 credits in approved graduate courses. Candidates will undertake a program of study determined in consultation with an advisory committee. The doctoral program is equivalent to the two-year master's program described above plus the following:

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
</tr>
</tbody>
</table>

**Comprehensive Examination.** The comprehensive exam is comprised of four 4-hour exams, one in the major area, one in the area of specialization, one in the minor or breadth area, and one in Systems Science.

**Dissertation.** The student must submit and defend the dissertation at an oral examination.

**COURSES**

Courses with an asterisk (*) are not offered every year.

Note: Nonmajors can satisfy the 200-level psychology prerequisites for upper-division psychology courses by taking either Psy 200 or 204. Majors must take both Psy 200 and 204. Psy 201, 202, and 203, are the equivalent of Psy 200 and 204. Therefore, credit will not be given for both 200 and 204 if a student has been given credit for 201, 202, and 203.

**Psy 200**

**Psychology as a Natural Science (4)**

Methods and criteria by which experimental psychology makes observations and constructs theories. Basic findings in physiological psychology, perception, learning, thinking, and motivation. Prerequisite: sophomore standing.

**Psy 204**

**Psychology as a Social Science (4)**

Introduction to the field of psychology with major emphasis on what psychological findings can currently contribute to our understanding of human behavior on a social level. Includes extensive coverage of personality and social psychology. Recommended as a first course for both majors and nonmajors. Sophomore standing is also recommended.

**Psy 207**

**Introduction to Applied Psychology (4)**

A survey of selected applications of concepts and methodologies from the different areas of psychology such as experimental, industrial/organizational, social, and developmental. Prerequisites: Psy 200, 204.

**Psy 299**

**Special Studies (Credit to be arranged.)**

Prerequisite: Psy 204.

**Psy 300**

**Personal Decision Making (4)**

Instruction and practice in cognitive aids for improving intuitive and analytic thinking in making real-world decisions—creating new ideas, managing complexity, dealing with trade-offs among conflicting goals, and choosing among alternatives whose outcomes are uncertain. Prerequisite: Psy 200, or appropriate Sophomore Inquiry course.

**Psy 310**

**Psychology of Women (4)**

Review and evaluate assumptions underlying psychological research on women. Survey the research in areas such as the development of sex differences, acquisition of gender roles and maintenance of gender stereotypes. Explore the pertinence of these findings to topical areas such as women’s work roles, women and mental health, and the women’s movement. Prerequisite: 3 credits in psychology.

**Psy 311**

**Human Development (4)**

Development of the individual across the lifespan, from conception to death. Surveys the biological bases and social contexts of developmental processes (e.g., cognitive, social, emotional, development). Implications of research for education, parenting/family relations, and social policy. Prerequisites: Psy 200 and 204, or appropriate Sophomore Inquiry course.

**Psy 317**

**Personal and Social Adjustment (4)**

Traces the course of normal adjustment with special interest in those factors which are instrumental in shaping human behavior. Concepts such as emotional maturity, psychological stress, and maladjustment are considered. Prerequisite: 3 credits in 200-level psychology.

**Psy 321**

**Research Methods in Psychology (4)**

Study of methods for evaluating the quality of psychological measurements, including various concepts of reliability and validity, and item analysis techniques; common sources of invalidity in the interpretation of psychological data; strategies of selecting and analyzing observations which minimize these sources of invalidity. Prerequisites: Stat 243, 244, and 3 credits in psychology.

**Psy 340**

**Principles of Behavior Analysis (4)**

A course in the concepts of behavior analysis. Includes presentation of respondent and operant conditioning, extinction, response differentiation, schedules of reinforcement, shaping, escape and avoidance behavior, stimulus discrimination, punishment and similar concepts. The course is intended to provide the student with a thorough introduction to the developing technology of behavior. Prerequisites: Psy 200, 204. Credit will not be given for both Soc 342 and Psy 342, or both Soc 343 and Psy 343.

**Psy 344**

**Social Psychology (4, 4)**

Analysis of the psychological and sociological processes in social interaction and in various forms of group behavior. Particular attention to social cognition, roles, and to group origins, functions, ideology, membership, and leadership. Prerequisites: Soc 200, or Psy 200 or 204.

**Psy 345**

**Motivation (4)**

A course on the causes for acquiring, choosing, or persisting in specific actions within specific circumstances. Students review the conditions, principles, and theories of motivation. Prerequisite: Psy 200 or 204.

**Psy 346**

**Learning (4)**

Conditions, principles, and theories of learning. Assessment of experimental methods and results in relation to current theory. Prerequisite: 3 credits in 200-level psychology.

**Psy 347**

**Perception (4)**

Introduction to the principles and theories of visual and auditory perception. Topics include sensory pathways, color perception, perceptual illusions, and the role of knowledge and cognitive factors in perception. Prerequisite: Psy 200.

**Psy 348**

**Cognition (4)**

Processes by which we form representations of reality, and strategies we use for manipulating those representations in order to explore possible actions and outcomes. Includes topics in perception, attention, memory, imagery, language, comprehension, problem solving, creative thinking, judgment, reasoning, and decision making. Prerequisite: 3 credits in 200-level psychology.

**Psy 350**

**Counseling (4)**

A survey of counseling and interviewing procedures, contributions of psychological theory to counseling techniques. Prerequisite: 3 credits in 200-level psychology.

**Psy 357**

**Comparative Psychology (4)**

A study of the behavioral differences and similarities within the phylogenetic scale. Emphasis on the examination of the evolution of the behavior of individuals and species, paying particular attention to the basic concepts of psychology, such as sensation, perception, learning, and social processes. The role of animals in theories and as models for human behavior. Prerequisite: 3 credits in 200-level psychology.

**Psy 360**

**Industrial/Organizational Psychology (4)**

The scientific study of human behavior in work settings, covering the adjustments people make to the places they go, the people they meet, and the things they do in their occupational activities of all types. Prerequisite: Psy 200 or 204.

**Psy 399**

**Special Studies (Credit to be arranged.)**

**Psy 401/501**

**Research (Credit to be arranged.)**

Consent of instructor.

**Psy 404/504**

**Cooperative Education/Internship (Credit to be arranged.)**

**Psy 405/505**

**Reading and Conference (Credit to be arranged.)**

Consent of instructor.

**Psy 407/507**

**Seminar (Credit to be arranged.)**

Consent of instructor.
**Psy 400/500**  
Practicum (Credit to be arranged.)  
Supervised psychological practice including observing, studying, and participating in the activities of private settings or community service agencies such as: schools, mental health clinics, correctional agencies, and day care centers. Supervision may include guided reading, daily journals, and evaluative reports.

**Psy 410/510**  
Selected Topics (Credit to be arranged.)

*Psy 427/527**  
History and Systems of Psychology (4)  
A survey of the history of psychology and of past and current theoretical approaches in psychology. Study of the historical roots of current theories in perception, learning, motivation, personality, and other fields. Prerequisites: Stat 243 and 244, at least 18 credits in psychology, including Psy 321.

*Psy 430/530**  
Applied Social Psychology (4)  
Explores current and potential applications of social psychological theories and research methods, with a focus on work conducted in field settings. As a final project, each student examines an applied area of their own choosing (previous projects have focused on normative role transitions, responses to natural disasters, political attitudes, conflict resolution, and intergroup relations). Prerequisites: Stat 243 and 244, Psy 321, 342, 343.

*Psy 432**  
Personality (4)  
Personality structure and theory. Prerequisite: Stat 243 and 244, nine credits in psychology, including Psy 321.

*Psy 433**  
Introduction to Psychological Testing (4)  
An introduction to psychological testing and survey of the tests used by psychologists in measuring intelligence, interests, aptitudes, personality, and other characteristics. Commonly used tests will be surveyed in terms of their uses and limitations in applied practice and research. Prerequisites: Stat 243 and 244, and Psy 321.

*Psy 434/534**  
Introduction to Psychopathology (4)  
Course content will survey the development of modern ideas of mental illness, the origins of mental illnesses, the diagnostic system and the clinical syndromes, and methods of treatment of neuropsychiatric disorder. This course does not produce diagnosticians of mental illness but is a preparation for the clinical study of diagnosis. Prerequisites: Psy 200, 204, Stat 243 and 244, and at least 6 additional credits in psychology, including Psy 321.

*Psy 436/536**  
Performance Appraisal and Feedback (4)  
Applications of psychological concepts to the development of performance appraisal systems in organizations. Topics include job analysis, cognitive processes in performance appraisal, types of rating scales, rater training methods, technical aspects of developing a performance appraisal system, performance feedback, individuals' reactions to performance feedback factors related to the perceived accuracy of performance feedback. Prerequisites: Stat 243 and 244, Psy 321 and 360.

*Psy 440/540**  
Group Process (4)  
A course on the psychology of small groups. Topics will include but not be limited to: interpersonal attraction, stages of group development, group structure, coalition formation, personal power, leadership, group decision making and problem solving, intergroup relations and the principles of negotiation. Prerequisite: Stat 243 and 244, Psy 321, graduate standing or consent of instructor.

*Psy 444/544**  
Job Analysis (4)  
Methods (e.g., interviews, surveys) used to collect information about jobs for use in human resource functions such as personnel recruitment and selection, training, performance appraisal, and compensation. Such information is also used to develop job descriptions and specifications. Course contains a community-based learning component. Students participate in a full job analysis including data collection, analysis, and interpretation. Prerequisites: Stat 243 and 244, Psy 321 and 360; or comparable Business Administration courses.

*Psy 445/545**  
Employee Development (4)  
Covers the application of psychological principles to employee training and development. Topics include organization, job, and person analysis; program design; the application of learning principles to enhance training effectiveness, evaluation of training programs; and employee training and development methodology. A heavy emphasis is placed on current psychological research. This course may include a community-based learning component. Prerequisites: Stat 243 and 244, Psy 321 and 360.

*Psy 447/547**  
Personnel Psychology (4)  
How individual differences affect work behavior and task performance and how psychologists measure and predict such differences. Covers the development, administration, and utility of modern instruments for selection and appraisal. Data combination strategies and decision making in personnel systems are discussed. Prerequisites: Stat 243 and 244, Psy 321 and 360.

*Psy 448/548**  
Psychology of Work Motivation (4)  
Examination of the role that motivation plays in initiating, guiding, and maintaining work behavior. Assessment of research methods and results in relation to current theories and their organizational applications. Prerequisites: Stat 243 and 244, Psy 321 and 360.

*Psy 449**  
Survey of Human Factors (4)  
An introduction to systems analysis concepts. An examination of the role of man and his interactions with complex man-machine systems. Topics include: man-machine systems, visual and auditory presentation of information, design of controls, layout of work places, effects of environment on human performance; and the physical limits of human performance. Prerequisites: nine credits in psychology; Stat 243, 244, and Psy 321.

*Psy 451/551**  
Physiological Psychology (4)  
Anatomical and physiological properties of the nervous system in relation to fundamental concepts in psychology. The emphasis is on an overall view of neurophysiological properties relevant to psychological functions: sensation, perception, attention, learning, motivation, emotion, activation, and motor responses. Prerequisites: Stat 243 and 244, Stat 321 plus either Psy 345, 346, 347, or 348 and four hours of biology.

*Psy 454, 455**  
Experimental Psychology (5, 4)  
Principles of experimental design, evaluation of research methods, formulation and testing of hypotheses using research procedures, use of statistical software for analyzing the research data, writing a research manuscript using APA form. Prerequisites: at least 12 credits in psychology including Psy 321 and at least one of the following: Psy 345, 346, 348, Stat 243 and 244.

*Psy 457/557**  
Advanced Comparative Psychology (4)  
Specific and detailed analysis of current problems in the area of comparative psychology. Students will design, conduct, and analyze individual research projects. Prerequisites: Stat 243 and 244, Psy 321 and Psy 357 with grade of B or better and consent of instructor.

*Psy 459/559**  
Infant Development (4)  
Development of the individual from conception to age two. Theory and research pertaining to infant development. Prerequisites: Stat 243 and 244; Psy 311 and Psy 321.

*Psy 460/560**  
Child Psychology (4)  
Development of the individual from conception through childhood. Theory and research pertaining to child development. Prerequisite: Stat 243 and 244; Psy 311 and 321.

*Psy 461/561**  
Psychology Of Adolescence And Early Maturity (4)  
Development of the individual from puberty to early adulthood. Theory and research pertaining to adolescent development. Prerequisites: Stat 243 and 244, Psy 311 and 321.

*Psy 462/562**  
Psychology of Adult Development and Aging (4)  
Development of the individual from early adulthood through old age. Theory and research focusing on adult development from a life-span perspective. Prerequisites: Stat 243 and 244, Psy 311 and 321 plus one of the following: Psy 459, 460, or 461.

*Psy 464/564**  
Developmental Psychopathology (4)  
Study of the origins and course of individual patterns of behavioral adaptation and maladaptation. Application of developmental principles to an understanding of social, emotional, and conduct disorders of children and their outcome in adult life. Prerequisites: Stat 243 and 244, Psy 321 and 434 plus 8 credits in courses numbered Psy 450-461.

*Psy 465/565**  
Applied Developmental Psychology (4)  
Theory, methods, and research in selected areas of applied developmental psychology. Prerequisites: Stat 243 and 244, Psy 311 and 321 and consent of instructor.

*Psy 467/567**  
Work and Family (4)  
An examination of the effects of work on family, and family on work, in contemporary society. Includes study of dual-career and dual-work
families, effects of maternal employment on child development, and elder care on the workplace, and parental leave and other workplace supports for families. Implications of research for social policy. Prerequisites: Stat 243 and 244, Psy 311 and 321.

*Psy 468/568 Social Development (4)
Development of individuals' social relationships from infancy to adolescence. Theory and research pertaining to social development from an interactional perspective. Prerequisites: Stat 243 and 244, Psy 311 and 321 and one of the following: Psy 459, 460, 461, or 462.

*Psy 471/571 Health Psychology (4)
Study of the social and psychological influences on how people stay well, why some people become ill, and how persons respond to illness. Particular attention to the stress process. Prerequisites: Stat 243 and 244, plus 12 credits in psychology, including Psy 321. Soc 200 may be substituted for 4 of these credits and PHE 223 may be substituted for 4 of these credits.

*Psy 478/578 Leadership and Group Effectiveness (4)
The study of leadership in task performing groups with an emphasis on interpersonal influence processes. Leadership viewed as statements or actions intended to influence group activities in that group's efforts toward goal setting and achievement. Includes theories of leader emergence and leadership effectiveness. Prerequisites: Stat 243 and 244, Psy 321 and 360.

*Psy 479/579 Women and Organizational Psychology (4)
Examines the relationship between gender and the social organization of the workplace. Focus is on gender development as socialization into a sexual division of labor and on specific workplace issues (e.g. hierarchy and leadership, discrimination and harassment, deskilling) from a social psychological perspective. Strategies for change are considered. Prerequisites: Stat 243 and 244, Psy 310 and 321.

Psy 480/580, 481/581, 482/582 Community Psychology (4, 4, 4)
Applications of basic psychological knowledge and methods to community problems. Course includes identification of the psychological aspects of human problems in the community, the utilization of psychological procedures for evaluating the individual and the individual's psychological environment, and the search for techniques for promoting psychological change under these conditions. Field projects will include contact with community resources in the fields of health, education, and welfare such as poverty projects, mental health clinics, etc. Completion of Psy 480 is prerequisite for enrollment in Psy 481, and completion of Psy 481 is prerequisite for enrollment in Psy 482, all three must be taken during the same academic year. Psy 480, 481, 482 is a true sequence in which work in each succeeding course depends on work done in the preceding one. This includes practicum experience which culminates over a 9-month period covered by the three courses in sequence. Prerequisite: Stat 243 and 244, Psy 321 and consent of instructor.

Psy 484/584 Principles of Behavior Modification (4)
A survey of recent developments in the application of behavior theory to problems of psychological adjustment. The course includes treatment of the behavioral concept of "abnormal," and the development of a technology of behavior therapy. The course is intended for advanced students in psychology, social work, special education, speech pathology, and nursing. Prerequisites: Stat 243 and 244, Psy 321, 340 or 346, 434.

Psy 485/585 Self-modification of Behavior (4)
The technology of self-change developed within the framework of behavior modification theory, including relevant ethical and theoretical issues, specific techniques of change and the application of these techniques within a systematic program development model. Prerequisites: Stat 243 and 244, Psy 321, 340, 346 or 484.

*Psy 486/586 Human Performance and Mental Workload (4)
Introduction to mathematical and conceptual theories of how the human performs simple and complicated tasks. Topics include signal detection theory, information theory, reaction time, attention, effort. Measures and theories of mental workload will be discussed as well as what leads to cognitive overload and how it can be altered. Prerequisites: Psy 321, Stat 243 and 244, and 12 credits of psychology.

*Psy 487/587 Life-span Development (4)
Theories and methodology for the study of processes and change in life-span developmental perspective. Practical implications of different perspectives for theories and research regarding human development. Prerequisites: Stat 243 and 244, Psy 311 and 321 plus 8 credits in courses numbered Psy 459, 460, 461, or 462.

Psy 491/591 Decision Making I: Values and Choice (4)
Normative models, descriptive models, and cognitive aids for structuring decision problems, evaluating consequences of alternative courses of action, and choosing among alternatives. Prerequisites: Stat 243 and 244, Psy 321 and 348, or permission of instructor.

Psy 492/592 Decision Making II: Judgment And Reasoning (4)
Normative models, descriptive models, and cognitive aids for judgment and reasoning about probability, variation, covariation, and causality in anticipating the consequences of alternative courses of action. Prerequisite: Psy 491/591.

Psy 493/593 Decision Making Laboratory (4)
Practice in the use of judgment techniques and decision software to structure decision problems, evaluate alternative courses of action, perform sensitivity analyses, and prepare presentations. Wherever possible, practice will be on current decision problems in field settings. Prerequisites: Psy 491/591, 492/592.

Psy 495/595 Psychological Test Construction (4)
Problems and methods in the construction of tests for the measurement of psychological variables. The issues of reliability, validity, item analysis, standardization will be studied. Students learn about the development of a psychological scale by participation in all facets of actual test construction. Prerequisites: Stat 243 and 244, Psy 321 plus 12 additional credits of psychology.

*Psy 497/597 Applied Survey Research (4)
Provides theoretical framework for and experience in design, execution, and interpretation of social surveys including sampling procedures, questionnaire design, interviewing techniques, coding and computer analysis, and report writing. Prerequisites: Stat 243 and 244, Psy 321.

*Psy 498/598 Field Observation Methods (4)
Applied experience in the major methodological techniques of field observation, as well as the key problems of validity and reliability as they arise while developing a behavioral observation system. Prerequisites: Stat 243 and 244, Psy 321, plus 12 upper division credits in psychology.

Psy 503 Thesis (Credit to be arranged.)
Psy 514/614 Advanced Applied Social Psychology (4)
Theory, methods, and selected topics in advanced applied social psychology.

Psy 515/615 Advanced Applied Developmental Psychology (4)
Theory, methods, and selected topics in advanced applied developmental psychology.

Psy 516/616 Advanced Industrial/Organizational Psychology (4)
Theory, methods, and selected topics in industrial/organizational psychology.

Psy 517/617 Advanced Applied Experimental Psychology (4)
Theory, methods, and selected topics in advanced applied experimental psychology.

*Psy 519 Field Experimental Methods (4)
Problems of designing an experimental investigation of psychological phenomena in a naturalistic field setting. Course requirements include the design of a realistic research proposal. Extensive use is made of instructor experience with field experimental studies in the field of mental health. Prerequisite: graduate status in psychology or urban studies.

*Psy 520 Methods of Psychological Assessment (4)
Formulation of problems that can be answered by tests. Reliability, validity, and standardization of measurement, test fairness; methods of identifying assessment tools (tests, etc.) appropriate to specific testing or assessment problems are also considered. Prerequisite: Stat 243.

Psy 521/621 Univariate Quantitative Methods (5)
Survey of topics in univariate quantitative methods, including: graphical displays, descriptive statistics, statistical inference, group comparisons, analysis of variance for between group and factorial designs, correlation, regression, and analysis of association for categorical variables.
Psy 522/622
Multiple Regression and Multivariate Quantitative Methods (5)
Exploration of statistical methods with several variables, including: simultaneous and hierarchical regression, discriminant analysis, multivariate analysis of variance, analysis of covariance, and logistic regression. SPSS will be used for conducting analyses and students will gain experience in writing journal quality results and discussion sections.

Psy 523/623
Factor Analysis and Covariance Structure Modeling (5)
Introduction to factor analysis and covariance structure modeling. Topics include common factor analysis, principal components analysis, confirmatory factor analysis, mediator models, moderator models, model modification, research issues in building and confirming models.

Psy 528/628
Seminar in Applied Developmental Psychology (4)
Theory and research in selected topics in applied developmental psychology.

Psy 529/629
Psychological Issues in Later Life (4)
Methodological, theoretical and empirical issues in research on psychology and aging. Topics include cognitive processes, family and caregiving relationships, environmental issues and psychological predictors of successful aging. Emphasis is on encouraging students to develop their own research project in the field of psychology of aging. Prerequisite: admission to a graduate program in psychology or graduate Certificate in Gerontology program.

Psy 530/630
Clinical Interviewing (4)
Introduction to principles and techniques of interviewing. Focus on clinical applications in organizational settings.

Psy 533/633
Contemporary Social Psychology (4)
Current knowledge of social psychology presented with an emphasis on what the field can contribute to understanding contemporary social problems and issues. Major topics will include the nature of social interaction, the relationship of attitude and behavior, and group processes. Areas of application will include social helping networks and the relationships of social psychology to law, health, and the environment. Prerequisite: admission to a graduate program in psychology, systems science, or urban affairs.

Psy 535/635
Organizational Psychology (4)
Survey of organizational psychology with an emphasis on the contribution psychological knowledge can make to the design and change of organizations. Organizational assessments, strategies for planned change, the use of group processes in bringing about change, and the evaluation of planned change. Prerequisite: graduate status in psychology or urban studies.

Psy 546/646
Personnel Selection (4)
Technical and theoretical issues involved in selecting the appropriate worker to fit a job. Includes current research and theory in test development, test validation, selection methods, and criterion development. Heavy emphasis on psychological measurement (e.g., reliability and validity) and the legal issues involved in hiring and promoting employees. Prerequisite: admission to the psychology graduate program.

Psy 554/654
Social Psychology of Mental Health (4)
Participants in this seminar will explore these questions: What are appropriate definitions of mental health and mental illness? How is psychological health related to subjective well-being? How do social structural, social role, interpersonal, and personality factors affect psychological health? How is mental health affected by the stress process? Prerequisite: graduate status.

Psy 589/689
Adult Socialization (4)
This course examines the acquisition of social roles in adulthood. Two themes prevail: stages of socialization; and levels of transmission of social norms (cultural, organizational, and interpersonal). Prerequisite: graduate status.

Psy 594
Mathematical Models in Psychology (4)
Introduction to the use of probability theory and elementary functions in models for psychological processes: applications include decision analysis, psychophysics, and descriptive and theoretical applications of Markov chains in the study of learning and interpersonal interactions.

Psy 601
Research (Credit to be arranged.)
Consent of instructor.

Psy 604
Internship (Credit to be arranged.)

Psy 605
Reading and Conference (Credit to be arranged.)
Consent of instructor.

Psy 607
Seminar (Credit to be arranged.)
Consent of instructor.

Psy 610
Selected Topics (Credit to be arranged.)

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The mission of the PSU Center for Science Education is to provide leadership in the University’s general and liberal education curriculum through course and faculty development and interdisciplinary science course offerings. The center seeks to establish community/research/education partnerships which engage citizens and community institutions in the development and implementation of service programs which employ the inquiry practices of science. The center provides leadership and scholarship opportunities for existing science educators and offers, with the Environmental Sciences and Resources program, the M.S.T. degree in science/environmental science.

The center also administers the Master of Science in science teaching program (M.S.T.—General Science). Students must meet the graduate admissions requirements and have taken, and passed with a B or better, 12 credits of lab-based science classes to be admitted into the M.S.T.—General Science program. Student scholarship includes a partnership to solve or investigate a community or academic-based education problem through data collection and assessment. Results will be presented either as a thesis or paper for publication.

The center is organized to respond to the diverse and changing needs of contemporary science education. Faculty and program directors seek to link the University’s programs with local and regional resources to provide science education outreach services to families, students, and teachers which are delivered in schools and at natural and recreational sites in the University’s service area. It is the administrative home to community/education partnerships such as the Children’s Water Education Program and the Urban Ecosystems Project. In addition, the center supports the precollege science education community through teacher enhancement programs in biotechnology (BIPHS), Pacific Northwest forest ecology (the FOREST project), and urban air quality monitoring (Horizon Project). The center is also engaged in community development and science education partnerships on the north Oregon coast in col-
COURSES

Courses with an asterisk (*) are not offered every year.

The Science in the Liberal Arts Curriculum contains three distinct types of courses: Natural Science Inquiry (NSI), Science Cornerstone (SC), and the Context of Science in Society (CSS). The courses are designed as 4-credit hour courses for an academic calendar in the quarter system.

Sci 201 Natural Science Inquiry (4)
This is the University Studies Sophomore Inquiry course that serves as the gateway to the Science in the Liberal Arts curriculum. The course aims to introduce students to the knowledge-making strategies of science. The curriculum is taught through small group and class projects that engage students in various science inquiry activities. Students gain experience in gathering and understanding scientific information, data management, interpretation and presentation, making and defending knowledge claims, working collaboratively, writing technically, and communicating scientific results.

Sci 310-349 Science Cornerstone
These courses have embedded laboratory and/or field activities. The courses are designed for students who are not majoring in science and are seeking to meet the new laboratory-based science course requirements for the PSU Bachelor of Science degree. These courses will simultaneously meet course cluster requirements in the University Studies Program. The Science Cornerstone courses are interdisciplinary and thematic in nature. They engage students in experiential explorations of timely topics in science. Students participate in knowledge-making activities using appropriate scientific methodologies to construct a functional understanding of how knowledge is made in the subject area of the course. The prerequisite course for Science Cornerstone courses is Sci 201 Natural Science Inquiry or consent of the instructor.

Sci 311, 312 Teaching Everyday Science (4, 4)
Two-term sequence designed to immerse potential mathematics and science teachers in laboratory and thinking experiences that they can use as a foundation for their own understanding of the physical sciences and related mathematics and curriculum development in future teaching experiences. In addition to experiences in the laboratory, environmental impact issues will be investigated. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry.

Sci 313 Environmental Mathematical Modeling (4)
An introduction to differential and integral calculus, this course is intuitive in approach and emphasizes applications, especially with respect to environmental issues. The interested student may follow it with a more extensive and rigorous calculus sequence. Includes laboratory and/or fieldwork. Prerequisites: Natural Science Inquiry, Mth 111.

Sci 314 Environmental Statistics (4)
Explores a selection of mathematical topics in the context of environmental issues, using real data. Topics will include statistics, data display, data analysis, probability, and probability distributions. Includes laboratory and/or fieldwork. Prerequisites: Natural Science Inquiry, Mth 95.

Sci 315, 316 General Astronomy (4, 4)
Introductory historical, descriptive, and interpretive study of astronomy. Emphasis is on the basic scientific methods as they apply to astronomical problems. Detailed examination of the earth, followed by a survey of the other members of the solar system. Survey of the stars, their types, grouping, and motions. Models for the evolution of the Universe and the possibility of life elsewhere. The nature of light, the types of information it carries, and the types of devices used to detect it. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry. Taught by a faculty member from the Department of Physics.

Sci 317 Fractals, Chaos, and Complexity (4)
Introduction to the physics of fractals in nature, chaos, and complexity. Computer simulations and desktop experiments involving fractals, chaos, and complex systems. Prerequisite: Natural Science Inquiry. Taught by a faculty member from the Department of Physics.

Sci 318 Complexity and the Universe I (4)
Introduction to the physics of complexity and other current concepts in physics. Computer simulations and desktop experiments involving fractals, chaos, and complex systems. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry. Taught by a faculty member from the Department of Physics.

Sci 319 Complexity and the Universe II (4)
Continuation of Sci 318. Emphasizes scientific cosmology with a focus on understanding how insights gained from physics and astronomy affect your view of the universe and your place in it. Students participate actively in seeing how some of the information was gathered, help critically analyze what to believe about the history and arrangement of the universe and what it means to them. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry. Taught by a faculty member from the Department of Physics.

Sci 321, 322 Energy and Society (4, 4)
Study of the generation and usage of energy, including the technical, economic, social, and political issues related to energy production and end uses. Examination of energy resources, methods of producing and converting various forms of energy, energy conservation, and environmental and economic implications of energy production and energy policies. Includes laboratory and possibly fieldwork. Prerequisite: Natural Science Inquiry.

Sci 323, 324 Materials for the 21st Century (4, 4)
Study of the structure and function, in particular the correlation between structure and function, of inorganic, organic, and biological materials, especially those related to economically and technologically important processes, such as electronics, optics, energy, sensors, and synthetic biomaterials. This course is designed with the non-science major in mind and will continually focus on how materials affect our lives as citizens, consumers, and family members. Includes laboratory and fieldwork. Prerequisite: Natural Science Inquiry.

Sci 331, 332 Atmospheric Interactions (4, 4)
Interaction of the atmosphere with other earth systems, chemical cycling, and the effect of humans on the atmosphere will be explored. The physical and chemical properties and interactions of the atmosphere will be investigated...
through laboratory investigations, fieldwork, and computer modeling. Topics will include urban air quality, global climate change, and the “management” of the atmosphere. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry.

'Sci 333
Climate and Water Resources (4)
An inquiry-based examination of the principal controls on climate and hydrology, with emphasis on processes and interactions; students will do fieldwork, data analysis, and laboratory work. Prerequisite: Natural Science Inquiry. Also listed as Geog 310; course may be taken only once for credit.

'Sci 334
Climate Variability (4)
Examines the role of climate variability in the Pacific Northwest, including the nature of natural and human-induced variability and the effects on water resources of the region. Students will learn by gathering data, analyzing the data, and reporting on their results. Reading and discussion will accompany the data/laboratory portions of the course. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry. Also listed as Geog 312; course may be taken only once for credit.

Sci 335, 336
Water in the Environment (4, 4)
Studies of the unique properties of water in all of its roles, including a study of the water cycle, water resources, treatment of municipal water, and wastewater treatment. Special attention will be placed on natural waters as a resource, including natural and introduced constituents and the movements of natural waters. Includes laboratory and fieldwork. Prerequisite: Natural Science Inquiry.

Sci 341, 342
Biology Concepts and Applications (4, 4)
Two-term course focusing on four main topics: classical Mendelian and current molecular genetics, evolution and predator/prey interactions, growth and metabolism, and biomes and biodiversity. In each topic area, students will participate in laboratory and/or field components, discussion, and Internet exercises. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry.

Sci 343, 344
Columbia Basin Plant Communities (4, 4)
In this two-semester course, students will explore the relationships found in alpine, desert, forest, and grassland plant communities. They will gain an understanding of how these plant communities interact with their environment and why they exhibit certain characteristics and processes. Includes laboratory and fieldwork. Prerequisite: Natural Science Inquiry.

Sci 345, 346
Old Growth Forest Ecology and Management (4, 4)
Explores the ecological characteristics of old-growth forests, including the outstanding biodiversity that exists at multiple levels, as well as the management paradigms that have impacted these systems in the Pacific Northwest (U.S. and Canada), including ethical, social, economic, and political aspects of forest management. Sci 345 includes laboratory and local fieldwork plus projects involving analysis of environmental impact statement alternatives, evaluation of management issues, and advisory statements for governmental activities. Sci 346 involves more extensive fieldwork, data analysis, and presentations. Prerequisite: Natural Science Inquiry.

Sci 347, 348
Science, Gender, and Social Context (4, 4)
Two-term course explores the strengths and limitations of science to describe and predict nature through laboratory and field investigations. These activities will illustrate the transition from a reductionist view of our natural environment to a systems-oriented view. It will place this historical shift in understanding and scientific practice in the contexts of gender, race, and class using selected case studies in environmental management. Includes laboratory and/or fieldwork. Prerequisite: Natural Science Inquiry.

Sci 350-379 Context of Science in Society
These courses address the promises and limitations of the scientific enterprise in the framework of “real world” social, economic, political, and ethical issues. Courses also address the historical and cultural role of science and technology, providing a link between laboratory science and contemporary society. Some CSS courses introduce risk-benefit analyses and decision-making methodologies. The prerequisite course for Context of Science in Society courses is Sci 201 Natural Science Inquiry or consent of the instructor.

Sci 351
Northwest Wetlands: Conservation, Restoration, and Mitigation (4)
Focus on science and public policy issues in wetland conservation, restoration, and mitigation, especially in Oregon and the Pacific Northwest. Prerequisite: Natural Science Inquiry or consent of instructor.

Sci 352
Science and Policy of Climate Change (4)
Evaluates the scientific data and the policy statements concerning the potential for human impact of climate, and in particular the ques-
ions of the existence and impacts of global warming. The interaction between scientific analysis and policy analysis will be explored, and students will consider the roles that citizens, scientists, and policy make in developing local, regional, and global responses to climate change. Prerequisite: Natural Science Inquiry.

Sci 353 Radiation in the Environment (4) Examine various sources of radiation and the hazards they represent. Students will consider the interaction of radiation with matter, especially living tissue, and an examination of “safe” dosage estimates and health risks. The science and policy of nuclear power generation and the problems of nuclear waste disposal will be considered. Prerequisite: Natural Science Inquiry. Also listed as Ph 353; course may be taken only once for credit.

Sci 355 Science Through Science Fiction (4) This class uses science fiction literature to examine a wide variety of topics in science. Prerequisite: Natural Science Inquiry. Also listed as Ph 378; course may be taken only once for credit.

Sci 359 Biopolitics (4) Designed to introduce the ethical, social, and political implications of knowledge and technologies attending advances in reproductive medicine and molecular genetics, including in vitro fertilization, fetal surgery, and somatic cell gene therapy. Particular attention is paid to the manner in which such advances are likely to affect women’s lives. Prerequisite: Natural Science Inquiry.

Sci 361 Science: Power-Knowledge (4) Systematically examines orthodox portrayals of science in comparison to recent anthropological, feminist, and poststructuralist accounts in an attempt to formulate a fresh understanding of the public’s science literacy as a critical component of democratic political practice and civic responsibility. Prerequisite: Natural Science Inquiry.

Sci 363 Ethics in Science (4) Explores what it means for the institution of science as well as for individual scientists to be ethical and to attend to questions of social, political, and moral value in their doing of science. It will address the question of how scientists are to deal with the consequences of their research. Prerequisite: Natural Science Inquiry.

Sci 399 Special Studies (Credit to be arranged.)

Sci 401/501 Research (Credit to be arranged.)

Sci 402/502 Independent Study (Credit to be arranged.)

Sci 404/504 Cooperative Education/Internship (Credit to be arranged.)

Sci 405/505 Reading and Conference (Credit to be arranged.)

Sci 407/507 Seminar (Credit to be arranged.)

Sci 409/509 Practicum (Credit to be arranged.)

Sci 410/510 Selected Topics (Credit to be arranged.)

Sci 503 Thesis (Credit to be arranged.)

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The sociology major is required to take a minimum of 49 credits in sociology courses (including 20 credits in electives in the field) and the mathematics course in statistical methods.

**Requirements for Major.** In addition to meeting the general University degree requirements, the major in sociology must meet the following departmental requirements:

- **Soc 200 Introduction to Sociology**
- **Soc 300 Sociological Inquiry**
- **Soc 310 U.S. Society**
- **Soc 320 Globalization**
- **Soc 397 Social Research Methods**
- **Soc 398 Sociology Research Project**
- **Soc 470 Foundations of Sociology**
- **Sociology electives, including at least 12 credits in 400-level courses**

**Total in sociology**

20

**Stat 243 Introduction to Probability and Statistics**

2

**Total major credits**

53

Up to 10 credits taken under the undifferentiated grading option (pass/no pass) in 200- or 300-level sociology courses can be applied toward fulfilling departmental major requirements. Differentiated grades of C or above are required for all other sociology courses and for Stat 243. A student must pass Soc 300 with a grade of C or better before taking other required courses as a sociology major.

Although specialization is not required of departmental majors, the department provides letters to majors certifying an area of concentration upon successful completion of 16 credits from among the following course lists for four areas offered by the department. (With approval of an adviser, certain other courses may be substituted for listed courses.) Course patterns have been selected for vocational relevance.

**Human Services Organization and Research,** an area preparing the student to participate in policy making and research in organizations—such as medical, educational, and gerontological—which deliver various kinds of services to clients and members.

- Soc 457 Complex Organizations
- Soc 459 Sociology of Health and Medicine
- Soc 469 Sociology of Aging
- Soc 480 Sociology of Religion
- Soc 497 Applied Survey Research

**Community Development and Research,** an area preparing the student to work with organizations dealing with community concerns such as neighborhood development, urban ecological patterns, redevelopment, and group conflict.

- Soc 337 Minorities
- Soc 341 Population Trends and Policy
- Soc 376 Social Change
- Soc 420 Urbanization and Community
- Soc 423 Stratification
- Soc 468 Political Sociology
- Soc 497 Applied Survey Research

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**Sociology**

217 Cramer Hall
503-725-3926
www.clas.pdx.edu/sociology/

B.A., B.S.
Minor
Secondary Education Program—Social Science
M.A., M.S.
M.A.T. and M.S.T. (General Social Science)
Ph.D. in Systems Science—Sociology
Ph.D.—Participating department in Urban Studies Doctoral Program

**UNDERGRADUATE PROGRAMS**

The primary aim of the sociology program is to provide students with sociological knowledge as part of their liberal arts training. Sociological theories and research provide students with intellectual tools useful to informed citizens so that they will be better able to understand and deal with the world in which they live.

In addition to its general education role, the program in sociology is designed to prepare students for graduate study leading to teaching and research, and to provide the foundation for careers in industry, government, and social service in which sociology skills are very useful.
Social issues, an area preparing the student to work in or conduct research for agencies concerned with behavior that has come to be defined as a social issue or problem in society—delinquency, crime, discrimination, sexism, poverty, identity crises, misuse of power, etc.

Sociology, see page 67. In addition, the Department of Sociology is one of five departments offering courses in areas of specialization available within the Urban Studies Doctoral Program. Courses in sociological theory and methods, and a pattern of sociology courses relevant to the study of urban life, when combined with urban studies seminars, may serve as one of the fields of specialization for the Ph.D. in urban studies. For information relative to the Ph.D. in urban studies, see page 304.

Admission to doctoral programs is independent of admission to any master’s program within the Department. For further details contact the respective program directly.

Students must be admitted to the master’s program by the Department and by the University. Admission ordinarily is granted only to those students beginning the program in the Fall term. Students are expected to move through the core courses as a cohort and work together with the faculty in a team environment.

In addition to the general University admission requirements for advanced degrees, the applicant for a sociology master’s degree program must have the following materials sent to the Department:

1. Three letters of recommendation from persons familiar with the applicant’s academic performance.
2. A complete set of transcripts of college and university work.
3. Graduate Record Examination scores (Aptitude sections).
4. A letter of application describing his or her sociological interests.

Applicants are normally expected to have a bachelor’s degree in Sociology. Students with other undergraduate majors may be accepted, however, if they have completed courses in sociological theory, research methods, and statistics.

Degree Requirements. University master’s degree requirements are listed on page 62. Specific departmental requirements are listed below.

MASTER OF ARTS OR MASTER OF SCIENCE

The candidate must complete a minimum of 55 graduate credits, including 26 credits in core sociology courses, 20 credits of electives (12 of which may be in departments other than sociology), and 9 credits of thesis. Elective courses outside sociology must be approved by the student’s adviser. The student must pass an oral defense of the thesis.

Students working for the Master of Arts degree must satisfy the language requirement.

M.A. /M.S. Degree Program in Sociology

First Year

Fall
Soc 500 Social Research Strategies†..................4
Soc 591 Theoretical Perspectives†..................4
Soc 5xx Sociology elective..........................4
Winter
Soc 592 Qualitative Methods†.....................4
Soc 593 Quantitative Methods†....................4
Soc 5xx Sociology elective..........................4
Spring
Soc 594 Theory Construction and Research†......4
Soc 595 Research Practicum†.......................4
Soc or other elective.................................4

Second Year

Fall
Soc 503 Thesis........................................4
Soc 513 Thesis Workshop†............................1
Soc or other elective.................................4
Winter
Soc 503 Thesis........................................4
Soc 513 Thesis Workshop†............................1
Soc or other elective.................................4
Spring
Soc 503 Thesis........................................4

MASTER OF ARTS IN TEACHING OR MASTER OF SCIENCE IN TEACHING

For information on the Master of Arts in Teaching and the Master of Science in Teaching (General Social Science), see page 133.

COURSING

Courses with an asterisk (*) are not offered every year.

Soc 199 Special Studies (Credit to be arranged.)
Prerequisite: consent of instructor. Maximum: 8 credits.

Soc 200 Introduction to Sociology (4)
Sociological concepts and perspectives concerning human groups; includes attention to socialization, culture, institutions, stratification, and societies. Consideration of fundamental concepts and research methodology.

Soc 299 Special Studies (Credit to be arranged.)

Soc 300 Sociological Inquiry (4)
Exploration of the linkage between theoretical foundations of sociology and the conduct of sociological research. Focus is on fundamental methodological issues utilized in exemplar research studies conducted under different theoretical perspectives. Prerequisite: Soc 200.

Soc 310 U.S. Society (4)
Examination of the social structure, culture, and demography of the United States. Sociological approaches to such institutions as the economy, religion, education, and the family are explored. Attention given to comparison with other industrialized countries as well as to selected social issues and controversies. Prerequisite: Soc 200, 300.
Soc 320 Globalization (4)
Exploration of issues and approaches in sociological thinking relative to world systems. World systems are treated not only as world orders made up of political and economic exchanges, but also as cultural orders and institutionalized structures transcending national geographic boundaries. Attention given to the international, national, regional, and local ways that people attempt to deal with the instabilities accompanying globalization. Prerequisite: Soc 200, 300.

Soc 337 Minorities (4)
Description and analysis of problems involving specific minorities, with major emphasis on American society. Although racial and ethnic groups are usually emphasized, the term “minorities” is broadly defined to include such subordinate-status groups as women, the aged, and religious and cultural minorities.

Soc 339 Marriage and Intimacy (4)
The sociological and social psychological dimensions of courtship, marriage, and the family. Perspectives on the effects of social environment and transitions in the structure and functions of intimacy, courtship, marriage, and the family. The influence of society and community upon intimate relationships.

Soc 341 Population Trends and Policy (4)
Introduction to the general field of population analysis, a review of the development of population theories, techniques of measurement and analysis of the basic demographic variables, their interrelationships, and population changes. Prerequisites: Soc 200.

Soc 342, 343 Social Psychology (4, 4)
Analysis of the psychological and sociological processes in personality formation and in various forms of group behavior. Particular attention to social cognition, roles, and to group origins, functions, ideology, membership, and leadership. Prerequisites: Soc 200 or Psy 200, 204. Soc 342 is prerequisite for Soc 343. Credit will not be given for both Soc 342 and Psy 342, or for both Soc 343 and Psy 343.

Soc 344 Gender and Sexualities (4)
Examines the ways in which social constructions of gender both influence and are influenced by the cultural organization of and individual expressions of sexuality. The course explores the intersections among sexuality, culture, gender, and the body and examines a variety of sexualities and emphasizes the multifaceted nature of power, privilege, and oppression.

Soc 350 Comparative Industrial Societies (4)
A comparative analysis of contemporary complex industrial societies. Attention is given to a cross-societal analysis of the processes of industrialization, political and social modernization, development of nationalism, the impact of modern systems of political thought, science, and other ideologies. Prerequisites: Soc 200.

Soc 370 Sociology of Deviancy (4)
Introduction and analysis of deviant behavior. Delineation of the sociological and social psychological factors which give rise to deviant roles. Prerequisites: Soc 200.

Soc 376 Social Change (4)
Deals with the technological and ideological factors which govern the evolution and transformation of society, with special emphasis on the operation of such factors since 1800. Prerequisites: Soc 200.

Soc 395 Research Methods Lab (1)
Introduces research laboratory for students in Research Methods. Corequisite: concurrent enrollment in Soc 396. Pass/no pass only.

Soc 396 Research Methods Lab I (1)

Soc 397 Social Research Methods (5)
Study of the structuring of sociological inquiry, conceptualization, and measurement, operationalization, computers in social research, analysis of bivariate and multivariate relations, the logic of sampling and inference. Prerequisites: Stat 243, Soc 200, 300. Concurrent enrollment in Soc 396, Research Methods Lab is required.

Soc 398 Sociology Research Project (4)
development and execution of a research project integrating some aspect of sociological theory with social science research methodology. Students work in teams to identify a research problem, design and conduct research bearing on this problem, and write a research report. Soc 397 and 398 are to be taken as a two-term sequence.

Soc 399 Special Studies (Credit to be arranged.)
Soc 401/501 Research (Credit to be arranged.) Consent of instructor.
Soc 404/504 Cooperative Education/Internship (Credit to be arranged.)
Soc 405/505 Reading and Conference (Credit to be arranged.) Consent of instructor.
Soc 407/507 Seminar (Credit to be arranged.) Consent of instructor.
Soc 410/510 Selected Topics (Credit to be arranged.)
Maximum: 12 credits. Consent of instructor.
Soc 414/514 Alcohol and Other Drugs (4)
Sociological analysis of the behavior and belief patterns relative to alcohol and other drugs in American society. Attention given to other societies. Prevention and intervention strategies are briefly reviewed. Prerequisites: Soc 200.

Soc 418/518 Criminology and Delinquency (4)
Social and legal meaning of crime and delinquency explored. Historical and contemporary theories of causes of law breaking reviewed. Social and cultural factors promoting and inhibiting law breaking by juveniles and adults are examined. Attention given to strategies of prevention and control. Prerequisites: Soc 200.

Soc 420/520 Urbanization and Community (4)
Analytical approach to the meaning of community in the modern world. The determinants, social consequences of, and responses to the processes of urbanization are considered. Theories of the city emphasizing ecological, sociocultural, and critical explanations for growth and change in urban regions are examined. Patterns of social and structural organization of the metropolis and the cognitive and behavioral aspects of urban life are explored. Prerequisite: Soc 200.

Soc 423/523 Stratification (4)
Survey and analysis of stratification theories and empirical research. Analysis of class, race, ethnicity, gender, and sexual orientation, considering economic, social, political, and cultural dimensions of power. Prerequisite: Soc 200.

Soc 424/524 Groups, Interaction and Identity (4)
Analysis of the formation and functioning of intergroup and intragroup relations. Attention to group organization and interaction, performance, cooperation, conflict, and group membership and individual identity. Prerequisites: Soc 200, Soc or Psy 342.

Soc 425/525 Sociology of Women (4)
Analysis of the social position of women in the U.S. in institutional areas such as family, reproduction, politics, work, and education. Consideration and evaluation of feminist theories concerning social condition, behaviors, and characteristics of women. Prerequisite: Soc 200.

Soc 426/526 Women and Mental Illness (4)
Societal and historical evolution of images and explanations of madness in women. Contemporary distributions, diagnosis, and treatments of mental illness in diverse groups of women are examined. Focus on psychiatric disorder and gender-based discourse. Prerequisite: Soc 200. Also listed as WS 426; course may be taken only once for credit.

Soc 436/536 Social Movements (4)
Formation, dynamics, and outcomes of social movements. Examination of the effects of circumstances, strategies, and alliances on the outcomes of social movements, including their impact on politics and society. Prerequisite: Soc 200.

Soc 444/544 Race, Ethnicity, and Nationality (4)
Analysis of the emergence, persistence and meaning of definitions of racial, ethnic and national statuses in selected areas of the modern world. Consideration of the consequences of changing definitions for intergroup and global relations. Prerequisite: Soc 200.
Comparison of the social organization of sect
Sociology of Religion (4)
Senior standing.
with instructor. Prerequisites: Soc 200, 300; temporary sociological theory. Specific topics vary
Development of symbolic interactionism. Prerequisite: Soc 200.
Study of various frames of reference in contemporary sociology. Specific topics vary with instructor. Prerequisites: Soc 200, 300; senior standing.
Analysis of the nature of the sacred; attitudes toward the sacred in contrast to the secular. Comparison of the social organization of sect and church in their relation to the larger society.

'Soc 482/582
East European Societies (4)
The central focus of this course is on the analysis of equality, inequality and social classes in contemporary East European societies. Two subsidiary themes are also explored: The cycles of dominance of ideology and pluralism and relations among the nationality groups. Prerequisite: Soc 200.

'Soc 483/583
Sociology of the Middle East (4)
This course will examine the sociological development of the modern Middle East. It will especially focus on causes and consequences of rapid social change, including revolutions, coups, and insurgent movements. It will examine the role of Islam and tribalism in these movements. Prerequisite: Soc 200.

'Soc 497/597
Applied Survey Research (4)
Provides theoretical framework for and experience in design, execution, and interpretation of social surveys including sampling procedures, questionnaire design, interviewing techniques, coding and computer analysis, and report writing. Prerequisites: Stat 243 and Soc 395 or equivalent.

'Soc 503
Thesis (Credit to be arranged.)
Pass/no pass option.

'Soc 513
Thesis Workshop (1)
Workshop for all sociology graduate students who are currently enrolled in Soc 503 for four credits or more. Discussion and review of students' progress and problems. Prerequisite: graduate status in sociology. Corequisite: Soc 503. Pass/no pass only.

'Soc 576
Theories of Social Change (4)
A critical examination of the major theories of social change. Analysis of the components of change: cause, agents, targets, channels, and strategies. Consideration of the relationship between change and power, influence, planning, and control, modernization, development, and world systems approaches. Prerequisite: graduate status.

'Soc 577
Topics in Contemporary Theory (4)
Exploration of theoretical approaches and issues of emerging interest in sociology, such as conceptualization of social systems, conflict, the problems of relativity, and ideology. Specific topics vary with instructor. Prerequisite: Soc 470 and graduate status.

'Soc 585/685
Medical Sociology (4)
Seminar in medical sociology. Topics include: social stratification affects health outcomes, environmental hazards, social construction of medical knowledge, health care occupations, U.S. health policy, privatization of medical industries, and comparative health care systems. Prerequisite: Soc 459/559 or consent of instructor.

'Soc 590
Social Research Strategies (4)
Consideration of the nature of sociological knowledge; elements of social research design, methods of observation and data collection; reliability and validity of information; techniques of data analysis. Prerequisite: graduate status.

'Soc 591
Theoretical Perspectives in Sociology (4)
Analysis of the major contemporary theories in sociology. Attention to the problems of order and change, and power and inequality, as well as to the micro/macro problem in sociological theory. Prerequisite: Soc 470 and graduate status.

'Soc 592
Qualitative Methods (4)
Strategies for acquisition and analysis of data using such approaches as participant observation, content analysis, field and case studies. Attention to the special problems of validity and reliability in such research. Consideration of ethical and formal problems and accountability in qualitative research. Prerequisite: graduate status.

'Soc 593
Quantitative Methods (4)
The application of quantitative methodology to sociological problems. Topics include: science and logical empiricism; measurement of association; procedures of statistical inference; multivariate and log linear analysis; computer application for social research. Prerequisites: Stat 243, Soc 395, 495, graduate status.

'Soc 594
Theory Construction and Research (4)
Examination of the craft of sociological research in conjunction with thesis work. The role of theory in research, evaluating published work, biases in data sources and the process of thesis writing. Prerequisites: Soc 580, 591; graduate status.

'Soc 595
Research Practicum (4)
Overview of the process of linking sociological data and ideas to broader communities of interest. Exercises in preparation of research grants and experience in working in a team research environment. Prerequisites: Soc 590, 591; graduate status.

'Soc 457/557
Complex Organizations (4)
Examination of complex organizations both as formal structures and as cultural systems. Analysis of the relations between organizations and individuals of inter-organizational dynamics and of the rationalization of modern societies. Prerequisite: Soc 200.

'Soc 459/559
Sociology of Health and Medicine (4)
The application of sociology to the field of health and medicine. Attention given to a consideration of the broader questions of health in modern society, including the role of the medical practitioner in modern society; social factors and disease and responses to illness. The social organization of medicine is examined within the context of the larger medical care system. Prerequisite: Soc 200.

'Soc 461/561
Sociology of the Family (4)
Sociological analysis of the structure and functions of the family institution and its relationship to external systems such as the economy and polity. Changing and diverse forms of family organization in urban society. Analysis of role relations in the family. Prerequisite: Soc 200.

'Soc 463/563
Environmental Sociology (4)
Survey and analysis of the types of social forces which frame the nature of environmental problems concerning natural resource use and distribution as they emerge in public consciousness within the United States and globally. Examination of the social forces which lead to the consideration and implementation of mechanisms to solve these issues once they have emerged.

'Soc 468
Political Sociology (4)
Analysis of consensus and dissent in community and society. Examination of public opinion, authority, influence, and the processes by which elites are formed and acquire legitimacy and popular support. Social bases of democracy and totalitarianism. Prerequisite: Soc 200.

'Soc 469/569
Sociology of Aging (4)
A study of social determinants of the human life course, including biological and demographic conditions, age status patterns, age grading, rites of passage, socialization, generational phenomena, and youth and old age movements. Prerequisite: Soc 200.

'Soc 470
Foundations of Sociology (4)
Examination and comparison of modes of sociological thinking, from the emergence of a distinctive sociological perspective through the development of symbolic interactionism. Prerequisite: Soc 200, 300.

'Soc 472/572
Contemporary Sociological Theory (4)
Study of various frames of reference in contemporary sociological theory. Specific topics vary with instructor. Prerequisites: Soc 200, 300, senior standing.

'Soc 480/580
Sociology of Religion (4)
Analysis of the nature of the sacred; attitudes toward the sacred in contrast to the secular. Comparison of the social organization of sect and church in their relation to the larger society.
Although students have the choice of taking either WS 340 or WS 341, taking both is recommended.

Women’s Studies is an interdisciplinary program designed to foster students’ personal and intellectual development and to prepare them for socially responsible citizenship as well as a broad range of careers. Women’s studies advisers work closely with each student to craft a course of study appropriate to the student’s academic interests and post-graduate goals.

An expanding field of scholarship, women’s studies is on the cutting edge of educational and intellectual innovation. Courses offered through many different disciplines explore how gender has shaped culture, language, social, economic, and political institutions and what the world looks like, once women’s experience is fully included in our thinking. The women’s studies core curriculum encourages students to develop critical thinking skills and an appreciation for the range of theoretical frameworks and methodologies present in contemporary feminist scholarship. Courses incorporate the diversity of women’s experience with attention to race, class, and sexual orientation as well as gender. Core courses also demand and support students’ active participation through discussion, informal as well as formal writing, and collaborative learning in the classroom.

Experiential learning plays an important role in a student’s progress through the women’s studies curriculum. The program’s extensive and long-established ties with organizations in the metro area provide wide-ranging opportunities for students to apply their classroom knowledge in a community setting. Many students discover a life’s vocation through these experiences, and all develop new skills. Guidelines for women’s studies internships, practica, and all develop new skills. Guidelines for women’s studies internships, practica, and independent study are flexible in order to meet individual needs. A degree in women’s studies provides the foundation for life-long learning as well as background and experience for careers in teaching, counseling and social work, business, law, health sciences, public administration, public relations, and research.

Women’s studies students participate in planning the program’s educational, cultural, and social events and advise the faculty on matters of curriculum and educational policy. The program also maintains a resource library open to all students.

Requirements for the Major
In addition to meeting the general University degree requirements, the major in women’s studies must complete a required core program of 32 credits (24 classroom hours, including a senior seminar, and 8 hours in experiential learning) and an individual program of study (20 credits).

For the individual program, students will design an emphasis which is based in a discipline or in a theme that crosses disciplines.

WS Core Curriculum

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 101 Introduction to Women’s Studies</td>
<td>4</td>
</tr>
<tr>
<td>WS 301 Gender and Critical Inquiry</td>
<td>4</td>
</tr>
<tr>
<td>WS 315 Feminist Analysis</td>
<td>4</td>
</tr>
<tr>
<td>WS 415 Senior Seminar</td>
<td>4</td>
</tr>
<tr>
<td>WS 340 Women and Gender in America, Colonial Era to 1865 or WS 341 Women and Gender in America, 1865-Present</td>
<td>4</td>
</tr>
<tr>
<td>WS 342 History of Feminism in the United States</td>
<td>4</td>
</tr>
<tr>
<td>WS 404/409 Internship/Practicum</td>
<td>6</td>
</tr>
<tr>
<td>WS 411 Experiential Learning Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

Total credits required in the core: 32

Individualized Program
To be developed in consultation with the student’s women’s studies adviser. Each student pursuing a women’s studies major will select or be assigned an adviser who is knowledgeable in the student’s area(s) of academic interest. In order to be considered for the B.A. or B.S. degree, the individual program of study must carry approval of the adviser and the women’s studies coordinator. Changes in this individual program must be similarly approved. Non-approved individual programs will not be considered to meet major requirements. In designing their individual program, students may follow either a discipline-based emphasis or a theme-based emphasis.

A discipline-based emphasis will consist of five courses (20 credits) in a department or program outside women’s studies. Two of these courses are to be courses which familiarize students with that discipline’s materials and approaches. The other three courses in the discipline are to be cross-listed with women’s studies or approved by the student’s women’s studies adviser.

A theme-based emphasis will consist of five courses which together form a coherent multi-disciplinary approach to a subject. All of the courses are to be cross-listed with women’s studies or approved by the student’s women’s studies adviser.

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling major requirements with the following exceptions: one women’s studies elective course, WS 404 Cooperative Education/Internship, WS 409 Practicum.

Requirements for the Minor
A minor in women’s studies will consist of 28 credits. Students will be required to take 12 credits in the core courses (not including WS 404, 409, WS 411). The additional 16 credits may be fulfilled by either core courses (including WS 404, 409, WS 411) or women’s studies electives (courses cross-listed with other departments or approved by the women’s studies coordinator).

Requirements for the Post-baccalaureate Certificate

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS 101 Introduction to Women’s Studies</td>
<td>4</td>
</tr>
<tr>
<td>WS 301 Gender and Critical Inquiry</td>
<td>4</td>
</tr>
<tr>
<td>WS 315 Feminist Analysis</td>
<td>4</td>
</tr>
<tr>
<td>WS 415 Senior Seminar</td>
<td>4</td>
</tr>
<tr>
<td>WS 404/409 Internship/Practicum</td>
<td>6</td>
</tr>
<tr>
<td>WS 411 Experiential Learning Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

Approved electives

| Minimum of 12 upper division | 16 |

Total 38

In meeting the 16 elective credits requirement, students may take a maximum of 12 credits in any one academic area (arts and letters, science, social science) and 4 credits in lower division courses.

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling Certificate requirements with the following exceptions: one women’s studies elective course, WS 404 Cooperative Education/Internship, WS 409.
COURSES

Courses with an asterisk (*) are not offered every year. For additional courses in women’s studies, consult departmental listings, e.g., Departments of Psychology and Sociology.

WS 103 Introduction to Women’s Studies (4)
A survey and critical analysis of the essential issues of feminism and their effects on women’s lives. Topics include: marriage, family, education, justice and reform, health care, sexuality, political and economic status. Focuses on present realities and future possibilities. An introduction to the interdisciplinary field of women’s studies.

WS 120 Workshop for Returning Women (4)
Designed for those who have experienced an interruption in their formal education. Examines the educational history of American women. Analyzes the ways in which the roles, status, and experiences of women affect educational decisions and performance. Includes the development of skills and self-confidence in studying, writing, research, examinations, time management, mathematics and science. Credit cannot be used to satisfy certificate requirements.

WS 199 Special Studies (Credit to be arranged.)
A variable topics course dealing with contemporary and historical issues in feminism. Recent offerings have included History of Women Artists and History of Women in Science. WS 199 is also available for students who wish to pursue directed independent study.

WS 260 Introduction to Women’s Literature (4)
Introduction to the texts and contexts of women’s literature.

WS 301 Gender and Critical Inquiry (4)
Cross-discipline introduction to feminist frameworks including theoretical issues and varying approaches to the study of women and gender. Attention to the relationship between gender and other axes of inequality. Emphasis on the development of critical thinking skills. Prerequisite: WS 101.

WS 310 Psychology of Women (4)
Review and evaluate assumptions underlying psychological research on women. Survey the research in areas such as the development of sex differences, acquisition of gender roles, and maintenance of gender stereotypes. Explore the pertinence of these findings to topical areas such as women’s work roles, women and mental health, and the women’s movement. Prerequisite: 3 credits in psychology.

WS 312 Feminist Philosophy (4)
Critically examines traditional schools of philosophical thinking from a feminist perspective. Prerequisite: one philosophy course from other than Phil 103, 104, 206.

WS 315 Feminist Analysis (4)
An exploration of the interpretive frameworks and research strategies utilized in contemporary feminist scholarship. Drawing on examples from more than one discipline, students will be introduced to a range of theoretical and methodological approaches, while learning to identify the choices that scholars make in carrying out their work. Issues under debate within feminist scholarship as well as the differences between feminist scholars and those working from other frameworks will be examined. Prerequisite: WS 301.

WS 330 Women of Color in the U.S. (4)
A variable topics course focusing on issues which affect women of color in the U.S., historically and today.

WS 331 Women in the Middle East (4)
Aims to explore the role and status of women in the contemporary Middle East with respect to institutions such as the family, law, education, work and politics—are which intersect and overlap with broader cultural questions about women and their place in tradition, modernity, nation-building, Islam and the West. This course is the same as FL 331 and Intl 331, may only be taken once for credit.

WS 337 Communication and Gender (4)
An examination of similarities and differences in male and female communication styles and patterns. Particular attention given to the implications of gender as social construct upon perception, values, stereotyping, language use, nonverbal communication, and power and conflict in human relationships. Discussion of influence of mass communication upon shaping and constructing male and female roles.

WS 340 Women and Gender in America, Colonial Era to 1865 (4)
This course explores women’s lives and work in America from European contact with the New World through the end of the Civil War. Through primary and secondary material, students will confront the diversity of female experience as well as the ways in which gender shaped the economic, political, and social life of the emerging nation. Possible themes include native women and colonial settlement, Puritan religion, the household economy, the American Revolution, evangelicalism and the rise of the Victorian home, women and the westward movement, slavery and race, gender and industrialization, and the emergence of women’s rights.

WS 341 Women and Gender in America, 1865 to the Present (4)
Who was a suffragette? A flapper? Rosie the Riveter? What do these images hide as well as reveal about American women’s recent past? This course surveys the making of modern American women by focusing on gender, family, work, and political arrangements from 1865 to the present. Students will explore the diversity of women’s lives through the ideas and institutions—both the outstanding and everyday—forged by women in this period. Themes include missionar- ies and reform in the Gilded Age, higher education and the professions, women workers and labor organizing, the rise of sexual modernism, gender in the Jim Crow South, postwar domesticity and the “feminine mystique”, feminism’s roots in the Civil Rights movement, and “second wave” feminism and its descendants.

WS 342 History of Feminism in the United States (4)
After a review of Western feminism’s Enlightenment roots and Victorian variations in the United States, this course focuses on the shaping of modern feminism as a diverse body of questions, ideas, and experiments in American life. Themes include political equality, the emergence of sexual politics, issues of race and difference, women workers and class conflict, the civil rights movement and gender struggles, radical feminism, conservative women and “backlash”, and feminist internationalism. Prerequisite: WS 340 or 341.

WS 343 American Family History (4)
History of the American family from the colonial period to the present. The course will draw upon textual sources and oral histories in examining changes in family life in the colonial period, and the nineteenth and twentieth centuries. Prereq- uisite: Hist 201, 202, Sophomore Inquiry (American Studies), or consent of instructor.

WS 347, 348 Science, Gender, and Social Context (4, 4)
Two-term course explores the strengths and limitations of science to describe and predict nature through laboratory and field investigations. These activities will illustrate the transition from a reductionist view of our natural environment to a systems-oriented view. It will place this historical shift in understanding and scientific practice in the contexts of gender, race, and class using selected case studies in environmental management. Includes laboratory and/or fieldwork. Prerequisite: Unst 299 Intro to Women’s Studies. This course is the same as Sci 347, 348; may only be taken once for credit.

WS 350 Introduction to Interpersonal Violence (1)
Explores the roots of interpersonal violence, the dynamics of domestic violence against women and children and sexual assault, their causes and effects, community resources for intervention and prevention. Discusses the social norms that influence interpersonal violence as well as the psychological results of violence. Examines the big picture of interpersonal violence and how all forms are interrelated.

WS 351, 352, 353 Children and Interpersonal Violence (1, 1, 1)
The courses in this sequence will consider the victimization of children from a variety of perspectives: how they are victimized directly and indirectly and services available to them. WS 351: Special Issues for the Child Victim of Interpersonal Violence; WS 352: Children Affected by Violence; WS 353: Services for the Child Victim of Interpersonal Violence. Each class will consider child physical, emotional and sexual abuse. Prerequisite: WS 350.

WS 354, 355, 356 Interpersonal Violence and Special Populations (1, 1, 1)
Physical, emotional and sexual abuse crosses all age, cultural, religious, ethnic, economic and social boundaries. However, the impact of abuse and the remedies and services available to vic- tims/survivors varies widely across different social groups. WS 354: Young Adults and Dating Violence; WS 355: Battered Women in Prison;
WS 356: Diversity Awareness and Domestic and Sexual Violence. Each class will consider physical, emotional and sexual abuse. Prerequisite: WS 350.

WS 357, 358, 359
Interventions for Interpersonal Violence (1, 1, 1)
This course sequence will consider interpersonal violence and intervention from a variety of perspectives—as an individual and societal issue. WS 357: Interventions to Help Women Caught in Interpersonal Violence; WS 358: Treatment Philosophies and Interpersonal Violence; WS 359: Holding Perpetrators of Interpersonal Violence Accountable. Each class will address physical, emotional and sexual abuse issues. Prerequisite: WS 350.

WS 380
Women and Politics (4)
Analysis of the political role of women in politics. Reviews historical and contemporary analyses of women's participation and status in politics. Prerequisites: PS 101, 102 or upper-division standing.

WS 390
Special Studies (Credit to be arranged.)
WS 401
Research (Credit to be arranged.)
WS 404
Cooperative Education/Internship (Credit to be arranged.)
WS 405
Reading and Conference (Credit to be arranged.)
Consent of instructor.

WS 407
Seminar (Credit to be arranged.)
WS 409
Practicum (Credit to be arranged.)
WS 410
Selected Topics (Credit to be arranged.)
WS 411
Experiential Learning Seminar (1)
To be taken simultaneously with WS 404 or WS 409. Students will present material based upon their experiences in practica and internships. The seminar provides an opportunity for students to reflect on the settings where they are working and analyze issues that emerge in applying feminist theory to practice.

WS 415
Senior Seminar (4)
With a focus on analysis, critique, comparison and connection, students will work collaboratively as well as independently in this theoretically, thematically-based course. Students will be responsible for planning and leading discussion during some sessions as well as presenting and responding to work-in-progress. Prerequisite: WS 315.

WS 417
Women in the Economy (4)
Different economic theoretical perspectives are presented to account for women's particular economic roles currently and historically. Emphasis on women's responsibility for child rearing and housework; women's relatively low wages; occupational segregation by gender; economic differences among women due to ethnicity, generation, and class; and policy issues with particular importance for women's economic situation. Prerequisites: Ec 201, 202.

*WS 424
Women and the Law (4)
Examines the relationship between women and the law. The first half of the course considers several theories of women's equality. During the second half of the course students will apply these theories to a variety of problems in gender justice. Substantive issues covered may include: sexual harassment, abortion, fetal protection policies, and pornography. This course is the same as PS 425, may only be taken once for credit.

WS 425
Sociology of Women (4)
Cross-sectional analysis of the position of women in industrial societies. Analysis of the social position of women and men in areas such as the family, politics, work, education, etc. Consideration and evaluation of theories of the biological, psychological, sociological, and economic basis for the behavior, characteristics, attitudes, and demographic characteristics of women. Prerequisites: Soc 204, 205.

WS 426
Women and Mental Illness (4)
Social and historical evolution of images and explanations of madness in women. Contemporary distributions, diagnoses, and treatments of mental illness in diverse groups of women are examined. Focus on psychiatric disorder and gender-based discourse. Prerequisite: WS 101. Also listed as Soc 426/526; course may be taken only once for credit.

WS 430, 431
Women in the Visual Arts (4, 4)
The study of the art of women in various media (painting, sculpture, architecture, printmaking, photography, textiles, illuminated manuscripts, and mixed media). A 3-term sequential class:

- Fall: 11th century (medieval) Europe to the 18th century; winter, 19th century to early 20th century America and Europe; spring, 20th century America and Europe. Open to non-art majors. Prerequisites: Art 204, 205, 206.

WS 443, 444
British Women Writers (4, 4)
Study of the works of British women writers with attention to themes, styles, and characteristic concerns in the light of feminist criticism and scholarship. Prerequisite: 15 credits in literature. WS 260 recommended.

WS 445, 446
American Women Writers (4, 4)
Study of American women writers, with attention to themes, styles and characteristic concerns, in the light of feminist criticism and scholarship. Prerequisite: 15 credits in literature. WS 260 recommended.

WS 452
Gender and Race in the Media (4)
This course is the same as Sp 452/552; course may only be taken once for credit. See Department of Communication for course description.

WS 455
Gender and Education (4)
Examines the relationship between gender and the social organization of the workplace. Focus is on gender development as socialization (e.g. hierarchy and leadership, discrimination and harassment, deskilling) from a social psychological perspective. Strategies for change are considered. Prerequisites: Psy 310 and 3 additional credits in courses numbered Psy 330 or higher.
# Interdisciplinary Studies

The courses listed below are offered on an irregular basis by various departments.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit to be arranged</th>
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<tbody>
<tr>
<td>A Sc 410/510</td>
<td>Selected Topics</td>
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<tr>
<td>Hum 199</td>
<td>Special Studies</td>
<td></td>
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<tr>
<td>Hum 399</td>
<td>Special Studies</td>
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<td>Hum 405</td>
<td>Reading and Conference</td>
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<td>Hum 407</td>
<td>Seminar</td>
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<td>Hum 410</td>
<td>Selected Topics</td>
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<tr>
<td>Hum 601</td>
<td>Research</td>
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<tr>
<td>Hum 602</td>
<td>Independent Study</td>
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<tr>
<td>Hum 603</td>
<td>Thesis</td>
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<tr>
<td>Hum 604</td>
<td>Cooperative Education/Internship</td>
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<td>Hum 605</td>
<td>Reading And Conference</td>
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<td>Hum 606</td>
<td>Special Problems/Projects</td>
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<tr>
<td>Hum 607</td>
<td>Seminar</td>
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<td>Hum 608</td>
<td>Workshop</td>
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<td>Hum 609</td>
<td>Practicum</td>
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<tr>
<td>Hum 610</td>
<td>Selected Topics</td>
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<td>Ist 199</td>
<td>Special Studies</td>
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<tr>
<td>Ist 399</td>
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<td>IST 404</td>
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<td>Practicum</td>
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<td>S Sc 607</td>
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<tr>
<td>S Sc 608</td>
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<tr>
<td>S Sc 609</td>
<td>Practicum</td>
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<tr>
<td>S Sc 610</td>
<td>Selected Topics</td>
<td></td>
</tr>
</tbody>
</table>
B.A., B.S.—Business Administration
Minor—Business Administration
Certificate in International Business Studies
Certificate in Food Industry Management
Postbaccalaureate Certificate in Accounting
M.B.A.—Master of Business Administration
M.S.F.A.—Master of Science in Financial Analysis
M.I.M.—Master of International Management
Ph.D.—Participating school in Systems Science Doctoral Program

The undergraduate and graduate programs in business administration are accredited by AACSB—the International Association for Management Education. AACSB sets standards for business education in terms of curricular content, quality of faculty, and adequacy of facilities.

**Undergraduate Programs**

The undergraduate program in business administration adheres to the principle that in a free society the business enterprise must be responsibly and efficiently managed. The undergraduate degree program includes both business and nonbusiness courses. The mission of the undergraduate program is to provide students with a broad understanding of business and to equip them with the dynamic skills required to work successfully in a complex and changing global environment.

Special emphasis options are available within the business administration major and are designed to prepare students for positions in accounting, finance, general management, marketing, human resource management, supply and logistics management, advertising, and information systems. The international business studies certificate, food industry management certificate, and the business minor are also available. The School of Business also offers study abroad opportunities at the undergraduate and graduate levels.

The School of Business also offers a Weekend Business Program. Tailored for the returning student who is working full-time, the program allows students to complete their junior and senior years of the business program on Wednesday evenings and Saturdays over six terms. Students enrolled in the Weekend Business Program will complete the full curriculum of standard business courses required for a bachelor's degree in business with an option in general management through a combination of class lectures, Web-based instruction, video, e-mail, and chat rooms.

Admission and major requirements for this program are identical to the traditional undergraduate program.

**Admission Policy.** Students may declare business administration as their major field of study at any time after admission to Portland State University. However, students must be admitted formally to the School of Business Administration (SBA) before they are allowed to enroll in certain upper-division business administration courses or to graduate with a business administration degree.

The following requirements must be fulfilled prior to applying for admission to the School of Business Administration:

1. Be formally admitted to Portland State University.
2. Have a grade point average (GPA) of at least 2.75 for each of the following:
   a. all accepted transfer credits
   b. all PSU graded credits
   c. all PSU graded business credits

   Students who do not meet the 2.75 GPA requirements will be considered for admission only if the GPA for their most recent 30 graded credit hours at PSU is 3.00 or higher and the applicant has a minimum 2.50 cumulative PSU GPA and a minimum 2.50 cumulative GPA for all completed business courses at PSU.

3. Have completed each of the Conceptual Tools courses with a grade of C- or better. The Conceptual Tools courses are:
   - BA 101—Introduction to Business and World Affairs
   - BA 205—Business Communications Using Technology
   - BA 213—Decision Making with Accounting Information
   - Ec 201, 202—Principles of Economics
   - Stat 243, 244—Introduction to Probability and Statistics I & II (for business majors)
   - Sp 220—Public Speaking
   - Wr 121—English Composition or UnSt 101, 102, 103

   Transfer students must provide a copy of their Transfer Evaluation to the SBA with the application for admission.

   The application deadline for admission to the SBA is the second Monday following the first full day of classes of the term preceding the term for which admission is sought. Applications received after the deadline will be processed for the following term.

   Application forms are available in 240 SBA and also in the holders on the bulletin board outside of the room.

Requirements for Major. In addition to meeting the general degree requirements of the University, the student in business administration must take at least 82 credits in business administration courses of which at least 41 must be taken at PSU. This total will include the business core (44 credit hours if taken at Portland State), at least one option area (20-36 credits, depending on option chosen), and enough business electives to meet the minimum of 82 credits in business. Each student in business must also take at least 95 credits outside the School of Business Administration. A minimum of 180 credits is required for graduation.

   Business administration students must complete the following courses with a C or better.

Required Business Core

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 101 Introduction to Business and World Affairs</td>
<td>4</td>
</tr>
<tr>
<td>BA 205 Business Communications Using Technology</td>
<td>4</td>
</tr>
<tr>
<td>BA 211 Fundamentals of Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BA 213 Decision Making with Accounting Information</td>
<td>4</td>
</tr>
<tr>
<td>BA 302 Organizational Behavior</td>
<td>4</td>
</tr>
<tr>
<td>BA 303 Business Finance</td>
<td>4</td>
</tr>
<tr>
<td>BA 311 Marketing Management</td>
<td>4</td>
</tr>
<tr>
<td>BA 325 Competing with Information Technology</td>
<td>4</td>
</tr>
<tr>
<td>BA 339 Operations and Quality Management</td>
<td>4</td>
</tr>
<tr>
<td>BA 385 Business Environment</td>
<td>4</td>
</tr>
<tr>
<td>BA 495 Business Strategy</td>
<td>4</td>
</tr>
</tbody>
</table>

Total 44

Required Nonbusiness Courses (must be completed prior to SBA admission)

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stat 243, 244 Introduction to Probability and Statistics I &amp; II (for business majors)</td>
<td>4</td>
</tr>
<tr>
<td>Sp 220—Public Speaking</td>
<td>1</td>
</tr>
<tr>
<td>Wr 121 English Composition or UnSt 101, 102, 103</td>
<td>3</td>
</tr>
</tbody>
</table>

Pass credits will be allowed for any courses which are offered on an optional pass/no pass basis.

Business Options. The School of Business Administration offers options for those students seeking specialization in a subject area. Each student must select one of these options and complete the required courses with a C or better. Option requirements are satisfied by taking 20 to 36 upper-division credits beyond the required business core. The courses specified to satisfy the option requirements are:

Accounting

Objective: to enable students to acquire the necessary technical and professional skills for successful careers in public, management, or governmental accounting.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actg 335 Accounting Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>Actg 360 Management Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Actg 381, 382 Financial Accounting and Reporting</td>
<td>8</td>
</tr>
<tr>
<td>Actg 421 Introduction to Taxation</td>
<td>4</td>
</tr>
<tr>
<td>Actg 430 Governmental and Not-for-Profit</td>
<td>1</td>
</tr>
<tr>
<td>Actg 492 Auditing Concepts and Practices</td>
<td>4</td>
</tr>
<tr>
<td>Actg 495 Integrated Accounting Issues</td>
<td>4</td>
</tr>
</tbody>
</table>

Two upper-division accounting courses to be chosen from Actg 422, 460, 476, 490, 493, Fin 412

Total 36

Students electing accounting as an option will also be required to take: Phl 202 Elementary Ethics or Phil 209 Business Ethics; PS 101 United States Government and PS 102 United States Politics; and 3 or more credits in anthropology, psychology, or sociology.

Finance

Objective: to provide undergraduate students with the educational foundation and exposure to the broad field of finance that will enable them to adapt and contribute to all aspects of financial decision-making as finance professionals.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fin 419 Intermediate Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>Fin 452 Investment Principles</td>
<td>4</td>
</tr>
<tr>
<td>Fin 449 Analysis of Financial Performance</td>
<td>4</td>
</tr>
<tr>
<td>Fin 456 Foreign Financial Operations</td>
<td>4</td>
</tr>
<tr>
<td>Fin 465 Finance Topics and Cases</td>
<td>4</td>
</tr>
</tbody>
</table>

Total 20

General Management

Objective: to provide requisite knowledge and skills which enable the student to meet the challenges of managerial responsibilities.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mgmt 351 Human Resource Management</td>
<td>4</td>
</tr>
<tr>
<td>Mgmt 445 Organizational Design and Change</td>
<td>4</td>
</tr>
<tr>
<td>Mgmt 464 Contemporary Leadership Issues</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>8</td>
</tr>
</tbody>
</table>

Of the 8 credits of electives, four credits must be taken within the management area at the 300 or 400 level. The final four credits can be either:

a. within the management area at the 300 or 400 level, or
b. from an approved list of courses, some of which will be within the SBA and some outside the SBA.

Total 20

Note: Students who wish to do a double option in general management and human resource management cannot apply more than eight common credits to each option.

Human Resource Management

Objective: to provide a conceptual framework, as well as the necessary knowledge, skills, and abilities, that allows students to understand what is required to more effectively manage human resources within an organization.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mgmt 351 Human Resource Management</td>
<td>4</td>
</tr>
<tr>
<td>Mgmt 461 Reward Systems and Performance Management</td>
<td>4</td>
</tr>
<tr>
<td>Mgmt 471 Staffing and Employee Selection</td>
<td>4</td>
</tr>
<tr>
<td>Mgmt 493 Human Resource Policies</td>
<td>4</td>
</tr>
<tr>
<td>Upper-division management courses</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Total 19-20

Note: Students who wish to do a double option in general management and human resource management cannot apply more than eight common credits to each option.

Information Systems

Objective: to provide students with a solid educational foundation in the design and structure of computer-based information systems and networks that will enable them to apply relevant and robust solutions that support the objectives of an organization.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISQA 360 Business Computer Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>ISQA 380 Data Communications</td>
<td>4</td>
</tr>
</tbody>
</table>
Objective: to provide educational opportunities for those who are interested in developing expertise in marketing management, marketing communications, and international marketing.

Credits
Mktg 460 Marketing Research ................. 4
Mktg 463 Consumer Behavior and Customer Satisfaction ................. 4
Mktg 464 Marketing Strategy and Management ................. 4
Mktg 466 International Marketing ................. 4
Upper-division marketing elective(s) ................. 4

Total 20

Advertising Management
Objective: to provide the knowledge and skills necessary for students to create and execute advertising strategy within the broader context of the marketing function.

Credits
Mktg 340 Advertising ................. 3
Mktg 441 Media Strategy ................. 4
Mktg 442 Advertising Copy and Layout ................. 4
Mktg 460 Marketing Research ................. 4
Mktg 464 Marketing Strategy and Management ................. 4
Mktg 443 Advertising Campaigns ................. 4

Total 23

Supply and Logistics Management
Objective: to provide students with an interdisciplinary foundation in supply and logistics management in preparation for careers in purchasing, industrial distribution, logistics, transportation, and operations management.

Credits
ISQA 429 Transportation and Logistics Management ................. 4
ISQA 439 Purchasing and Supply Chain Management ................. 4
ISQA 479 Integrated Supply and Logistics Management ................. 4
One of the following interdisciplinary electives ................. 3-4
Acctg 360 Management Accounting ................. 4
Fin 363 Credit Management ................. 3
Mgmt 351 Human Resource Management ................. 4
Mktg 452 Business-to-Business Marketing ................. 3
Two of the following electives: 7-8
ISQA 449 Process Control and Improvement ................. 4
ISQA 459 Production Planning and Control ................. 4
ISQA 469 Productivity Analysis ................. 4
ISQA 410 Selected Topics ................. 3-4
Acctg 360 Management Accounting ................. 4
Fin 363 Credit Management ................. 3
Mgmt 351 Human Resource Management ................. 4
Mktg 452 Business-to-Business Marketing ................. 3

Total 21-24

Student Advising. The advising center for business students is in 240 SBA. Current information about admission and degree requirements for students in the School of Business Administration is available there. Students should make appointments with the advising center at least once a year to ensure that requirements are being met. For program option planning and career counseling, students may make an appointment with a faculty member of their choice.

A bulletin board outside the Student Services Office, 240 SBA, contains announcements concerning policy, upcoming activities, scholarships, and other information vital to all business and prebusiness students. A bulletin board outside the third floor student lounge has student organization information. A bulletin board outside 230 SBA has student internship information. Students should check the bulletin boards once a week to ensure that they have the latest information.

Prerequisite Policy. Before enrolling in any business course students should read the course description and complete any prerequisites that are listed. If a student completes a course before completing the prerequisite and later completes the prerequisite, credit for the prerequisite will not count toward 82 credits required in business. The instructor has the authority to administratively drop any student who has not completed the prerequisites.

Retention Policy. A minimum Portland State University cumulative GPA of 2.50 and a minimum GPA of 2.50 in business administration courses taken at Portland State University are required to remain in good standing as an admitted business administration student and for graduation with a degree in business administration.

In addition, students are expected to make satisfactory progress toward graduation by completing a minimum of 9 credits during each academic year.

Failure to maintain a 2.50 PSU cumulative GPA and a 2.50 PSU business GPA will place a student on probation. The probationary period is defined as two terms in which the student takes classes. In no instance will the period of probation extend beyond three consecutive terms beginning with the term for which the student is placed on probation. In the first term of probation the student must show progress by raising the deficient GPA(s). If improvement does not occur in the first term of probation, the student's admitted status will be terminated at the end of the first term of probation. If improvement does occur in the first term of probation, the student will be allowed a second term to raise the GPA(s) to 2.50. By the end of the second term of probation, the deficient GPA(s) must be at least 2.50.

Students whose admitted status is terminated must reapply for admission if they desire to complete degree requirements for programs in the School of Business Administration. Terminated students must wait at least one academic term before applying for readmission. Students applying for readmission must meet the admission requirements in force at the time of reapplication. Business students are limited to only one readmission to the School of Business Administration.

Academic Disqualification. If a student who has been admitted to the School of Business Administration is academically disqualified by the University, that student will automatically lose School of Business Administration admitted status. If a student who has lost admitted status desires to complete degree requirements for programs in the School of Business Administration, that student must reapply. At the time of reapplication the student must: (1) be admitted by and in good standing with the University, (2) have completed 24 credits following disqualification (these credits must be 300 and 400 level courses), (3) have a cumulative GPA of 2.75, and (4) have a business GPA of 2.75.

MINOR IN BUSINESS ADMINISTRATION
The School of Business Administration offers a minor in business administration. The minor is designed to give students an understanding of how the free enterprise system works and how it fits in our society. Also, students will gain an exposure to the functional areas of a business.

Coursework requirements for the minor in business administration are as follows:

Nonbusiness Courses
Stat 243 Introduction to Probability and Statistics I (for business majors) ................. 4
Stat 244 Introduction to Probability and Statistics II (for business majors) ................. 4
Ec 201 Principles of Economics (Macro-economics) ................. 4
Ec 202 Principles of Economics (Macro-economics) ................. 4

Minor Core Courses
BA 101 Introduction to Business and World Affairs ................. 4
BA 205 Business Communications Using Technology ................. 4
BA 211 Fundamentals of Financial Accounting ................. 4
BA 303 Business Finance ................. 4
All 100- and 200-level coursework for the minor must be completed with a C- or higher. The PSU cumulative GPA and the PSU business GPA must be 2.5 or higher in order to graduate with a minor in business administration.

INTERNATIONAL BUSINESS STUDIES CERTIFICATE

The International Business Studies Certificate provides undergraduate students with an educational foundation in the field of international business. Certificate requirements include the study of cultural, economic, social, and political aspects affecting business operations.

Students are required to gain admission to the School of Business Administration through the regular admission process and must complete degree requirements specified for a business administration major. In addition, students must complete all certificate requirements as specified below.

Nonbusiness Administration Requirements

Foreign language (two-year proficiency) Economics courses (2 courses) selected from: Ec 340, 440, 441, 442, 445, 446, 447, 450, or, with approval, other upper-division economics courses related to international studies Area studies—2 courses from each of two departments selected from: Anthropology, Geography, History, Political Science The area study courses will be upper-division (except PS 203) and must contribute to the student’s understanding of the area of the foreign language being studied. An approved area study course list for languages offered at PSU is available in the Student Services Office, 240 SBA. Permission to take an area study course not found on the approved list can be received from the director of international programs.

Business Administration Requirements

Business core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 101, 205, 211, 213, 302, 303, 311, 325, 339, 385, 495</td>
<td>40</td>
</tr>
</tbody>
</table>

International business requirements:

Choose three of five:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actg 476 International Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Fin 456 Foreign Financial Operations</td>
<td>4</td>
</tr>
<tr>
<td>Mgmt 446 Principles of International Management</td>
<td>4</td>
</tr>
<tr>
<td>Mktg 376 International Business Operations</td>
<td>4</td>
</tr>
<tr>
<td>Mktg 466 Principles of International Marketing</td>
<td>4</td>
</tr>
</tbody>
</table>

Business option requirements:

Choose from:


Students may bring photocopies of their undergraduate transcripts to the Student Services Office (240 SBA) for an evaluation of the prerequisite courses to the program.

APPLICATION CRITERIA

The following requirements must be fulfilled prior to applying:

1. Have earned a baccalaureate degree recognized by the PSU Office of Admissions and Records.
2. Be formally admitted as a postbaccalaureate student at PSU.
3. Have completed the following conceptual tools courses with a grade of C- or better (a Pass grade for any conceptual tools course is accepted):
   - BA 101 Introduction to Business and World Affairs
   - BA 205 Business Communications Using Technology
   - BA 211 Fundamentals of Financial Accounting
   - BA 213 Decision Making with Accounting Information
   - Stat 243, 244 Statistics I and II (for business majors)
   - Ec 201 Principles of Economics (micro)
   - Ec 202 Principles of Economics (macro)
4. Have a grade point average (GPA) of at least 2.75 for each of the following:
   a. all accepted transfer credits
   b. all PSU graded credits
   c. all PSU graded business credits

Students who do not meet the 2.75 GPA requirements will be considered for admission only if the GPA for their most recent 12 graded credit hours at PSU is 3.00 or higher and the applicant has a minimum 2.50 cumulative PSU GPA and a minimum 2.50 cumulative GPA for all completed business courses at PSU.

Course Requirements

Required Accounting Core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actg 335 Accounting Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>Actg 360 Management Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Actg 381, 382 Financial Accounting and Reporting</td>
<td>8</td>
</tr>
<tr>
<td>Actg 421 Introduction to Taxation</td>
<td>4</td>
</tr>
<tr>
<td>Actg 430 Governmental and Not-For-Profit Accounting</td>
<td>1</td>
</tr>
<tr>
<td>Actg 492 Auditing Concepts and Practices</td>
<td>4</td>
</tr>
<tr>
<td>Actg 495 Integrated Accounting Issues</td>
<td>4</td>
</tr>
</tbody>
</table>

Additional credits chosen from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actg 422 Advanced Taxation</td>
<td>4</td>
</tr>
<tr>
<td>Actg 460 Advanced Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Actg 476 International Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Actg 490 Advanced Financial Accounting and Reporting</td>
<td>4</td>
</tr>
<tr>
<td>Actg 493 Advanced Auditing</td>
<td>4</td>
</tr>
<tr>
<td>Fin 412 Business Law</td>
<td>4</td>
</tr>
</tbody>
</table>

Total required accounting core 36
Other required credits
Each candidate will elect 9 upper-division credits in business administration which must be outside accounting. One of the accounting faculty should be consulted to evaluate elective options.  

Total required credits 45

At least 30 of the 45 credits required for the certificate and at least 27 of the credits in accounting must be taken in residence at Portland State University. Candidates must achieve at least a grade of C- in each course presented for the certificate. Entrance and exit GPA requirements are the same as for the School of Business Administration undergraduate program. For retention in the program, grade point averages will be based only on coursework taken in the certificate program.

Postbaccalaureate students who do not hold a degree from a university where the language of instruction is English must satisfy the Wr 323 requirement before completion of a certificate program.

Graduate Programs

The School of Business Administration offers three programs leading to master's degrees: the Master of Business Administration (M.B.A.), which is offered statewide, the Master of Science in Financial Analysis (M.S.F.A.), and the Master of International Management (M.I.M.). The School of Business Administration also participates in the System Science Doctoral Program and the Oregon Executive M.B.A. (OEMBA).

The OEMBA is an executive M.B.A. program offered at the CAPITAL Center (185th and N.W. Walker Road in Beaverton). Professors from the major state institutions, including PSU, teach in this program. The degree is granted from the University of Oregon. For additional information, contact OEMBA at 503-725-2250.

Application Procedures

To be considered for admission to the M.B.A. or M.S.F.A. program, the student must have a baccalaureate degree from an accredited institution. A minimum cumulative undergraduate GPA of 2.75 is required.

Applicants to the M.B.A. or M.S.F.A. program must take the Graduate Management Admission Test (GMAT) and have test results sent to the School of Business Administration's Student Services Office (SBA/SSO). A minimum GMAT total score of 470 is required, plus a score of at least 35 percent in both the verbal and quantitative sections.

One application packet including all documentation must be submitted to the Office of Admissions and a second complete packet including official transcripts and a completed application must be submitted to the School of Business Administration, Student Services Office, P.O. Box 751, Portland, OR 97207-0751, 503-725-3712 or toll-free 1-800-547-8887.

International applicants also are required to demonstrate proficiency in English by taking the Test of English as a Foreign Language (TOEFL). A TOEFL score of 213 on the computer-based test is required for all students whose native language is not English and who have not received a baccalaureate degree from an accredited institution in the United States. Official TOEFL scores must be sent directly to the PSU Office of Admissions and Records.

Only those students who have been formally admitted to the M.B.A., M.I.M., M.S.F.A., Engineering Management, or Systems Science Ph.D. programs may take graduate level courses in the School of Business Administration. Students formally admitted and in good standing in other graduate programs may take courses on a space available basis with the recommendation of their program adviser or the approval of the associate dean of graduate studies in the School of Business Administration.

Priority Dates for Fall Admission:
Application and all supporting documents: International applicants—March 1 Domestic applicants—April 1 GMAT taken by previous March

There may be support materials other than transcripts, GMAT score, and resume required for admission in future quarters; prospective applicants should contact the Student Services Office, 503-725-3712, toll-free 1-800-547-8887, for the most current admissions requirements.

Degree Requirements. University master's degree requirements are listed on page 62. In addition, the student must fulfill School and program requirements. Students entering the M.B.A. program are expected to have completed an introductory calculus course and be microcomputer literate (familiar with word processing, presentation, spreadsheet, and database software) no later than the end of the first term of admission. Contact the School of Business Administration's Student Services Office directly at the phone numbers in the paragraph above for the most current program information.

Master of Business Administration

The Master of Business Administration degree emphasizes a systematic, applied cross-functional approach to the management of organizations. It is designed to accommodate students with business and non-business degrees and is best suited for those who have gained at least two years of industry experience prior to their admission date.

Admission to the Program. Students may elect to complete the M.B.A. program in either the full-time day format or the evening format. For the most part, students are expected to progress through the program with their assigned cohort and follow the proposed schedule of classes. Full-time day students will have to take some elective coursework during the evenings or weekends. Students are admitted in fall term only. There is no admission in the winter, spring, or summer terms.

One of the fall cohorts is offered in Washington County at the CAPITAL Center. A student in this cohort will be able to complete all core courses (with the exception of BA 531) at the center. Some electives may be offered at the center, the remaining electives will be offered at the PSU campus.

eMBA Program. The PSU eMBA program is designed specifically for busy professionals and for students who live outside of the Portland area. This program combines the latest in educational and distance technologies with occasional on-campus residencies. Most of the coursework is accessible via the Web. Short, intensive weekend residencies are required four times per year. Electives may be taken from an approved list of courses available online or courses offered on campus. For more information, contact 503-725-4822.

Structure of the M.B.A. Program. The M.B.A. program is composed of five distinct parts designed to produce a systematic and integrated understanding of business operations and competitiveness.

Business Perspectives and Foundation Skills. (17 credits) The foundation segment provides students with an integrated understanding of the global and competitive challenges facing business today, the operation of business as a system, the philosophy of quality management, and the basic intellectual and interpersonal skills needed to be successful in the M.B.A. program and as a future business leader. Students will acquire needed quantitative and analytical skills, and develop an understanding of the financial, legal, and economic environment.

BA 530 Competing in a Global Environment (8)
BA 531 Executive Briefings (1)
ISQA 511 Quantitative Methods for Managers (4)
Fin 514 Economic and Financial Environment of the Firm (4)

Business Disciplines. (16 credits) Discipline courses build on the integrated foundation coursework and provide more
in-depth knowledge and applied skills related to accounting, finance, management, and marketing.

Actg 513 Financial Accounting (4)
Mktg 544 Marketing Management (4)
Mgmt 550 Organizational Management (4)
Fin 561 Financial Management (4)

Integrated Applications. (16 credits)
Application courses return the student to issues of systematic integration across business disciplines at the firm level and promote competitiveness and quality in case and actual business situations.
BA 551 Integrated Process Management (4)
BA 552 Systems Performance Measurement (4)
Mgmt 560 Managerial Responsibility and
Public Policy (4)
Mgmt 562 Business Strategy and Policy (4)

Business Project. (6 credits) The business project is a team activity under the direction of a faculty member; students focus on application of acquired knowledge and problem solving to actual business issues and opportunities.
BA 506 Business Project (6)

Specialization/Electives. (17 credits)
Each student will select elective coursework to complete the M.B.A. program. A maximum of 8 credits of electives may be +00/500 level coursework taken for graduate credit. Electives will be selected from courses offered by the School of Business Administration or may, with approval of the director of graduate programs, be selected from areas outside business administration. Electives are an opportunity to develop an area of specialization within the M.B.A. program.

MANAGEMENT OF INNOVATION AND TECHNOLOGY (MIT) OPTION
The MIT option allows students to target elective credits in the M.B.A. program to acquire substantial knowledge in technology management. The MIT option brings together functional areas such as information systems, operations management, product innovation, accounting, marketing, and sales within the context of technology firms. The goal is to equip students with knowledge about strategies for managing all phases of the development process, from product innovation through the implementation and commercialization of the new idea.

The MIT option requires that students take the 17 credit hours of electives in the M.B.A. program from a specified list of courses, and that the business project be completed with an MIT focus. Students completing the technology course requirements, in addition to the M.B.A. core requirements, will receive an M.B.A. degree with special designation of the Management of Innovation and Technology option.

Required courses for MIT Option:
BA 506* MIT Business Project (6)
Mgmt 543 Managing the Human Side of Technology (3)
Mgmt 544 Technology Management (3)
Mktg 555 Technology Marketing (4)

Elective courses:
Students must take at least one course from each group below (minimum 7 credits total):
Accounting/Finance/Information Systems Group
Fin 553* Financial Analysis and Business Valuation (4)
Fin 507 Financial Strategies for Technology Firms (3)
ISQA 518 Electronic Commerce (3)
ISQA 530 System Architectures (3)
ISQA 572* Models for Quality Control (3)

Marketing/Management Group
Mgmt 549* Management of Service Operations (3)
Mgmt 540* Business/Government Relations (3)
Mktg 507 Internet Marketing (3)
Mktg 548* Product Management and Innovation (3)
Mktg 552* Relationship and Service Marketing (3)
Mktg 567* Management of the Sales Force (3)
EMg 560 Total Quality Management (4)

*Note: Courses with a 507 designation are special topic seminars. Courses above marked with an asterisk (*) are existing courses that will be focused on MIT issues and cases during a specific term as indicated by a “T” after the course number in the Schedule of Classes (ex.: Actg 551T). Option students must complete these courses with the “T” designation. Alternative technology courses may be used towards the MIT with approval from the director of graduate programs in Business Administration.

FINANCE OPTION
The Finance option offered in conjunction with the M.B.A. creates an opportunity to develop a specialized skill set within the finance area. This option provides students the skills to understand complex financial issues as well as experience in the application of financial tools that facilitate problem solving.

The Finance option requires that students take the 17 credit hours of electives in the M.B.A. program from a specified list of courses, and that the business project be completed with a finance focus. Students must take 8 hours of required finance courses and 9 hours of specified finance electives. Students completing the Finance course requirements, in addition to the M.B.A. core requirements, will receive an M.B.A. degree with a Finance option.

Required courses for Finance Option:
BA 506 Finance Business Project (6)
Fin 552 Investments (4)
Fin 365 Cases in Corporate Financial Management (4) (Fin 553 may be taken as a substitute for Fin 565)

M.B.A.-Finance Elective courses:
Students must take a minimum of 9 credit hours of electives from any combination of the Corporate Finance Emphasis Group or the Investments Emphasis Group.

Corporate Finance Emphasis Group
Fin 507 Executive Briefings: Finance (1)
Fin 553 Business Valuation (4)
Fin 556 International Financial Management (4)
Fin 569 Advanced Financial Theory (4)
Actg 553 Financial Statement Analysis (4)
Fin 545 Hedging and Risk Management (4)
Fin 512 Business Law (4)

Investments Emphasis Group
Fin 544 Security Analysis (4)
Fin 545 Hedging and Risk Management (4)
Fin 573 Investment Analysis and Portfolio Management (4)
Fin 574 Portfolio Management: Issues and Performance Assessment (2)
Actg 553 Financial Statement Analysis (4)
Ec 551 Econometrics (4)

INTERNATIONAL BUSINESS OPTION
The International Business (IB) option in the M.B.A. program provides an avenue to M.B.A. students who are interested in international careers but do not wish to pursue an I.M.M. degree. All students electing this option will have a grounding in the contemporary world affairs that affect business and in the organizational issues facing firms operating in the global arena.

The IB option requires that students take the 17 credit hours of electives in the M.B.A. program from a specified list of courses, and that the business project be completed with an international focus. Students must take 6 hours of required M.I.M. courses and 11 hours of international electives. Students completing the IB option course requirements, in addition to the M.B.A. core requirements, will receive an M.B.A. degree with an International Business option.

Required Courses for IB Option:
BA 506 International Business Project (6)
MIM 518 Managing Multinational Organizations (3)
MIM 516 Contemporary Pacific Rim and World Affairs (3)

M.B.A.-IB Elective Courses:
Students must take a minimum of 11 credit hours of electives. Two electives must be from the International Business Skills group.

International Business Skills Group
MIM 577 International Business Negotiations (4)
MIM 568 Managing Information Technology Globally (4)
MIM 517 Accounting for Global Enterprises (4)
MIM 547 International Trade Practices (4)
MIM 574 International Corporate Finance and Investment (4)

International Business Environment Group
MIM 513 Pacific Rim Economies, Trade, and Financial Markets (3)
MIM 576 Advanced Cross-cultural Communication (4)
MIM 564 Global Human Resources Management (3)
MIM 510 Age of the Pacific (4)
MIM 575 Marketing in Asia and the Pacific Rim (4)
MIM 515 Contemporary Global Marketing (4)
MIM 519 Government Regulations, Ethics and Multinational Transactions (4)
Mktg 507 Global Issues (3)

There is no language requirement for M.B.A.-IB option students.

**MASTER OF SCIENCE IN FINANCIAL ANALYSIS (M.S.F.A.)**

The Master of Science in Financial Analysis (M.S.F.A.) is a 49-credit hour program aimed at individuals who seek graduate-level specialization in financial analysis, but who do not wish to pursue an M.B.A. The M.S.F.A. fills the need for business professionals seeking an in-depth level of expertise in the area of financial analysis as well as accounting students seeking to sit for the CPA Exam. The curriculum is designed to develop forward-thinking professionals with sharp analytic minds, effective communication skills, and the necessary vision to apply financial analysis skills in a wide variety of business situations.

**Admission to the Program.** Students may take courses on a full-time (12 credit hours per term) or part-time (8 credit hours per term) schedule, and must hold an undergraduate degree in business or a post-baccalaureate certificate in accounting. Completion of a course sequence in intermediate accounting and an introductory course in business finance is also required, and all students should exhibit proficiency in computer applications and spreadsheet skills. M.S.F.A. students are admitted fall term only.

**Structure of the M.S.F.A. Program.** Successful completion of the M.S.F.A. requires 23 credits of business economics, 20 credits of financial analysis and 4 credits of electives.

**Business and Economics (25 credit hours):**
- EC 557 Applied Econometrics for Financial Analysis (4)
- BA 531 Executive Briefings (1)
- BA 551 Integrated Process Management (4)
- BA 552 Systems for Performance Measurement (4)
- Mgmt 562 Business Strategy and Policy (4)

Select two of the following three courses:
- Mgmt 550 Organizational Management (4)
- Mgmt 560 Managerial Responsibility and Public Policy (4)
- Mktg 544 Marketing Management (4)

**Financial Analysis Core (20 credit hours):**
- Fin 551 Financial Management for Financial Analysis (4)
- Actg 551 Accounting Information Systems (4)
- Fin 552 Investments (4) or Actg 552 Strategic Cost Management (4)
- Actg 553 Financial Statement Analysis (4)
- Fin 553 Financial Analysis and Business Valuation (4)

**Financial Analysis Elective**
- Select one of the following courses (4 credit hours):
  - Fin 504 Internship (3)
  - Fin 512 Business Law (4)
  - Fin 545 Hedging and Risk Management (4)
  - Fin 552 Investments (4)
  - Fin 556 International Financial Management (4)
  - Fin 562 Intermediate Financial Management (4)
  - Fin 565 Cases in Corporate Financial Management (4)
  - Actg 542 Tax Factors in Business Decisions (4)
  - Actg 552 Strategic Cost Management (4)
  - Actg 576 International Accounting (4)
  - Mktg 544 Marketing Management (4)
  - Mktg 555 Technology Marketing (4)

**MASTER OF INTERNATIONAL MANAGEMENT**

**Director: Sully Taylor**

Conducting business globally is not only a reality but a necessity for corporations to flourish in today’s world economy. The international manager must be in tune with the evolving cultural mores, transforming social systems, and new politics which impact international business. They must be able to respond to the world’s shifting political, economic, and technological developments and address the challenges created by this continually changing global business environment. The Master of International Management 12-month, full-time, or 24-month, part-time program is tailored to accommodate these specific needs.

**Structure of the M.I.M. Program.**

The M.I.M. program creates an exciting and stimulating learning environment by implementing an interactive instructional approach that utilizes advanced technology. Team-based teaching and learning, emphasizing practical skills and knowledge, are evident in many of the lectures, executive seminars, corporate visits, field study projects, and exit projects. Students are exposed to the importance of this “team concept” from day one of the M.I.M. program, as all students tackle an outdoor wilderness excursion together during student orientation week.

While the focus of the M.I.M. program centers on application-oriented knowledge and practical skills that can be applied globally, a student will have the opportunity to specifically target the Pacific Rim. Students will explore innovative business practices and changes along with contemporary world affairs. To further augment the student’s knowledge of the worldwide marketplace, the program’s objective-oriented learning includes cultural differences, language training, and cross-cultural communication.

**Typical Full-time Program Schedule**

Term 1: MIM 513 (3), MIM 518 (3), MIM 516 (4), MIM 576 (4), Language and Culture Study
Term 2: MIM 517 (4), MIM 515 (4), MIM 519 (4), Language and Culture Study
Term 3: MIM 564 (4), MIM 568 (4), MIM 558 (4), MIM 576 (4), Language and Culture Study
Interim: Field Study Trip (2)
Term 4: MIM 547 (4), MIM 574 (4), MIM 575 (4), MIM 510 (2) Language and Culture Study
Term 5: MIM 578 (4), MIM 577 (4), MIM 510 (2), Language and Culture Study
Term 6: MIM 579 (3)

**Typical Part-time Program Schedule**

Term 1: MIM 516 (4), MIM 518 (3)
Term 2: MIM 517 (4), MIM 515 (4)
Term 3: MIM 564 (4), MIM 568 (4)
Term 4: MIM 547 (4), MIM 574 (4), MIM 510 (2)
Term 5: MIM 510 (2), MIM 577 (4) Language Study: 4 weeks
Term 6: Intensive Language Study
Term 7: MIM 513 (3), Language and Culture Study
Term 8: MIM 519 (4), Language and Culture Study
Term 9: MIM 558 (4), MIM 576 (4), Language and Culture Study
Interim: Field Study Trip (2)
Term 10: MIM 575 (4), Language and Culture Study
Term 11: MIM 578 (4)
Term 12: MIM 579 (3)

**Program Details**

**Transfer Credits and Course Waivers.** Since the Master of International Management program is a cohort program, no transfer credits will be accepted nor will there be any course substitutions or waivers.

**Grading.** Students must maintain a cumulative GPA of at least 3.00 for all graduate credits earned in the Master of International Management program.

**Pre-M.I.M.** The pre-M.I.M. program has been developed to assure academic success for those incoming students who have no or limited business backgrounds. The admissions committee will evaluate each student’s application packet and determine which courses in the pre-M.I.M. are required. Most international students must participate in the pre-M.I.M. These courses must be completed successfully prior to enrolling in the M.I.M. program in August. The eight week pre-M.I.M. program begins in late June and covers the essentials of business statistics, accounting, business finance, and economics.

**Language Requirement.** The language component of the M.I.M. is designed to prepare participants for the international business environment of Asia. The goal is to create a comfort level in the target language, Chinese or Japanese, such that the participant understands business etiquette and can function socially. The primary skills emphasized will be listening, followed by speaking, reading, and writing.
The content of the language will focus on business and social situations, with attendant focus on relevant vocabulary.

Field Study in China and Japan. As a capstone experience, students will travel to China and Japan between term three and four of the M.I.M. program to visit companies, meet with international business executives, and learn more about these cultures. This trip allows students the opportunity to immerse themselves in the culture and lifestyle of two very different countries, while gathering firsthand information for their final project.

Admission Requirements
1. Applicants must have a U.S. bachelor's degree, or the equivalent. A minimum undergraduate cumulative grade point average (GPA) of 2.75 or higher or a graduate GPA of 3.00 or higher based on 12 or more graduate credits is required.
2. A minimum GMAT score of 470.
3. International Students (whose native language is not English and have not received a degree from an accredited U.S. institution) must also have:
   - A minimum TOEFL score of 550 on the paper-based test or 213 on the computer-based test
   - Financial certification.
4. Two to three years of business or professional experience is preferred but not required.

Exceptions to the above will be considered on a case-by-case basis by the Master of International Management Admissions Committee.

Application Process. The Master of International Management degree is granted by Portland State University. Therefore, each applicant is required to meet the admission requirements of the M.I.M. program and Portland State University. Except for TOEFL scores, which are sent directly to PSU from the Educational Testing Center (ETS), applicants will submit one completed application packet directly to the M.I.M. program. GMAT and GRE scores should be included.

The deadline for submitting applications and supporting documents for both the full-time and part-time programs is April 30. GMAT should be taken no later than March. Applications to the M.I.M. program will be accepted until these deadlines. However, admission is on a rolling basis beginning in January. Applicants are encouraged to apply as early as possible.

When the M.I.M. admission committee agrees that a candidate has sufficiently demonstrated the abilities necessary to successfully complete the M.I.M. program, a conditional letter of acceptance will be sent when the PSU Admissions Office completes its review. The total process may take as long as 12 weeks; therefore, applicants are strongly encouraged to apply early.

Faculty for the M.I.M. program are drawn from Portland State University, University of Oregon, Oregon State University, other U.S. and foreign universities, and selected business executives. All classes are held at PSU's main campus.

PH.D. IN SYSTEMS SCIENCE—BUSINESS ADMINISTRATION
The Systems Science Doctoral Program prepares students for academic or professional careers in systems concepts and techniques. The School of Business Administration participates in the Systems Science Doctoral Program.

There are two options for study in the systems science program. Both options facilitate the design of curricula which are individually tailored to the needs and interests of students. Students may earn the M.B.A. and the systems science Ph.D. concurrently and should anticipate approximately four to five years of full-time study beyond the baccalaureate degree in order to satisfy the program requirements.

Departmental Option: The student undertakes advanced academic preparation primarily in a single department or school. In the School of Business Administration, students concentrate their coursework in one department or subject area and take courses from other departments as well.

Core Option: The student pursues interdisciplinary studies with a stronger emphasis on systems coursework.

For information relating to the Ph.D. program in systems science, see page 67.

ACCOUNTING COURSES

Courses with an asterisk (*) are not offered every year. For information on the accounting option requirements, see page 184. All 300- and 400-level courses require junior-level standing; 400-level courses require admission to the School of Business Administration; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given priority for all 300-level courses.

Actg 199
Special Studies (Credit to be arranged.)

Actg 300
Professional Accounting Seminar (2)

Actg 335
Accounting Information Systems (4)

Methodology used in manual and computer systems for the accumulation, classification, processing, analysis, and communication of accounting data. Development of the accounting techniques used in the handling of large amounts of information, special journals and controlling accounts, computer files for storing data, computer processing of data. Discussion of the problems encountered in the systems for different types of organizations. Prerequisites: BA 213, BA 325.

Actg 360
Management Accounting (4)

Emphasis on the development, analysis, and communication of cost information relevant to the following functions: planning, decision making, cost control and management, pricing, and performance evaluation. Prerequisite: BA 213.

Actg 381, 382
Financial Accounting and Reporting I and II (4, 4)

Comprehensive study of the principles, conventions, and postulates of accounting. The issues of revenue recognition and the measurement and disclosure of financial information are studied in detail. Although the courses are taught from the perspective of the preparer, attention will be paid to the information requirements and expectations of users of financial statements. International accounting issues are also covered. Prerequisites: BA 213 for Actg 381; Actg 381 for Actg 382. Students admitted to the School of Business Administration will be given priority.

Actg 399
Special Studies (Credit to be arranged.)

Actg 401/501
Research (Credit to be arranged.)

Actg 404/504
Internship (Credit to be arranged.)

Actg 405/505
Reading and Conference (Credit to be arranged.)

Consent of instructor.

Actg 407/507
Seminar (Credit to be arranged.)

Student-selected problems in business operation and business management to be studied by the individual and discussed in group meeting under direction of academic staff.

Actg 421
Introduction to Taxation (4)

Introduces students to a broad range of tax concepts, tax policies, and different types of taxpayers. Students should develop an understanding of how tax laws affect most business and personal financial decisions. Tax reporting, tax planning, and basic tax research skills will be emphasized. Prerequisite: BA 213.

Actg 422/522
Advanced Taxation (4)

Expands students’ knowledge of how tax laws affect sole proprietors, partnerships, corporations, and other business entities. In addition, the tax laws applicable to estates, gifts, trusts, tax exempt organizations, and foreign persons are explored. Prerequisites: Actg 421 and admission to the School of Business Administration.
Actg 430
Governmental and Not-for-Profit Accounting (1)
An introduction to governmental and "fund" accounting. Topics include state and local government funds and accounting for not-for-profit hospitals, universities, and health/welfare organizations. Prerequisite: Actg 382.

Actg 460
Advanced Managerial Accounting (4)
Advanced development, analysis, and communication of cost information, focusing on the use of financial and non-financial information in decision making and strategic management. Cases and/or simulations will be used extensively. Prerequisites: Actg 360 and BA 339.

Actg 476/576
International Accounting (4)
International accounting issues crucial for effective interpretation and understanding of international business. Framework to analyze and understand financial reports used by multinationals. Special managerial and control problems of MNCs including performance evaluation, transfer pricing, and tax. Prerequisites: BA 213 for Actg 476, Actg 511 for Actg 576.

Actg 490
Advanced Financial Accounting (3)
Emphasizes accounting for business combinations. In addition, accounting issues related to partnerships and foreign currency translation and transactions are studied. Prerequisite: Actg 382.

Actg 492/592
Auditing Concepts and Practices (4)
Auditing standards and procedures observed by Certified Public Accountants in the examination of the financial statements of business and other organizations. Audit standards and objectives and conceptual framework for collection of evidence and assessment of control risk. Short-form audit report and operational auditing. Prerequisites: Actg 335 and 382, admission to the School of Business Administration.

Actg 493/593
Advanced Auditing (4)
Audit objectives and procedures for the collection of evidence and the assessment of control risk are explored. The effects of attribute and variables sampling as well as the effects of computers and computer-control procedures on the audit process are examined. In addition, audit, compilation, and review reports are important elements of this course. Prerequisites: Actg 492 and admission to the School of Business Administration.

Actg 495
Integrated Accounting Issues (4)
Integrates topics from various accounting areas. Provides students with opportunities to see the accounting interactions and tradeoffs that result from realistic business situations. Course will enhance students' understanding of accounting and its influence on business, as well as the understanding of how business processes affect accounting results, through a set of comprehensive case studies. Prerequisites: Actg 360, 421, 492 and admission to the School of Business Administration.

Actg 503
Thesis (Credit to be arranged.)

Actg 511
Financial Accounting (4)
An introduction to the reporting system used by businesses to convey financial information to parties external to the enterprise. Primary emphasis is placed on understanding the financial reports that are the end product of this system-what they do and do not tell the user about a business enterprise. The accounting principles, conventions, and concepts underlying financial reporting are examined with the objective of developing the ability to read, comprehend, and perform a basic analysis of financial statements.

*Actg 520
Retirement Plans (3)
Establishment and administration of pension, profit-sharing, and self-employed retirement plans; plan characteristics, insured, trusted and self-administered plans; investment policies; federal and state regulation; requirements for Internal Revenue Service qualifications; taxation of benefits; integration with Social Security.

Actg 523
Tax Research Methods (3)
Methods of researching tax rulings and laws in tax accounting, study of the administration and responsibilities of tax practice. Prerequisite: Actg 482.

Actg 527
Corporate Formation and Nonliquidating Distribution (Corporate Taxation I) (3)
Concepts and principles governing the taxation of corporations and their shareholders including the effects of taxes on corporate capital structure and distributions. Prerequisite: Actg 525.

*Actg 529
Tax Planning (3)
An integrating course that relates business taxation, estate planning, employee compensation and tax shelters as they may interact with each other; the format is discussion of case problems and includes client consultation matters. (This course should be taken after the student completes 24 credits in the program.)

*Actg 531
Partnership Taxation (3)
Tax treatment of partnership income; problems associated with the formation, operation, and dissolution of partnerships. Sale, withdrawal, retirement of partners; basic adjustments, unrealized receivables, and substantially appreciated properties. Prerequisite: Actg 525.

*Actg 532
Corporate Reorganizations and Liquidations (Corporate Taxation II) (3)
An examination of the effect of taxes on reorganizations and liquidations. (May be taken prior to Corporate Taxation I.) Prerequisite: Actg 525.

*Actg 534
Federal and State Tax Procedures (3)
Tax reporting and collection procedures, administrative and judicial procedures governing tax controversies, the rights and obligations of the taxpayer. Prerequisite: Actg 525.

*Actg 535
State and Local Taxation (3)
Examination of issues and taxation other than federal income tax, including property tax processes, sales and use taxes, multistate transactions, manufacturers excise tax, and sumptuary and regulatory excise taxes. Prerequisite: Actg 525.
Corporations and Business Organizations (4)
Presents the key steps required to gain a competitive advantage in the marketplace through the use of information technologies. Primary focus is to help students understand the information systems development lifecycle and the ways that systems can support functional areas of a business. Other topics include communication technologies to support groups, productivity software and applications, designing systems for competitive advantage, and systems reengineering.
Prerequisites: BA 205 and junior standing.

BA 339 Operations and Quality Management (4)
Develops an understanding of the various issues and strategies involved in the operation of a service or manufacturing organization. These considerations include the support by the operation's organization of corporate strategy through design and operating decisions. Issues such as global supply sources, worldwide business system influences, cost management, and total quality management will be discussed.
Prerequisite: BA 205 and junior standing.

BA 385 Business Environment (4)
Study and critical analysis of the role of business enterprise and to the legal and ethical interrelationships of legal, technological, economic, political, and social forces with the business enterprise and to the legal and ethical
obligations of the business enterprise with its own employees, customers, and society. Prerequisites: BA 205 and junior standing.

BA 407/507 Seminar (Credit to be arranged.) Seminars in selected cross-functional and integrative business topics.

BA 495 Business Strategy (4) Concerned with developing and implementing strategy for the total organization. Designed as an interdisciplinary capstone course that teaches students how to analyze the internal and external environment of the firm and develop a business strategy and business plan. Strategy formulation and implementation are demonstrated in light of the interdependence of the organization's internal dynamics and in relation to the global markets in which contemporary firms must compete. Prerequisites: BA 302, 303, 311. (One of the three prerequisites may be taken concurrently.) Restricted to admitted SBA students. Graduating seniors will be given priority admittance.

BA 506 Business Project (3 or 6) Under the direction of a faculty member, students work in teams to apply M.B.A. knowledge and skills to actual business problems or situations. Students may register for six credits during a single term, or register for three credits during two consecutive terms. After initially meeting as a class at the beginning of the term, students meet periodically with an assigned faculty member to monitor progress on the agreed learning contract and to discuss a variety of implementation and organizational issues. Prerequisite: completion of at least 37 hours of the M.B.A. core sequence.

BA 530 Competing in a Global Environment (8) Inaugural M.B.A. course provides students with an understanding of key themes related to successful global competition and with the interpersonal and intellectual skills required for individuals to contribute in a highly competitive and globalized business environment.

BA 531 Executive Briefings (1) A weekly series of presentations by local, regional, national, and/or international business leaders on current business topics.

BA 531 Integrated Process Management (4) Covers the design and management of transformation processes within the firm and relationships with both suppliers and customers. There is a strong focus on customer satisfaction, quality, continuous improvement, and cost management as each relates to process design and control in both manufacturing and service organizations. Prerequisites: ISQA 511, Acctg 511, and concurrent enrollment in BA 551.

BA 566 Competitive and Strategic Analysis (3) Integrative course that focuses on application of analytical techniques to the processes and outputs of the firm. Emphasizes the identification, analysis, and evaluation of the marketing, financial, and accounting bases of competition, and the development of appropriate business strategies. Prerequisites: Mktg 544, Fin 561, Acctg 511.

BUSINESS EDUCATION COURSES

See description of teacher certification in the School of Education section.

BED 401/501 Research (Credit to be arranged.)

BED 404/504 Cooperative Education (Credit to be arranged.)

BED 405/505 Reading and Conference (Credit to be arranged.) Consent of instructor.

BED 407/507 Seminar (Credit to be arranged.)

BED 503 Thesis (Credit to be arranged.)

FINANCE COURSES

For information on finance option requirements, see page 184. All 300- and 400-level courses require junior-level standing. 400-level courses require admission to the School of Business Administration; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 300-level courses.

Fin 199 Special Studies (Credit to be arranged.)

Fin 218 Personal Finance (4) A survey of investments, budgets, real estate ownership, financial institutions, consumers' credit, social security, stock market, mutual funds, and estate planning from the individuals' point of view. Optional pass/no pass.

Fin 226 Legal Environment of Business (4) The meaning and nature of law, sources of law, state and federal court systems, procedures for resolving disputes, business torts, business crimes, antitrust law, labor law, contracts, international business law, ethical considerations, social and political influences.

Fin 301 Stock Market (3) Analysis of the operation of the stock market. Procedures in the buying and selling of securities. Examination of current regulatory practices.

Fin 333 Foundations of Real Estate Analysis (3) Surveys the legal, physical, and economic structure of the real estate market and the characteristics of real estate resources. Develops basic real estate valuation procedures and provides an overview of market analysis and real estate production, marketing, and financing methods. Prerequisites: Ec 201, 202.

Fin 336 Principles of Risk and Insurance (3) A study of the principles and practices of life, fire, casualty, marine, and social insurance.

Fin 363 Credit Management (3) Management functions performed by a credit department; relation to other functions of the business enterprise; nature of consumer credit and mercantile credit, sources of credit information, evaluation of credit risks, and credit controls used in business firms; credit policy determination.

Fin 399 Special Studies (Credit to be arranged.)

Fin 401/501 Research (Credit to be arranged.) Prerequisite: BA 303.

Fin 404/504 Internship (Credit to be arranged.) Prerequisite: BA 303.

Fin 405/505 Reading and Conference (Credit to be arranged.)

Fin 407/507 Seminar (Credit to be arranged.)

Fin 503 Thesis (Credit to be arranged.)

Consent of instructor.

Fin 410/510 Selected Topics (Credit to be arranged.) Consent of instructor.

Fin 411 Laws of Real Estate, Personal Property, Trusts, and Estates (4) Distinction between real estate and personal property, fixtures, landlord tenant, accession, patents, copyrights, trademarks, concurrent ownership, deeds, advance possession, easements, trusts, REIT, powers of trustees, wills, will substitutes, intestacy, probate. Prerequisite: Fin 226 or BA 385.

Fin 412/512 Business Law (4) Laws of contracts, negotiable checks, notes, and drafts, insurance, documents of title, sales of goods, letters of credit, employees and independent contractors, agency, partnership, corporations, securities, bankruptcies, security interests, mortgages, suretyship and bulk sales. Covers law part of CPA exam. Prerequisite: Fin 226 or BA 385 (Fin 226 or BA 385 not required for students in postbaccalaureate certificate in accounting program) or Mgmt 560.

Fin 419 Intermediate Financial Management (4) Second level course in financial management to provide more depth in the study of asset pricing, capital budgeting, capital structure, dividend policy, working capital management, growth through mergers, and leasing. Emphasis on the
development of problem solving capabilities. Prerequisite: BA 303; admission to the School of Business Administration.

Fin 439/539 Real Estate Appraisal (3)
Fundamentals of appraising real estate. Land utilization. Analysis of real estate values by approaches followed by governmental and private appraisal. Prerequisite: BA 303.

Fin 444/544 Security Analysis (4)
Theory and techniques of analysis of individual corporate securities. Systematic study of characteristics and potential of stocks and bonds to facilitate investment decisions. Prerequisite: Fin 452/552 or Fin 561.

Fin 449 Analysis of Financial Performance (4)
Conceptual and practical elements of financial planning, working capital management, and short- and medium-term financing. Principles and spreadsheet procedures for financial analysis, credit analysis, inventory management, and financial forecasting. Prerequisite: BA 303.

Fin 450 Bank Management (4)
Practices, problems and policies of commercial banking as well as other financial institutions from a financial management perspective. Banking regulation, organizational structure, financial analysis of commercial banks, asset and liability management, and other contemporary issues affecting commercial banks. Prerequisite: BA 303.

Fin 452 Investment Principles (4)
Analytical study of the principles of investment in stocks, bonds, and other security instruments. Includes background study of financial markets and institutions; analysis of the investment characteristics, valuation, and market price behavior of bonds, stocks, and derivative securities, and the choice of appropriate portfolios of these securities. Also included is the study of information and market efficiency, term structure and the determination of market interest rates, and security valuation. Prerequisite: BA 303.

Fin 456/556 International Financial Management (4)
Development and study of a framework for the financial decisions of multinational businesses; management of working capital, investment and financing decisions of a firm in an international environment; foreign exchange markets, exchange risk, and international diversification. Prerequisite: Fin 419, 531, or 561.

Fin 457/557 Real Estate Finance and Investment (5)
Application of the finance and economic principles to the analysis of real estate finance and investments. Emphasis on the development of problem solving capabilities through the use of computer application programs. Special attention is given to risk analysis, alternative mortgage instruments, hedging techniques, and the tax effects of real estate investment. Prerequisite: BA 303.

Fin 465 Finance Topics and Cases (4)
Case studies of the most typical financial problems in business including working capital management, capital budgeting, and financing issues. Special topics covered will be at the discretion of the instructor. Prerequisites: Fin 419 and 449, admission to the School of Business Administration.

Fin 473/573 Investment Analysis and Portfolio Management (4)
A study of the application of both portfolio theory and fundamental valuation techniques in security investment decisions. Students in this course serve as portfolio managers to a real dollar portfolio, providing security and sector oversight to the portfolio. The implications of modern portfolio theory for portfolio management and in portfolio performance evaluation are emphasized. This is the first course in a required two-class sequence. Offered fall and spring terms. Prerequisites: BA 303 and Fin 443 (may be taken concurrently with consent of instructor) for 473; Fin 352 (may be taken concurrently), 561 for 573.

Fin 474/574 Portfolio Management: Issues and Performance Assessment (2)
This course is a continuation of Fin 573. Students will continue the responsibility of managing a real-dollar portfolio that was initiated in Fin 573. In addition, assessing and reporting on portfolio performance, and presenting a quarterly report to the investment community, will be an integral aspect of this course. This is the second course in a required two-class sequence. Prerequisites: BA 303, Fin 443, and 473 for 474, Fin 561, 552, and 573 for 574.

Fin 485/585 Life Insurance (3)
Analysis of various types of life insurance, accident and sickness coverage and contracts. Premium rates. Family and business need for life insurance. Endowment, annuities, group pension plans, industrial and government insurance. Prerequisite: Fin 336.

Fin 503 Thesis (Credit to be arranged.)

Fin 514 Economic and Financial Environment of the Firm (4)
Examines the microeconomic foundations of the firm and provides a broad overview of the financial markets and institution’s framework. Included is consideration of the components of the U.S. and international financial system in the global economy; the financial institutions that facilitate the flow of funds; interest rate determination, and how government policy affects funds flow and interest rates. Issues of demand and supply determination, market structure, and resulting economic behavior are also considered.

Fin 545 Hedging and Risk Management (4)
Futures, options, swaps, and other derivative instruments, their characteristics, their uses in financial risk management, and their effects in speculative situations; methodologies for valuation of derivatives. Exotic options, innovations in exotic derivatives and in the development and use of derivatives in corporate finance and investments. The rapid development of derivatives in domestic and international finance. Prerequisite: Fin 561.

Fin 550 Commercial Bank Management (3)
Theory and practice of commercial banking from a financial management perspective. Banking environment, asset/liability management, capital management, and overall balance-sheet management of commercial banks. Prerequisite: Fin 514 or Fin 561.

Fin 551 Financial Management for Financial Analysts (4)
Gateway course to the Master of Science in financial analysis. Examines the financial concepts and problem-solving skills required to evaluate whether managerial decisions add value to the firm. Students will develop an understanding of the financial implications of business decisions and a framework with which to evaluate their decisions. An integral part of this approach requires understanding how the different functional areas of a business interrelate and the supporting role that finance provides. Topics considered include cash flow analysis, risk determination, valuation, working capital management, and financing. Graduate credit cannot be earned for both Fin 561 and 551. Prerequisite admission to the Masters of Science in financial management program.

Fin 552 Investments (4)
Introduction to investment analysis, including the functioning of capital markets; valuation theory applied to the aggregate market, alternative industries, and individual firms; stock valuation models; strategies for the selection, evaluation, and revision of portfolio of stocks; portfolio performance evaluation and measurement. Coverage of securities available in the bond market; treasury securities, agency securities, corporate bonds, municipal bonds, international bonds, mortgages, and mortgage-backed securities; their investment characteristics, and methodology for valuing them; the level and structure of interest rates; strategies for managing bond portfolios. Prerequisites: Fin 551 or 561.

Fin 553 Financial Analysis and Business Valuation (4)
Financial analysis of the performance of the business or parts of the business such as product or projects. Tools and techniques of financial statement analysis from the perspective of investors and creditors; development of models for determining and forecasting the profitability and financial position of the firm. Business valuation techniques, emphasizing cash flow projections. Some issues in costs and risk management. Theoretical principles and practical approaches of valuation of a business or business interest; valuation strategies for specific purposes such as valuation for mergers, acquisitions, and corporate restructuring, multibusiness valuation, valuation of international businesses. Prerequisite: Fin 561; competency with electronic spreadsheets.

Fin 561 Financial Management (4)
Examines the financial concepts and problem-solving skills required to evaluate whether managerial decisions add value to the firm. Students will develop an understanding of the financial implications of business decisions and a framework with which to evaluate their decisions. An
integral part of this approach requires understanding how the different functional areas of a business interrelate and the supporting role that finance can provide. Topics considered include cash flow analysis, risk determination, valuation, working capital management, and financing. Prerequisites: BA 530, Fin 514, Actg 511.

Fin 362 Intermediate Financial Management (4) Second-level course in financial management to provide more depth in the study of asset pricing, capital budgeting, capital structure, dividend policy, working capital management, growth through mergers, and leasing. Emphasis is placed on the further development of problem solving capabilities. Prerequisite: Fin 551 or 561.

Fin 365 Cases in Corporate Financial Management (4) Applications of financial theory to financial decisions. Emphasis will be on the full range of important problems including asset allocation decisions, the full range of financing decisions, financial decisions of multi-national firms and the use of derivatives by both domestic and global firms. Prerequisites: Fin 514, 561.

Fin 369 Advanced Financial Management (4) Selected advanced topics in theory and application of valuation, capital investment/capital structure decisions and their interactions, mergers and acquisitions, and leasing. Prerequisite: Fin 561.

Fin 601 Research (Credit to be arranged.)
Fin 607 Seminar (Credit to be arranged.)

**INFORMATION SYSTEMS AND QUANTITATIVE ANALYSIS COURSES**

For information on Information Systems option requirements, see page 184. All 300- and 400-level courses require admission to the School of Business Administration, graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 300-level courses.

ISQA 111 Fundamental Computer Concepts (2) The fundamental concepts of Electronic Data Processing, the impact of EDP on the firm, and the fundamental concepts of computer use including programming and applications. Provides a general vocabulary and understanding of the capabilities of the computer in business. (One hour of lecture and two hours of recitation.)

ISQA 360 Business Computing Fundamentals (4) Overview of topics to introduce students to the fundamental programming theories and concepts necessary to create solutions to the information needs of an organization. Topics include problem solving algorithms utilizing structured programming techniques, basic data types, data structures, and an introduction to object-oriented programming. Students will use the C++ language to apply course concepts. Prerequisite: BA 325, and C++ programming course or passing grade on C++ programming competency exam; admission to the School of Business Administration.

ISQA 380 Data Communications (4) Topics include communication between people and machines, transmission systems, protocols for communication technologies, and digital communication and networks. Application areas reviewed include data communications, voice and electronic mail, Internet, and mobile systems. Management issues covered include cost/benefit analysis, organizational impact, international systems, and emerging technologies. Three lecture hours; two laboratory hours. Prerequisite: BA 325; admission to the School of Business Administration.

ISQA 399 Special Studies (Credit to be arranged.)

ISQA 401 Research (Credit to be arranged.)

ISQA 404 Internship (Credit to be arranged.)

ISQA 405 Reading and Conference (Credit to be arranged.) Prerequisite: consent of instructor.

ISQA 407 Seminar (Credit to be arranged.) Student-selected problems in information systems, quantitative analysis, or operations and materials management to be studied by the individual and discussed in group meetings under direction of academic staff.

ISQA 409 Practicum in Information Systems and Quantitative Analysis (Credit to be arranged.) This course requires the student to work with a community organization in performing an information systems/quantitative analysis feasibility study. The study may include a current systems analysis, design of the new system, personnel development or training requirements, hardware and/or software recommendations, and assistance in system documentation. Prerequisites: ISQA 421 and consent of instructor.

ISQA 410 Selected Topics (Credit to be arranged.)

ISQA 418 Client Service Application Development (4) Provides an introduction to client server application development with emphasis on the client. Topics include graphical user interface development, event-driven programming, and rapid application development tools. Students will participate in the development of projects using programming languages such as Visual Basic. Prerequisite: BA 325.

ISQA 420 Systems Analysis and Design (4) Examines the scope and organization of the systems development process and the role of the systems development professional. Topics include system requirements, system specification, systems design, implementation, and project management. Standard system analysis methods and techniques will be presented and applied using computer-aided software engineering (CASE) tools. Prerequisite: ISQA 360.

ISQA 421 Object-oriented Design and Programming (4) Provides coverage of fundamental concepts of object-oriented programming—encapsulation, classes, inheritance, and polymorphism. Students will develop projects using Visual C++ or JAVA. Solutions to typical business applications are covered. Prerequisite: ISQA 360.

ISQA 424 Network and Client Operating Systems (3) Hands-on introduction to the administration of a local area network operating system. Enables students to gain knowledge and experience with the kinds of management tasks they would perform routinely as network administrators. Topics include network configuration, file and directory configuration, network security, backup and recovery, print services, user and workstation automation and simple system. Two lecture hours; two laboratory hours. Prerequisite: ISQA 380.

ISQA 425 Database Management (4) Study of data environments, the evolution of database technology, database concepts and uses, data models, database design, and query processing. Emphasis will be placed on the relational model and database management systems that support the model. Students will participate in database design projects. Other topics address emerging database trends and opportunities. Prerequisites: ISQA 420, admission to the School of Business Administration.

ISQA 429/529 Transportation and Logistics Management (4) Overview of logistics including transportation, warehouse location and layout, inventory policies, distribution operations, and information systems. Prerequisite: BA 339 or BA 311.

ISQA 435 Business Research Design and Analysis (3) This course is concerned with the application of multivariate methods of data analysis in business research. Emphasis is on the process of business data analysis including research design, implementation, and hypothesis testing. Prerequisites: Stat 243, 244.

ISQA 436 Advanced Database Administration (4) Advanced study of data environments, data modeling techniques, database design, query processing, and optimization. Emphasis will be placed on client-server architecture and data environments such as Oracle and SQL Server. Students will participate in database design projects. Other topics will include industry trends and opportunities, and database administration. Prerequisite: ISQA 425.

ISQA 439/539 Purchasing and Supply Chain Management (4) Deals with developing sound policies and procedures in managing the supply chain. Topics include supplier selection and evaluation, competitive bidding, contract development and administration, value analysis, and standardization. Prerequisite: BA 339 or BA 311.
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ISQA 449
Process Control and Improvement (4)
Study of the principles of quality management including statistical quality control, total quality management, and the quality tools especially as they apply to supply and logistics processes. Pre-
requisite: BA 339.

ISQA 459/559
Production Planning and Control (4)
Intermediate and short range production planning and scheduling. Topics will include aggregate planning, materials requirement planning, scheduling and just-in-time. Prerequisite: BA 339.

*ISQA 461
Operations Research Techniques (3)
Introduction of methodology of operations research. Investigation of construction, solution and application of models useful for decision making in business. Prerequisites: upper-division standing, BA 339 and Stat 243, 244.

*ISQA 462
Decision Simulation (3)
Emphasis given to the use of gaming to reveal the complexity of the total organization and of the interrelationships of the activities of the firm.

Students compete in a simulated business envi-
r
ronment and are thus allowed to make use of dynamic analysis.

*ISQA 463
Mathematical Modeling in Decision Making (3)
The incorporation of numerical considerations and applied mathematics into the modeling process is the primary focus of this course. Students will gain practice in creative and empirical model construction, model analysis and model research for practical and realistic problems. The emphasis is on the importance of the assump-
tions in a model and on testing the sensitivity and appropriateness of assumptions against empirical data. Prerequisite: ISQA 461.

ISQA 469/569
Productivity Analysis (4)
The role of operations strategy on the firm’s cooperative ability and the organization’s programs and techniques for measuring and improving productivity and for assuring quality. Prerequisite: BA 339.

ISQA 479
Integrated Supply and Logistics Management (4)
Capstone course using cases and projects to integrate the various concepts of supply and logistics management. Prerequisites: ISQA 429, 439, and 3-4 additional credits in supply and logistics management option courses; admission to the School of Business Administration.

ISQA 511
Quantitative Methods For Managers (4)
Covers the quantitative methods useful in managerial analysis and decision making. Basic and advanced statistical models as well as forecasting and management science tools are studied. Pre-
requisite: admission to graduate program.

ISQA 518
Electronic Commerce (3)
Survey of technologies and technological applications to conduct business electronically today and in the future. Students will learn about electronic data interchange, the role of technology in electronic markets, the Internet, and the organizational impact of these technologies. Internet-based technologies will be presented and used. Prerequisite: BA 530.

*ISQA 523
Database Design (2)
Practical course focusing on the design and use of databases. Students will learn to model data needs, design relational databases based on those needs, and methods for querying a data-
b
ase. A Database Management System (DBMS) will be used. Other topics address emerging database trends. Prerequisite: BA 530.

*ISQA 530
System Architectures (3)
Study of cutting-edge hardware and software architectures and their usage in business envi-
r
ronments. Students will learn how managers identify and adopt new technologies for business systems. Topics include hardware/software con-
cept, needs assessment, decision criteria, and implementa-
tion issues. Prerequisite: BA 551.

ISQA 572
Models for Quality Control (3)
Study of variability. Emphasis on quality improve-
m
ents through the application of experimental design. Topics include accounting for random-
ness, systematic identification of sources of varia-
tion, control charts, and statistical process control (SPC). Course will use a combination of cases, lecture, and computer-aided analyses to provide the students with a foundation in quality control analysis. Prerequisite: BA 551.

MANAGEMENT COURSES

For information on the management option require-
ments, see page 184. All 300- and 400-level courses require junior-level standing. 400-level courses require admission to the School of Business Adminis-

tration; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 300-level courses.

Mgmt 199
Special Studies (Credit to be arranged.)

Darrell Brown, Business Administration
Prerequisite: prior completion of Mgmt 351. This and performance appraisal processes to the analytic study of traditional and evolving management systems. Prerequisite: BA 302. Preference on the waiting list will be given to HRM-option students.

Mgmt 399 Special Studies (Credit to be arranged.)
Mgmt 401/501 Research (Credit to be arranged.)
Mgmt 404/504 Internship (Credit to be arranged.)
Mgmt 405/505 Reading and Conference (Credit to be arranged.) Consent of instructor.
Mgmt 407/507 Seminar (Credit to be arranged.)
Mgmt 411/511 Practicum (Credit to be arranged.)
Mgmt 410/510 Selected Topics (Credit to be arranged.)
Mgmt 445 Organizational Design and Change (4)
Study of organizations from a macro perspective. Emphasis will be on the implications of dynamic environments, innovation, and technology for organizational structure, design, and processes. Management of change from a multi-level perspective will also be addressed. Prerequisite: BA 302.

Mgmt 446 Principles of International Management (4)
Study of the managerial functions and problems related to international business activity. The focus of this course is on the management of foreign trade, direct investments, and international operations. In addition, the political, economic, and cultural environments of international business are examined from the perspective of management. Comparative management is also treated through the study of other management systems. Prerequisite: BA 302.

Mgmt 461/561 Reward Systems and Performance Management (4)
Study of reward system practices that aid in motivation, employee development, and productivity improvement to meet organization goals. Shows how job analysis data forms the information base for both compensation and performance appraisal processes. Includes an analytic study of traditional and evolving methods of compensation management, and relates this and performance appraisal processes to the broad performance management framework. Prerequisite: prior completion of Mgmt 351; prior completion of or concurrent registration in Mgmt 550. Preference on waiting list will be given to HRM-option students.

Mgmt 464 Contemporary Leadership Issues (4)
Investigation of the ideas of what constitutes "effective leadership" as organizations enter the 21st century. Various aspects of the new leadership paradigm are addressed. Students will develop an awareness of their personal leadership profile and capabilities and the issues they will face as leaders in tomorrow's organizations. Prerequisites: BA 302; admission to the School of Business Administration.

Mgmt 470/570 American Business History (4)
A critical examination of the growth of the American business system, with particular attention to studying the environmental genesis and evolution of significant business organizations. The course will also deal with the evolutionary changes in business leaders and their managerial styles. Prerequisites: RA 302 or 385; BA 530 for graduate students.

Mgmt 471/571 Staffing and Employee Selection (4)
The staffing process includes the acquisition, selection, and placement of employees to achieve the strategic human resource goals of the organization. Topics covered include staffing strategies, human resource planning, legal issues, recruitment methods, selection techniques (e.g., biographical information, interview, ability tests, work samples, assessment centers), selection validation, and utility analysis. Prerequisite: prior completion of Mgmt 351; prior completion of or concurrent registration in Mgmt 550. Preference on waiting list will be given to HRM-option students.

Mgmt 491/591 Training and Development (4)
Training and development highlights the organization's commitment to its employees. The course looks at training needs analysis; the nature, types and methods of training; career stages, paths, planning; retraining; employee oriented workers; outplacement; evaluation of training effectiveness; long-term development programs; and processes of organization development. Prerequisite: prior completion of Mgmt 351; prior completion of or concurrent registration in Mgmt 550. Preference on waiting list will be given to HRM-option students.

Mgmt 493 Human Resource Policies (4)
An in-depth, analytical study of human resources and the tasks of the modern human resource manager, with an emphasis on the policy making aspect of human resource management. Studies executive-level decision making within staffing, training, compensation, appraisal, and labor relations. Examines emerging issues in HRM, such as quality of work life, wellness, substance abuse, human resource information systems, etc. Prerequisites: Mgmt 351 and two of the following courses: Mgmt 461, Mgmt 471, or Mgmt 491; admission to the School of Business Administration. Preference on the waiting list will be given to HRM-option students.

Mgmt 503 Thesis (Credit to be arranged.)

Mgmt 540 Business/Government Relations (3)
The role and importance of the business/government relations function in business enterprises is examined. Topics covered include: monitoring the governmental system, interest groups, lobbying, trade associations, governmental structure, regulatory process, and the impact of legislative processes. Case analyses and projects may be used in the course. Prerequisite: Mgmt 560.

Mgmt 544 Technology Management (3)
Taking a systemic approach to managing technology and innovation, this course addresses the process flow of ideas from creativity to market and commercialization, the roles of invention, innovation, research and development, and manufacturing; intrapreneurship, and venturing, and managerial attitudes, beliefs, and perceptions. All of these factors are examined for their influence on the strategic utilization of technology and innovation.

Mgmt 545 Managing the Human Side of Technological Innovation (3)
Examines the non-technical, human side to the challenges of technological innovation management. Course topics include technical professional performance and productivity, high performing technical teams, managerial effectiveness, innovative work cultures, and organizational practices and policies that promote technological innovation and new product development. Practical applications of course concepts to actual work situations are emphasized. This course is required for the Management of Innovation Option in the M.B.A. program.

Mgmt 546 Principles of International Management (4)
Covers the major challenges of managing internationally, including political risk assessment, international strategy, structuring and controlling the multinational enterprise, international negotiations, and international human resource management. Course is targeted both toward managers who work abroad as well as those dealing with international business from the home country.

Mgmt 549 Services Management and Operations (3)
Addresses the unique aspects of successful services management and operations. In particular, the course examines the service concept, how customer focus is achieved, strategic considerations in creating superior customer value, the human resource challenges of selecting, training, and motivating service providers, and how service systems are structured to smooth demand and enhance system capacity. The goal is to understand how to analyze any service system, whether it resides in a manufacturing, service, or non-profit organization, and explore ways to enhance system effectiveness. Prerequisite: graduate standing.

Mgmt 550 Organizational Behavior (4)
Covers issues in organizational behavior and human resource management that are critical to organizational effectiveness. Organizations are studied from three perspectives: the individual, the work team, and the organization as a system. Topics include motivation, performance assess-
ment, creative problem-solving, compensation, staffing, employment development, and organizational design. Focal emphasis on business leadership is examined from a multi-level perspective. Prerequisite: BA 530.

*Mgmt 551 Managing Human Resources (3)
Focuses on the daily strategies of all managers as they lead their subordinates to high-performance productivity. Aspects of the employee life cycle will be studied include initial selection, developmental activities, redesign of jobs, compensation, appraisal, and employee relations; legal requirements in all areas will be covered. Methods of improving the everyday relationship between line managers and the human resource department will be emphasized. Prerequisite: Mgmt 550.

*Mgmt 554 Negotiation and Conflict Resolution (3)
Examines negotiation as a sometimes rational, sometimes irrational social process used for resolving conflict. Studies the interdependence between parties which causes the conflict; focuses on effective and ineffective negotiating tactics between these competing groups. Explores the use of impartial third parties to facilitate negotiations. Practical applications include labor management relationships, purchase agreements, organizational goal setting, etc. Prerequisite: Mgmt 550.

*Mgmt 555 Management of Organizational Change (3)
A seminar focused on the concepts, theories, and practice of managing organizational change and development. Class discussion will center on an examination of the history and assumptions of organizational development and change, the action research model and other foundations, plus a variety of intervention techniques. Special issues such as ethics in client-consultant relationships will be integrated into class activities. Prerequisite: Mgmt 550.

Mgmt 556 Organizational Politics (3)
A study of the theoretical and practical aspects of success in organizations. Topics may include how to acquire, maintain, and use power; how to deal with superiors and subordinates; techniques for more quickly rising on the organizational ladder; misuses of power; developing mentor relationships; power games; and success symbols. Prerequisite: Mgmt 550.

Mgmt 560 Managerial Responsibility and Public Policy (4)
Provides students with an understanding of how political, social, legal, regulatory, and environmental issues impact business organizations within a global context. Topics covered include business and corporate social responsibility, managerial integrity, legal considerations for managers, public policy process in relation to business, environmental analysis, environmental issues and management. Prerequisites: BA 530, Mgmt 550.

Mgmt 562 Business Strategy and Policy (4)
An integrative, capstone study of strategy formulation and implementation in international and domestic business enterprises. Case analysis and other appropriate methodologies are used to develop the skills and judgment necessary to provide overall direction to the organization. Special emphasis will be placed on how to successfully match competitive strategy with effective implementation policies. Prerequisites: BA 551, 552.

*Mgmt 565 Case Problems in Organizations and Management (3)
The study of managerial action and process in organizations through the use of case studies. The actual topics will vary during any particular term, but may include: the resource allocation process, balancing short and long term goals, organizational culture, group dynamics, the ethics of decision making, and performance measurement and reward systems. International situations and problems will be included. Prerequisite: Mgmt 550.

Mgmt 601 Research (Credit to be arranged.)
Mgmt 607 Seminar (Credit to be arranged.)

**MARKETING COURSES**

For information on marketing option requirements, see page 185. All 300- and 400-level courses require junior-level standing. 400-level courses require admission to the School of Business Administration; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 300-level courses.

Mktg 199 Special Studies (Credit to be arranged.)
Mktg 338 Professional Selling (3)
An overview of personal selling as an element of the promotion mix. Emphasis is on individual and team selling strategies within a professional sales environment. Topics include characteristics of successful salespersons and firms, buyer behavior as part of individual and group purchase processes, the process and structure of sales presentations, and the role of selling as part of the marketing effort. Prerequisite: BA 205.

Mktg 340 Advertising (3)
Comprehensive study of the principal problems faced by advertisers and advertising agencies, and policies and procedures used for solutions; evaluation and selection of advertising media; preparation of layout and copy for sound advertising performance.

Mktg 341 Public Relations (3)
Principles of public relations in contemporary America, with emphasis on the role of public relations in business. Prerequisite: Mktg 340.

Mktg 376 International Business (4)
International business concepts and practices relating to international trade are presented at a survey level. Current global issues related to international trade and actual international problems are identified along with the basic concepts related to international finance, management, and marketing practices.

Mktg 399 Special Studies (Credit to be arranged.)
Mktg 401/501 Research (Credit to be arranged.)
Mktg 404/504 Internship (Credit to be arranged.)
Mktg 403/505 Reading and Conference (Credit to be arranged.)

Mktg 407 Seminar (Credit to be arranged.)
Student-selected problems in business operation and business management to be studied by the individual and discussed in group meeting under direction of academic staff.

Mktg 409/509 Practicum (Credit to be arranged.)
Field work involving the practice of professional activities away from campus. Prerequisite: consent of instructor.

Mktg 410/510 Selected Topics (Credit to be arranged.)
Mktg 430 Entrepreneurship (3)
The study of entrepreneurship, with emphasis on identifying market opportunities and the development of marketing and business plans to meet these opportunities. Prerequisite: BA 311.

Mktg 441 Media Strategy (4)
Examines the media process from the perspective of the advertisers’ marketing strategy, the characteristics of advertising media and the role of the advertising agency in the planning and implementation of the basic function between media and client. Special attention is paid to new media such as Internet and other computer-based channels. Prerequisite: Mktg 340.

Mktg 442 Advertising Copy and Layout (4)
Examines the creative process in advertising with an emphasis on developing effective copy and layout. Attention is given to effective advertising design in an applications environment in various media. Special attention is paid to creative executions in new media including direct marketing, interactive media, and the Internet. Prerequisite: Mktg 340.

Mktg 443 Advertising Campaigns (4)
Emphasis is on the development of the total advertising campaign from a marketing perspective. Integrates elements of the advertising process such as setting objectives, selection of target markets, budget development, media selection, message creation, production, and placement into a plan for action. Prerequisites: Mktg 441, 442, 460, and admission to the School of Business Administration.

Mktg 450 Product Innovation and Management (4)
Product innovation is at the core of the marketing process. The Internet has changed the rules of product development by erasing competitive barriers and emphasizing rapid development cycles. The class will focus on identifying new product opportunities, rapid innovation procedures, the management of the development process, and alignment with e-marketing strategy. Prerequisite: BA 311.
Mktg 452
Business-To-Business Marketing (3)
Management of the marketing activities of enter-
prises serving business-to-business markets. The
course includes industry and competitor analy-
sis, the fundamentals of competitive advantage
and the role of product, price, distribution, and
promotion in the creation of competitive market
strategies. Prerequisite: BA 311.

Mktg 455
Technology Marketing (4)
Survey of Internet-based marketing strategies
with special focus on the Web in business-to-
business and business-to-consumer situations.
The course encompasses the strategic market
planning and implementation processes as
applied to e-business including identifying and
analyzing e-market opportunities, data ware-
housing/mining, developing e-products, creating
the customer interface, e-pricing, e-branding,and
positioning strategies. Additional empha-
sis is on creating and leveraging a strategic Web
presence with portals, partnerships, community
building, and permission-based marketing. Pre-
requisite: BA 311.

Mktg 460
Marketing Research (4)
Studies the planning, data collection, analysis,
and reporting issues relating to marketing
research. Key issues include defining informa-
tion needs, sampling, using conventional meth-
ods and information technology to obtain
primary and secondary data, instrument design,
statistical data analysis, interpretation and
reporting of data. Prerequisite: BA 311.

Mktg 463
Consumer Behavior and Customer
Satisfaction (4)
Explores the determinants of consumer and
business buying behavior. Applications of
behavioral concepts to marketing strategy are
emphasized along with how to measure, retain,
and enhance customer satisfaction while devel-
oping long-term relationships. The use of tech-
nology and databases in understanding the
market is explored. Prerequisites: BA 311;
six credits in psychology, sociology, or anthro-
pology in any combination.

Mktg 464
Marketing Strategy and Management (4)
Capstone marketing course that focuses on the
development of the marketing plan. The empha-
sis is on integrating the major areas of marketing
management including customer identification,
industry analysis, product and communication
strategies, distribution, pricing, and control in
an e-business environment. Prerequisite: BA
311, Mktg 460 and admission to the MBA.

Mktg 466
Principles of International Marketing (4)
Differences between domestic and international
marketing are examined. A market-oriented con-
ceptual foundation relating international chan-
nels of distribution, financing, documentation,
transportation organizing, and staffing is pre-
sented. Prerequisites: BA 311, Mktg 376.

Mktg 467
Sales Management (4)
Survey of the sales management function with
attention to sales force selection, allocation of
sales effort, motivation and reward of sales force,
sales automation tools, and the integration of
sales with e-business strategy. Prerequisite: BA
311.

Mktg 475
Retailing (4)
Focuses on the distribution of goods to consum-
ers. It emphasizes the dynamic nature of the
retail environment and how changes in con-
sumer demographics, new technology, globali-
zation, new competitive forms, and the Internet
are revolutionizing the retail industry. Topics
include: purchasing, category management, Web
marketing, trade relations, retail operations, and
promotion. Prerequisite: BA 311.

Mktg 503
Thesis (Credit to be arranged.)

Mktg 507
Seminar (Credit to be arranged.)
Marketing Trends and Developments. Marketing
Planning for Executives. Sales Force
Management.

Mktg 544
Marketing Management (4)
Introduces basic concepts of the marketing pro-
cess from the perspective of the marketing man-
ger and provides a framework for the analysis
of marketing management problems. A key
focus is to develop the necessary marketing
planning and analytical skills to develop market-
ing strategies. Specific topics include the role
of marketing in a competitive environment, impact
of technology on marketing strategies and pro-
cesses, analysis of marketing opportunities and
the competitive environment, selection of target
markets, market segmentation, and marketing
strategies in the global marketplace. Prerequisite:
BA 530.

Mktg 546
Buyer Behavior and Communication (4)
Study of determinants and influences on pur-
chasing behavior emphasizing contributions
from behavioral sciences. Course explores appli-
cation of competitive and technological influ-
ences on buyers behavior and marketing
strategy. Emphasis on marketing communication
and promotion. Prerequisite: Mktg 544.

Mktg 547
Distribution Strategies (3)
Examines the fundamental and emerging trends
in distribution activities of business enterprises.
Course analyzes the competitive advantage(s)
associated with distribution strategies. Explores
trends in channel design, the changing role of
participants, channel relationships, and channel
communications. Prerequisite: Mktg 544.

Mktg 548
Product Management and Innovation (3)
Examines the role of product innovation and
management as the core focus of marketing
strategy. Major topics include new product strat-
egy formulation, product design and develop-
ment, managing the product line, and
organizational considerations in product man-
agement. Special attention is given to aligning
product development with e-business strategy.
Prerequisite: Mktg 544.

Mktg 552
eServices Marketing (4)
Focuses on understanding the distinction
between service versus product marketing with
an emphasis on assessing, designing, and man-
aging on-line service offerings. eService relation-
ships will be examined within a customer loyalty
framework that considers customer value,
switching costs, and on-line relational bonds as
ew drivers of loyalty. Prerequisite: Mktg 544.

Mktg 555
Technology Marketing (4)
Designed to introduce students to the special
issues faced by managers marketing technology
products in markets characterized by rapid
change. Topics include identification of market
opportunities, market segmentation, position-
ing, product innovation, customer value cre-
atoin, managing the customer interface, and new
approaches to distribution. Emphasis will be on
strategies for marketing technology products in
an e-business environment.

Mktg 560
Research for Marketing Decisions (4)
Designed to study the methods of gathering pri-
mary and secondary information for business
decisions. Also designed to study how to
become a good information user. Emphasizes
the planning, design, and implementation of
quantitative and qualitative research projects to
obtain information from internal and external
business environments. Considers the evaluation
and appropriate use of information, information
sources and research services. Prerequisite: ISQA
511, Mktg 544.

Mktg 565
Marketing Strategy and Decision Making
(3)
Develops the student's ability to understand,
analyze, and evaluate marketing situations and
develop appropriate marketing strategies.
Stresses detailed analysis of the competitive
environment, integration of marketing technolo-
gies, and the design and implementation of mar-
keting strategies. Integrates a case or project
format. Prerequisite: Mktg 544.

Mktg 566
Global Marketing Management (4)
Examines and provides a framework for study of
the global marketing environment as well as the
management of global marketing enterprises and
global marketing practices. Encompasses the
preparation for global competition, assessment
of environmental forces, and strategic and opera-
tional planning for marketing in the global envi-
ronment. Also examines the management of
international, multinational and global market-
ing enterprises and their marketing activities.
Prerequisite: Mktg 544.

Mktg 567
Sales Force Management (4)
Involves a detailed study of the sales manage-
ment function. Issues to be addressed include
designing the sales force, setting objectives,
developing strategy, recruiting, evaluating, com-
Master of International Management Courses

MIM 510 Selected Topics (2-4)
Special topics either under the sponsorship of the Age of the Pacific Series or an elective course addressing contemporary business issues in China and/or Japan.

MIM 513 Pacific Rim Economies, Trade, and Financial Markets (3)
Survey of current economic trends among the Pacific Rim economies, focusing on potential problems and opportunities of each country. Course also covers the principles of international trade, balance of payments and adjustments, impediments to trade flows, financial institutions and markets, and national economic policies affecting business in the Pacific Rim and the United States.

MIM 515 Contemporary Global Marketing (4)
The international marketing strategies and operations of multinational corporations (MNCs) are studied through assessment of international markets, marketing environments, and various aspects of global marketing strategies and marketing management.

MIM 516 Contemporary Pacific Rim and World Affairs (4)
Study of the contemporary political, economic and social issues of significance to the Pacific Rim countries, with particular emphasis on the international politics of China, Japan and Korea. Enables students to anticipate the politics of international transactions, understand key issues in the transition from the cold-war to post-cold war period, appreciate the major regional organizations and organizing philosophies in Asia, understand the relationship between domestic and external politics, and clarify the motives and interests of major governments.

MIM 517 Accounting for Global Enterprises (4)
Study of international accounting issues crucial for effective interpretation and understanding of international business. Goal of the course is to build a framework that can be used to analyze and understand financial reports used by multinational corporations (MNCs). Special managerial and control problems of MNCs, including performance evaluation, transfer pricing, and taxation will also be addressed.

MIM 518 Managing Multinational Organizations (3)
Study of the many ways which business firms participate in the dynamic international arena, and the approaches to intrafirm coordination and control. The management of a multinational's global employees is also examined, including the impact of culture on leadership, motivation, decision-making, developing the skills of the global manager, and the study of expatriate management.

MIM 519 Government Regulations, Ethics and Multinational Transactions (4)
Study of the social, political, and legal context of international business management through the examination of the variety of means by which the values of society and the actions of government impact the success or failure of multinational business transactions. The complex regulatory and ethical issues that may occur in the culturally and historically diverse Pacific Rim markets will also be examined.

MIM 547 International Trade Practices (4)
Study of the practices of international trade. Comprehensive discussion of the practical knowledge and skills required for engaging in international trade. In-depth examination of both export practices and import practices that includes a practitioner-directed international trade practice project.

MIM 558 Comparative Operations Management (4)
The changing international environment in manufacturing will be reviewed through comparative study of process selection, facilities design, operations planning and control, supply logistics, process benchmarking, technology management, international supply chain and customers, quality management, and performance measurement.

MIM 564 Global Human Resource Management (4)
Examines the management of human resources in the international firm, including motivating and leading employees in multi-cultural contexts. Course begins with an analysis of the human resource management philosophies and approaches to industrial and employee relations in representative countries. Integration of human resource management systems in international firms, including the creation of global corporate culture, HR support for organizational learning and approaches to human resource management transfer across borders, are also studied. Also examines the nature of successful cross-cultural teams and principles of leading change in multinational firms.

MIM 568 Managing Information Technology Globally (4)
Focus on the use of information technology in a competitive international environment and the impact information technology has in international business operations. The vocabulary and background of information technology issues that cross national boundaries, and the use of information superhighways to obtain critical information and maintain business relationships in other countries will be studied and discussed.

MIM 574 International Corporate Finance and Investment (4)
Focus on investment and financing decisions of firms operating in more than one nation. Topics include international risk and value analysis, cross border capital budgeting and capital acquisitions, financing mix, working capital management of multinationals, foreign exchange risk and exposure management, estimating cost of capital international investment, international capital markets, and sources of financing. Prerequisites: MIM 513, 517.

MIM 575 Marketing in Asia and the Pacific Rim (4)
Study of marketing strategies and practices in Asian and other Pacific Rim countries. Markets, marketing environments, and marketing practices in selected Asian countries are analyzed. Planning, and managing marketing strategies and operations are also included. Prerequisites: MIM 515, 516, 523, 547.

MIM 576 Advanced Cross-cultural Communication (4)
Study of the process of communication, its various components, and how cultural, sociocultural, psychocultural, and environmental influences affect the outcome, including the role of non-verbal communication. Analysis of successful adaptation to new cultures, including developing a communication competence in a new culture and dealing with conflict. While the principles of cross cultural communication and adaptation are generic to all cultures, two cultural environments, China and Japan, will be studied in depth, to develop cultural self-awareness.

MIM 577 International Business Negotiations (4)
Examination of the issues and techniques of international negotiations in a variety of business settings. Particular emphasis is given to establishing and working within international partnerships. The course makes extensive use of actual negotiation simulations.

MIM 578 Global Business Strategy (4)
Identify and analyze factors that have accelerated the globalization of industries, define the concept of a global strategy, and examine the organizational issues that are central to enhancing the international competitiveness of a business enterprise. Address institutional contexts that facilitate and impede the formulation and implementation of global strategies. Explore the interdependence and interrelationships in three geopolitical areas: the United States, the Pacific Rim with emphasis on Greater China, Japan and Korea, and the European Economic Community.

MIM 579 Field Study and Project Presentation (5)
Field study in China and Japan for two-and-a-half weeks. Classes at Fudan University in Shanghai and Waseda University in Tokyo. Company visits and cultural study. Project presentation upon return to campus.
GRADUATE SCHOOL OF EDUCATION

PHYLLIS J. EDMUNDSON, DEAN
CAROL L. MACK, ASSOCIATE DEAN
608 SCHOOL OF EDUCATION BUILDING, 503-725-4619
www.ed.pdx.edu/

Graduate Programs:
Early Childhood Education
Elementary Education
Mid-level Education
High School Education—In cooperation with appropriate departments
Specialist Programs—Administrative Studies (Pp-12); Postsecondary, Adult and Continuing Education; Educational Media; Counselor Education; Literacy Education; Special Education
Initial and Continuing Licenses
M.Ed., M.A., M.S.—Education
M.A.T., M.S.T.—In cooperation with appropriate departments
Ed.D.—Educational Leadership (Options: Administration; Curriculum and Instruction; Postsecondary, Adult, and Continuing Education; Special and Counselor Education)

The Graduate School of Education has a wide range of comprehensive programs leading to degrees and licensure. It is authorized by the Oregon Teacher Standards and Practices Commission to recommend teacher education and specialist candidates for both the initial and continuing licenses.

Undergraduate students interested in pursuing a career in teaching should refer to the “Education Programs” section in this catalog (page 132) for information regarding recommended preparatory programs for elementary and secondary teachers.

All programs are fully accredited by the National Council for Accreditation of Teacher Education and by the Oregon Teacher Standards and Practices Commission. Although licensure requirements are incorporated into degree programs, changes by the Oregon Teacher Standards and Practices Commission during the life of this catalog may alter the requirements. Applicants for licenses must meet the Commission requirements in force at the time of the license application.†

The School welcomes all students to join in helping us reach our mission of “meeting our communities’ lifelong educational needs.” The faculty and staff are committed to the following guiding principles as we strive to fulfill our mission:

1. We create and sustain educational environments that serve all students and address diverse needs.
2. We encourage and model exemplary programs and practices across the life span.
3. We build our programs on the human and cultural richness of the University’s urban setting.
4. We develop collaborative efforts that support our mission.
5. We challenge assumptions about our practice and accept the risks inherent in following our convictions.
6. We develop our programs to promote social justice, especially for groups that have been historically disenfranchised.
7. We strive to understand the relationships among culture, curriculum, and practice and the long-term implications for ecological sustainability.
8. We model thoughtful inquiry as the basis for sound decision-making.

† Because licensure rules are controlled by the Oregon Teacher Standards and Practices Commission, it is possible that licensure requirements may change. All persons expecting to be recommended for initial or continuing licenses should consult with an adviser or contact the Graduate School of Education Licensure Office, 503-725-4758.
Testing Requirements for Program Completion and Oregon's Test Pass Rates. Federal regulations require that potential applicants and the general public be informed of the following:

In Oregon, a system of multiple measures is used to determine the status of program completers, who can then be recommended to the Teacher Standards and Practices Commission for licensure. One component of this system requires the educator to pass both a basic skills test and a battery of subject matter tests. For basic skills testing the educator may choose to take the California Basic Educational Skills Test (CBEST) or the PRAXIS I: Pre-Professional Skills Test (PPST). Authorizations in early childhood, elementary, and middle level teaching require passing scores on the Multiple Subjects Assessment for Teachers (MSAT). The MSAT is comprised of two tests, one in multiple choice format and one in constructed response format, that assess knowledge in language arts, mathematics, science, social science, physical education, fine and performing arts, and human development. Secondary educators must pass PRAXIS II tests in their specific subject matter. Generally these are two or three tests in each subject matter endorsement area in some combination of multiple choice and constructed response formats.

Because passing of basic skills and subject matter tests is required for program completion in Oregon, the state pass rate is 100 percent. Those who do not pass the required tests are not considered program completers and are not eligible for Initial Teaching Licenses.

Program Information for the 1999-2000 Academic Year. The following information was submitted as part of the Title II federal report:

The total number of students enrolled during 1999-2000 was 622. Fourteen full-time faculty and 27 part-time faculty in professional education supervised 248 students enrolled in programs of supervised student teaching for a student/faculty ratio of 6:1. The average number of hours per week required in supervised student teaching was 30 over a period of 20 weeks for a total of 600 hours. The teacher preparation program is currently approved by the state and is not designated as “low performing.”

DEGREE PROGRAMS

The Graduate School of Education offers the Doctor of Education, the Master of Education, Master of Arts, and Master of Science degrees in education. In addition, the School coordinates the M.A.T. M.S.T.

degree programs offered throughout the University.

Admission. To be admitted to a graduate program in professional education, the applicant must first satisfy minimum University requirements listed on page 56. The student must also meet the admission requirements of specific degree, license, or specialist programs which the School is authorized to offer. Detailed information regarding admission requirements for the various graduate programs is available from the Graduate School of Education and on our web page at www.ed.pdx.edu.

Graduate Program Requirements.

University graduate degree requirements are listed on pages 62 and 69. Specific Graduate School of Education requirements, for degree, educational specialists, or license candidates are listed below. Upon successful completion of all University and Graduate School of Education requirements, the candidate will be awarded the appropriate degree and be recommended, upon request, for the appropriate license.

DOCTOR OF EDUCATION

The Ed. D. in educational leadership, offered by the Graduate School of Education, is the School’s highest professional degree. It is designed to help educational leaders develop the capacity to provide leadership that makes a positive and significant difference in the lives of the members of the communities they serve. Emphasis is on preparation for excellent professional performance as leaders in education in public and private schools, community and four-year colleges and universities, community, state, and federal educational agencies, and nonschool settings, where appropriate.

In keeping with the distinctive mission of Portland State University, emphasis is placed on the metropolitan characteristics of the institution’s immediate environment and upon the preparation of students for positions of leadership in urban and suburban communities.

Four specializations are offered: administration, designed for those focusing on elementary and secondary education; post-secondary, adult, and continuing education; curriculum and instruction; and special and counselor education. Using guidelines developed by program area faculty, the student works individually with his or her major adviser to develop the area of specialization. The purpose is to provide depth in the areas of special interest to the student. This requirement may be met through a combination of coursework, field-based study, and directed independent study.

Administration Credits

Common Core Courses...

EPFA 610 Theory and Research in Educational Administration (4)
EPFA 610 Social, Historical, Philosophical, and Cultural Foundations of Educational Administration (4)

Integrative Themes...

The student, in consultation with the adviser, will develop a program in one of the following integrative themes. It is possible to use courses from more than one theme in developing a new integrated theme.

1. District-level Administration Coursework for the superintendent license may be used in this theme.

2. School-level Administration Coursework for the administrator license may be used in this theme.
3. Educational Policy
This theme focuses on policy development and political processes, building on a solid foundation in educational sociology, history, philosophy, research, evaluation, diversity, and pluralism.

Total 24

Postsecondary, Adult, and Continuing Education

Required Courses
- EPFA 607 Advanced Postsecondary Seminar (4) 12
- EPFA 520 Developmental Perspectives on Adult Learning (4)
- EPFA 538 Contemporary Issues in Postsecondary Education (4)

Integrative Themes
- The student, in consultation with the adviser, will develop an integrative theme, for example: higher education; adult learning and development; student services; and training and development. Examples of courses that may be used in a program are:
  - EPFA 521 Adult Learning (4)
  - EPFA 522 Motivating Adult Learners (4)
  - EPFA 523 Assessing Adult Learning (4)
  - EPFA 533 Planning and Budgeting in Postsecondary Education (4)
  - EPFA 536 Postsecondary Curriculum (4)
  - EPFA 537 Policy and Governance in Postsecondary Education (4)
  - EPFA 541 The Community College (4)

Total 24

Curriculum and Instruction

Credits
- CI 610 Research and Resources in Curriculum and Instruction 3
- Integrative Themes for Change 30-33

The student, in consultation with the adviser, will either choose an integrative theme to be proposed as part of the program planning process or select an existing area of specialization, such as reading and language arts, or early childhood education. Examples of integrative themes are: learning and human development, inclusive/multicultural education, and community and environmental renewal.

Special Education and Counselor Education

Credits
- SpEd/Coun 607 Problem-centered Studies in Special and Counselor Education: Seminar I, II, III (4-6) 18
- SpEd/Coun 609 Internship 12
- in College Teaching (3-6) and/or in Pre-service Supervision (3-6)
- and/or in School Settings (3-6) and/or in Community Agencies (3-6)

Total 30

The Cognate Field. Students in administration or postsecondary, adult, and continuing education must complete work in a field(s) outside the Graduate School of Education that complement(s) their degree program. The cognate might be used for several purposes: to gain further knowl-

MASTER OF ARTS OR MASTER OF SCIENCE IN EDUCATION
The master's degrees in the Graduate School of Education are designed for thoughtful and caring practitioners who have the knowledge, skills, and desire to examine critically educational practices while working to improve them in ways that are conceptionally sound, ethically responsible, and culturally responsive.

Educational Policy, Foundations, and Administrative Studies
The Department of Educational Policy, Foundations, and Administrative Studies (EPFA) offers a department-wide Master of Arts and Master of Science degree with specialization in: educational leadership and postsecondary, adult, and continuing education.

The purpose of these programs is to prepare educational leaders who are able to respond positively, creatively, and proactively to the increasing diversity characterizing our metropolitan communities and to view diversity as a foundation upon which to build excellent educational programs for all learners.

All students admitted to the 45-credit master's program must complete four required courses from the Professional Studies Core. Other courses listed may be used as part of the specialization, in consultation with the student's adviser. Within each specialization students may elect to develop, with their advisers, a general program or theme (special emphasis or focus). Themes in educational leadership include: educational administration; educational policy analysis; leadership studies; educational foundations; early childhood administration; and educational research, evaluation, and staff development. Themes in postsecondary, adult, and continuing education include: adult learning and development; higher education; student services; training and development; and an option designed for students enrolled in the post-baccalaureate program in health care administration at Concordia University.

Professional Studies Core—16 credits (minimum)
- EPFA 551 Social Foundations of Education or EPFA 554 Philosophy of Education (4 credits)
- EPFA 555 Gender and Education
- EPFA 556 Urban Schools and At-Risk Status
- EPFA 552 History of Education
- EPFA 553 History of American Education
- EPFA 557 Cultural Pluralism and Urban Education

1 Minimum of 12 credits. As part of each internship, students, and faculty will attend an internship seminar.
2 Required course.

G R A D U A T E  S H O C K L O F  E D U C A T I O N
**Research and Evaluation**—4 credits

*EPFA 511 Principles of Educational Research and Data Analysis I
EPFA 512 Principles of Educational Research and Data Analysis II
EPFA 513 Advanced Research Designs and Data Analysis
EPFA 514 Educational Measurement and Assessment
EPFA 515 Program Evaluation

**Organizational Systems**—4 credits (minimum)

*EPFA 558 Educational Leadership
*EPFA 561 Staff Development
*EPFA 563 Human Relations in Educational Organizations
*EPFA 568 Educational Organization and Administration

**Adult Development**—4 credits (minimum)

*EPFA 520 Developmental Perspectives on Adult Learning
*EPFA 521 Adult Learning
*EPFA 522 Motivating Adult Learners
*EPFA 523 Assessing Adult Learning

In consultation with the adviser, students must complete the requirements for their area of specialization (and theme) and select one of two options to complete the requirements for the master's degree (a thesis or a comprehensive examination). The thesis requires an oral examination in addition to the written product. Further information about each of these areas of specialization may be obtained from the Graduate School of Education.

**Curriculum and Instruction**

The M.A./M.S. degree in education in curriculum and instruction emphasizes professional education. It is designed to accommodate students in teacher education and educational specialists.

Requirements for the degree are:

1. A program of study consisting of not fewer than 45 credits approved by the student's graduate adviser and the department chair, to include:
   a. A minimum of 21 credits in the Graduate School of Education.
   b. A core of studies encompassing preparation in the areas of teaching and learning, curriculum, research and evaluation, human relations, and/or foundations of education. The precise nature of this core of studies is specified by the department. Degree plans are written in cooperation with an assigned adviser.
   c. Eighty-five percent of the required credits must be 500 level.
   d. No more than 15 percent of the program may be 800 numbers, if approved by the adviser prior to being used for a master's program.

2. The graduate student will select one of three options to complete the requirements for the master's degree: (1) a thesis, (2) a written comprehensive examination, or (3) an independent project. The thesis requires an oral examination in addition to the written product.

**Counselor Education**

All students who are pursuing a master's degree in counselor education must complete a 72- to 78-credit program. This program satisfies University and Graduate School of Education requirements and is part of the requirements needed prior to taking the examination of the National Board for Certified Counselors (NBCC) or of the Commission on Rehabilitation Counselor Certification (CRCC). Students wishing to be eligible for the Oregon Personnel Services Licenses required of school counselors will complete the Teacher Standards and Practices Commission (TSPC) requirements within their program of study.

The primary purpose of the Counselor Education Program is to educate competent counselors for public and private schools, community agencies and rehabilitation facilities. The program is designed to strengthen competencies in the behavioral sciences and to broaden the students' background in counseling theories and interventions, interpersonal relations, individual and group processes, career and life-style planning, assessment, and specialty areas related to their major.

Students may pursue one of three areas of specialization within the Counselor Education Program: community counseling, rehabilitation counseling, and school counseling (Track I and Track II).

**Community Counseling Specialization.** The Community Counseling Specialization prepares individuals to work as counselors in private and public community agencies, community colleges, universities, employee assistance programs or private practice settings. Prior experience in a helping relationship is recommended for individuals pursuing this specialization. Depending upon one's choice of setting, the counselor should prepare to offer diagnostic and intervention services to the populations seeking counseling.

The program of study leading to an M.A./M.S. in education with a Community Counseling Specialization must include the following courses:

**Credits**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coun 506</td>
<td>Appraisal Instruments (concurrent with Coun 567)</td>
<td>1</td>
</tr>
<tr>
<td>Coun 506</td>
<td>Current Issues in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 506</td>
<td>Legal and Ethical Issues</td>
<td>1</td>
</tr>
<tr>
<td>Coun 506</td>
<td>Substance Abuse</td>
<td>1</td>
</tr>
<tr>
<td>Coun 543</td>
<td>Interpersonal Relations</td>
<td>3</td>
</tr>
<tr>
<td>Coun 551</td>
<td>Theories and Interventions I</td>
<td>3</td>
</tr>
<tr>
<td>Coun 552</td>
<td>Theories and Interventions II</td>
<td>3</td>
</tr>
<tr>
<td>Coun 567</td>
<td>Using Tests in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 568</td>
<td>Career and Lifestyle Planning</td>
<td>3</td>
</tr>
<tr>
<td>Coun 569</td>
<td>Developmental Foundations in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 571</td>
<td>Group Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 573</td>
<td>Marriage and Family Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 581</td>
<td>Multicultural Perspectives in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 585</td>
<td>Diagnosis and Treatment Planning</td>
<td>3</td>
</tr>
<tr>
<td>Coun 586</td>
<td>Psychopharmacology and Mental Illness</td>
<td>3</td>
</tr>
<tr>
<td>Coun 587</td>
<td>Mental Health Services</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 511</td>
<td>Principles of Educational Research I</td>
<td>4</td>
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</table>

**Practicum Sequence (Year-long):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coun 509</td>
<td>Group Counseling Practicum (concurrent with Coun 571)</td>
<td>1</td>
</tr>
<tr>
<td>Coun 509</td>
<td>Practicum: Counseling</td>
<td>9</td>
</tr>
</tbody>
</table>

**Internship Sequence (Year-long):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coun 509</td>
<td>Practicum: Internship/Supervision</td>
<td>9</td>
</tr>
<tr>
<td>Master's thesis and/or supportive coursework selected from Counseling Special Education, Education, Psychology, Sociology, Social Work, or Anthropology</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**Total** 73

**Rehabilitation Counseling Specialization.** The Rehabilitation Counseling Specialization prepares individuals to work in a variety of settings such as the state/federal rehabilitation system, public and private rehabilitation facilities, and supported employment projects, with clients needing vocational and psychosocial rehabilitation services. Emphasis is on the development of effective interpersonal counseling skills, vocational development, and job placement skills in order to assist clients with chronic and severe disabilities in improving the quality of their lives via self-sufficiency and economic independence.

Students seeking national certification from the Commission on Rehabilitation Counselor Certification (CRCC) as rehabilitation counselors or state certification by the Oregon Worker's Compensation Department should complete the following 72-credit program:

**Credits**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coun 506</td>
<td>Appraisal Instruments (concurrent with Coun 367)</td>
<td>1</td>
</tr>
<tr>
<td>Coun 506</td>
<td>Legal and Ethical Issues</td>
<td>1</td>
</tr>
</tbody>
</table>
† Coun 573 and 575 recommended prior to enrolling in these courses.

**Course Requirements**

**Credits**

- Coun 506 Substance Abuse ......................................... 1
- Coun 543 Interpersonal Relations .................................. 3
- Coun 551 Theories and Interventions I ........................... 3
- Coun 552 Theories and Interventions II ............................. 3
- Coun 567 Using Tests in Counseling ................................. 3
- Coun 569 Developmental Foundations of Counseling .......... 3
- Coun 571 Group Counseling ........................................... 3
- Coun 581 Multicultural Perspectives in Counseling .............. 3
- Coun 585 Diagnosis and Treatment Planning ..................... 3
- Coun 590 Foundations of Rehab Counseling ..................... 3
- Coun 591 Medical Aspects of Disability ......................... 3
- Coun 592 Psychosocial Aspects of Disability .................... 3
- Coun 593 Case Management .................................. 3
- Coun 594 Occupational Analysis/Vocational Evaluation ....... 3
- Coun 595 Contemporary Issues and Applications in Rehabilitation Counseling .............................. 3
- SpEd 510 Job Placement and Training ............................. 3
- EPFA 511 Principles of Educational Research ..................... 4

**Practicum Sequence (Year-long):**

- Coun 509 Group Counseling Practicum ................................ (concurrent with Coun 571) .......................... 1
- Coun 509 Practicum: Counseling ..................................... 9

**Internship Sequence (Year-long):**

- Coun 509 Practicum: Internship/Supervision ........................ 9
- Master's thesis or elective course from Special Education .......... 2

**Total** ........................................................................ 73

**Couples, Marriage, and Family Counseling Specialization.** The program of study leading to an M.A. or M.S. in Education with both the Community Counseling specialization and the state-required Marriage and Family Specialization totals 84 credits:

- **Course Requirements**

  **Credits**

  - Coun 506 Appraisal Instruments .................................. 1
  - Coun 506 Current Issues in Counseling (electives) ................. 2
  - Coun 506 Legal and Ethical Issues .................................. 1
  - Coun 506 Substance Abuse: Community .......................... 1
  - Coun 509 Group Counseling Practicum ............................. 1
  - Coun 543 Interpersonal Relations .................................. 3
  - Coun 551 Theories and Interventions I ........................... 3
  - Coun 552 Theories and Interventions II ............................. 3
  - Coun 567 Using Tests in Counseling ................................. 3
  - Coun 581 Developmental Foundations of Counseling .......... 3
  - Coun 571 Group Counseling ........................................... 3
  - Coun 575 Marriage and Family Counseling ......................... 3
  - Coun 581 Multicultural Perspectives in Counseling .............. 3
  - Coun 585 Diagnosis and Treatment Planning ..................... 3
  - Coun 586 Psychopharmacology and Mental Illness ................ 3
  - Coun 587 Mental Health Services .................................... 3
  - EPFA 511 Principles of Educational Research .................... 4
  - Practicum Sequence (Year Long): Coun 509 Practicum: Counseling ................................................. 9
  - Internship Sequence (Year Long): Coun 509 Practicum: Internship ......................................................... 9
  - Coun 572 Human Sexuality: Life Span and Therapeutic Perspectives ......................................................... 3

**School Counseling Specialization.**

For information regarding this specialization, please refer to licensure programs, page 208.

**Special Education**

The Graduate School of Education offers comprehensive programs for the professional preparation of students in special education. A master's degree in special education may be completed in conjunction with state licensure in special education or may be completed independently. For licensing information see “Programs Leading to Licensure: Special Education” on page 210 of this Bulletin.

Students completing a master's degree must complete the special education master's degree core program. The master's core must total at least 12 credits beyond initial special education licensure and may include electives. The master's degree without Oregon licensure must total at least 45 credits (which includes the master's core).

**Special Education Master’s Core Program.** Students must complete a capstone experience as part of their master's degree. Prior to beginning the capstone experience, students must take SpEd 590 Applied Behavioral Research in Special Education and SpEd 591 Issues in Special Education. These two courses and the capstone experience constitute the required master's core. A student must complete a capstone experience by choosing either the completion of a special project or a master's thesis. In addition to the completion of a written product, the student must present his/her project/thesis to the faculty. Students are required to enroll in at least three credits and up to 6 credits of Special Project (SpEd 506) or Thesis (SpEd 503).

The master's core coursework includes:

- SpEd 590 Applied Behavioral Research in Special Education ................................................. 3
- SpEd 591 Issues in Special Education ................................. 3
- A combination of the following:
  - SpEd 503 Thesis or SpEd 506 Special Project ............................. 3-6
  - Electives ........................................................................ 0-6

**Total** ........................................................................ 12

**MASTER OF EDUCATION**

**Degree Requirements**

The M.Ed. can be earned by students who have completed PSU's Graduate Teacher Education Program (GTEP). The additional coursework includes:

- CI 510 Research into Practice: Theory or CI 560 Action Research ......................................................... 3
- CI 510 Research into Practice: Project ................................................................. 3-6
- Electives (approved by the adviser) ......................................................................................... 6-9

**Total required** ................................................................ 15

**PROGRAMS LEADING TO LICENSURE**

**GRADUATE TEACHER EDUCATION PROGRAM**

Programs in early childhood education (age 3-grade 4), elementary education (grades 3-8), middle-level education (grades 5-10), high school education (grades 7-12), special education, and library/media are offered for students who wish to teach in the public schools. Successful completion of these programs culminates in a recommendation to Oregon's Teacher Standards and Practices Commission for the Initial Teaching License. A Continuing License is issued when a teacher has achieved all three of the following: (a) earned a master's degree, (b) verified three years or more of successful teaching in Oregon public schools, and (c) successfully documented achievement of the eight standards the state has identified for the Continuing License. The dual Elementary Education/Special Educator endorsement option is a five-term program of integrated coursework and field experiences.

**Admission.** The Graduate School of Education has a number of general requirements for admission to its programs in teacher education including, but not limited to:

- Bachelor's degree from an accredited institution
- Admission to PSU
- Cumulative 3.00 GPA
- C-BEST (California Basic Educational Skills Test) or PPST (Pre-professional Skills Test)
- PRAXIS Examinations
  - Early Childhood, Elementary, and Mid-level: MSAT (Multiple Subjects Assessment for Teachers) from the Oregon Department of Education
  - Mid-level and High School: Specialty Area Test Departmental recommendation (secondary only)

Proficiency in the use of computers and Ed 420/520 Introduction to Education and Society (or equivalent) is strongly recommended.

Specific program admission requirements and application materials are available in each department in the Graduate School of Education.
Program Requirements: Early Childhood and Elementary

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI 511</td>
<td>Classroom Management</td>
<td>3</td>
</tr>
<tr>
<td>CI 512</td>
<td>Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>CI 513</td>
<td>Classroom Instruction and Technology</td>
<td>2-5</td>
</tr>
<tr>
<td>CI 514</td>
<td>Multicultural and Urban Education</td>
<td>3</td>
</tr>
<tr>
<td>CI 515</td>
<td>The Reflective Practitioner</td>
<td>3</td>
</tr>
<tr>
<td>CI 516</td>
<td>Integrated Methods I: Reading/ Language Arts</td>
<td>2-5</td>
</tr>
<tr>
<td>CI 518</td>
<td>Integrated Methods III: Art/Math/ Music/PE</td>
<td>1-5</td>
</tr>
<tr>
<td>CI 550</td>
<td>or CI 552 Student Teaching I</td>
<td>6</td>
</tr>
<tr>
<td>CI 551</td>
<td>or CI 553 Student Teaching II</td>
<td>15</td>
</tr>
<tr>
<td>SpEd 418</td>
<td>Survey of Exceptional Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 56

Program Requirements: Mid-level and High School

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI 509</td>
<td>Practicum: Field-Centered Activities</td>
<td>3</td>
</tr>
<tr>
<td>CI 511</td>
<td>Classroom Management</td>
<td>3</td>
</tr>
<tr>
<td>CI 512</td>
<td>Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>CI 513</td>
<td>Classroom Instruction and Technology</td>
<td>2-5</td>
</tr>
<tr>
<td>CI 514</td>
<td>Multicultural and Urban Education</td>
<td>3</td>
</tr>
<tr>
<td>CI 515</td>
<td>The Reflective Practitioner</td>
<td>3</td>
</tr>
<tr>
<td>CI 519</td>
<td>Special Secondary Methods</td>
<td>3</td>
</tr>
<tr>
<td>CI 521</td>
<td>Reading and Composition in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>CI 548</td>
<td>Advanced Secondary Methods: Speciality Areas</td>
<td>3</td>
</tr>
<tr>
<td>CI 554</td>
<td>Student Teaching I</td>
<td>6</td>
</tr>
<tr>
<td>CI 555</td>
<td>Student Teaching II</td>
<td>15</td>
</tr>
<tr>
<td>SpEd 418</td>
<td>Survey of Exceptional Learners</td>
<td>3</td>
</tr>
<tr>
<td>SpEd 580</td>
<td>Accommodating Children with Special Needs</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 56

Secondary education at Portland State University is available in the following endorsement areas: art, biology, business, chemistry, drama, drama/language arts, foreign languages, health education, integrated science, language arts, mathematics, music, physics, social studies, and speech. Basic subject matter endorsement requirements are outlined in the appropriate departmental section of this catalog. Advising in subject matter endorsement areas is through the appropriate academic department. Students completing the secondary education program are eligible to teach in grades 7-12 in integrated subjects and departmental assignments. Students in the following endorsement areas are eligible to teach in grades K-12, provided that they have completed student teaching and/or practicum in at least two authorization levels (elementary, middle-level, or high school): Art, music, ESL/bilingual education, physical education, and special education. Students who wish to teach at the middle level (grades 5-10) must complete a practicum, a work sample, and submit passing scores on the Praxis MSAT and special area examinations. For more details, visit the office of the Graduate Teacher Education Program.

Program Requirements: Library Media

See Educational Media/Librarianship for program requirements for the Initial K-12 Teaching License in Library Media and for the dual teaching license in Library Media and Teaching.

Program Requirements: Dual Elementary/Education/Special Educator

The Graduate School of Education offers a dual elementary/special educator endorsement option in a 76-credit, five-term program of integrated coursework and field experiences. Students with these two endorsements are licensed to teach early childhood and elementary (K-8) grades and special education (K-12) grades. Faculty from both curriculum and instruction and special education are instructors in this inclusion program. This program reflects the rapidly changing nature of America’s schools, where students with disabilities are being integrated into regular classrooms with increasing frequency. PSU faculty work with local school districts in providing field experiences that complement coursework.

Early Childhood Education (ECE). Portland State University offers a graduate-level program for preparation and professional development to be pursued solely to meet teaching endorsement requirements or as an integrated component of an M.A./M.S. program. A major portion of the coursework and practicum meets the requirements for the Oregon Early Childhood Education Endorsement. The program is designed for those wishing to add the ECE endorsement to an elementary or K-12 license and for those pursuing a master's degree in curriculum and instruction with a specialization in ECE.

Program Requirements: ECE

The ECE endorsement program is a graduate program of 18 credits of comprehensive coursework and 3 credits of integrated practicum experience. The endorsement courses may be taken solely to meet endorsement requirements, as an integrated component of the M.A./M.S. program in curriculum and instruction, or for an ECE focus in other programs such as counselor education, special education, and educational administration.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI 570</td>
<td>Child Development and Education</td>
<td>3</td>
</tr>
<tr>
<td>CI 571</td>
<td>Play: Curriculum in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>CI 572</td>
<td>Language and Literacy in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>CI 573</td>
<td>Assessment in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 546</td>
<td>Early Childhood Education: Relationships with Home &amp; Society</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 22

ESL/BILINGUAL ENDORSEMENT

The Graduate School of Education offers a program leading to an ESL/Bilingual endorsement for teachers already holding a valid Oregon teaching license. The authorized program is as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CI 422/522</td>
<td>How Do People Learn a Second Language</td>
<td>3</td>
</tr>
<tr>
<td>CI 423/523</td>
<td>Taking Stock: Assessment and Evaluation in Programs with Language</td>
<td>3</td>
</tr>
<tr>
<td>CI 443/543</td>
<td>Effective Teaching Strategies for Working Linguistically and Culturally Diverse Students</td>
<td>3</td>
</tr>
<tr>
<td>SpEd 455/555</td>
<td>Working with LEP Children Who Have Special Needs</td>
<td>2</td>
</tr>
<tr>
<td>EPFA 465/565</td>
<td>LEP School/Community Relations</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 471/571</td>
<td>Impact of Language and Culture in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 467/571</td>
<td>ESL/Bilingual Program Design and Models</td>
<td>3</td>
</tr>
<tr>
<td>CI 409/509</td>
<td>ESL Bilingual Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 21

EDUCATIONAL MEDIA/LIBRARIANSHIP

The program in educational media/librarianship offers a comprehensive course of study for the preparation of students in the area of media and librarianship. The initial and continuing endorsements consist of a planned program of coursework for regularly licensed teachers of not fewer than 27 credits for the initial endorsement and a minimum of 15 credits for a continuing endorsement. An initial teaching license is available in educational media through a program of professional courses in curriculum and instruction and educational media/librarianship planned with an educational media adviser. An advanced degree may be earned in conjunction with a licensure program upon successful completion of a planned graduate study program.

The primary purpose of the program is to educate competent elementary and secondary school media specialists. An individual program for each candidate is developed with an adviser to ensure that the essential competencies required of today's library media specialist are, in relation to the candidate's needs and background, included in the program.
Prerequisites to Library Media Coursework. The following courses, or demonstrated equivalent knowledge, should be completed as preparation for admission:
- Lib 425 Instructional Media and Technology
- Lib 428/528 Children's Literature, K-5
- or Lib 429/529 Young Adult Literature

Initial Endorsement. Twenty-six credits in educational media are required, to include the following:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Lib 530 Literature Promotion Programs, K-12</td>
</tr>
<tr>
<td>3</td>
<td>*Lib 534 Administration of the School Library Media Center</td>
</tr>
<tr>
<td>3</td>
<td>Lib 536 Design and Production of Instructional Media</td>
</tr>
<tr>
<td>3</td>
<td>Lib 541 Reference and Information Systems and Services</td>
</tr>
<tr>
<td>3</td>
<td>Lib 542 Collection Development and Evaluation</td>
</tr>
<tr>
<td>3</td>
<td>*Lib 547 Library Media Instructional Programs</td>
</tr>
<tr>
<td>3</td>
<td>Lib 548 Organization of Library Media Collections</td>
</tr>
<tr>
<td>15</td>
<td>Lib 554 Student Teaching I</td>
</tr>
<tr>
<td>15</td>
<td>Lib 555 Student Teaching II</td>
</tr>
</tbody>
</table>

Dual Teaching License in Educational Media and Education

Students have the option of selecting a dual licensure track with either an elementary (68-69 credits) or a secondary endorsement (65 credits) in conjunction with the educational media endorsement. This enables a student to be a classroom teacher or a library media specialist.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Lib 530 Literature Promotion Programs, K-12</td>
</tr>
<tr>
<td>3</td>
<td>*Lib 534 Administration of the School Library Media Center</td>
</tr>
<tr>
<td>3</td>
<td>Lib 536 Design and Production of Instructional Media</td>
</tr>
<tr>
<td>3</td>
<td>Lib 541 Reference and Information Systems and Services</td>
</tr>
<tr>
<td>3</td>
<td>Lib 542 Collection Development and Evaluation</td>
</tr>
<tr>
<td>3</td>
<td>*Lib 547 Library Media Instructional Programs</td>
</tr>
<tr>
<td>4</td>
<td>Lib 548 Organization of Library Media Collections</td>
</tr>
<tr>
<td>4</td>
<td>Lib 554 Student Teaching I</td>
</tr>
<tr>
<td>15</td>
<td>Lib 555 Student Teaching II</td>
</tr>
</tbody>
</table>

EDUCATIONAL ADMINISTRATION

Three authorized programs lead to institutional recommendations for initial and continuing licensure of qualified persons for positions as school principals, assistant principals, school district superintendents, and assistant superintendents. All students are required to have an approved program of planned study, as described below, file enrolled with the Graduate School of Education. Admission requirements and detailed program information for each program is available from the Department of Educational Policy, Foundations, and Administrative Studies (EPFA).

The Initial Administrator License Program, referred to as Leadership 2000, prepares individuals for positions as school principals and assistant principals. This license requires completion of a master's degree and three years of teaching experience. The licensure program may be completed either as a part of a master's degree in educational administration or subsequent to the completion of a master's degree in the professions from a regionally accredited institution. The initial administrator curriculum includes:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>EPFA 570 Human Relations and Educational Foundations</td>
</tr>
<tr>
<td>4</td>
<td>EPFA 571 Teaching, Learning, and Curriculum</td>
</tr>
<tr>
<td>4</td>
<td>EPFA 572 Human Resource Development and Organizational Change</td>
</tr>
<tr>
<td>9</td>
<td>EPFA 509 Administrative Practicum</td>
</tr>
<tr>
<td>3</td>
<td>EPFA 507 Seminar</td>
</tr>
</tbody>
</table>

The Continuing Administrator/Initial Superintendent Licensure Program, referred to as the Executive School Leadership Program, prepares individuals for positions as continuing school administrators and as initial school district superintendents. This program assumes completion of the initial administrator program or its equivalent, and one year of full-time study (or its equivalent) in a planned licensure program beyond the master's degree.

There are two options for the completion of this program: Option I includes a summer program (three summers followed
by practicum completed during each academic year). Option II includes an academic year program (two years).

**Credits**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPFA 576 Education, Community and Society</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 576P Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EPFA 577 Curricular and Instructional Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 577P Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EPFA 578 Communication and Conflict Management in Educational Organizations</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 578P Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EPFA 579 Standards-Based Reform and Student Learning</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 579P Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EPFA 580 District and School Policy and Operations</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 580P Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EPFA 581 Legal and Financial Aspects of Education</td>
<td>3</td>
</tr>
<tr>
<td>EPFA 581P Practicum</td>
<td>1</td>
</tr>
<tr>
<td>EPFA 587 Special Topics</td>
<td>2</td>
</tr>
<tr>
<td>EPFA 587 Special Topics</td>
<td>2</td>
</tr>
</tbody>
</table>

**The Continuing License for Superintendent Program** builds on the knowledge, skills, and attitudes developed in the Continuing Administrator/Initial Superintendent program. The curriculum consists of six special problems seminars. Much of this curriculum will be delivered electronically. Students will also meet regularly to discuss key issues of educational reform implementation.

**Credits**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPFA 501 Research: Assessing Effectiveness of Instructional Programs</td>
<td>4</td>
</tr>
<tr>
<td>EPFA 506 School Board, District, and Community Collaboration</td>
<td>4</td>
</tr>
<tr>
<td>EPFA 506 Managing Conflict and Community Relations</td>
<td>4</td>
</tr>
<tr>
<td>EPFA 506 Analysis and Evaluation of District Policy</td>
<td>4</td>
</tr>
<tr>
<td>EPFA 506 Educational Planning and Facilitating Management</td>
<td>4</td>
</tr>
<tr>
<td>EPFA 510 Politics and Policy Processes in Education</td>
<td>4</td>
</tr>
</tbody>
</table>

Students who completed an earlier licensure program (Basic and Standard Administrator, or Basic and Standard Superintendent) should consult with the Department of Educational Policy, Foundations, and Administrative Studies to determine what new license requirements must be met.

**READING**

The literacy education faculty have designed a program which works to develop classroom teachers, reading specialists, and district reading personnel whose practice grows out of a solid grounding in theory and research and reflects the best current thinking in the field. This includes consideration of:  
- Current trends in reading and language arts education.
  - The variety of methodologies and resources available for creating classroom literacy environments.
  - Principles and practices of working with students needing extra help with literacy.
  - Authentic assessment practices.

The following coursework constitutes the reading endorsement program. Completion of the PRAXIS Specialty Area Exam in Reading is also required for an Oregon reading endorsement.

**Credits**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>CI 522 Literacy Foundations</td>
<td>4</td>
</tr>
<tr>
<td>CI 474/574 Assessing and Instructing Learners with Literacy Problems</td>
<td>4</td>
</tr>
<tr>
<td>CI 529 School Reading Program Leadership</td>
<td>3</td>
</tr>
<tr>
<td>Lib 532 Multicultural Literature K-12</td>
<td>3</td>
</tr>
<tr>
<td>SpEd 563 Advanced techniques of reading</td>
<td>3</td>
</tr>
</tbody>
</table>

**Endorsement levels**

- Early childhood and elementary
  - CI 472/572 Language and Literacy in Early Childhood Education | 3 |
  - CI 547 Advanced Elementary Methods: Reading | 4 |
  - Elective | 3 |
- Elementary and mid-level
  - CI 523 Language Arts in Middle Schools | 4 |
  - CI 521 Reading and Composition in the Content Areas | 3 |
  - CI 547 Advanced Elementary Methods: Reading | 4 |
- Mid-level and secondary
  - CI 548 and CI 509 Advanced Secondary Methods: Reading and Composition and Practicum | 4 |
  - Lib 529 Young Adult Literature | 3 |
  - Elective | 3 |

**Total** 27-28

**SCHOOL COUNSELING**

**The School Counseling Specialization: Overview**

The School Counseling Specialization has three options: Track I, Track II, and Licensure Only.

- **Track I** is designed for individuals with two years teaching experience.
- **Track II** is designed for individuals who cannot document a minimum two years teaching experience in a public school or other schools approved by the Teacher Standards and Practices Commission (TSPC).

- **Licensure Only** is for graduates from an accredited master’s (M.A. or M.S.) program in psychology or social work that required a clinical practicum and internship focused on individual and group counseling skills. Graduate degrees in teaching or education are not eligible for Licensure Only program.

All students are required to:
- Pass the California Basic Educational Skills Test (CBEST) with a score of 123+
- Complete a school counseling work sample and professional portfolio documenting the knowledge, skills, and competencies required by TSPC.
- Complete a 200-clock-hour practicum and a 600-clock-hour internship over two years; internship includes placement in an early childhood/elementary and/or in a middle/high school setting.
- Have two years teaching experience. Students without two years teaching experience must complete a 200-hour teaching experience practicum and take a 6-credit course sequence.
- Pass the Praxis II: Specialty Area Counselor (School Guidance and Counseling, 20420) test with score of 630+ to be eligible for licensure.
- Be fingerprinted and pass an anti-discrimination test.
- After graduation and licensure, verify three years of one-half time or more counseling experience in Oregon public schools or in Oregon private schools accredited by the Northwest Association of Schools and Colleges as a requirement for Continuing License as a school counselor.
- Develop a professional portfolio as a school counselor with an Initial License as a condition for recommendation for the Continuing License as a school counselor. Students must document professional development as defined by Oregon Administrative Rules (OAR) 584-070-0090.

**School Counseling Specialization: Track I Option Overview**

The program consists of 72 credits of study leading to an M.A. or M.S. in education: school counseling specialization. The program is for individuals with two years teaching experience. It may be completed in two phases: Initial License, 36 credits; Continuing License, 36 credits, three years experience as a school counselor, and completion of a portfolio documenting professional development as defined by OAR 584-070-0090.
<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coun 506 Appraisal Instruments</td>
<td>3</td>
</tr>
<tr>
<td>Coun 506 Legal and Ethical Issues</td>
<td>3</td>
</tr>
<tr>
<td>Coun 551 Theories and Interventions I</td>
<td>3</td>
</tr>
<tr>
<td>Coun 552 Theories and Interventions II</td>
<td>3</td>
</tr>
<tr>
<td>Coun 567 Using Tests in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 568 Career and Lifestyle Planning</td>
<td>3</td>
</tr>
<tr>
<td>Coun 571 Group Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 581 Multicultural Perspectives in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 596 Foundations of School Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
</tr>
</tbody>
</table>

### Internship Sequence (Year Long):

<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coun 509 Practicum: Internship</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
</tr>
</tbody>
</table>

### School Counseling Core Courses:

<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coun 506 Appraisal Instruments</td>
<td>3</td>
</tr>
<tr>
<td>Coun 506 Legal and Ethical Issues</td>
<td>3</td>
</tr>
<tr>
<td>Coun 571 Group Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 575 Marriage and Family Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 596 Foundations of School Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 598 Consultation Procedures</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>79</td>
</tr>
</tbody>
</table>

### Track I: Continuing School Counselor Licenses

**License Requirements**

Students eligible for Track I may apply for an Initial School Counseling License after they complete 36 approved credits. The initial license is issued for a period of three years and may be renewed once, after which applicants must meet the requirements for the Continuing License.

**Course Requirements**

- **Program Core**
  - Coun 506 Appraisal Instruments: 1
  - Coun 506 Legal and Ethical Issues: 1
  - Coun 551 Theories and Interventions I: 3
  - Coun 552 Theories and Interventions II: 3
  - Coun 567 Using Tests in Counseling: 3
  - Coun 568 Career and Lifestyle Planning: 3
  - Coun 571 Group Counseling: 3
  - Coun 581 Multicultural Perspectives in Counseling: 3
  - Coun 596 Foundations of School Counseling: 3
  - Total: 36

- **School Counseling Core**
  - Coun 506 Substance Abuse: School Counseling: 3
  - Coun 545 Youth at Risk: 3
  - Coun 555 Counseling Children and Youth: 3
  - Coun 597 Counseling for the 21st Century (Summer Institute): 3
  - Coun 598 Consultation Procedures: 3
  - Coun 599 Practicum: Internship: 9
  - Total: 79

- **Internship Sequence (Year Long)**
  - Coun 509 Practicum: Internship: 9
  - Total: 37

### School Counseling Specialization: Track II Option

**Track II** students must complete the entire program before being eligible for the Initial School Counseling License. The program consists of 78 credits of study (including teaching experience), the Continuing License requires verification of three years of one-half time or more counseling experience, and documentation of professional development as defined by OAR 584-070-0090. A portfolio assessment by PSU faculty as part of the Professional Portfolio course.

**Course Requirements**

- **Coun 506 Appraisal Instruments:** 3
- **Coun 506 Legal and Ethical Issues:** 1
- **Coun 509 Practicum: Group:** 1
- **Coun 551 Theories and Interventions I:** 3
- **Coun 552 Theories and Interventions II:** 3
- **Coun 567 Using Tests in Counseling:** 3
- **Coun 568 Career and Lifestyle Planning:** 3
- **Coun 569 Developmental Foundations of Counseling:** 3
- **Coun 571 Group Counseling:** 3
- **Coun 575 Marriage and Family Counseling:** 3
- **Coun 581 Multicultural Perspectives in Counseling:** 3
- **Coun 585 Diagnosis and Treatment Planning:** 1
- **EPFA 511 Principles of Educational Research:** 4
- **Coun 525 Guidance for Classroom Teacher:** 3
- **Coun 508 Effective Teaching:** 3
- **Coun 598 Consultation Procedures:** 3
- **Coun 599 Practicum: Counseling:** 9
- **Total:** 79

- **Professional Portfolio** course designed to help students document their professional experience and coursework from their prior degree program. The purpose of the Professional Portfolio is to determine if additional courses, such as Multicultural Perspectives, are required to meet the Counselor Education program, and TSPC requirements for the Initial School Counseling License. Up to 78 additional credits may be required.

### School Counseling Specialization: Licensure Only Option

**Track I** students must take the School Counseling Specialization core courses. The Teacher Standards and Practices Commission requires school counselors to have two years experience as a licensed teacher in a public school setting. Individuals in need of the teaching requirement must take the six-credit, 200-clock-hour Teaching Experience sequence.

**Course Requirements**

- **Coun 506 Substance Abuse:** 1
- **Coun 545 Youth at Risk:** 3
- **Coun 555 Counseling Children and Youth:** 3
- **Coun 596 Foundations of School Counseling:** 3
- **Coun 597 Counseling for the 21st Century:** 3
- **Coun 598 Consultation Procedures:** 3
- **Coun 509 Practicum: Counseling:** 9
- **Total:** 37

- **Professional Portfolio** course designed to help students document their professional experience and coursework from their prior degree program. The purpose of the Professional Portfolio is to determine if additional courses, such as Multicultural Perspectives, are required to meet the Counselor Education program, and TSPC requirements for the Initial School Counseling License. Up to 78 additional credits may be required.

### Program Core Courses:

<table>
<thead>
<tr>
<th>Course Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coun 506 Appraisal Instruments</td>
<td>3</td>
</tr>
<tr>
<td>Coun 506 Legal and Ethical Issues</td>
<td>3</td>
</tr>
<tr>
<td>Coun 571 Group Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 575 Marriage and Family Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 581 Multicultural Perspectives in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 596 Foundations of School Counseling</td>
<td>3</td>
</tr>
<tr>
<td>Coun 508 Effective Teaching</td>
<td>3</td>
</tr>
<tr>
<td>Coun 598 Consultation Procedures</td>
<td>3</td>
</tr>
<tr>
<td>Coun 599 Practicum: Counseling</td>
<td>9</td>
</tr>
</tbody>
</table>
| Total | 79

- **Coun 506 and 567 must be taken concurrently.**
- **Coun 509 and 571 must be taken concurrently.**
- **For the Continuing School Counselor License, TSPC requires verification of three years of one-half time or more counseling experience, and documentation of professional development as defined by OAR 584-070-0090. A portfolio may be completed with a mentor and/or submitted for assessment by PSU faculty as part of the Professional Portfolio course.**
- **A portfolio documenting professional development as defined by OAR 584-070-0090 may be completed with an Oregon School Counselor Association mentor and/or submitted for assessment by PSU faculty as part of the Professional Portfolio course.**
- **Coun 509 Practicum: Internship (clinical supervision and school internship experience).** Program requires a total of 600 hours of supervised experience in a public school setting.

- **For the Continuing School Counselor License, TSPC requires verification of three years of one-half time or more counseling experience, and documentation of professional development as defined by OAR 584-070-0090. A portfolio may be completed with a mentor and/or submitted for assessment by PSU faculty as part of the Professional Portfolio course.**
- **A portfolio documenting professional development as defined by OAR 584-070-0090 may be completed with an Oregon School Counselor Association mentor and/or submitted for assessment by PSU faculty as part of the Professional Portfolio course.**
- **Coun 509 Practicum: Internship (clinical supervision and school internship experience).** Program requires a total of 600 hours of supervised experience in a public school setting.
210

P

Coun 597 Counseling for the 21st Century . . .3
Coun 598 Consultation Procedures . . . . . . . . .3
Practicum Sequence (Year Long):
Coun 509 Practicum: School Internship—
600 hours of supervised experience in public
school setting . . . . . . . . . . . . . . . . . . . . . . . .9
Teaching Experience (if needed)
Coun 525 Guidance for the Classroom
Teacher . . . . . . . . . . . . . . . . . . . . . . . . . . . . .3
Coun 508 Effective Teaching (200-hour
practicum). . . . . . . . . . . . . . . . . . . . . . . . . . .3
Earned Degree/Professional Review
Coun 599 Professional Portfolio . . . . . . . . . . . .3

their work as a developing school counselor for assessment by PSU faculty.

Total

33

Upon completion of the Initial School
Counselor License, TSPC requires verification of three years of one-half time or more
experience and documentation of professional development as defined by OAR
584-070-0090 for the Continuing School
Counselor License. A portfolio may be
completed with a mentor from the Oregon
School Counselor Association and/or
Licensure Only students may repeat the
Professional Portfolio course to submit

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SPECIAL EDUCATION LICENSURE
PROGRAMS
The PSU Graduate School of Education
offers licensure and endorsement programs
for:
■ Persons seeking their special education
endorsement who do not currently hold
any other Oregon teaching license
■ Teachers who hold a valid Oregon
teaching license in general education
and wish to add the special education
endorsement
■ Teachers who hold a valid Oregon
teaching license in special education
and wish to take advanced specialty
coursework as part of their continuing
professional development plan
■ Persons who wish to complete a Master
of Arts (M.A.) or Master of Science
(M.S.) degree in special education.
PSU offers state licensure and endorsements in the following areas:
■ Special Educator: Elementary (Initial
and Continuing License)

Special Educator: Secondary (Initial and
Continuing License)
■ Visually Impaired Learner (Initial and
Continuing License)
■ Early Childhood/Early Intervention
(Initial and Continuing License)
Special Education Common
Background Required:
The following courses (or their equivalents) and experience in education are prerequisites for admission to the special
education licensure programs:
■

Bachelor’s Degree
Psy 311 Human Development . . . . . 3-4 credits
Mth 211 Foundations of Elementary
Mathematics . . . . . . . . . . . . . . . . . 3-4 credits
Ed 420/520 Intro to Education and
Society . . . . . . . . . . . . . . . . . . . . . 3-4 credits
Experience in education such as: regular education teacher, instructional assistant, substitute
teacher, special education teacher, community
program experience, or Mt. Hood Kiwanis
Camp (Applicants without experience are
encouraged to enroll in SpEd 199/460 Outdoor Ed/Recreation for a two-week summer
camp experience at Mt. Hood Kiwanis Camp
with students with disabilities to determine if
they wish to pursue a career serving populations with special needs).
Highly recommended:
SpEd 418/518 Survey of Exceptional
Learners . . . . . . . . . . . . . . . . . . . . . . 3 credits
SpEd 519 Principles of Special
Education . . . . . . . . . . . . . . . . . . . . . 3 credits

For further information about the special education program, please call the
Graduate School of Education for an information packet. You may also attend a general advising session in the special
education office. Call the School for days
and times of sessions (503-725-4619).
Special Educator Initial Endorsement
Program—Elementary (Age 3-Grade 8)
SpEd 506 Specialized Techniques . . . . . . . . . . 2
SpEd 509 Practicum: Functional Life Skills . . . 3
SpEd 509 Practicum: Academic Skills . . . . . . . 3
SpEd 510 Collaboration I: Families and
Community–Elementary . . . . . . . . . . . . . . . . 2
SpEd 510 Instructional Methods I: Literacy–
Elementary . . . . . . . . . . . . . . . . . . . . . . . . . . 3
SpEd 510 Instructional Methods II: Math–
Elementary . . . . . . . . . . . . . . . . . . . . . . . . . . 3
SpEd 510 Collaboration II: Inclusion
Strategies Elementary . . . . . . . . . . . . . . . . . . 3
SpEd 510 Instructional Technology . . . . . . . . . 1
Ed 510 Reading/Language Arts K-12 . . . . . . . . 3
SpEd 510 Instruction Planning and
Classroom-based Assessment. . . . . . . . . . . . . 3
SpEd 510 Student Teaching Seminar–
Elementary . . . . . . . . . . . . . . . . . . . . . . . . . . 1
SpEd 510 Functional Assessment. . . . . . . . . . . 4
SpEd 510 Functional Curriculum . . . . . . . . . . 4
SpEd 512 Diagnostic Assessment . . . . . . . . . . . 3
SpEd 521 Behavior Management . . . . . . . . . . . 3
SpEd 525 Student Teaching-Elementary. . . . . 12
Total

Christine Cress, Education

53


Special Educator Initial Endorsement Program—Secondary (Grade 5-Grade 12)

SpEd 500 Specialized Techniques ...................................................... 2
SpEd 509 Practicum: Functional Life Skills ........................................ 3
SpEd 509 Practicum: Academic Skills .................................................. 3
SpEd 510 Collaboration I—Secondary ................................................... 2
SpEd 510 Instructional Methods I: Literacy—Secondary ......................... 3
SpEd 510 Instructional Methods II: Math and Content Areas—Secondary .......................................................... 3
SpEd 510 Collaboration II: Secondary ................................................... 3
SpEd 510 Instructional Technology ....................................................... 2
SpEd 510 Instruction Planning and Classroom-based Assessment ............. 3
SpEd 510 Student Teaching Seminar—Secondary .................................. 2
SpEd 510 Functional Assessment ......................................................... 4
SpEd 510 Functional Curriculum ......................................................... 4
Ed 510 Reading/Language Arts K-12 ................................................. 12
SpEd 512 Diagnostic Assessment ......................................................... 3
SpEd 521 Behavior Management .......................................................... 3
SpEd 525 Student Teaching—Secondary ............................................. 12
Total 48

Vision Impaired Learner Initial Endorsement Program

SpEd 509 STE I Visually Impaired ......................................................... 3
SpEd 509 STE II Visually Impaired ......................................................... 3
SpEd 510 Collaboration ...................................................................... 3
SpEd 510 Student Teaching Seminar ................................................... 1
SpEd 521 Behavior Management .......................................................... 3
SpEd 525 Student Teaching Visually Impaired ..................................... 12
SpEd 540 Education of the Visually Impaired Learner ......................... 3
SpEd 541 Implications of Vision Problems ......................................... 3
SpEd 542 Assessment of Visually Impaired .......................................... 2
SpEd 544 Methods of Teaching Academics to Visually Impaired Learners .......................................................... 3
SpEd 545 Orientation and Mobility ......................................................... 3
SpEd 546 Braille 1 ........................................................................... 3
SpEd 547 Braille 2 ........................................................................... 3
SpEd 510 Braille 3/Technology ............................................................. 3
Total 53

Early Childhood/Early Intervention Endorsement Program

Please contact the Graduate School of Education for information about this program (503-725-4619).

Dual Endorsement Options

The Special Education program offers a dual endorsement option in Elementary Education (general education licensure) and Special Education, referred to as the Inclusion program. A second dual endorsement program is offered in Special Education and Vision Impairments. These programs include a dual student teaching experience. Students who complete these programs receive two endorsements. Information about these programs is available from the Graduate School of Education.

Continuing Licensure

The Oregon Teacher Standards and Practices Commission (TSPC) issues two licenses, the initial and the continuing. The Portland State University Special Education program offers programs in both the initial and the continuing. The continuing endorsement is available for licensed Oregon teachers who have added the Initial Special Educator endorsement either by passing the PRAXIS exam or who have completed an Initial Special Educator program. Oregon teachers who have obtained the Initial Special Educator endorsement have up to six years to complete requirements for the continuing license. For information about the continuing license, please contact the Graduate School of Education (503-725-4619).

SCHOOL COURSES

Courses with an asterisk (*) are not offered every year

Ed 407 Seminar (Credit to be arranged.)
Ed 410 Experimental Course (Credit to be arranged.)
Ed 420/520 Introduction to Education and Society (4)
Ed 507 Seminar (Credit to be arranged.)
Ed 509 Practicum (Credit to be arranged.)
Ed 510 Experimental Course (Credit to be arranged.)
Ed 523 Student Teaching (6-15)
Ed 620 Doctoral Studies Proseminar (1-4)

This course four-credit sequence is required for all doctoral students and is taken during the first year of doctoral study, beginning with two credits in the fall and one credit each in winter and spring terms. The course is designed to extend and deepen thinking about education, “educational leadership” and inquiry through shared readings, interaction with faculty and local educational leaders, and critical reflective writing and conversation. Students are expected to initiate and maintain a learning and a professional portfolio and by the end of spring term to develop and present a formal paper that examines an educational issue using frameworks and concepts from Ed 630, 640 and 650, which are also taken during their first year. This paper may serve as an initial draft of the doctoral core examination paper.

Ed 630 Principles and Practices of Learning (4)

The study of theories of learning in a variety of educational contexts: classrooms, counseling, and non-school settings. Study of the narratives of teaching and learning to analyze the enactment of theory and to examine the variety of ways to research learning. Prerequisite: admission to doctoral program.

Ed 640 Organizational Leadership Theory and Research in Education (4)

Organizational and leadership theory and research in education informing the study, practice, and improvement of educational policy and practice in school and non-school contexts; emphasis on emergent perspectives and their significance for theory, research, and practice.

Ed 650 Educational Policy and Politics (4)

The study of how policy is proposed, adopted, implemented, and changed in educational organizations. Special emphasis on the political processes and how it influences the policy cycle. Prerequisite: admission to doctoral program.

Ed 660 Foundations of Research Paradigms and Methods (4)

An introduction to research paradigms and research methodologies that are useful to better understand and/or address problems of educational practice. Provides doctoral students with knowledge of basic processes of inquiry so they are able to begin designing individual research projects. Prerequisite: admission to doctoral program and EPFA 511 or 515.

Ed 661 Qualitative Research Methods in Education (4)

Introduces qualitative research methods of data collection and analysis in education. Reviews theoretical foundations, field research problems, and qualitative data collection and analysis methods including participant observation, depth interviewing, and development of grounded theory.

Ed 662 Quantitative Research Methods in Education (4)

Introduces quantitative research methods of data collection and analysis in education. Reviews theoretical foundations, applications and design issues of methods such as survey, correlational and experimental research. Also, introduces how to conduct a statistical data analysis and use such methods as correlation, t-test, analysis of variance and chi-square.

Ed 700 In-service Education (Credit to be arranged.)

Credits are for district in-service and are not counted toward a graduate degree or specialist license.
CURRICULUM AND INSTRUCTION COURSES

CI 199  Special Studies (Credit to be arranged.)
CI 231  Introduction to Early Childhood Education (3)
This course will provide an overview of the early childhood education profession, including issues, research, historical influences, programs for young children, and career options. Field experience required.

CI 232  Instruction and Management in Preschool Education (3)
Growth and development characteristics of preschool children (ages 3-5) for planning educational programs, curriculum, instruction, scheduling and environment, management, and parent communication. Field experience required. Prerequisite: CI 251 or coursework in human growth and development.

CI 233  Preschool Programming (3)
This course will provide experience and guidance in planning, implementing and evaluating developmentally appropriate teaching and learning experiences in preschool settings. Field experience required. Prerequisite: CI 252.

CI 330  Aesthetics and Physical Education for Young Children (4)
This course will provide preparation for planning, implementing and evaluating developmentally appropriate integrated teaching and learning experiences in art, music, movement, drama, and physical education for young learners, ages 4-8 years. Prerequisites: admission to teacher education; CI 251.

CI 350  Science, Social Studies and Health for Young Children (5)
This course will provide preparation for planning, implementing and evaluating developmentally appropriate integrated teaching and learning experiences in science, social studies and health for young learners, ages 4-8 years. Prerequisites: admission to teacher education; CI 251.

CI 401/501  Research (Credit to be arranged.) Consent of instructor.

CI 402/502  Independent Study (Credit to be arranged.)
CI 403/503  Thesis (Credit to be arranged.)
CI 404/504  Cooperative Education/Internship (Credit to be arranged.)
CI 405/505  Reading and Conference (Credit to be arranged.) Consent of instructor.
CI 406/506  Special Problems (Credit to be arranged.)
CI 407/507  Seminar (Credit to be arranged.)
CI 408/508  Workshop (Credit to be arranged.)

CI 409/509  Practicum (Credit to be arranged.) Consent of instructor.

CI 410/510  Experimental Course (Credit to be arranged.)
CI 432/532  Computer Applications for the Classroom (3)
This course is designed for preservice or inservice teachers who wish to become comfortable with the use of the computer to enhance classroom teaching and learning. Topics include an introduction to computers and technology in education; review and curriculum integration of courseware; use of word processing, designing and using computer-based databases in the classroom; computer literacy; and graphics software for the classroom.

CI 433/533  Computer Applications in Instruction (3)
A comprehensive survey of the use of microcomputers in instruction. Terminology, educational applications, ethical issues, courseware, evaluation and selection, multimedia applications, management tools for educators, planning and organizing for school computer use, hardware selection, computer literacy and technological literacy, and network resources for teachers. Hands-on use of the computer to review courseware is an important part of the course. Prerequisite: CI 432 or equivalent.

CI 434/534  Microcomputer-based Management and Research Tools for Educators (3)
This course introduces educators to important and useful tools for classroom use and personal and professional use: word processing, database, spreadsheet, survey, and statistical applications. Each class session includes demonstration and hands-on use of microcomputers. Each student will develop a word-processed document, a database, a spreadsheet application, a survey, and a statistical document. Prerequisite: CI 432 or equivalent.

CI 435/535  Audio-Visual Aids (3)
The development and use of audio-visual aids in education. Emphasis on actual learning situations in which radio, recordings, films, slides, pictures, maps, charts, etc., are utilized. Sources of materials and equipment; administration of audio-visual programs.

CI 443/543  Effective Teaching Strategies and Materials in Early Childhood Education (3)
What strategies and materials work in teaching children who are learning English? Become acquainted with the current research on identification, development, and practice of developmentally and linguistically appropriate strategies and materials to effectively engage English Proficient (LEP) students at all grade levels in the learning process. Special attention will be given to students’ bilingual/bicultural characteristics as important aspects of developing successful curriculum.

CI 450/550  Psychological Assessment and Instruction (3)
Helps teachers understand, assess, and promote early experiences with language that contribute to the process of becoming literate. Prerequisite: Undergraduate early childhood education coursework or teaching experience with young children.

CI 451  Practicum (Credit to be arranged.) Consent of instructor.

CI 452/552  Language and Literacy in Early Childhood Education (3)
This course will consider growth and development characteristics of children ages 3-5 years and research on teaching for planning educational programs, curriculum, instruction, environment, management, and guidance. Prerequisites: admission to teacher education, and either CI 251, 252, or 253.

CI 472/572  Language and Literacy in Early Childhood Education (3)
Prerequisites: admission to teacher education, and either CI 251, 252, or 253.

CI 473/573  Supervision in Early Childhood Education (3)
Integrates theory and research of adult and professional development with supervisory models and practices appropriate for early childhood education settings. Prerequisite: Undergraduate early childhood education coursework or teaching experience with young children.

CI 474/574  Supervision in Early Childhood Education (3)
Integrates theory and research of adult and professional development with supervisory models and practices appropriate for early childhood education settings. Prerequisite: Undergraduate early childhood education coursework or teaching experience with young children.

CI 491/591  Enriching Children's Reading (3)
A study of the enrichment of children's reading through literature. An advanced course designed for parents and teachers of nursery, kindergarten, and elementary school children. Prerequisites: CI 251, 252, or 253.

CI 511  Classroom Management (2-3)
Principles and practices of K-12 classroom management and discipline. Topics include organization and logistics of classroom procedures, communication and routine building, procedures for prevention and resolution of disruptions, problem solving, decision making, and multicultural and urban perspectives. Prerequisite: admission to the teacher education program.

CI 512  Teaching and Learning (3)
Principles of human learning and related practices for classroom teaching. The psychology of learning in a school setting includes both individual and group generalizations. The roles and functions of a classroom teacher as a facilitator of learning, and a decision maker concerning pupil needs and achievement. Prerequisites: admission to the teacher education program; Psy 204 or 205, Psy 311.
CI 513 Classroom Instruction and Technology (2-5)
Principles and skills for organization and presentation of K-12 classroom instruction. Topics included are: student needs analysis, planning, direct and indirect instructional techniques, use of aides, assessment of pupil achievement, and evaluation of teaching. Includes mediated instruction and preparation and use of instructional materials. Prerequisite: admission to the teacher education program.

CI 514 Multicultural and Urban Education (3)
Principles, practices, promises, and problems of multicultural education, with emphasis in urban settings. Use of student and community diversity to enhance subject matter, learning, and classroom life. Characteristics, opportunities, and needs of students in city schools presented with examples of current effective practice. Political and sociological influences in U.S. educational system, especially urban school settings. Prerequisite: admission to the teacher education program.

CI 515 The Reflective Practitioner (3)
Perspectives and techniques for formal and informal analysis, information gathering, decision making, value judgments about educational practice. Prerequisite: admission to the teacher education program.

CI 516 Integrated Methods I (2-5)
An integrated approach to literacy development. Deals with processes of becoming literate, the content of instruction in the language arts, and methods for implementing an integrated curriculum. Includes field assignments in school settings. Prerequisites: admission to the teacher education program, Lib 400/500 or equivalent.

CI 517 Integrated Methods II (2-5)
Students explore trends, practices, materials, and resources for teaching health, science, and social science in the elementary classroom. Includes content-specific methods and materials as well as those appropriate to an integrated elementary curriculum. Field experience required. Prerequisites: admission to the teacher education program, CI 512.

CI 518 Integrated Methods III (1-5)
Trends, practices, materials, and resources for teaching art, music, mathematics, and physical education in the elementary school. Includes content-specific methods and materials as well as those appropriate to an integrated elementary curriculum. Field experience required. Prerequisites: admission to the teacher education program, CI 512.

CI 519 Special Secondary Methods (3)
Problems and methods in selecting and organizing materials for instruction: comparison and evaluation of methods, laboratory techniques, supplies, equipment, or economy of time and materials. Prerequisite: admission to the teacher education program.

CI 521 Reading and Composition in the Content Areas (3)
Course designed to help educators guide their students in acquiring skills needed for adequate reading, thinking, writing, and study in content areas. Emphasis on the functional teaching of reading and writing-the design and preparation of materials to use with textbooks in all school subjects. Prerequisite: admission to the teacher education program.

CI 522 Literacy Foundations (4)
Focuses on the foundational areas of psychology, history, theory, and research, and familiarizes teachers and reading specialists with varied ideas about how reading and writing work and how they are learned, through the examination of major theorists and researchers, both present and past.

CI 523 Language Arts in Middle Schools (4)
Designed for teachers at the middle school level. Explores the nature of teaching young adolescents, including developmental psychology and methods of literacy education with a corresponding field experience. Includes ways of studying language through literature and the arts, using writing and speaking to study language, language use in different academic settings and content areas, and emerging trends for studying language in the 21st century.

CI 524 Issues and Perspectives in the Teaching of Reading (3)
An examination of the development of current practices in the teaching of reading. The identification of major trends and issues and a critical review of relevant past and present research. Prerequisite: completion of student teaching.

CI 525 Reading for the Creative and Gifted (3)
A study of the unique reading characteristics of the creative and gifted and an overview of psychological and philosophical understandings important for the teacher teaching reading to these able students. Prerequisite: Lib 428/528.

CI 526 Enriching Reading in Secondary Schools (3)
A study of adolescent psychology and development in relation to reading, and the role of the teacher as a resource. In-depth investigation of approaches to literature and reading as an act and introduction to humanistic objectives, creativity and value clarification through reading. Prerequisite: Lib 429/529.

CI 527 Whole Language Approach to Literacy (3)
Designed to give the rationale and theory base for the whole language approach to literacy and to examine appropriate classroom practices and materials for grades K-8.
CI 539
School Reading Program Leadership (3)
The course is for current or future administrators, coordinators, curriculum consultants, or teachers whose responsibilities will include leadership roles in the administration of school-wide or district-wide reading programs. It deals with long- and short-term objectives, school organizational patterns, staff competencies, materials selection, program evaluation, needs assessment, and the use of community resources. Prerequisite: CI 474/574 or equivalent.

CI 530
Courseware Design (3)
This course is intended for graduate students in education who wish to design and develop their own instructional packages for use on the microcomputer. Each student will use principles of instructional systems design to design and develop a lesson through the storyboard stage. The final step, writing the computer program, is not included in this course. No programming skills are required. Prerequisite: CI 433/533.

CI 545
Educating Early Adolescents (3)
Focuses on the nature of early adolescence and examines theory and practice informing development of the philosophy of early adolescent education. Organizational structures appropriate for these learners, and the diverse roles of the middle-level teacher. Introduces students to the curriculum and delivery methods appropriate for emerging adolescents.

CI 547
Advanced Methods-Special Subject Fields in the Elementary School (4)
Concentrated study of recent trends and recurring problems in selecting, organizing, evaluating, and presenting concepts, information, and materials of instruction in subjects taught in elementary school: art, health, language arts, mathematics, music, physical education, reading (includes one additional field work credit), science, social studies.

CI 548
Advanced Methods-Special Subject Fields in the Secondary School (3)
Concentrated study of recent trends in the curriculum and methodology of the subject area. Investigates the problems and methods in selecting and organizing materials for instruction, including integration of media, computers, and technology. Separate courses in art, business education, English, health, mathematics, modern foreign languages, music, physical education, reading and composition, science, social science, speech, theater arts.

CI 530
Student Teaching I, K-Primary (6)
Observation and some teaching under direction of supervising classroom teacher and University supervisor in conjunction with assignments related to methods coursework and diagnosis of individual needs. Prerequisite: admission to the teacher education program.

CI 531
Student Teaching II, K-Primary (13)
Observation and teaching under direction of classroom teacher and University supervisor. Direct responsibility for learning activities, developing skills in techniques of teaching and classroom management; related professional activities. Weekly seminar. Prerequisite: admission to the teacher education program.

CI 552
Student Teaching I, Elementary (6)
Observation and some teaching under direction of supervising classroom teacher and University supervisor in conjunction with assignments related to methods coursework and diagnosis of individual needs. Prerequisite: admission to the teacher education program.

CI 553
Student Teaching II, Elementary (15)
Observation and teaching under direction of classroom teacher and University supervisor. Direct responsibility for learning activities, developing skills in techniques of teaching and classroom management; related professional activities. Weekly seminar. Prerequisite: admission to the teacher education program.

CI 554
Student Teaching I, Secondary (6)
Observation and some teaching under direction of supervising classroom teacher and University supervisor in conjunction with assignments related to methods and classroom management coursework and diagnosis of individual needs. Prerequisite: admission to the teacher education program.

CI 555
Student Teaching II, Secondary (15)
Observation and teaching under the direction of classroom teacher and University supervisor. Direct responsibility for learning activities, developing skills in teaching and classroom management; related professional activities. Weekly seminar. Prerequisite: admission to the teacher education program.

CI 556
Mid-Level Student Teaching I (6)
Observation and teaching in a middle or junior high school setting under direction of supervising classroom teacher and University supervisor in conjunction with assignments related to methods coursework and diagnosis of individual needs. Prerequisites: admission to teacher education program; at least 14 credits in residence; cum. 3.00 GPA, 3.00 GPA in professional courses. Admission by approved application to student teaching.

CI 557
Mid-Level Student Teaching II (15)
Observation and full-time teaching in a middle or junior high school setting under direction of supervising classroom teacher and University supervisor. Direct responsibility for learning activities developing skills in techniques of teaching and classroom management; related professional activities. Attend regularly scheduled seminar. Prerequisites: admission to teacher education program; successful completion of Student Teaching I, all appropriate GTEP methods courses; 3.00 GPA in professional courses. Admission by approved application to two academic terms in advance.

CI 560
Action Research (3)
Designed to help educators see themselves as researchers, in order that they may conduct research in educational settings that contribute to the improvement of education. Research questions and methods appropriate for practicing educators will be covered.

CI 561, 562
Advanced Educational Psychology (3, 3)
Review and development of modern viewpoints in educational psychology with particular attention to theories of learning and their application to school and educational problems; an examination of experimental material that seems most useful and relevant to educational psychology.

CI 565/665
Theoretical Models of Curriculum (3)
Study of the history of curriculum and curriculum theory in the United States. Emphasis is placed on the historical, philosophical, and scientific foundations of curriculum theory. A main goal of the course is to provide a framework for evaluation, selection, and development of school curricula.

CI 566
Curriculum Construction (3)

CI 567
Curriculum and Culture (3)
Understanding the cultural basis of instructional materials in curriculum development and teaching and how the organization of knowledge in a subject area and the explanation of new ideas are influenced by cultural root metaphors. Planning and administering the instructional materials center in the modern school. The cooperative roles of the teacher, administrator, and librarian in curricular development and materials.

CI 568
The Curriculum of the Public School (3)
Overview of the public school curriculum with emphasis on the various subject fields, organization of the school for curriculum development, educational objectives, the course of study, evaluation of the public school curriculum.

CI 570
Child Development and Education (3)
In-depth study of child development theory, principles, and current research, practice of observational strategies, and application of growth and development data to educational programs for young children. Study will extend to decision making and developmentally appropriate practice in early childhood education. Prerequisite: Undergraduate early childhood education coursework or teaching experience with young children.

CI 571
Play: Curriculum in Early Childhood Education (3)
Study of stages of play, theory, and research on play, cultural differences in play, and adult role in facilitation of play. Curriculum will be reviewed, developed, and integrated with a focus on play for teaching and learning, for child-centered approaches, and for meeting needs of special learners. Prerequisite: Undergraduate early childhood education coursework or teaching experience with young children.
CI 573
Assessment in Early Childhood Education
(3)
Study of and experience with a range of developmentally appropriate assessment strategies for use in diagnostic, formative, and summative evaluation of growth and development of young children and for appropriate educational decisions in early childhood education settings. Prerequisite: Undergraduate early childhood education coursework or teaching experience with young children.

CI 580
Theories of Instruction (3)
An investigation of what happens in the classroom, emphasizing the interrelatedness of learning, subject matter, and teaching; testing of scholars' and the student's own theories. Prerequisite: teaching experience or consent of instructor.

CI 601
Research (Credit to be arranged.)
CI 602
Independent Study (Credit to be arranged.)
CI 603
Dissertation (Credit to be arranged.)
CI 604
Cooperative Education/Internship (Credit to be arranged.)
CI 605
Reading and Conference (Credit to be arranged.)
CI 606
Special Problems/Projects (Credit to be arranged.)
CI 607
Seminar (Credit to be arranged.)
CI 608
Workshop (Credit to be arranged.)
CI 609
Practicum (Credit to be arranged.)
CI 610
Selected Topics (Credit to be arranged.)
CI 601
Research (Credit to be arranged.)
CI 602
Independent Study (Credit to be arranged.)
CI 603
Dissertation (Credit to be arranged.)
CI 604
Cooperative Education/Internship (Credit to be arranged.)
CI 605
Reading and Conference (Credit to be arranged.)
CI 606
Special Problems/Projects (Credit to be arranged.)
CI 607
Seminar (Credit to be arranged.)
CI 608
Workshop (Credit to be arranged.)
CI 609
Practicum (Credit to be arranged.)
CI 610
Selected Topics (Credit to be arranged.)
CI 601
Research (Credit to be arranged.)
CI 602
Independent Study (Credit to be arranged.)
CI 603
Dissertation (Credit to be arranged.)
CI 604
Cooperative Education/Internship (Credit to be arranged.)
CI 605
Reading and Conference (Credit to be arranged.)
CI 606
Special Problems/Projects (Credit to be arranged.)
CI 607
Seminar (Credit to be arranged.)
CI 608
Workshop (Credit to be arranged.)
CI 609
Practicum (Credit to be arranged.)
CI 610
Selected Topics (Credit to be arranged.)

EDUCATIONAL POLICY, FOUNDATIONS, AND ADMINISTRATIVE STUDIES COURSES

EPFA 401/501
Research (Credit to be arranged.)
EPFA 402/502
Independent Study (Credit to be arranged.)
EPFA 403/503
Thesis (Credit to be arranged.)
EPFA 404/504
Cooperative Education/Internship (Credit to be arranged.)
EPFA 405/505
Reading and Conference (Credit to be arranged.)
EPFA 406/506
Special Problems (Credit to be arranged.)
EPFA 407/507
Seminar (Credit to be arranged.)
EPFA 408/508
Workshop (Credit to be arranged.)
EPFA 409/509
Practicum (Credit to be arranged.)
EPFA 410/510
Experimental Course (Credit to be arranged.)
EPFA 446/556
Early Childhood Education: Relationships With Home and Society (3)
Considers the sociology of families and communities in the development of cooperative relationships with programs for young children. Prerequisite: Undergraduate early childhood education coursework or teaching experience with young children.

EPFA 447/547
Administration of Early Childhood Programs (3)
Examines theory and practice informing the administration/leadership of early childhood programs to include: 1) organizational configurations, 2) leadership and the dynamics of the work group, 3) developmentally appropriate curriculum, 4) interaction with families of young children, and 5) significance of poverty, race, and gender for such programs. Prerequisite: child and family studies major or admission to an education graduate program.

EPFA 451/551
Social Foundations of Education (4)
Study of sociological theories that illuminate the effects of education on individuals and society. Problem areas in race, class, and gender are explored in the process of examining theories of socialization, certification, allocation, and legitimation and their application to historical and current educational situations.

EPFA 452/552
History of Education (3)
A general review of the growth and development of education in relation to the civilization of the times; emphasis is placed upon the development of educational theories at various points in history.

EPFA 453/553
History of American Education (4)
The historical development of the American educational system, from European backgrounds and colonial beginnings to the present time.

EPFA 454/554
Philosophy of Education (4)
Study and comparison of the philosophical bases of educational ideas and of the educational implications of philosophical thought. EPFA 554 includes an additional, concurrent 30 hour minimum field project requirement.

EPFA 455/555
Gender and Education (4)
Explores the significance of gender in educational work. The focus will be on the history of gender arrangements in educational organizations and the formation of gender roles in contemporary American society, particularly in the family, schools, and the economy. Students will examine differential socialization of males and females, ongoing practices in educational organizations that are gender-related and/or gender biased and the convergence of gender, race, and class in educational organizations. This course is cross-listed as WS 455, may only be taken once for credit. EPFA 555 includes an additional, concurrent 30 hour minimum field project requirement.

EPFA 456/556
The Urban School and “at Risk” Status (4)
Draws upon theory, research, and practice for the examination of the conditions of being “at-risk” in urban schools. Explores the family, community, and school environments and their relationships in the hindrance of development of children and youth leading to their “at-risk” status. This course is cross-listed with Urban Studies. EPFA 556 includes an additional, concurrent 30 hour minimum field project requirement.

EPFA 457/557
Cultural Pluralism and Urban Education (4)
This course is designed to explore the process of education policy development and implementation in culturally diverse, urban environments. The course is organized around several cultural pluralism perspectives; among the topics to be explored are the issues of socialization of the child, governmental operations, educational administration, teacher preparation and curriculum design. EPFA 557 includes an additional, concurrent 30 hour minimum field project requirement.

EPFA 465/565
LEP School Community Relations (3)
Learn how to work with families to overcome barriers to setting-up support systems in and out of school. Access appropriate community resources that can be critical for ensuring classroom success with LEP students. Gain understanding about other culture’s orientation to education and school. Learn strategies to build bridges between home, school, and the community.

* Restricted to students in the Child and Family Studies degree program.
EPFA 466/566 Impact of Language and Culture in the Classroom (3)
Learn the importance of intercultural communication in working with children from a wide range of cultures in today’s classroom. Survey the cultural, linguistic, educational, and ethical issues present in all classrooms today. Study the sociological and language issues and immigration history. Learn how to identify and appreciate cultural factors that affect social adjustment and learning.

EPFA 467/567 ESL/Bilingual Program Design and Models (3)
Exemplary schools provide second language learners with a rich intellectual diet, not a remedial or basic skills curriculum. They expect all students to achieve high standards in literacy and other academic areas. Learn how these schools combine their understandings and apply the knowledge of local, state, and federal laws and policies along with pedagogical considerations to create effective programs. Participants will examine a variety of local, regional, and national program models for ESL and bilingual instruction. This will create opportunities to develop expertise in assessing the critical components of programs serving pre-school through adults.

EPFA 511, 512 Principles of Educational Research and Data Analysis I, II (4,4)
Research paradigm, measurement and test characteristics; planning and evaluation, library resources, identifying research problems; planning research; types of research; research designs, central tendency, variability and relationships; sampling, sampling error, and hypothesis testing; crossbreaks; one, two, and multiple group, and multiple independent variable designs; computer applications; information systems. Prerequisite: graduate standing.

EPFA 513 Advanced Research Designs and Data Analysis in Education (4)
Designs for multiple independent variables; equating designs for multigroups; designs for multiple dependent variables; follow-up procedures for multiple dependent variables; selected data collection methods, including questionnaires, interviews, observation, sociometry, and objective tests and scales; computer application in the use of selected designs. Prerequisite: EPFA 512.

EPFA 514 Educational Measurement and Assessment (4)
Minimum competency, norm-referenced, and criterion-referenced tests; classroom student assessment; characteristics and levels of measurement; reliability; validity; interpreting test scores, standardized tests, using performance standards; planning and constructing classroom selection; supply and performance tests; portfolio assessment; evaluating test items. Prerequisite: graduate standing.

EPFA 515 Program Evaluation (4)
An examination of evaluation theory and approaches and their applications in educational settings. Emphasis is given to program evaluation and to understanding how the usefulness of evaluation results may be increased. Prerequisite: graduate standing.

EPFA 520 Developmental Perspectives on Adult Learning (4)
Explores professional applications of adult development theory and research to facilitating adult learning in a wide variety of contexts, including formal educational and training programs as well as general environments such as learning organizations. Course includes an additional, concurrent 30 hour minimum field project requirement. Prerequisite: admission to a graduate program.

EPFA 521 Adult Learning (4)
An examination of challenges facing those who plan, implement, and evaluate learning opportunities for adults; alternative approaches and designs. Issues reviewed from perspectives of educational program providers and adult learners. Relevant theory and research will be reviewed. Course includes an additional, concurrent 30 hour minimum field project requirement. Prerequisite: graduate standing.

EPFA 522 Motivating Adult Learners (4)
An examination of the complex relationships between adult development, motivation, and learning. Attention is given to the intra- and interpersonal dynamics that motivate human behavior in general and adult learning and behavior within organizational contexts specifically. Prerequisite: graduate standing.

EPFA 523 Assessing Adult Learning (4)
Introduction to the approaches, processes, and tools that can be used to assess adult learning. Emphasis is given to applications at the classroom and program level and to practices that themselves contribute to adult learning. Course includes an additional, concurrent 30 hour minimum field project requirement. Prerequisite: EPFA 517.

EPFA 525 Context and Community Building in Student Services (4)
Provides an introduction to the professional field of student services within the context of higher education and develops student capacity and skill for participation in a learning community. Prerequisite: graduate standing.

EPFA 526 Facilitating Student Success in Postsecondary Education (4)
Provides an introduction to theory and research related to factors and conditions that affect student success in postsecondary education and to assessment approaches and techniques in student services. Informed by theory, research, and practice, students develop an intervention proposal related to facilitating student success and a plan for assessing that intervention. Prerequisite: graduate standing.

EPFA 527 Legal Issues in Higher Education (2)
Provides a general introduction to the law related to higher education and the practice of student services professionals in higher education settings. In addition to the substance of related law, the course explores how the law is applied in rules and policy and how ethical standards and principles impact that application. Prerequisite: graduate standing.

EPFA 532 Leadership and Ethical Practice in Student Services (2)
Serves as an introduction to alternative theories of leadership, related research on leadership practice and leadership challenges faced by student services professionals in postsecondary education. Students develop a personal leadership profile and finalize a set of guiding principles for their own practice of leadership. Prerequisite: graduate standing.

EPFA 533 Planning and Budgeting in Postsecondary Education (4)
Provides an introduction to the planning and budgeting processes used in colleges and universities. Major emphasis is placed on key concepts, planning models, and applications to institutional cases. Strategies for linking planning and budgeting function will be explored. Students will examine and use various planning and budgeting tools and techniques. Budget reduction and the connection between planning and assessment will be examined. Prerequisite: graduate standing.

EPFA 536 Postsecondary Curriculum (4)
Provides an introduction to the field of curriculum or program design for adult learners and introduces students to a process of program planning and development. Curriculum development or design is viewed as both a technical and political process. It also provides a historical and philosophical perspective on postsecondary curriculum, with attention given to review and analysis of current practices and issues, including life-long and collaborative learning. A comprehensive program planning model will be examined. Prerequisite: graduate standing.

EPFA 537 Policy and Governance in Postsecondary Education (4)
An examination of theory and research that relates to how policy is formulated and implemented in postsecondary environments. The course focuses on the policy and governance role of faculty, administrators, and trustees at the single college or university level, and state and federal roles in postsecondary policy and governance. Prerequisite: graduate standing.

EPFA 538 Contemporary Issues in Postsecondary Education (4)
The course is designed to provide students with an introduction to the study of postsecondary education using as the vehicle a focus on some of the more pressing issues currently facing postsecondary education. The course is designed to increase the capacity for the identification and analyses of issues and the development of positions relative to the issue. Prerequisite: graduate standing.
EPFA 541
The Community College (4)
An introduction to the two-year colleges in the United States, with an emphasis on the public community college with a comprehensive educational program. Topics include: transfer studies; career education; general education; community services; basic skills education; and student development services. The purpose of the course is to provide students with theoretical and practical knowledge relative to the history, philosophy, students, staff, services, and patterns of organization of the public community college.

EPFA 558
Educational Leadership (4)
Analysis of leadership theories, skills, and techniques as applied to the organization and administration of public education. Prerequisite: graduate standing.

EPFA 559
The Principalship (4)
Designed to develop complementary theoretical and practical understanding of the principalship; to acquire knowledge and to learn practices and skills needed to become a successful first-year principal. Prerequisite: EPFA 569.

EPFA 560
Supervision and Evaluation of Instruction (4)
The role of the supervisor in keeping education geared to the changing demands of society; theories of leadership, group processes and individual conference techniques; action research and related approaches to curriculum change; analysis of concrete supervisory problems.

EPFA 561
Staff Development: Planning, Implementation, And Evaluation (4)
Staff development goals, characteristics of staff development programs; establishing a staff development organization; policy and decision-making; identifying and responding to the concerns of participants; assessing needs, planning and implementation of specific programs; networking, formal and informal methods of evaluation; models for staff development; program evaluation; management information systems; evaluating instructional effectiveness. Prerequisite: graduate standing.

EPFA 562
School and Community Relations (4)
An intensive examination of the school and its environment. Major emphasis is on the linking mechanism utilized by the school in interacting with parents, citizens, and special interest groups. Course includes an additional, concurrent 30 hour minimum field project requirement. Prerequisite: graduate standing.

EPFA 563
Human Relations in Educational Organizations (4)
Issues and perspectives in group processes; models for studying groups; principles of group dynamics; human relations within educational organizations; strategies for group problem-solving and conflict management; application of group dynamics to leadership, communication, and decision-making within educational organizations; evaluating processes and production of educational groups. Prerequisite: graduate standing.

EPFA 564
Administration of Curriculum (4)
Provides a broad and critical understanding of curricular matters that are relevant and important to administrators: 1) decision making about the choice of content; 2) politics of curriculum development; 3) implementation and monitoring of curriculum at building site; 4) testing and alignment of curriculum; and 5) evaluation of curriculum implementation. Prerequisite: graduate standing.

EPFA 568
Educational Organization and Administration (4)
Examination of the role, functions, and responsibilities of the educational leaders and administrators; study of administrative and organizational theory and its application to the operation of educational programs and organizations in various settings, including school districts, higher education and educational divisions in private sector organizations. Course includes an additional, concurrent 30 hour minimum field project requirement. Prerequisite: graduate standing.

EPFA 569
Introduction to Educational Administration (4)
Introductory course required of applicants to the initial Administrator certificate program. Considers educational, social, political, economic, organizational, and cultural forces shaping U.S. public schools and their administration. Course includes an additional, concurrent 30 hour minimum field project requirement.

EPFA 570
Human Relations and Educational Foundations (4)
Explores the historical, social, philosophical, and organizational foundations of public education. Examines the dynamics of human relationships, leadership, and community building in schools and educational settings. Analyzes public education goals and decision-making processes for achieving these goals. Prerequisites: admission to initial administrator program; EPFA 569.

EPFA 571
Teaching, Learning, and Curriculum (4)
Examines the complex relationships between staff evaluation, individual professional development, staff development, and effective teaching, learning, and curriculum. Students will examine those factors which make supervision and evalu-
COURSES

EPFA 579 Standards-based Reform and Student Learning (3) Practicum (1)
An examination of standards-based reform, instructional assessment models, school improvement strategies, and educational change theories. Emphasis is given to understanding how assessment information can be used to improve student learning and overall school performance within the context of Oregon's state reform framework. Prerequisite: admission to continuing administrator/initial superintendent program. Corequisite: 30 hour practicum.

EPFA 580 District and School Policy and Operations (3) Practicum (1)
The role of the administrator in the development of cooperative relationships; improvement and direction of school personnel, both professional and nonprofessional; evaluation and improvement of policies and programs to meet school district needs. Examines the impact of policies and school operations on teaching, learning, and school improvement with the goal of increasing district effectiveness. Prerequisite: admission to continuing administrator/initial superintendent program. Corequisite: 30 hour practicum.

EPFA 581 Legal and Financial Aspects of Education Credit (3) Practicum (1)
Examines Oregon school finance and school budgeting, state and federal laws and regulations governing educational practice, and planning, maintenance, and management of school facilities. The relationships among these factors and their implication to effective communication with educational stakeholders, instruction and student learning, and effective organization and management of schools and district policies and procedures are examined. Prerequisite: admission to continuing administrator/initial superintendent program. Corequisite: 30 hour practicum.

EPFA 594 School Law (4)
Critical analysis of the legal framework governing school law in the United States, with emphasis on contemporary legal problems of education. Implications of landmark and current court decisions. Prerequisite: graduate standing.

EPFA 601 Research (Credit to be arranged.)
EPFA 602 Independent Study (Credit to be arranged.)
EPFA 603 Dissertation (Credit to be arranged.)
EPFA 604 Cooperative Education/Internship (Credit to be arranged.)
EPFA 605 Reading and Conference (Credit to be arranged.)
EPFA 606 Special Problems/Projects (Credit to be arranged.)
EPFA 607 Seminar (Credit to be arranged.)
EPFA 608 Workshop (Credit to be arranged.)

EPFA 609 Practicum (Credit to be arranged.)
EPFA 610 Selected Topics (Credit to be arranged.)
EPFA 801 Research (Credit to be arranged.)
EPFA 802 Independent Study (Credit to be arranged.)
EPFA 804 Cooperative Education/Internship (Credit to be arranged.)
EPFA 805 Reading and Conference (Credit to be arranged.)
EPFA 806 Special Problems (Credit to be arranged.)
EPFA 807 Seminar (Credit to be arranged.)
EPFA 808 Workshop (Credit to be arranged.)
EPFA 809 Practicum (Credit to be arranged.)
EPFA 810 Experimental Course (Credit to be arranged.)
Lib 428/528
Children's Literature, K-5 (3)
Materials grades K-5. Traditional genres such as picture books, traditional tales, modern realism, romance, adventure, mystery, historical fiction, science fiction, fantasy, biography, poetry, and nonfiction. Study of literature that illustrates cultural diversity. Resources for selection, awards and honors. Prerequisite: Introduction to Education.

Lib 429/529
Young Adult Literature (3)
A survey of books and nonbook materials suitable for students of junior and senior high school age. Emphasis on selection and evaluation of books, adolescent reading interests, and reading guidance for curricular and personal needs.

Lib 432/532
Multicultural Literature K-12 (3)
An introduction to contemporary multicultural literature, fiction and nonfiction, for use with early childhood, elementary, middle school and high school students. Emphasis is on the selection, evaluation, and utilization of literature in the classroom and library media center.

Lib 433
administration of the School Library Media Center (3)
Study of the school library media center and its integral role in the instructional program of the school. The school library media movement. Focus on the leadership role of the media specialist; management of personnel; media program budgeting; facility planning; role of state and national standards in planning, evaluation, and development; other administrative areas. Field activities included. Prerequisite: Lib 428/528.

Lib 436
Design and Production of Instructional Media (3)
Study of the use of instructional media, K-12. Instructional design, criteria for quality print and nonprint media. Production of instructional media including slide/tape presentations, video recordings, and advanced techniques for overhead transparencies; graphic techniques; and uses of computers and technology in production. Effective use of instructional equipment and technology. Research of education technology and communication. Prerequisite: Lib 425.

Lib 441
Reference and Information Systems and Services (4)
An analysis of reference services and procedures. Study of print, nonprint, and electronic database reference sources to include bibliographic tools, indexes, encyclopedias, ready references, biographical tools, geographical tools, dictionaries, government documents, and specialized materials. Research in reference services and technological delivery systems. Prerequisite: Lib 428/528.

Lib 452
Collection Development and Evaluation (3)
Principles and practice of evaluation, selection, and acquisition of all types of materials included in a library media center collection. Selection and collection development policies and procedures. Study of professional evaluation and selection sources. Field activities included. Prerequisite: Lib 428/528.

Lib 457
Library Media Instructional Programs, K-12 (3)
A study of the K-12 information skills program, including the development of a scope and sequence, effective teaching strategies, specific skills instruction, correlation and integration with the classroom curriculum, and organization and development of a teaching program in the library media center. Prerequisite: Lib 428/528.

Lib 458
Organization of Library Media Collections (4)

Lib 544
Student Teaching I (4)
Beginning student teaching in a library media center under the direction of a supervising library media teacher and university supervisor. Observation and participation in teaching, administrative and other responsibilities of a library media specialist. Opportunities for involvement in student learning activities, development of teaching skills, basic skills in management and discipline of students. Taken in conjunction with Lib 547 and Lib 543. Prerequisites: admission to the program and approved application.

Lib 545
Student Teaching II (15)
Ten weeks of full-time student teaching in a school library media center under the supervision of a library media teacher and university supervisor. Participation in a full range of teaching, administrative, and other responsibilities of a library media specialist. Direct responsibilities for student learning activities, development of teaching skills, creating a climate conducive for learning, management and discipline of students, and related professional activities. Weekly seminar. Prerequisites: admission to program and approved application.

Lib 561
Practicum Elementary Library Media Center (3)
A planned experience consisting of practical application of the full range of roles and responsibilities of the library media specialist in an elementary library media center under the direction of a supervising elementary school library media teacher and a University supervisor.

Lib 562
Practicum Middle or Junior High Library Media Center (3)
A planned experience consisting of practical application of the full range of roles and responsibilities of the library media specialist in a middle or junior high school library media center under the direction of a supervising middle or junior high school library media teacher and a University supervisor.

Lib 563
Practicum High School Library Media Center (3)
A planned experience consisting of practical application of the full range of roles and responsibilities of the library media specialist in a high school library media center under the direction of a supervising high school library media teacher and a University supervisor.

Lib 570
Contemporary Issues in School Librarianship (3)
An introduction to the study of contemporary issues which impact the role and function of the school library media specialist. Students will analyze critical issues and trends in school librarianship.

Lib 573
Advanced Methods and Procedures in School Library/Media Centers (3)
A study of the school library/media center as a teaching agency. Designed to focus on the teaching role of the school librarian/media specialist in presenting concepts, principles, content, and techniques to students and teachers. Emphasis placed on instruction in library and research skills, reading, viewing and listening guidance; in-service for school personnel; and problems involved in performing effectively as a teacher. Observation of library/media centers required. Prerequisites: Basic Educational Media Endorsement and consent of instructor.

Lib 574
Research Strategies for Library Media Specialists (3)
Advanced reference materials available in school and academic libraries, including computer databases and network resources. Prerequisite: Lib 541 or equivalent.

Lib 575
Directed Field Experience (3)
Planned contact for school library media specialists with professional librarians and/or media specialists in public, academic, special libraries, information centers, and other library or media-related settings. Directed field work and visits to various libraries and information centers will be the emphasis of the course. Seminar meetings on campus deal with topics related to the field experience as well as intensive study of related advanced issues such as automation, personnel, and management.

Lib 576
Planning and Evaluation of Library Media Programs (3)
Analysis of media center programs and planning techniques; study and application of media center evaluation instruments; analysis and development of library media center programs. Prerequisites: Basic Educational Media Endorsement or consent of instructor.
Lib 587
Video Production (3)
Study and practice of video recording techniques including storytelling, various camera techniques, editing, character generation. Students will spend time in a recording studio in addition to using the portable camera. Prerequisite: Basic Endorsement.

Lib 588
Computers and Advanced Technology in the Library Media Center (3)
An analysis and study of the role of computers and advanced technology (video discs, satellite television) in the library media center. Administrative uses as well as curriculum development will be studied for the technology. Prerequisite: Basic Endorsement.

Lib 589
Creative Photography in Education (3)
A study of photographic processes to include photography without a camera, basic animation techniques, and darkroom techniques. Analysis of completed photographs in terms of composition, style, and technique will also be studied. All techniques will be related to classroom instruction in the elementary and secondary schools. Prerequisite: Basic Endorsement.

Lib 592
Contemporary Children's and Young Adult Literature (3)
An analysis and study of contemporary children's and young adult literature. A study of trends and styles in modern literature includes picture books, fiction, and nonfiction. Contemporary authors and illustrators featured. Prerequisite: Lib 428/528 or equivalent.

Lib 601
Research (Credit to be arranged.)
Lib 602
Independent Study (Credit to be arranged.)
Lib 603
Dissertation (Credit to be arranged.)
Lib 604
Cooperative Education/Internship (Credit to be arranged.)
Lib 605
Reading and Conference (Credit to be arranged.)
Lib 606
Special Problems (Credit to be arranged.)
Lib 607
Seminar (Credit to be arranged.)
Lib 608
Workshop (Credit to be arranged.)
Lib 609
Practicum (Credit to be arranged.)
Lib 610
Selected Topics (Credit to be arranged.)
Lib 801
Research (Credit to be arranged.)
Lib 802
Independent Study (Credit to be arranged.)
Lib 804
Cooperative Education/Internship (Credit to be arranged.)
Lib 805
Reading and Conference (Credit to be arranged.)
Lib 806
Special Problems (Credit to be arranged.)
Lib 807
Seminar (Credit to be arranged.)

Lib 808
Workshop (Credit to be arranged.)
Lib 809
Practicum (Credit to be arranged.)
Lib 810
Experimental Course (Credit to be arranged.)

SPECIAL EDUCATION AND COUNSELING COURSES

COUNSELING COURSES
Coun 199
Special Studies (Credit to be arranged.)
Coun 401/501
Research (Credit to be arranged.)
Coun 402/502
Independent Study (Credit to be arranged.)
Coun 403/503
Thesis (Credit to be arranged.)
Coun 405/505
Reading and Conference (Credit to be arranged.)
Coun 406/506
Special Problems (Credit to be arranged.)
Coun 407/507
Seminar (Credit to be arranged.)
Coun 408/508
Workshop (Credit to be arranged.)
Coun 409/509
Practicum (Credit to be arranged.)
Coun 410/510
Experimental Course (Credit to be arranged.)
Coun 425/525
Guidance for the Classroom Teacher (3)
This course acquaints the student, through hands-on experience, with test taking, scoring, norming, and trends. Prerequisite: completion of 135 credits; student teaching or teaching experience.
Coun 441/541
Introduction to Counseling (3)
The need for counseling services in schools; tests, inventories, questionnaires, and records; the role of the home and the community in counseling; individual and group counseling; consultation, career counseling; orientation to professional groups, ethics, and current issues and trends. Prerequisite: completion of 133 credits.
Coun 445/545
Youth at Risk (3)
Designed to provide participants with an overview of areas of risk. Topics will be covered in a variety of settings. Prerequisite: completion of 133 credits.

LIBRARY AND INFORMATION SCIENCE

Coun 542, 543
Interpersonal Relations I, II (3, 3)

Coun 551
Theories and Interventions I (3)
This course is designed for those who wish to increase their understanding of counseling theory, interventions (techniques, strategies) and research. The Transactional Analysis, Rational-Emotive, Reality and other cognitive behavioral approaches to counseling will be studied; the focus will be on the three parameters mentioned above. Course content can be applied to both individual and group counseling. Prerequisites: Coun 541, 542.

Coun 552
Theories and Interventions II (3)
This course is designed for those who wish to increase their understanding of counseling theory, interventions (techniques, strategies) and research. The Transactional Analysis, Rational-Emotive, Reality and other cognitive behavioral approaches to counseling will be studied; the focus will be on the three parameters mentioned above. Course content can be applied to both individual and group counseling. Prerequisites: Coun 541, 542, 551.

Coun 555
Counseling Children and Youth (3)
Theoretical overview of growth and development of children and youth. Emphasis on translating theory into practice through a “person-environment interaction” conception of counseling, consultation, and educational intervention in school settings.

Coun 557
Job Placement and Training (3)
Techniques, training, and outcomes to assist persons with disabilities obtain and maintain employment.

Coun 559
Professional Practices: Rehabilitation of the Blind (3)
Overview of blindness and the blindness delivery systems. Roles and responsibilities of those working in social, psychological, educational, recreational and vocational settings are emphasized. Issues and field overviews.

Coun 567
Using Tests in Counseling (3)
The course is a graduate level introduction to testing. It offers the student the option of test usage in the counseling process and introduces issues related to such usage. In addition, the course acquaints the student, through hands-on experience, with test taking, scoring, norming, profiling and interpreting. Prerequisite: Coun 541.

Coun 568
Career and Lifestyle Planning (3)
This course examines the theoretical research foundation for career choices, factors that influence choices, the role of information, the skills and practices of effective helpers, the exploration/testing/habior market information sources which contribute to the value choices that are made, and related issues and problems. Prerequisite: admission to the program and Coun 541.
Coun 569 Developmental Foundations of Counseling (3)
Theoretical overview of life-span growth and development, emphasizing cognitive-intellectual, cognitive-moral, emotional-self, and social aspects of developmental growth in the human being. Emphasis on translating theory into practice through a “person-environment interaction” conception of counseling, consultation, and educational intervention.

Coun 571 Group Counseling (3)
This course includes the study of group guidance, group counseling, and group therapy in both school and agency settings. Topics such as membership roles, leadership styles, stages of group life, nonverbal communication in groups, ethical and professional issues relating to groups, theoretical models for group work, group practice with special groups, and research on group process and outcome will be presented. Students enrolled in the course also will be expected to participate in a co-facilitated, ongoing small group experience which will require sensitivity to the contributions of other group members. Prerequisites: Coun 541, 542, 551, 552.

Coun 572 Human Sexuality: Life Span and Therapeutic Perspectives (3)
Designed to provide participants with the opportunity to study the expression of human sexuality and intimacy across the life span as well as strategies to both facilitate healthy sexual development and overcome common sexual functioning problems. Students will be assisted in the process of recognizing personal attitudes and values about various aspects of sexuality and their effect on practice as well as the process of comfortably discussing sexuality with individuals and couples. Also addresses the impact of sexual abuse and sexuality and treatment considerations. Presented in a varied format structured to include lecture/discussion, audio-visual presentations, participant self-evaluation of their own attitudes and values, role-plays and small group discussion.

Coun 573 Contemporary Marriage and Family Systems (3)
Focus on contemporary marriage and family systems as they exist in American society today. Explore the past, present, and future of these systems, including changing demographics and their implications for professionals.

Coun 574 Family Development Over the Life Cycle (3)
Intended for graduate students taking the MFT series, this course examines family development as a foundational framework for family therapy. The developmental context provides opportunity to consider symptoms and dysfunction as related to tasks and challenges of reorganization at transition points.

Coun 575 Marriage and Family Counseling (3)
This course constitutes an introduction to the theory and methodology of marriage and family counseling. Attention is given to the major family interactional patterns which lead to family system breakdowm as well as the development of skills in the identification of such patterns. Family process assessment techniques, beginning work with families, dealing with resistance in family counseling, focus on "self"Doubling, sculpting, etc., are interventions which are taught using an experiential format. Prerequisite: Soc 461.

Coun 577 Advanced Family Therapy (3)
Analyzes the range of normative/paranormative problems experienced by family members, particularly in parental and parent/child relationships. Examine family case studies and participate in role playing activities geared to enhance family therapy skills. This course is a prerequisite for the internship.

Coun 578 Advanced Marital Therapy (3)
Students learn to conceptualize and intervene systematically with couple units. Attention is given to maintaining therapeutic balance, developing an intersystem treatment plan, and asking systemic/interpersonal questions. Major emphasis is placed on supervised skill practice through role play.

Coun 579 Therapeutic Strategies and Family Transitions (3)
Intended for graduate students taking the MFT series, this course analyzes current therapeutic assessment tools and interventions grounded in systemic theory/research as they pertain to family transitions. Success in this course builds upon requisite mastery of major systemic concepts that have to do with systemic function, structure, and motivation as related to assessing similarities and differences between normative and paranormative marriage and family life transitions. Appropriate systemic assessment integrates with systemic therapeutic interventions in resolving crisis resulting from family transitional difficulty, chronic illness, divorce, separation, marriage, death.

Coun 581 Multicultural Perspectives in Counseling (3)
A study of the human, ecological and societal forces influencing the provision of counseling services to culturally diverse students and other clients in educational and community settings. Current issues, problems and trends will be examined. Increased competence in individual and group counseling strategies and techniques will be emphasized, using didactic and experiential approaches. Prerequisite: Coun 541.

Coun 583 Diagnosis and Treatment Planning (3)
Examines major approaches to diagnosis of psychiatric impairment. Emphasis is placed on the classification system outlined in the current Diagnostic and Statistical Manual, and on application of the bio-psycho-social model to client assessment, goal-setting, and treatment planning. Prerequisite: Coun 541.

Coun 586 Psychopharmacology and Mental Illness (3)
Examines important psychotropic medications and their therapeutic applications. Drug efficacy, side effects, treatment of specific disorders such as anxiety and mood disorders, psychoactive substance use disorders, and schizophrenia. Prerequisite: Coun 541.

Coun 587 Mental Health Services (3)
Examines community mental health movement, policy, service sequence, and related legislation; organization and delivery of mental health services at the federal, state, and local levels, influences and trends in service delivery. Prerequisite: Coun 541.

Coun 590 Foundation of Rehabilitation Counseling (3)
Introductory course for students pursuing graduate study in rehabilitation counseling and is also oriented toward students with a more peripheral interest in related human service fields. Intended to provide a broad overview of the profession of rehabilitation counseling with an emphasis on both theoretical and practical aspects of the field. Prerequisite: Coun 544 or Coun 545.

Coun 591 Medical Aspects of Disability (3)
Covers the most common physical, sensory, and mental disabilities encountered by the rehabilitation professional. The major symptomatology, diagnostic procedures, treatment modalities, functional implications, and psychosocial and vocational correlates of each disabling condition will be discussed. Prerequisite: Coun 590.

Coun 592 Psychosocial Aspects of Disability (3)
Covers the psychological and social aspects of adjustment and adaptation to a variety of disabling conditions. Theoretical and practical issues relating to various types of physical, psychiatric, mental and social disabilities will be examined and discussed. Prerequisite: Coun 590.

Coun 593 Case Management (3)
Students will study case management systems and skills as used in both public and private rehabilitation and related other human service agencies. Topics covered include case identification, referral, eligibility determination, assessment, goal setting, plan development, intervention strategies, case monitoring, interagency coordination, advocacy, promotion of self-advocacy by client, software systems, information flow, organizational structures, time management, critical case management skills, funding sources and billing, as well as other topics of interest to the student. Prerequisite: Coun 590.

Coun 594 Occupational Analysis/Vocational Evaluation (3)
Content and experiences presented through this course are designed to familiarize the student with the basic principles and imperatives of occupational analysis and vocational evaluation and how these are applied and used in real world settings. Didactic instruction, experiential research, and collegial participation will be used to help students integrate course teachings into a core of personal and professional understanding which can then be applied to many different settings or systems. Prerequisite: Coun 590.
Coun 595  
Contemporary Issues and Applications in Rehabilitation Counseling (3)  
Covers contemporary issues in the field of rehabilitation counseling as well as recent applications of rehabilitation theories, technologies, assessment procedures, and counseling modalities, to a variety of rehabilitation settings and across rehabilitation populations.

Coun 596  
Foundations of School Counseling (3)  
Introductory course for students pursuing graduate study in the specialized field of school counseling. Intended to provide a broad overview of the school counseling profession with an emphasis on both theoretical and practical aspects of comprehensive school counseling programs. Field study required.

Coun 597  
Counseling for the 21st Century (3)  
A Summer Institute offered each year in collaboration with the Office of Student Services of the Oregon Department of Education and the Oregon School Counselor Association. Oriented toward students and professionals working in the field of school counseling. Each year’s topics change; the Summer Institute focuses on current issues in school counseling that fall into three broad areas: learning to learn, learning to live, and learning to work. It offers students and current practitioners the opportunity to assess and influence the direction of the school counseling profession in Oregon. Course may be repeated by post-graduate MA/MS students in order to fulfill the Continuing School Counselor requirements defined by OAR 584-070-0090.

Coun 598  
Consultation Procedures (3)  
This course introduces professional helpers to the assumptions, knowledge, goals, and procedures associated with the intervention strategy known as consultation. Consultation differs from counseling (a first-order intervention directly involving the counselor and client) in that it involves three parties: the consultant, consultant, and target (a second-order intervention). Attention is given to systems theory and the facilitation of planned change, models and strategies of consultation, and the role of consultant in differing settings (schools, agencies, court, etc.). Students are required to plan and implement a consultation as a field project. Prerequisites: Coun 541, 542.

Coun 599  
Professional Portfolio (3)  
Professional portfolio is designed for students who have completed a master’s degree in counseling, social work, psychology, or other mental health related field and whose program of studies was clinically focused and accredited. Professional portfolio is also designed to assist candidates for a Continuing School Counselor License who have to submit a portfolio documenting their fulfillment of the licensure requirements defined by OAR 584-070-0090. The goal of the portfolio is to assess the educational and experiential background of students to define additional counseling courses that will enable them to meet license standards in the State of Oregon. Permission of instructor or admission into Licensure Only option.

Coun 601  
Research (Credit to be arranged.)

Coun 602  
Independent Study (Credit to be arranged.)

Coun 603  
Dissertation (Credit to be arranged.)

Coun 604  
Cooperative Education/Internship (Credit to be arranged.)

Coun 605  
Reading and Conference (Credit to be arranged.)

Coun 606  
Special Problems/Projects (Credit to be arranged.)

Coun 607  
Seminar (Credit to be arranged.)

Coun 608  
Workshop (Credit to be arranged.)

Coun 609  
Practicum (Credit to be arranged.)

Coun 610  
Selected Topics (Credit to be arranged.)

Coun 801  
Research (Credit to be arranged.)

Coun 802  
Independent Study (Credit to be arranged.)

Coun 804  
Cooperative Education/Internship (Credit to be arranged.)

Coun 805  
Reading and Conference (Credit to be arranged.)

Coun 806  
Special Problems (Credit to be arranged.)

Coun 807  
Seminar (Credit to be arranged.)

Coun 808  
Workshop (Credit to be arranged.)

Coun 809  
Practicum (Credit to be arranged.)

Coun 810  
Experimental Course (Credit to be arranged.)

SPECIAL EDUCATION COURSES

SpEd 199  
Special Studies (Credit to be arranged.)

SpEd 401/501  
Research (Credit to be arranged.)

SpEd 402/502  
Independent Study (Credit to be arranged.)

SpEd 403/503  
Thesis (Credit to be arranged.)

SpEd 404/504  
Cooperative Education/Internship (Credit to be arranged.)

SpEd 405/505  
Reading and Conference (Credit to be arranged.)

SpEd 406/506  
Special Problems (Credit to be arranged.)

SpEd 407/507  
Seminar (Credit to be arranged.)

SpEd 408/508  
Workshop (Credit to be arranged.)

SpEd 409/509  
Practicum (Credit to be arranged.)

Consent of instructor.

SpEd 410/510  
Experimental Course (Credit to be arranged.)

SpEd 418/518  
Survey of Exceptional Learners (3)  
Overview of working with exceptional individuals, including special education and multicultural differences. Nature of diversities (including the talented and gifted) and educational ramifications for the teacher. Prerequisite: Psy 311.

SpEd 453/555  
Working With LEP Children Who Have Special Needs (2)  
Examine the current research in special education and see where it is appropriate in working with the Limited English Proficient (LEP) child. Consider issues including testing and diagnosis, appropriate teaching material and method, and placement. Discuss political, social, and community concerns in working with LEP students with special needs.

SpEd 460/560  
Outdoor Education/Recreation With Persons With Disabilities (6)  
Course provides a supervised practicum in a variety of outdoor activities with children, youth, and adults with disabilities. Students serve as counselor trainees, under the guidance of experienced outdoor specialists and teachers in a residential program located at the Mt. Hood Kiwanis Camp. Emphasis on learning from and about persons with disabilities, teamwork within living groups, and developing outdoor and leadership skills.

SpEd 480/580  
Accommodating Children With Special Needs in Early Childhood Education (3)  
Provides preparation for accommodating young children with special needs in early childhood education settings. Focus on assessment, program planning and adaptation, program planning, family involvement, and mainstreaming approaches. Prerequisite: Undergraduate early childhood education coursework or teaching experience with young children.

SpEd 481/581  
Family Guided Early Intervention (3)  
Develops knowledge and skills necessary for providing early intervention services to infants and toddlers with developmental delay/disabilities and their families.

SpEd 482/582  
Specialized Techniques: Early Intervention/Early Childhood Special Education (3, 3)  
Develops specialized knowledge and skills necessary for providing early intervention and early childhood special education services to infants, toddlers, and preschool children with severe and multiple disabilities, including children with physical and sensory impairments, children with health impairments, and children with autism.

SpEd 512  
Assessment and Planning: Handicapped Learner (3)  
An examination and application of diagnostic and assessment instruments used to appraise exceptional children. Course provides functional knowledge of academic skill evaluation, psychomotor evaluation, and social/emotional evaluation instruments. Prerequisites: SpEd 418/518 and admission to certificate program.

1 Restricted to students in the Child and Family Studies degree program.
SpEd 509 Directed Field Experience II.
Comprehensive study of a methodology considering in how to organize and prepare classroom environment to facilitate learning. Primary emphasis on designing instructional programs, knowledge of instructional programs, describing and analyzing observational information, conducting task analytical diagnosis of behavior problems, and managing behavior in instructional settings. Prerequisites: SpEd 418/518 and admission to certificate program.

SpEd 514 Methods of Teaching Academics: Handicapped Learner (3)
Emphasis on instructional programming and teaching techniques for implementing language arts, reading, and mathematics curricula for students with disabilities. Prerequisites: SpEd 418/518 and admission to certificate program.

SpEd 515 Methods of Teaching Life Skills (3)
Emphasis on life skills programming and teaching techniques for implementing the functional curriculums. These curriculums include communication, leisure education, vocational, gross/fine motor, social/sexual and self-help for students with disabilities. Prerequisites: SpEd 418/518 and admission to certificate program.

SpEd 516 Consulting and Team Planning (3)
A study of practices and techniques for implementing a transdisciplinary team approach to collaborating with parents, related service staff, regular educators, administrators, and medical personnel. Prerequisites: SpEd 418/518 and admission to certificate program.

SpEd 519 Principles of Special Education (3)
Prepares students entering special education with basic knowledge, skills, and values necessary for future success in their profession. Major overview of theory and research underlying delivery of special education services in the public schools. Intensive study of career planning, graduate writing and research, information systems, current legislation, teaching and learning theory, curricular models, and professional ethics and standards. Pre- or co-requisite: SpEd 418/518.

SpEd 521 Behavior Management in the Classroom (3)
Primary emphasis will be on observation of classroom behavior with concomitant development of alternatives for intervention in helping children develop more appropriate behavioral skills.

SpEd 523 Student Teaching (6-12)
Observation and teaching under the direction of a supervising teacher. Opportunities for assuming direct responsibility for the learning activities of the disabled learner, for developing skill in techniques of teaching and schoolroom management, and for participating in the life of the school. Prerequisite: Satisfactory completion of SpEd 509 Directed Field Experience II.

SpEd 532 Assessment and Planning: Severely Handicapped Learner (3)
Examination and application of diagnostic and assessment instruments used to appraise learners with severe disabilities. Designed to provide functional knowledge of conducting comprehensive longitudinal evaluation for developing functional curriculum. Selecting assessment instruments and utilizing ongoing systematic assessment techniques to evaluate skills of persons with severe disabilities. Prerequisites: SpEd 418/518 and admission to certificate program.

SpEd 534 Curriculum and Programming: Severely Handicapped Learner I (3)
Examination of special content and methodology of education for students with severe disabilities, infancy through adulthood. Includes curricular content and instructional strategies for community, domestic, leisure/recreation, and vocational domains. Use of a variety of instructional strategies with severely disabled learners in both individual and group settings. To be taken concurrently with Directed Field Experience: Severely Disabled Learner I. Prerequisites: SpEd 418/518 and admission to certificate program.

SpEd 535 Curriculum and Programming: Severely Handicapped Learner II (3)
Examination of special content and methodology of education for students with severe disabilities, infancy through adulthood. Includes curricular content and instructional strategies for communication. Social, sexual, motor, and functional academic domains. Preparation to use a variety of instructional strategies with severely handicapped learners in both individual and group settings. To be taken concurrently with Directed Field Experience: Severely Disabled Learner II. Prerequisites: SpEd 418/518 and admission to certificate program.

SpEd 536 Specialized Techniques: Severely Handicapped Learner (3)
Study of the specialized technologies and physical management strategies for educating students with multiple disabilities in integrated settings. Technologies include augmentative communication systems and computer adapted equipment. Physical management includes positioning, transferring and fitness programs for the severely disabled learner. Prerequisites: SpEd 418/518 and admission to the program.

SpEd 540 Education of the Visually Impaired Learner (3)
Beginning with a historical background of the education of the visually disabled, this course provides an overview of basic information about visually impaired children and youth. Basic programming components and implications for conceptual and motoric development. Basic curricular components necessary for the visually impaired, leading to transition from school to adult life. Prerequisites: SpEd 418/518 and admission to the program.

SpEd 541 Implications of Vision Problems of Children/Youth (3)
Anatomy, physiology, common diseases, and hygiene of the human eye. Emphasis on vision screening, testing, and techniques for evaluation of functional visual skills in the classroom. Focus includes strategies for improving medical/optometric eye reports. Emphasis on working with the regular classroom teacher regarding prevention of potential eye disorders and referral to eye specialists. Prerequisites: SpEd 540 and admission to the program.

SpEd 542 Assessment of the Visually Impaired (3)
Examination and application of diagnostic and assessment instruments useful with or modified for visually impaired learners. Designed to prepare teachers of the visually disabled for administering, scoring, and interpreting test results for program planning and implementation. Developmental areas include cognition, social/emotional skills, psychomotor skills, and self-help skills. Prerequisites: SpEd 418/518 and admission to the program.

SpEd 544 Methods of Teaching Academics: Visually Impaired Learner (3)
Course focuses upon curricular adaptations for use with the visually impaired learner in the classroom. Academic areas examined and strategies for inclusion for the visually impaired learner in all aspects of the school curriculum. Teaching of Braille, use of abacus for mathematics, and adapted materials. In-depth curricular focus for the multi-disabled child. Prerequisites: SpEd 418/518 and admission to the program.

SpEd 545 Orientation and Mobility/Life Skills (3)
Focus on teaching independent travel skills to totally or functionally blind students. Methods and techniques presented to help the special and regular class teacher promote success in daily living skills as well. Prerequisite: SpEd 418/518.

SpEd 546 Braille I (3)
The Braille code is presented, to include Grade II literary Braille, and use of the abacus. Prerequisites: SpEd 540 and admission to the program.

SpEd 547 Braille II (2)
All special signs and symbols relating to the literary code are learned and special formatting techniques used in printed materials, charts, and graphs. Study of Braille Nemeth Code for mathematics. Prerequisites: SpEd 546 and admission to the program.

SpEd 551 Job Search Education (3)
Course designed to teach the latest job finding and leisure search techniques and to improve students’ ability to teach job/leisure finding to high school pupils. Course combines lecture and hands-on experiences. Training for teachers and counselors in community agencies. Prerequisite: SpEd 418/518.
SpEd 552 Sex Education for the Handicapped (3)
Course examines values and attitudes behind teaching social/sexual skills to persons with mental retardation. Self-esteem building, body image, classroom activities and learning experiences on puberty, menstruation, sterilization, birth control, and sexually transmitted diseases. Prerequisite: SpEd 418/518.

SpEd 553 Leisure Education for the Handicapped (3)
Prepares students to be knowledgeable and competent in meeting the independent living needs of persons with disabilities. Focuses on recreation and leisure as a major aspect of independent living and community adjustment. Role of the schools in providing a comprehensive leisure education program for students with handicaps. Prerequisite: SpEd 418/518.

SpEd 556 Career Education for the Handicapped (3)
Course presents a broad conceptual framework for organizing and developing career education programs for disabled students (elementary/young adult); helps participants gain knowledge which strengthens vocational success for disabled persons; and program models train persons with disabilities in transition from school to community life. Prerequisite: SpEd 418/518.

SpEd 557 Job Placement and Training (3)
Techniques, training, and outcomes to assist persons with disabilities obtain and maintain employment.

SpEd 558 Introduction to Youth in Transition (3)
Examination of transition services mandated by public laws; application of skills to facilitate school-to-work transition of youth with disabilities, and family partnerships.

SpEd 559 Professional Practices: Rehabilitation of the Blind (3)
Overview of blindness and the blindness delivery systems. Roles and responsibilities of those working in social, psychological, educational, recreational, and vocational settings are emphasized. Issues and field overview.

SpEd 561 Behavior-Disordered Learner (3)
Course focuses upon the nature and needs of behavior-disordered youth in educational and social settings. Academic areas as well as strategies for inclusion for the behavior-disordered learner in all aspects of the school curriculum. Prerequisite: SpEd 418/518.

SpEd 562 Alternate Education for Learning-disabled Children (3)
Outdoor program focusing on academic instruction and recreational experiences designed to enhance the learning potential of the learning-disabled child. Emphasis is on practical approach for teachers. Prerequisite: SpEd 418/518.

SpEd 563 Advanced Techniques of Reading (3)
Primarily concerned with educational methods designed to teach students with severe to moderate response deficits in reading. Prerequisite: CI 474/574.

SpEd 564 Learning Disabilities (3)
Concepts, issues, and major sources in the field of learning disabilities: definition, causation and identification, ability vs. task analysis models, perceptual training, and aptitude treatment interaction, early identification, and reading disability.

SpEd 565 Medical and Legal Aspects for the Disabled (3)
An examination of the medical and legal aspects of major disabling conditions and implications for management in the special education/habilitation setting. Focus on the medical and legal needs of persons with severe disabilities in educational, clinical, and social settings. Prerequisite: SpEd 418/518.

SpEd 568 Advanced Social Skill Development (3)
Course for educational professionals serving behaviorally disordered students whose disabilities are considered mild to moderate. Focuses on advanced methods of behavior management that go beyond traditional behavior modification practices. Prerequisite: SpEd 521.

SpEd 570 Communication Systems for Severely Handicapped Learners (3)
Course for students who will be teaching communication skills to persons with severe disabilities, including nonverbal individuals. Examines specialized systems for teaching communication skills, normal speech, and implementation of communication instruction. Prerequisite: SpEd 418/518.

SpEd 573 Assessment and Planning for Students With Mild Disabilities (3)
Examination and application of diagnostic and assessment instruments used to measure cognitive language abilities and social/emotional functioning. Formal and informal methods of assessment. Prerequisite: SpEd 418/518.

SpEd 575 Technology for the Visually Impaired (3)
Study of computer applications for visually impaired learners, including existing and proposed hardware and software that would improve accessibility to print information by visually impaired and blind students. Adaptations of existing technology; evaluation of its effectiveness. Prerequisite: SpEd 540.

SpEd 576 Multi-Handicapped Blind Learner (3)
Study of visually handicapped students with concomitant disabilities such as hearing impairments, mental retardation, and behavior disorders. Emphasis on curricular adaptations, teaching strategies, and behavior management. Prerequisite: SpEd 418/518.

SpEd 578 Advanced Behavior Intervention: Severely Handicapped Learner (3)
Intervention strategies for students with severe behavior problems and disorders; focus on education, and non-adversive behavior management strategies. Prerequisite: SpEd 418/518.

SpEd 580 Applied Behavioral Research in Special Education (3)
Study of applied behavioral research in special education. Conceptualization of a variety of research designs appropriate for problems in special education, including multiple baseline design research. Development of hypotheses, definition and measurement of important variables, research design strategies, analysis of data, interpretation and inference, and writing a research report. Prerequisite: SpEd 418/518.

SpEd 591 Issues in Special Education (3)
Review of the major issues related to special education in the United States. Emphasis upon moral, ethical, and legal considerations relative to the habilitation of disabled children and youth. Prerequisite: SpEd 418/518.

SpEd 592 Advanced Studies in Special Education (3)
Review of major philosophical and theoretical bases for learning relative to the unique needs of atypical persons served in special education programs. Overview of the work of Piaget, Skinner, Baumeister, Bandura, Premh, and others. Prerequisite: SpEd 591.

SpEd 601 Research (Credit to be arranged.)

SpEd 602 Independent Study (Credit to be arranged.)

SpEd 603 Dissertation (Credit to be arranged.)

SpEd 604 Cooperative Education/Internship (Credit to be arranged.)

SpEd 605 Reading and Conference (Credit to be arranged.)

SpEd 606 Special Problems (Credit to be arranged.)

SpEd 607 Seminar (Credit to be arranged.)

SpEd 608 Workshop (Credit to be arranged.)

SpEd 609 Practicum (Credit to be arranged.)

SpEd 610 Selected Topics (Credit to be arranged.)

SpEd 801 Research (Credit to be arranged.)

SpEd 802 Independent Study (Credit to be arranged.)

SpEd 804 Cooperative Education/Internship (Credit to be arranged.)

SpEd 805 Reading and Conference (Credit to be arranged.)

SpEd 806 Special Problems (Credit to be arranged.)

SpEd 807 Seminar (Credit to be arranged.)

SpEd 808 Workshop (Credit to be arranged.)

SpEd 809 Practicum (Credit to be arranged.)

SpEd 810 Experimental Course (Credit to be arranged.)
B.S.—Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, and Mechanical Engineering
Minor in Computer Science
Minor in Electrical Engineering
Minor in Environmental Engineering
M.S.—Civil Engineering, Computer Science, Electrical and Computer Engineering, Engineering Management, and Mechanical Engineering
M.Eng.—Civil Engineering, Civil Engineering Management, Electrical and Computer Engineering, Engineering and Technology Management (Option in Technology Management, Option in Project Management), Manufacturing Engineering, Mechanical Engineering, Systems Engineering
M.S.E.—Master of Software Engineering
Ph.D.—Civil Engineering, Computer Science, Electrical and Computer Engineering
Ph.D.—Participating college in Systems Science Doctoral Program
Ph.D.—Participating college in Environmental Sciences and Resources Doctoral Program

Engineering and computer science offer the challenge and excitement of solving current and future technological problems in computers, electronics, energy, transportation, and the environment. Furthermore, national projections indicate that the need for engineers and computer scientists will increase significantly during the years ahead. All undergraduate programs require a core of engineering or computer science, mathematics, science, and liberal arts courses. Graduate programs provide extended educational opportunities in various engineering and computer science specialties.

UNDERGRADUATE PROGRAMS

At the undergraduate level, the student may select degree programs in civil engineering, computer engineering, computer science, electrical engineering, and mechanical engineering. Cooperative educational programs with Portland-area industries, government agencies, and engineering consulting offices are available to qualified students.

Note: The degree programs in civil engineering, electrical engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission/Accreditation Board for Engineering and Technology (EAC/ABET). The computer science program is accredited by the Computing Sciences Accreditation Board (CSAB).

POLICY ON ADMISSION TO THE COMPUTER SCIENCE PROGRAM

Students who are intending to graduate with an undergraduate degree in computer science must file the Application for Admission to the Computer Science Program with the Department of Computer Science after completing the lower-division requirements. No more than 8 upper-division computer science credits (including any approved upper-division transfer credits) taken prior to admission to the program will be counted toward the student's departmental requirement of 46 upper-division computer science credits (CS 300, 301, 302, 303, 350, 487, 488 and 20 credits of upper-division computer science electives). Students also must be in admitted status during the term they intend to graduate.

POLICY ON ADMISSION TO THE ENGINEERING PROGRAMS

Students may declare engineering as their major at any time after enrolling at Portland.
Students admitted to PSU as freshmen beginning with the 1994-95 academic year will satisfy these course requirements by taking 15 credits of Freshman Inquiry.

PASS/NO PASS GRADING POLICY

All courses specifically required by the University or by a particular department must be taken for a letter grade unless the required course is only offered with a pass/no pass option.

GRADUATE PROGRAMS

The College offers graduate programs leading to the degrees of Master of Science, Master of Engineering, and Doctor of Philosophy.

Master’s programs are available in civil engineering, computer science, electrical and computer engineering, mechanical engineering, engineering management, manufacturing engineering, and systems engineering.

Ph.D. programs are available in civil engineering, computer science, and electrical and computer engineering.

In addition, the Departments of Civil Engineering, Mechanical Engineering, and Engineering and Technology Management in the College of Engineering and Computer Science participate in the single-discipline option of the Systems Science Ph.D. Program and offer discipline-oriented doctoral degrees. The Department of Civil Engineering also participates in the
Environmental Sciences and Resources
Doctoral Program.

The Oregon Master of Software Engineering (OMSE) program offers working professionals a master's degree in software engineering through a partnership of Portland State University, Oregon Graduate Institute, Oregon State University, and University of Oregon. Courses are offered at the CAPITAL Center (185th and Walker Road in Beaverton), and the degree is granted from the student's choice of participating universities. For more information, contact OMSE at 503-725-2900.

MANUFACTURING ENGINEERING

I. Suite 50
Fourth Avenue Building
503-725-4660
www.etm.pdx.edu/

M.Eng.

Manufacturing engineering is concerned with the application of specialized engineering and managerial knowledge to the development of productive systems involving people and machines. Primary emphasis is on the design, operation, and control of integrated systems for the production of high quality, economically competitive goods utilizing efficient product design, computer networks, machine tools, robots, and materials-handling equipment.

The master's degree in manufacturing engineering is designed to provide engineering professionals with the opportunity to pursue advanced level study in a field of engineering that involves subject matter normally not covered in basic engineering undergraduate programs.

The program is administered by the Department of Engineering and Technology Management

DEGREE REQUIREMENTS

A total of 45 credits of approved graduate coursework is required to complete the master's degree in manufacturing engineering. The program consists of 30 to 36 credits in the core and 9 to 15 credits in electives. A comprehensive final oral examination is required after the completion of coursework.

Core Requirements: 30-36 Credits

Courses satisfying core requirements at each institution:

Analysis
Applied Statistics for Engineers . . . . . . . . Stat 560
Analysis/Numerical Methods† . . . . . . . . . . ME 551

Applied Statistics
Statistical Process Control . . . . . . . . . ME 587
Design of Industrial Experiments . . . . . . ME 588

Manufacturing Management
Manufacturing Systems Engineering . . . . EMgt 550
Manufacturing Management . . . . . . . . . ME 551
Project Management . . . . . . . . . . . . . . . . EMgt 545
Communication and Team Building . . . . EMgt 522

Concurrent Engineering
Concurrent Engineering . . . . . . . . . . . . ME 510

Management (3-9)
Strategic Planning in Engineering Management . . . . EMgt 523
Organizational Management . . . . . . . . . Mgmt 550
Financial Accounting . . . . . . . . . . . . . Actg 311

Technical Specialty Electives (9 to 15)

Nine to fifteen credits of graduate courses in mechanical engineering, industrial and manufacturing engineering, electrical and computer engineering, engineering management, or computer science. Three to six of these credits may be project work. (For example: 3 to 6 credits of EMgt 506 Projects may be included.)

ADMISSION TO THE PROGRAM

Applicants to the program are required to have:

- An undergraduate degree in engineering or a closely related discipline from an accredited institution.
- A combined GPA of 3.0 on the last 90 credit hours of graded undergraduate work plus all work completed thereafter.
- Under special conditions, applicants who partially satisfy the above admission requirements may be considered for conditional acceptance, provided they meet all institutional requirements to the campus to which they apply.
- International applicants are required to demonstrate proficiency in English by taking the Test of English as a Foreign Language (TOEFL). A TOEFL score of 550 or greater is required of all students whose native language is not English and who have not received a degree from an accredited institution in the United States.

Oregon Master of Software Engineering

CAPITAL Center, Suite 1310
18640 NW Walker Road
Beaverton, OR 97006
503-725-2900
http://www.omse.org

M.S.E.

Oregon Master of Software Engineering (OMSE) is a professional degree program designed to provide advanced, state-of-the-practice knowledge and skills commensurate with the needs of Oregon software, software-intensive, and computer-related industries. The program offers a set of 14 evening courses that can be taken either as needed or as part of a complete degree program. The OMSE courses focus on principles, methods, and tools that can be used for creating high-quality products that serve the needs of customers.

The program is a partnership of Portland State University, Oregon Graduate Institute, Oregon State University, and University of Oregon. The faculty for the OMSE program is drawn from each of the four institutions.

The OMSE curriculum is targeted at working professionals to upgrade the skills necessary to develop or manage the development of software in industry. The program is designed to be accessible to those with a computer science/engineering background and significant industrial experience in software engineering. Courses may also be taken on a non-admitted basis provided that the course's prerequisites are met.

Although a mastery of software engineering technology is essential, it is not sufficient to meet industry's current and future needs for software engineering expertise. The OMSE graduate must also understand the business context of the software effort and possess the skills necessary to adapt the software development process and its products to meet overall product development and business goals.

DEGREE REQUIREMENTS

The OMSE curriculum comprises 48 credits: 42 credits of core courses (including 6 credits of a software engineering practicum) and 6 credits of elective courses.

† Other analysis/numerical methods courses may be substituted.
Software Engineering Foundations
(21 credits)
OMSE 500 Principles of Software Engineering
OMSE 511 Managing Software Development
OMSE 512 Understanding the Software Business
OMSE 513 Professional Communication Skills for Software Engineers
OMSE 521 Using Metrics and Models to Support Quantitative Decision Making
OMSE 522 Modeling and Analysis of Software Systems
OMSE 525 Software Quality Analysis

Software Development in Context
(12 credits)
OMSE 531 Software Requirements Engineering
OMSE 532 Software Architecture and Domain Analysis
OMSE 533 Software Design Techniques
OMSE 535 Software Implementation and Testing

Program Integration and Strategic Development Skills (9 credits)
OMSE 551 Strategic Software Engineering
OMSE 555 Software Development Practicum I
OMSE 556 Software Development Practicum II

Elective Courses (6 credits)
Elective courses may be taken at any of the partnership universities. Pre-approval is required.

ADMISSION TO THE PROGRAM
A committee consisting of the OMSE program director and faculty from Portland State University, Oregon Graduate Institute, Oregon State University, and University of Oregon determines admission. Admitted students will choose one of the four partnership schools as their degree-granting institution.

Admission requirements are:
- A computer science or engineering bachelor's degree with a GPA of 3.00 or higher
- Two years of relevant work experience
- A core set of computer science courses (programming languages, discrete math, data structures, operating systems, and computer architecture)

Applicants who partially satisfy the above conditions may be considered for admission on a case-by-case basis. Applicants needing one or more of the core computer science courses and/or needing to gain one year of relevant work experience may enroll in OMSE courses on a non-degree basis provided the prerequisites for those courses are satisfied. Upon admission to the OMSE program, students can transfer up to 18 credits (six OMSE courses) into the degree program.

In addition, international students may need to provide a TOEFL score if their native language is not English. Students who earned undergraduate degrees in the United States are exempt from this requirement.

SYSTEMS ENGINEERING

M.Eng.

Systems engineering focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, then continuing with design synthesis and system validation while considering the complete problem: operations—performance—test—manufacturing—cost and schedule—support—disposal.

Systems engineering integrates all the disciplines and specialty groups into a team effort, forming a structured development process that proceeds from concept to production to operation. Many of us already practice systems engineering, but call it something else: design or development of product, process, service. This course of study will enable the engineer to function in an interdisciplinary team and apply their area of engineering specialty toward the development of a product, process, or service.

DEGREE REQUIREMENTS

A total of 45 credits: 16 in systems core; 16 in elective specialty and related engineering areas; 9 in internship/project, and 4 in integrative workshop.

ADMISSION TO THE PROGRAM

Minimum three years of responsible engineering experience, baccalaureate degree in engineering, and at least 3.00 GPA for upper-division courses. Conditional admission is based on approval and a study plan specified by both director of systems engineering and departmental adviser.
CIVIL ENGINEERING

128 Science Building II
503-725-4282
www.ce.pdx.edu/

B.S.
Minor in Environmental Engineering
M.S.
M.Eng.
Ph.D.—Civil Engineering
Ph.D.—Participating department in Systems Science Doctoral Program
Ph.D.—Participating department in Environmental Sciences and Resources Doctoral Program

UNDERGRADUATE PROGRAM

Civil engineers plan, design, and manage the construction and operation of public and private facilities, including highways and transportation systems, power plants, buildings, dams, and water and wastewater treatment facilities.

The undergraduate degree program in civil engineering includes required courses in the analysis and design of structures, applied hydraulics, surveying and mapping, soil mechanics and foundations, engineering project management, transportation engineering, and environmental and water resources engineering.

To introduce civil engineering students to professional practice, the American Society of Civil Engineers (ASCE) sponsors a student chapter at Portland State University.

The civil engineering curriculum at Portland State University is accredited by the Engineering Accreditation Commission/Accreditation Board for Engineering and Technology (EAC/ABET). This national organization sets standards for engineering education defined in terms of curricular content, quality of faculty, and adequacy of facilities.

 Majors in civil engineering must complete the following University and departmental degree requirements. Any deviation from the required courses, including engineering and mathematics course substitutions, must be approved in writing by the chair of the department.

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECE 201 Electrical Engineering Lab I</td>
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<tr>
<td>ECE 221 Electric Circuits</td>
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<tr>
<td>CE 211 Statics</td>
<td>4</td>
</tr>
<tr>
<td>CE 212 Strength of Materials</td>
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<tr>
<td>CE 213 Properties of Materials</td>
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<td>CE 214 Dynamic</td>
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<tr>
<td>CE 215 Dynamics</td>
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<tr>
<td>CE 216 Field Problems in Plane Surveying</td>
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</tr>
<tr>
<td>ECE 201 Electrical Engineering Lab I</td>
<td>1</td>
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<tr>
<td>ECE 221 Electric Circuits</td>
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<tr>
<td>MTH 254 Calculus IV</td>
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<tr>
<td>MTH 256 Applied Differential Equations I</td>
<td>4</td>
</tr>
<tr>
<td>PH 214, 215, 216 Physics Laboratory</td>
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<td>Freshman Inquiry</td>
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Sophomore Year

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<td>EAS 211 Statics</td>
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<td>EAS 212 Strength of Materials</td>
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<td>EAS 213 Properties of Materials</td>
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<tr>
<td>EAS 215 Dynamics</td>
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<tr>
<td>CE 211 Plane Surveying and Mapping</td>
<td>3</td>
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<td>CE 212 Field Problems in Plane Surveying</td>
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<tr>
<td>ECE 201 Electrical Engineering Lab I</td>
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<tr>
<td>ECE 221 Electric Circuits</td>
<td>4</td>
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<tr>
<td>MTH 254 Calculus IV</td>
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<td>MTH 256 Applied Differential Equations I</td>
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<td>PH 214, 215, 216 Physics Laboratory</td>
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<td>Sophomore Inquiry</td>
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Junior Year

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<tr>
<td>EAS 361 Fluid Mechanics</td>
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<tr>
<td>CE 324 Elementary Structural Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CE 325 Indeterminate Structures</td>
<td>4</td>
</tr>
<tr>
<td>CE 333 Design of Steel Structures or CE 434 Principles of Reinforced Concrete</td>
<td>4</td>
</tr>
<tr>
<td>CE 341 Soil Classification and Properties</td>
<td>4</td>
</tr>
<tr>
<td>CE 351 Transportation Systems: Planning and Design</td>
<td>4</td>
</tr>
<tr>
<td>CE 362 Hydraulics</td>
<td>4</td>
</tr>
<tr>
<td>CE 364 Water Resources Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CE 371 Environmental Engineering</td>
<td>4</td>
</tr>
<tr>
<td>G 301 Geology for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ME 321 Engineering Thermodynamics</td>
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<tr>
<td>Stat 460 Applied Statistics for Engineers and Scientists</td>
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Senior Year

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<tbody>
<tr>
<td>CE 444 Geotechnical Design</td>
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<td>CE 454 Urban Transportation Systems</td>
<td>4</td>
</tr>
<tr>
<td>CE 484 Engineering Project Management</td>
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</tr>
<tr>
<td>CE 494 Civil Engineering Design</td>
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<td>Approved civil engineering electives</td>
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<td>Upper-division cluster</td>
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Approved Civil Engineering Electives

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<tbody>
<tr>
<td>CE 311 Engineering Surveys</td>
<td>4</td>
</tr>
<tr>
<td>CE 333 Design of Steel Structures</td>
<td>4</td>
</tr>
<tr>
<td>CE 420 Advanced Mechanics of Materials</td>
<td>4</td>
</tr>
<tr>
<td>CE 421 Analysis of Framed Structures</td>
<td>4</td>
</tr>
<tr>
<td>CE 423 Vibration Analysis in Structural Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CE 431 Stability of Structures</td>
<td>4</td>
</tr>
<tr>
<td>CE 432 Structural Steel Design-LRFD Method</td>
<td>4</td>
</tr>
<tr>
<td>CE 434 Principles of Reinforced Concrete</td>
<td>4</td>
</tr>
<tr>
<td>CE 435 Design of Reinforced Concrete Structures</td>
<td>4</td>
</tr>
<tr>
<td>CE 436 Masonry Design</td>
<td>4</td>
</tr>
<tr>
<td>CE 437 Timber Design</td>
<td>4</td>
</tr>
<tr>
<td>CE 438 Design of Composite Structures</td>
<td>4</td>
</tr>
<tr>
<td>CE 442 In situ Behavior and Testing of Soils</td>
<td>4</td>
</tr>
<tr>
<td>CE 443 Introduction to Seismology and Site Evaluation</td>
<td>4</td>
</tr>
<tr>
<td>CE 448 Earthquake Accommodation in Design</td>
<td>4</td>
</tr>
<tr>
<td>CE 457 Pavement Design</td>
<td>4</td>
</tr>
<tr>
<td>CE 464 Hydrologic and Hydraulic Modeling</td>
<td>4</td>
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<tr>
<td>CE 467 Hydrologic and Hydraulic Design</td>
<td>4</td>
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<tr>
<td>CE 474 Unit Operations of Environmental Engineering</td>
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<tr>
<td>ME 322 Applied Fluid Mechanics and Thermodynamics</td>
<td>4</td>
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<tr>
<td>ME 323 Heat Transfer</td>
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<tr>
<td>ME 421 Heating, Ventilating, and Air Conditioning Design Fundamentals</td>
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</tr>
<tr>
<td>ME 422 Building Energy Use Analysis and Design</td>
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MINOR IN ENVIRONMENTAL ENGINEERING

A minor program is available within the College of Engineering and Computer Science in the area of environmental engineering. A student wishing to minor in this area should complete, with a minimum grade of C, and a minimum GPA of 2.25, a designated set of courses as follows:

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MTH 254, 256, PH 221, 222, 223, 214, 215, 216; CH 221, 222, 223, 227, 228; EAS 361, CE 362, 364, 371, 474</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
</tr>
</tbody>
</table>

All courses must be taken for letter grade and at least one-third of the credit hours must be taken at Portland State University.

Course requirements for the minor also meet partial eligibility requirements for admission to the civil engineering program. Students who complete the requirements for the minor may wish to apply for admission to this program. Students graduating in civil engineering may not claim a minor in environmental engineering. Students planning to minor in environmental...
engineering should consult with an adviser in the Department of Civil Engineering.

**GRADUATE PROGRAMS**

**M.S. CIVIL ENGINEERING**

The master's program in civil engineering is designed to provide students with the technical and professional knowledge necessary to develop their abilities to seek creative solutions to complex problems in their field of interest.

The program involves advanced courses in the areas of structural analysis and design, transportation engineering, water resources, environmental engineering, geotechnical engineering, and project management, as well as science and mathematics. Flexibility is achieved by designing programs of study to meet individual needs.

Students are required to complete tentative degree plans that have been approved by their advisers not later than the second quarter of their residence at PSU. An M.S. study plan form for this purpose is available in the Civil Engineering Department. Students are also required to obtain their adviser's approval of coursework each quarter on a quarterly study plan form, when there are deviations from their M.S. study plan submitted. Coursework taken without adviser approval may not be accepted as part of the student's program. University master's degree requirements are listed on page 62.

The master's program consists of three options available to students. The first option involves a total of 45 credits, including 6 to 9 credits of thesis; the second option requires completion of 44 credits of coursework and 4 credits of research project that include a project report; and the third option requires completion of 48 credits of coursework. In the first two options, student research is conducted under the supervision of faculty. In all options, coursework is to include 9 credits in areas other than candidate's major emphasis, subject to the approval of student's adviser and department.

To become a candidate for the master's degree, the student must successfully complete all departmental requirements for one of the options described above. For the thesis option, successful completion of a final oral examination covering the thesis is required. Current faculty research areas include transportation systems, nonlinear structural analysis and design, earthquake engineering, mechanics of composites, stochastic modeling in hydrology and water resources, water quality modeling in environmental engineering, and in situ soil properties in geotechnical design.

**M.ENG. CIVIL ENGINEERING**

**Admission Requirements.** The admission requirements are the same as those for the Department's M.S. degree.

**Degree Requirements.** A total of 45 graduate credits is required. In addition to the University's M.S. degree requirements, a candidate for the M.Eng. degree must have 32 credits of approved electives that may include transfer credits and other allied disciplines, and up to 13 credits of CE 504 Internship.

**M.ENG. CIVIL ENGINEERING MANAGEMENT**

**Admission Requirements.** The admission requirements include a B.S. degree in civil engineering and satisfaction of the requirements for admission to the M.S. in engineering management and M.S. in civil engineering programs.

**Degree Requirements.** In addition to the University's general master's degree requirements, listed on page 62 of the Bulletin, the M.Eng. in civil engineering management requires a total of 45 graduate credits, including 32 course credits and a 4-credit capstone. Nine credits of internship are required, but substituting an equal number of course credits upon approval of the student's advisers may reduce the internship credits.

**Ph.D. CIVIL ENGINEERING**

**Program of Study.** The Ph.D. program in civil engineering offers advanced courses in the areas of structural analysis and design, transportation engineering, water resources, environmental engineering, geotechnical engineering, and project management. The faculty are engaged in research related to: management of urban stormwater; surface hydrodynamic and water quality modeling; management of eutrophication of urban water systems; mathematical modeling of groundwater and contaminant transport; creep response of fibrous composite materials; nonlinear behavior of composite plates; intelligent transportation systems; urban transportation; traffic flow theory; data fusion and macroscopic modeling; multi-modal traveler information; sustainability; alternative fuels; traffic management of freeways; video-imaging technologies and ITS; traffic operations using real-time traffic information; access management and traffic safety; land use and access relationships; earthquake vulnerability of buildings in urban areas; retrofit of buildings against seismic damage; and seismic testing of structures, transmission towers, sub-structures, and equipment.

**Research Facilities.** Laboratories and computer facilities are available that support research in the following areas: structures and materials; concrete; surveying and mapping; geotechnical; computational water quality/resources; hydraulics; environmental; and transportation. Among others, a high-tech Seismic Testing and Applied Research (STAR) Lab provides state-of-the-art equipment for research. Modern engineering computer labs are available for engineering students' use.

**Admission and Degree Requirements.** A student applying to the Ph.D. program in civil engineering will normally be required to have completed an M.S. degree in civil engineering or a closely related field. In addition to the University doctoral degree requirements, the program requirements include the equivalent of at least two years of full-time graduate work beyond the master's degree, a minimum of 24 hours of
coursework, and a comprehensive examination. For further information on admission and degree requirements, current course schedule, and research opportunities, students should refer to the departmental Web site www.ce.pdx.edu and/or request the departmental Graduate Handbook.

Ph.D. IN SYSTEMS SCIENCE—CIVIL ENGINEERING

The Ph.D. in Systems Science—Civil Engineering is a single-discipline option of the Systems Science Ph.D. Program (Departmental Option), whose general requirements are listed on page 67.

The departmental requirements are a master's degree in civil engineering or equivalent coursework, 9 credits of Systems Science core courses, 9 credits of additional Systems Science or approved engineering systems-related courses, and 9 credits of other approved coursework. Twenty-seven credits of dissertation research are also required. Specialization areas of research related to structural engineering, transportation engineering, geotechnical engineering, environmental engineering, and water resources are available.

Ph.D. IN ENVIRONMENTAL SCIENCES AND RESOURCES

The department participates in the Environmental Sciences and Resources Doctoral Program. Specialized studies in environmental and water resources engineering, along with environmental sciences courses and seminars, will partially fulfill the requirements for the Ph.D. in environmental sciences and resources. For information on the Ph.D. program in environmental sciences and resources, see page 117.

120 Portland Center for Advanced Technology
503-725-4036
www.cs.pdx.edu/

B.S.
Minor in Computer Science
M.S.
Ph.D.

UNDERGRADUATE PROGRAM

The computer science program is designed to provide students with the educational background required for a professional career in the computing industry and for further study at the graduate level. The program includes a core of required courses and an elective program of courses over a wide range of topics. Seniors work in teams to carry out projects for industry during the two-term capstone course in software engineering.

The computer science curriculum at Portland State University is accredited by the Computer Science Accreditation Commission/Accreditation Board for Engineering and Technology (CSAC/ABET). This national organization sets standards for computer science education defined in terms of curricular content, quality of faculty, and adequacy of facilities.

 Majors in computer science must complete the following University and departmental degree requirements. All computer science courses used to satisfy the departmental major must be graded C- or better. Courses taken outside the department as part of departmental requirements must be graded C- or better.

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 161, 162 Introduction to Computer Science</td>
<td></td>
</tr>
<tr>
<td>CS 163 Data Structures</td>
<td>4</td>
</tr>
<tr>
<td>Mth 251, 252, 253 Calculus I, II, III</td>
<td></td>
</tr>
<tr>
<td>Ph 221, 222, 223 General Physics (with Calculus)</td>
<td>9</td>
</tr>
<tr>
<td>Ph 214, 215, 216 Physics Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Freshman Inquiry</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
</tr>
</tbody>
</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 200 Computer Organization and Assembly Language</td>
<td>4</td>
</tr>
<tr>
<td>CS 201 Computer Architecture</td>
<td>4</td>
</tr>
<tr>
<td>CS 202 Programming Systems</td>
<td>4</td>
</tr>
<tr>
<td>CS 250 Discrete Structures</td>
<td>4</td>
</tr>
<tr>
<td>CS 251 Logical Structures</td>
<td>4</td>
</tr>
<tr>
<td>CS 311 Computational Structures</td>
<td>4</td>
</tr>
<tr>
<td>Wr 227 Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>Approved science electives</td>
<td>8</td>
</tr>
<tr>
<td>Sophomore Inquiry</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
</tr>
</tbody>
</table>

Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 300 Elements of Software Engineering</td>
<td>4</td>
</tr>
<tr>
<td>CS 321, 322 Languages and Compiler Design</td>
<td>8</td>
</tr>
<tr>
<td>CS 333 Operating Systems and Concurrent Programming</td>
<td>4</td>
</tr>
<tr>
<td>CS 350 Algorithms and Complexity</td>
<td>4</td>
</tr>
<tr>
<td>CS 407 Seminar: Social, Ethical, and Legal Issues</td>
<td>2</td>
</tr>
<tr>
<td>Stat 460 Applied Statistics for Engineers and Scientists</td>
<td>3</td>
</tr>
<tr>
<td>Approved mathematics electives</td>
<td>8</td>
</tr>
<tr>
<td>Upper-division cluster</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
</tr>
</tbody>
</table>

Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 487, 488 Software Engineering</td>
<td>6</td>
</tr>
<tr>
<td>Capstone</td>
<td></td>
</tr>
<tr>
<td>Approved upper-division computer science electives</td>
<td>20</td>
</tr>
<tr>
<td>Free electives</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
</tr>
</tbody>
</table>

Note: The University requires all students to have a minimum of 72 upper-division credits to graduate. Since less than 72 upper-division credits are required in computer science, mathematics, and general education for the computer science major, the extra credits of upper-division work must be taken from either the approved science electives or the free electives.

Approved Upper-Division Computer Science Electives

Students must complete 20 credits of upper-division computer science electives. The total may include any regular upper-division computer science course, and any of the courses ECE 455, 456, 485, 486, except that no more than 4 credits may be taken from CS 399, 401, 405, 406, 407, 409, and CS 404 may not be used.

Approved Mathematics Electives

Students must complete 8 credits of approved mathematics electives. The current list of approved mathematics electives is found in the undergraduate handbook in the computer science office.

Approved Science Electives

The student is required to complete 8 credits of approved science electives. These must be chosen from Bi 251, 252, 253; G 201, 202, 203; Ch 221, 222, 223; or any 300– or 400-level course from these departments or the department of physics. Laboratories taken with these courses also count toward the 8 credits.

Minor in Computer Science

A minor in computer science is available within the College of Engineering and Computer Science in the area of computer science. To earn a minor in computer science, a student must complete 36 credits as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 161, 162 Introduction to Computer Science</td>
<td></td>
</tr>
<tr>
<td>CS 163 Data Structures</td>
<td>8</td>
</tr>
</tbody>
</table>

† Please see page 17 for information on the general education requirement.
GRADUATE PROGRAMS

The Department of Computer Science offers M.S. and Ph.D. degrees, with graduate-level work in the areas of database systems, programming languages, software engineering, operating systems, networks, and theory of computing. Flexibility is achieved by designing programs of study to meet individual needs.

The departmental Graduate Handbook provides full details on the departmental regulations for these programs.

Admissions Requirements
To be considered for admission to the graduate program in computer science, the student must have a four-year baccalaureate degree from an accredited institution. This degree should normally be in computer science; otherwise, the applicant must demonstrate knowledge of the core curriculum of an undergraduate computer science degree. This core (PSU courses in parentheses) includes: programming (CS 161, 162), data structures (CS 163), computer hardware architecture (CS 200, 201), programming systems (CS 202), discrete mathematics and logic (CS 250, 251, 311), and calculus (Mth 251, 252, 253). In addition, the applicant must demonstrate knowledge of languages and compilers (CS 321), operating systems (CS 333), and analysis of algorithms (CS 350).

An undergraduate GPA of at least 3.00 in upper-division coursework is required. Applicants must take the general portion of the Graduate Record Examination, and submit two letters of recommendation to the department.

Normally, an applicant to the Ph.D. program will have an M.S. in computer science. Students may apply to the M.S. program and later transfer to the Ph.D. program.

M.S. COMPUTER SCIENCE

The master's program in computer science is designed to prepare students for advanced careers in the computer industry, to create a research environment in computer science, and to prepare students for graduate work at the Ph.D. level.

University master's degree requirements are listed on page 62. The master's program in computer science consists of two options. The first option involves the completion of an approved program of 45 credits. The second option requires the completion of an approved program of 45 credits, which includes 9 credits of thesis. In both options, coursework is to include core courses in theory, programming languages, and systems, plus a 9-credit concentration in one of the areas listed above. For the thesis option, successful completion of a final oral examination covering the thesis is required.

PH.D. COMPUTER SCIENCE

The doctoral degree program in computer science is designed to prepare students for advanced research or university teaching in the field.

University doctoral degree requirements are listed on page 62. The student must complete an approved program of 90 graduate credits, including 15 credits of core courses, 18 credits from up to three specialized focus areas, 21 credits of electives, and the remainder dissertation research credits. Up to 45 credits may be waived if the student has a master's degree. To be admitted to Ph.D. candidacy, a student must pass a written comprehensive examination covering the 33 credits of core and focus courses and must present an acceptable dissertation proposal. The dissertation comprises original research work, which is expected to be of a quality meriting publication in a refereed journal.

CENTER FOR SOFTWARE QUALITY RESEARCH

120 Portland Center for Advanced Technology
503-725-4036

The IEEE Standard Glossary of Software Engineering Technology defines software quality as “the composite characteristics of software that determine the degree to which the software in use will meet the expectations of the customer.” From the perspective of the Center for Software Quality Research, characteristics which impact software quality include correctness, reliability, maintainability, and usability.

The goal of the Center at PSU is to share the expertise of the world-class software engineering researchers with regional industry. In addition to performing leading-edge research in software quality, the Center also monitors advances in software quality technology from throughout the world and has an active technology transfer program via an ongoing workshop program and technical report series.

In conjunction with the graduate program in Computer Science, the Center provides students with opportunities for research experience through assistantships, research credit, and informal project participation.

Bart Massey (left), Computer Science
ELECTRICAL AND COMPUTER ENGINEERING

102 Portland Center for Advanced Technology
503-725-3806
www.ee.pdx.edu/

B.S.
Minor in Electrical Engineering
M.S.
M. Eng.
Ph. D.

UNDERGRADUATE PROGRAMS

The Department of Electrical and Computer Engineering offers programs in electrical engineering and computer engineering. Qualified freshmen are encouraged to participate in the University Honors Program described on page 19. Qualified upper-division students should consider the Electrical and Computer Engineering Honors Program; details are available from the department.

ELECTRICAL ENGINEERING

The electrical engineering program is designed to provide a comprehensive background in the electrical sciences and offers an opportunity for specialization in the areas of physical electronics, circuit design, electrical power engineering, automatic control systems, communication systems, computer engineering, optics, electronics, and electromagnetics. This program provides the student with the educational background necessary for employment in virtually all electrical engineering fields.

The electrical engineering and computer engineering curricula at Portland State University are accredited by the Engineering Accreditation Commission/Accreditation Board for Engineering and Technology (EAC/ABET).

Majors in electrical engineering must complete the following University and departmental degree requirements. Any deviation from the required courses must be approved by the department.

Electrical Engineering Curriculum

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 171 Digital Circuits</td>
<td>4</td>
</tr>
<tr>
<td>EAS 101 Engineering Problem Solving</td>
<td>4</td>
</tr>
</tbody>
</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS 102 Engineering Computation</td>
<td></td>
</tr>
<tr>
<td>Structures</td>
<td>4</td>
</tr>
<tr>
<td>Mth 251, 252, 253 Calculus I, II, III</td>
<td>12</td>
</tr>
<tr>
<td>Ph 221, 222, 223 General Physics (with Calculus)</td>
<td>9</td>
</tr>
<tr>
<td>Ph 214, 215, 216 Physics Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Freshman Inquiry&quot;</td>
<td>15</td>
</tr>
</tbody>
</table>

Total 51

Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 171 Digital Circuits</td>
<td>4</td>
</tr>
<tr>
<td>EAS 213 Statics</td>
<td>4</td>
</tr>
<tr>
<td>EAS 215 Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>ECE 201, 202, 203 Electrical Engineering Laboratory I, II, III</td>
<td>3</td>
</tr>
<tr>
<td>ECE 221 Electric Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ECE 222 Signals and Systems</td>
<td>4</td>
</tr>
<tr>
<td>ECE 223 Feedback and Control</td>
<td>4</td>
</tr>
<tr>
<td>ECE 271 Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>Ch 221 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Ch 227 General Chemistry Labaratory</td>
<td>1</td>
</tr>
<tr>
<td>Mth 254 Calculus IV</td>
<td>4</td>
</tr>
<tr>
<td>Mth 256 Applied Differential Equations I</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Sophomore Inquiry&quot;</td>
<td>12</td>
</tr>
</tbody>
</table>

Total 52

Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 301, 302, 303 Electrical Engineering Laboratory IV, V, VI</td>
<td>3</td>
</tr>
<tr>
<td>Mth 343 Applied Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>Stat 460 Applied Statistics for Engineers and Scientists</td>
<td>3</td>
</tr>
<tr>
<td>Ph 317, 318 Solid State Physics</td>
<td>6</td>
</tr>
<tr>
<td>Wr 227 Technical Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

Total 48

Approved Electrical Engineering Electives

The student is required to complete at least 20 elective credits, including at least one sequence. Any 400-level electrical engineering course may be used, excluding the following omnisub numbered courses (ECE 401, 405, 406, 407). ECE 406H§

Senior Honors Project may be used by students in the electrical engineering honors program.

Total 40

§ Approved Electrical Engineering Electives

COMPUTER ENGINEERING

The computer engineering program is designed to provide a comprehensive background in computer engineering and offers an opportunity for specialization in the areas of digital electronics, VLSI circuit design, automatic control, computer architecture, communication systems, and microprocessor system design. This program provides the student with the educational background necessary for employment in virtually all branches of the digital electronics and computer industry.

Majors in computer engineering must complete the following University and departmental degree requirements. Any deviation from the required courses must be approved by the department.

Computer Engineering Curriculum

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 171 Digital Circuits</td>
<td>4</td>
</tr>
<tr>
<td>EAS 101 Engineering Problem Solving</td>
<td>4</td>
</tr>
<tr>
<td>EAS 102 Engineering Computation</td>
<td></td>
</tr>
<tr>
<td>Structures</td>
<td>4</td>
</tr>
<tr>
<td>Mth 251, 252, 253 Calculus I, II, III</td>
<td>12</td>
</tr>
<tr>
<td>Ph 221, 222, 223 General Physics (with Calculus)</td>
<td>9</td>
</tr>
<tr>
<td>Ph 214, 215, 216 Physics Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Freshman Inquiry&quot;</td>
<td>15</td>
</tr>
</tbody>
</table>

Total 51

Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 171 Digital Circuits</td>
<td>4</td>
</tr>
<tr>
<td>EAS 213 Statics</td>
<td>4</td>
</tr>
<tr>
<td>EAS 215 Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>ECE 201, 202, 203 Electrical Engineering Laboratory I, II, III</td>
<td>3</td>
</tr>
<tr>
<td>ECE 221 Electric Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ECE 222 Signals and Systems</td>
<td>4</td>
</tr>
<tr>
<td>ECE 223 Feedback and Control</td>
<td>4</td>
</tr>
<tr>
<td>ECE 271 Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>Ch 221 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Ch 227 General Chemistry Labaratory</td>
<td>1</td>
</tr>
<tr>
<td>Mth 254 Calculus IV</td>
<td>4</td>
</tr>
<tr>
<td>Mth 256 Applied Differential Equations I</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Sophomore Inquiry&quot;</td>
<td>12</td>
</tr>
</tbody>
</table>

Total 52

Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 301, 302, 303 Electrical Engineering Laboratory IV, V, VI</td>
<td>3</td>
</tr>
<tr>
<td>Mth 343 Applied Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>Stat 460 Applied Statistics for Engineers and Scientists</td>
<td>3</td>
</tr>
<tr>
<td>Ch 221 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Ch 227 General Chemistry Labaratory</td>
<td>1</td>
</tr>
<tr>
<td>Mth 256 Applied Differential Equations I</td>
<td>4</td>
</tr>
<tr>
<td>Mth 343 Applied Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Sophomore Inquiry&quot;</td>
<td>12</td>
</tr>
</tbody>
</table>

Total 52

§ Admission to the Department of Electrical and Computer Engineering Honors Program is required. ECE 411, 412, 413 and ECE 406H are combined to form a 12-credit honors project.

† Please see page 17 for information on the general education requirement.

‡ Departmental approval is required to substitute other engineering electives. Electives must be selected in such a way that the total engineering design content in the student’s program is at least 24 credits.
Graduate programs

Graduate courses are offered by the electrical and computer engineering faculty at PSU for electrical and computer engineers in the Portland area leading to the M.S., M.Eng., and Ph.D. degrees in electrical and computer engineering. Graduate-level work is offered in automatic control theory, I.C. test, linear systems, power electronics, digital signal processing, communication systems, optoelectronics, laser systems, electronic design automation, advanced electronic systems and VLSI, analog and digital circuit design, computer architecture, computer vision and computer systems, robotics, and electromagnetics. The schedule attempts to accommodate both full- and part-time (evening) students. Please refer to the departmental Graduate Handbook for more information.

M.S. ELECTRICAL AND COMPUTER ENGINEERING

Admission Requirements. Applicants who have completed a B.S. degree in either electrical or computer engineering at a recognized university with a grade point average of 3.00 or better in all junior- and senior-level technical courses may be considered for admission to the Department of Electrical and Computer Engineering as regular graduate students. Students who have completed a B.S. degree in a related field (normally either mathematics, physics, computer science, or mechanical engineering) or B.S. ECE or B.S. CpE candidates with a grade point average in their upper-division technical coursework below 3.00 but higher that 2.75 may be granted conditional admission status.

Degree Requirements. The total number of graduate level credits in a student's program must be at least 45. In addition to the University masters degree requirements listed on page 62, a candidate for the M.S. degree in electrical and computer engineering normally must complete at least 24 graduate-level credits in electrical and computer engineering, including at least one graduate ECE course sequence and excluding all omnibus numbered courses (ECE 503/601, 503/603, 504/604, 505/605, 506/606, 507/607, 510/610) and transfer courses. A minimum of 3 credits of graduate seminar taken at 1 credit per term must be completed. Specific course requirements depend on the student's area of emphasis, and the student's program must be approved by his/her academic adviser.

Thesis and non-thesis options are available. In the thesis option the candidate's program must include a minimum of 6 thesis credits and a final oral thesis defense. In the nonthesis option, the candidate's program must include at least 32 (rather than 24) graduate-level credits in electrical and computer engineering, excluding all omnibus-numbered courses and transfer courses. The nonthesis option is most appropriate for a student who has experience as an engineer and wants to concentrate on coursework to increase his/her technical knowledge.

Up to 12 credits of graduate ECE course requirements indicated above (24 for thesis option, 32 for non-thesis option) may be replaced by approved graduate courses taken within other programs of institutions affiliated with the Oregon Joint Graduate School of Engineering (OGI, PSU, OSU, UO). Approved courses are courses that have gone through the full curriculum review and approval processes of their respective institutions and that have also been approved by the student's adviser. Total transfer credits cannot exceed the University limit of 15.

Students are required to complete tentative degree plans that have been approved by their advisers not later than the second quarter of their residence at PSU. A master's degree study plan form for this purpose is available in the ECE Department Office. Students are also required to obtain their adviser's approval of coursework each quarter on a quarterly study plan form. Coursework taken without adviser approval may not be accepted as part of the student's program.

M.ENG. ELECTRICAL AND COMPUTER ENGINEERING

Admission Requirements. The admission requirements are identical to those given above for the Department's M.S. degree.

Degree Requirements. A total of 45 graduate credits are required. In addition to the University's M.S. degree requirements, a candidate for the M.E. degree must have 20 credits of core selected from the Department's specific tracks as
described in the Graduate Handbook, 12 credits of approved electives that may include transfer credits and other allied disciplines, and up to 13 credits of ECE 504 Internship. Four credits of ECE 506 Special Projects may be substituted for 4 credits of ECE 504 by satisfactory completion of an industry report.

**PH.D. ELECTRICAL AND COMPUTER ENGINEERING**

Admission Requirements. A student applying to the Ph.D. program in electrical and computer engineering will normally be required to demonstrate an acceptable level of performance in the GRE examination and to have completed an M.A. or M.S. degree in electrical engineering or a related field.

Degree Requirements. In addition to the University doctoral degree requirements listed on page 62, a candidate for the Ph.D. degree in electrical and computer engineering must complete a minimum of 45 graduate credits in electrical and computer engineering and at least 9 graduate credits in a minor department outside the Department of Electrical and Computer Engineering. Coursework for the minor must be supportive of, but distinct from, the major and must not include transfer courses or the following omnibus numbered courses: 501/601, 503/603, 504/604, 505/605, 506/606, 507/607. Each Ph.D. student is required to present at least one departmental seminar and is expected to have at least one archival publication. Specific course requirements depend on the student's area of emphasis, and the student's program must be approved by his/her academic adviser. Students in the Ph.D. program in electrical and computer engineering are required to pass a comprehensive examination (written and/or oral) after completing their coursework. They are also required to obtain approval of their proposed research plan by their doctoral committee before they can be advanced to candidacy. A dissertation containing a real contribution to knowledge based on the candidate's own investigation and a final oral dissertation defense are required. The dissertation must show a mastery of the literature of the subject and be written in creditable literary form.

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**ENGINEERING AND TECHNOLOGY MANAGEMENT**

Ll Suite 50, Fourth Avenue Building 503-725-4660
www.etm.pdx.edu/

M.S.
M. Eng
Ph.D.—Participating department in Systems Science Doctoral Program

Strong management skills are increasingly important to technical professionals. Managing R&D projects, technological systems, technical organizations and resources, and other professionals requires management knowledge and skills.

Engineers and scientists are faced with these challenges very early in their careers. Typically within three to seven years after graduation, they find themselves addressing complex issues which necessitate that they play two roles simultaneously: the role of the specialist and the manager of technology. Those who choose the management path start moving toward management responsibilities while maintaining identity in their technical backgrounds. The Engineering and Technology Management Department (ETM) has been designed for them.

ETM draws on the strengths of the College of Engineering and Computer Science, the School of Business Administration, and several other relevant academic disciplines. By utilizing the diverse faculty resources of the University, the program offers the opportunity to study the human, technical, and analytical aspects of management.

Most of the courses in the program are offered during the late afternoon and evening hours to fit the schedule of practicing professionals.

**DEGREE REQUIREMENTS**

**M.S. ENGINEERING MANAGEMENT**

A minimum of 52 credits in approved graduate courses is required to complete the Master of Science degree in engineering management. The program consists of 28 credits in the core, 4 credits (or 8 with thesis option) in the capstone requirement, and 20 credits (or 16 with thesis option) in electives.

**Core (28 credits)**

EMgt 580 Management of Engineering and Technology ........................................... 4
EMgt 530 Decision Making in Engineering and Technology ........................................... 4
EMgt 540 Operations Research in Engineering and Technology ........................................... 4

**Electives (20 credits or 16 credits with the thesis option)**

EMgt 545 Project Management in Engineering ......................................................... 4
EMgt 535 Technology Marketing ................................................................. 4
One of the following two courses: ................................................................. 4
EMgt 522 Communication and Team Building (4)
Mgmt 550 Organizational Management (4)
One of the following two courses: ................................................................. 4
Actg 511 Financial Accounting (4)
EMgt 535 Engineering Economic Analysis (4)

**Capstone requirement (one of the following: 4 or 8 credits):**

EMgt 503 M.S. Thesis ......................................................................................... 8
EMgt 589 Capstone Project ................................................................................. 4
EMgt 590 Engineering Management Synthesis ......................................................... 4

The Engineering and Technology Management Department offers a wide range of elective courses. In addition, students may choose electives in several other programs throughout the University with the approval of their adviser.

**M.ENG. IN ENGINEERING MANAGEMENT**

The Master of Engineering programs are open to full-time employees or interns working in industry while pursuing their studies in the ETM. There are three options for the M Eng in engineering management.

**The Technology Management option** prepares engineers, scientists, and individuals with related backgrounds, working in technology-based positions for leadership in selecting, exploring, developing, and
utilizing technology within the corporate strategies.

The Project Management option provides a focused coverage of the analytical framework, organization concepts, and interpersonal skills necessary for managing projects and programs.

The Civil Engineering Management option allows for engineering management specialization in civil engineering, including the subdisciplines of civil engineering such as construction, transportation, water resources, structures, and environmental engineering. The students in the Civil Engineering Management option are assigned two advisers: one from the Engineering and Technology Management Department and one from the Civil Engineering Department.

**M.ENG. TECHNOLOGY MANAGEMENT**

Admission Requirements. The admission requirements are identical to the requirements for the M.S. in engineering management.

Degree Requirements. A total of 45 graduate credits are required which includes 24 credits of core courses and a minimum of 8 credits of elective courses approved by the adviser. All students must complete an applied 4-credit capstone requirement which may be based in part upon work or internship experiences. Nine credits of internship are required but this may be reduced by substituting an equal number of elective credits upon approval of the student's adviser. Course credits may include transfer credits and graduate courses taken in other, allied disciplines.

**M.ENG. CIVIL ENGINEERING MANAGEMENT**

Admission Requirements. The admission requirements include a B.S. degree in civil engineering and satisfaction of the requirements for admission to the M.S. in engineering management and the M.S. in civil engineering.

Degree Requirements. In addition to meeting the University's general requirements for master's degrees listed on page 62 of the Bulletin, the M.Eng. in civil engineering management requires a total of 45 graduate credits, including 32 course credits and a 4-credit capstone. Nine credits of internship are required but substituting an equal number of course credits upon approval of the student's advisers may reduce the internship credits.

**ADMISSION TO THE PROGRAM**

In addition to meeting general University admission requirements listed on page 56, applicants to the program are required to have a baccalaureate degree in engineering or related discipline, background in probability/statistics, and four years of professional experience. Admission is granted to applicants who are judged to have a higher potential as reflected by their past academic performance and professional experience. Any variation from these requirements must be approved by the ETM department.

**PH.D. IN SYSTEMS SCIENCE—ENGINEERING MANAGEMENT**

The Ph.D. in Systems Science—Engineering Management is a single-discipline option of the Systems Science Ph.D. Program (Departmental Option). The general requirements are listed on page 67.

The program requirements are a master's degree in engineering management or equivalent coursework, 9 credits of Systems Science core courses, 9 credits of additional Systems Science or approved engineering management systems-related courses, and 9 credits of other approved coursework. Twenty-seven credits of dissertation research are also required. Specialization areas of research related to technology management, decision theory, operations research, project management, manufacturing management, technological innovations, technology planning, and knowledge-based systems in engineering management are available.
MECHANICAL
ENGINEERING

118 Science Building II
503-725-4290
www.mc.pdx.edu/

B.S.
M.S.
M.Eng.
Ph.D.—Participating department in Systems Science Doctoral Program

UNDERGRADUATE PROGRAMS

Mechanical engineering affords a wide range of career paths with a broad spectrum of employers. Careers are available in aerospace, energy conversion, energy utilization, environmental design and management, chemical processing, electromechanical systems, controls, mechanical design, manufacturing, and materials, to name a few. Employment may be found in virtually every kind of industry, every branch of government, and every kind of utility. The mechanical engineering curriculum at Portland State University is distinguished by its computer applications at all levels and emphasis on the design process. The curriculum allows specialization in fluid systems, mechanical systems, thermal systems, and machine design with emphases in materials, electronic packaging, and advanced computational design methods. It affords an education suited to meeting the technology needs of the Northwest.

The mechanical engineering curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET). This national organization sets standards for engineering education defined in terms of curricular content, quality of faculty, and adequacy of facilities.

 Majors in mechanical engineering must complete the following University and departmental degree requirements. Any deviation from the required courses, including engineering and mathematics course substitutions, must be approved in writing by the chair of the Department of Mechanical Engineering.

Freshman Year Credits
EAS 211 Statics .......................... 4
EAS 212 Strength of Materials 4
EAS 213 Properties of Materials 4
EAS 215 Dynamics ........................ 4
ME 241 Manufacturing Processes ........... 4
ME 251 Vibrations and System Dynamics .... 4
ECE 201 Electrical Engineering Laboratory . 4
ECE 221 Electric Circuits .................. 4
Mth 254 Calculus IV ........................ 4
Mth 256 Applied Differential Equations I .... 4
Ph 221, 222, 223 General Physics (with Calculus) .... 9
Ph 214, 215, 216 Physics Laboratory ....... 3
Sophomore Inquiry ......................... 4
Total 48

Sophomore Year Credits
EAS 211 Statics .......................... 4
EAS 212 Strength of Materials 4
EAS 213 Properties of Materials 4
EAS 215 Dynamics ........................ 4
ME 241 Manufacturing Processes ........... 4
ME 251 Vibrations and System Dynamics .... 4
ECE 201 Electrical Engineering Laboratory . 4
ECE 221 Electric Circuits .................. 4
Mth 254 Calculus IV ........................ 4
Mth 256 Applied Differential Equations I .... 4
Ph 221, 222, 223 General Physics (with Calculus) .... 9
Ph 214, 215, 216 Physics Laboratory ....... 3
Sophomore Inquiry ......................... 4
Total 57

Junior Year Credits
EAS 361 Fluid Mechanics .................. 4
ME 313 Analysis of Mechanical Components .... 4
ME 314 Analysis and Design of Machine Elements .... 4
ME 321 Engineering Thermodynamics ....... 4
ME 322 Applied Fluid Mechanics and Thermodynamics .... 4
ME 323 Heat Transfer ...................... 4
ME 351 Vibrations and System Dynamics .... 4
ME 352 Numerical Methods in Engineering .... 4
Stat 460 Applied Statistics for Engineers and Scientists .... 3
Ph 381 Physical Metallurgy for Engineers .... 3
Upper-division cluster ....................... 8
Total 46

Senior Year Credits
ME 411 Engineering Measurement and Instrumentation Systems ........ 4
ME 420 or ME 437 Systems Design ......... 4
ME 488 Design of Experiments ............. 2
ME 491 Design Process ................. 2
ME 492 Conceptual Design Project ......... 4
ME 493 Detailed Design Project ............. 4
Approved mechanical engineering electives ........ 16
Upper-division cluster ....................... 4
Total 40

GRADUATE PROGRAMS

M.S. MECHANICAL ENGINEERING

The master's program in mechanical engineering gives the practicing engineer advanced professional opportunities and the student considering a career of research or university teaching a first level of graduate study. The program includes a core of required mechanical engineering courses, advanced mathematics courses, a selection of engineering electives, and supervised individual research.

University master's degree requirements are listed on page 62. In addition, a candidate for the M.S. degree must complete at least 27 credits in engineering, excluding thesis or project.

The master's degree may be completed with any one of three options. One research option requires 36 credits of coursework and 9 credits of thesis (ME 503). Another option requires 36-39 credits of coursework and 6-9 credits of research project (ME 501). Under these options, student research is conducted under the supervision of faculty, and a final oral examination covering the thesis or project must be successfully completed. The third option requires 45 credits of coursework, with no final oral exam required. Coursework may include special projects, but a maximum of 12 credits total of 501, 503, 505, and 506 may be applied toward any option.

Required core courses include ME 511, 551, and 4 credits each of approved graduate math and numerical methods. In addition, for the project/thesis options, ME 507 (one credit) and ME 501 and 503 must be taken. All students must submit a study plan approved by their adviser before the beginning of their third term with additional plans submitted at the request of their adviser.

The department supports research in manufacturing, materials science, electronic packaging, and engineering science. Current faculty research areas include energy systems, electronic cooling, CAD/CAM, dynamic systems modeling, computational mechanics in thermo-fluid systems, materials, and FEM applications in mechanical design.

M.ENG. MECHANICAL ENGINEERING

The Master of Engineering in Mechanical Engineering degree is a practice-oriented professional degree designed for students seeking to advance their knowledge and skills of engineering applications. The opportunity for participation in industrial internships highlights the curriculum.

† Please see page 17 for information on the general education requirement.
Admission requirements for the M.Eng degree are identical to those for the M.S. degree, as included in the Graduate School Admissions portion of this catalog. Degree requirements include 45 graduate credits, which include 32 credits of core requirements and electives (see M.S. degree requirements for core requirements). Up to 9 credits of approved industrial experience can be toward the degree. Approved industrial projects can also be integrated into the curriculum. Specific requirements are detailed in the Mechanical Engineering Graduate Bulletin.

PHD. IN SYSTEMS SCIENCE—MECHANICAL ENGINEERING
The Ph.D. in Systems Science—Mechanical Engineering is a single-discipline option of the Systems Science Ph.D. Program (Departmental Option), whose general requirements are listed on page 67. The departmental requirements are a master's degree in mechanical engineering or equivalent coursework, 9 credits of Systems Science core courses, 9 credits of additional Systems Science or approved engineering systems-related courses, and 9 credits of other approved coursework. Twenty-seven credits of dissertation research are also required. Specialization areas of research related to building energy conservation, CAD, controls, heat transfer, microprocessor applications, computational fluid dynamics, transport processes, thermochemical conversions, and advanced manufacturing.

CIVIL ENGINEERING COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 190</td>
<td>Special Studies (Credit to be arranged.)</td>
<td>Consent of instructor</td>
<td></td>
</tr>
<tr>
<td>CE 212, 213, 214</td>
<td>Field Problems in Plane Surveying (1, 1, 1)</td>
<td>CE 212: Care and operation of plane survey instruments. Field projects in testing instrumental adjustment and executing basic survey circuits. CE 213: Development and completion of a topographic map by field method. CE 214: Layout of a route design; adjustment of optical instruments. Elementary field astronomy. Prerequisite: CE 211 concurrently.</td>
<td></td>
</tr>
<tr>
<td>CE 311</td>
<td>Engineering Surveys (4)</td>
<td>The principles of geometric design of route engineering. The reconnaissance, design, control, and layout of highway and railroad systems including curves and earthwork. Municipal surveys and introduction to spherical astronomy. Computer applications. Prerequisite: CE 211.</td>
<td></td>
</tr>
<tr>
<td>CE 324</td>
<td>Elementary Structural Analysis (4)</td>
<td>Methods of analysis of statically determinate planar structures; concepts of stability and indeterminacy; calculations of displacements and rotations by virtual work, Castigliano's theorem, and conjugate beam; approximate analysis of statically indeterminate structures. Prerequisite: CE 212 and calculus.</td>
<td></td>
</tr>
<tr>
<td>CE 325</td>
<td>Indeterminate Structures (4)</td>
<td>Analysis of indeterminate structures by force and displacement methods, consistent deformations and the theorem of least work; slope deflection, moment distribution including sway; approximate methods. Prerequisite: CE 324.</td>
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COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS 101</td>
<td>Engineering Problem Solving (4)</td>
<td>Introduction to basic ideas and tools used in the engineering profession. Basic preparation in rudiments and working methods of engineering design, analysis, and problem solving, with emphasis on developing skills in computer-aided problem solving methods utilizing tools such as MATLAB, Mathcad, and EXCEL. Introduction to structured computer programming methods via MATLAB scripting language. Lecture and recitation.</td>
<td></td>
</tr>
<tr>
<td>EAS 199</td>
<td>Special Studies (Credit to be arranged.)</td>
<td>Consent of instructor</td>
<td></td>
</tr>
<tr>
<td>EAS 211</td>
<td>Statics (4)</td>
<td>Principles and applications of static equilibrium to structures and machines. Prerequisite: Mth 252, Ph 221 taken concurrently.</td>
<td></td>
</tr>
<tr>
<td>EAS 212</td>
<td>Strength of Materials (4)</td>
<td>Study of the relationship between strain and stress in deformable bodies; principles of stress analysis for axial force, flexure, torsion, and shear; studies in combined stresses and column stability. Prerequisites: EAS 211, Mth 253.</td>
<td></td>
</tr>
<tr>
<td>EAS 213</td>
<td>Properties of Materials (4)</td>
<td>Basic properties, behavior, and survey of engineering and industrial applications of materials. Prerequisite: Ch 221, EAS 212 taken concurrently. Lecture and laboratory.</td>
<td></td>
</tr>
<tr>
<td>EAS 341</td>
<td>Introduction to Thermal Sciences (4)</td>
<td>Introduction to thermodynamics, fluid mechanics, and heat transfer for non-mechanical engineering majors. First and second laws of thermodynamics and their applications to engineering systems and cycles; fluid flow phenomena and conservation laws for mass, energy, and momentum; heat conduction and convection and their applications to engineering designs. Prerequisites: Mth 256, Ph 223.</td>
<td></td>
</tr>
<tr>
<td>EAS 361</td>
<td>Fluid Mechanics (4)</td>
<td>Properties of fluid; fluid statics; differential analysis; conservation of mass, energy, momentum; dimensional analysis; and fluid metering. Prerequisites: EAS 215, Mth 256 taken concurrently. Lecture and laboratory.</td>
<td></td>
</tr>
<tr>
<td>EAS 401</td>
<td>Research (Credit to be arranged.)</td>
<td>Consent of instructor</td>
<td></td>
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<tr>
<td>EAS 406</td>
<td>Special Projects (Credit to be arranged.)</td>
<td>Consent of instructor</td>
<td></td>
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<tr>
<td>EAS 407</td>
<td>Seminar (Credit to be arranged.)</td>
<td>Consent of instructor</td>
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<tr>
<td>EAS 410</td>
<td>Selected Topics (Credit to be arranged.)</td>
<td>Consent of instructor</td>
<td></td>
</tr>
<tr>
<td>EAS 461/561</td>
<td>Reliability Engineering (4)</td>
<td>Design of reliable components and systems for electrical and mechanical engineering fields. Includes elements of probability and statistics, reliability, mathematics, failure modes and effect analysis, and design for given reliabilities under constraints. Prerequisite: senior standing in engineering.</td>
<td></td>
</tr>
</tbody>
</table>
Vehicle operation characteristics and traffic control devices for land, air, and water, data collection methods and development of transportation models for the establishment of design criteria for transportation structures. Prerequisite: junior standing in engineering.

CE 362 Hydraulics (4)
Stability of floating and submerged bodies; dimensional analysis and dynamic similarity; introductory, turbulent, and boundary layer theory; open channel hydraulics; and flow measurement. Three lectures; one 3-hour laboratory period. Prerequisite: EAS 212, Mth 256 or equivalent.

'CE 421/521 Analysis of Framed Structures (4)
Generalized analysis of multi-story and irregular structural framework with classical methods, analysis of arches, curved beams and frames with nonprismatic members. Energy methods with introduction to matrix methods. Prerequisite: CE 325.

'CE 423/523 Vibration Analysis in Structural Engineering (4)
Fundamentals of vibration theory; applications in structural engineering. Free, forced, and transient vibration of single and multi-degrees of freedom systems including damping, normal modes, coupling, and normal coordinates. Prerequisites: EAS 212 and Mth 256.

'CE 431/531 Stability of Structures (4)
Study of elastic and inelastic flexural buckling of bars and frames; use of energy methods and successive approximations; bracing of columns and frames, torsional, lateral-torsional, and local buckling. Prerequisites: CE 333, Mth 256 or equivalent.

'CE 432/532 Structural Steel Design—LRFD Method (4)
Design of components of steel structures based on load and resistance factor design method. Prerequisite: CE 333.

CE 434 Principles of Reinforced Concrete (4)
Principles of ultimate strength analysis; design of short columns, simple and continuous beams; one-way slabs; working stress theory; serviceability and detailing requirements with reference to current codes. Three lectures; one 2-hour design or laboratory period. Prerequisite: CE 325.

CE 435 Design of Reinforced Concrete Structures (4)
Design of spandrel beams, footings, slab systems, long columns, walls and other components of reinforced concrete structures by ultimate strength with reference to current codes. Prerequisite: CE 434.

'CE 436/536 Masonry Design (4)
Materials of construction; design of masonry elements, lateral load resisting systems, and connections with reference to current codes. Prerequisite: CE 434.

CE 437 Timber Design (4)
Design of solid and glued-laminated structural members including arches, connections, plywood components, and diaphragms; design provisions for lateral forces. Prerequisite: CE 325.

'CE 438/538 Design of Composite Structures (4)
Design of composite steel-concrete members based on allowable stress design and load and resistance factor design methods. Prerequisites: CE 333, 434.

CE 442/542 In Situ Behavior and Testing of Soils (4)
Introduction to field behavior of soils related to engineering properties; site investigation procedures and in situ testing. Development of fundamental analytical solution techniques for engineering with soil, the use and limitations of elasticity assumptions. Three lectures, one 3-hour laboratory period. Prerequisite: CE 341.

CE 443/543 Introduction To Seismology And Site Evaluation (4)
Earthquakes and exploration seismology, the origin and occurrence of earthquakes, nature and propagation of seismic waves in the earth, earthquakes as a hazard to life and property. Uses of reflection and refraction exploration seismology, borehole velocity measurements, seismic remote sensing, and direct measurement techniques. Earthquake hazard assessment including liquefaction, ground failure, and site amplification. Techniques for evaluating the susceptibility, potential, and severity of the hazards and other science and engineering applications. Prerequisite: senior/graduate standing. This course is the same as G 475/575; course may be taken only once for credit.

CE 444 Geotechnical Design (4)
Effect of soil conditions upon the behavior and choice of type of foundation, study of earth pressure theories, design of foundations and earth-retaining structures. Prerequisite: CE 341.

CE 445/545 Earthquake Accommodation and Design (4)
Effects of earthquake shaking in the design of buildings, pipelines, bridges, and dams. Incorporating the earthquake hazard assessment for a project in the design process. The goal of this course is to allow geologists, geotechnical engineers, structural engineers, and architects to see how their particular tasks are impacted by the earthquake effects. Types of analysis used to evaluate earthquake design requirements in several disciplines, including: geology, geotechnical engineering, structural engineering, and architecture. Prerequisite: CE 443/543 or CE 444/544. This course is the same as G 475/575; course may be taken only once for credit.

CE 454 Urban Transportation Systems (4)
Urban street patterns and transportation demand, highway capacity analysis, process of urban transport planning, travel-demand forecasting and its application to traffic studies. Development of transport models, multiple regression analysis, models of land use and trip generations, stochastic trip distribution models, applications and case studies. Route assignment analysis and traffic flow theory. Prerequisite: CE 351.

CE 456/556 Traffic Engineering (4)
Traffic system components, traffic stream characteristics, traffic studies and data collection, volume studies, speed, travel-time, delay and pedestrian studies, capacity analysis, freeway systems, weaving sections, ramp junctions, rural highways, signalized and unsignalized intersections, signal coordination, arterial operations, and access management. Prerequisite: CE 454.
CE 457/557
Pavement Design (4)
Pavement structure classification and components, wheel loads and design factors, stresses in flexible pavements, subgrade strength and evaluation, design methods, material characteristics, stresses in rigid pavements, design of concrete pavements, joints and reinforcement, condition surveys. Prerequisite: CE 351.

CE 464/564
Hydrologic and Hydraulic Modeling (4)
Development and application of models for hydrologic and hydraulic analysis and design. Hydrologic processes related to rainfall-runoff modeling, including infiltration, overland flow, watershed and channel routing. Application of HEC 1 and TR 20 to model streamflow including development of input data. Model calibration and verification. Modeling steady and unsteady flows in rivers. Application of HEC 2 and DWOPE to river hydraulic modeling. Prerequisite: CE 362.

CE 467/567
Hydrologic and Hydraulic Design (4)
Application of hydrologic and hydraulic principles to selected topics in hydrologic and hydraulic design. Topics include risk-based design of hydraulic structures, design of culverts, flood control, and floodplain management, design of reservoirs. Design of spillways including development of design flood hydrograph and hydraulic design, design of energy dissipation works. Prerequisite: CE 464/564 or knowledge of HEC 1 and HEC 2.

CE 474/574
Unit Operations of Environmental Engineering (4)
Unit operations of water and wastewater treatment; pretreatment; sedimentation, filtration, aeration, disinfection, sludge treatment and disposal, advanced waste-water treatment processes. Prerequisite: CE 371.

CE 477/577
Solid and Hazardous Waste Management (4)
Systematic approach to the complex technical, political, and socio-economic aspects of managing, handling, and disposal of spent solid materials and hazardous wastes. Prerequisite: senior or graduate standing in civil engineering or consent of instructor.

CE 479/579
Fate and Transport of Toxics in the Environment (4)
Chemical, physical, and biological principles that govern the behavior of toxic materials such as heavy metals and synthetic organic compounds in the environment. Course emphasizes practical ways to represent chemical processes in models of pollutant behavior. Topics include: adsorption of pollutants on soils and sediments; transport across sediment-water and air-water interfaces; bioamplification of pollutants; multiphase fugacity models of organics; case studies of contaminated surface water, sediment and groundwater. Prerequisite: senior or graduate standing. This course is the same as ESR 479/579; course may be taken only once for credit.

CE 484
Engineering Project Management (3)
Engineering process including owner-design professional-constructor relationships, procurement procedures, project evolution, contracts, dispute resolution, bonds, warranties, construction documents, including specifications; cost estimating, planning, and scheduling; construction administration, group process, diversity, and leadership. Prerequisite: senior standing in civil engineering.

CE 494
Civil Engineering Design (3)
Synthesis of civil engineering specialties in a diverse multi-disciplinary project. Teamwork approach in design of components and systems to meet stated objectives. Consideration of alternative solutions, methods, and products including constraints such as economic factors, safety, reliability, and ethics. Preparation of design documents, including: memoranda, computations, drawings, cost estimates, specifications, bidding materials, written and oral presentations. Two lectures, one 3-hour design project laboratory period. Prerequisite: senior standing in civil engineering.

CE 501
Research (Credit to be arranged.)
Consent of instructor.

CE 503
Thesis (Credit to be arranged.)
Consent of instructor.

CE 504
Cooperative Education/internship (Credit to be arranged.)
Consent of instructor.

CE 505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

CE 507
Seminar (Credit to be arranged.)
Consent of instructor.

CE 510
Selected Topics (Credit to be arranged.)
Consent of instructor.

*CE 522/622
Plastic Analysis of Structures (4)
Techniques in the analysis of structures beyond the elastic limit. Methods of limit analysis and design. Prerequisite: CE 333.

*CE 524/624, 525/625
Matrix and Computer Methods in Structural Analysis (4, 4)
Fundamental concepts of analysis for statically determinate and indeterminate structures utilizing matrices and computers; displacement and force methods applied to trusses and rigid frames; techniques for the analysis of large complex structures for static and dynamic loads. Prerequisite: CE 326.

*CE 526/626
Theory of Plates (4)
Small and large deformation theories of thin plates, numerical and energy methods; free vibrations. Prerequisite: MTH 256.

*CE 527/627, 528/628
Finite Elements in Structural Mechanics (4, 4)
Principles of stiffness analysis of structures, essentials of the finite element formulation of elastic problems with applications to structural mechanics, plates and shells, and other related problems utilizing digital computers. Prerequisite: CE 524/624.

*CE 530/630
Structural Dynamics (4)

CE 533/633
Energy Principles in Structural Mechanics (4)
Review of stress and deformation; material behavior; theorem of virtual work; stationary value of potential and complementary potential; reciprocal theorems, Engesser’s theorem, and Rayleigh-Ritz method; thermoelastic behavior. Prerequisite: CE 420/520.

CE 539/639
Advanced Civil Structural Design (4)
Analysis and design of components of prestressed concrete structures with reference to current codes. Prerequisite: CE 434.

*CE 537/637
Earthquake Engineering (4)
Response of structures to ground motions; determination and use of response spectra, seismic design criteria and provisions for buildings and other structures; and review of current practices for earthquake resistant design. Prerequisite: CE 529/629.

*CE 539/639
Advanced Steel Design (4)
Analysis and design of steel structures including connections, plate girders, composite steel-concrete construction, design loads, structural systems, and bracing. Prerequisite: CE 333.

CE 541/641
Advanced Soil Mechanics (4)
Study of the advanced principles of soil behavior related to stress-strain, shear strength, permeability, and consolidation. Prerequisite: CE 444.

*CE 544/644
Advanced Shallow Foundation Design (4)
Advanced topics in settlement and bearing capacity analysis of shallow foundation; application of numerical schemes to foundation design. Prerequisite: CE 444.

*CE 546/646
Numerical Methods in Geotechnical Engineering (4)
Application of finite difference and finite element methods to the solution of soil-structure problems, stability of soil masses and foundation installation. Use of commercial computer programs in working applied problems. Prerequisite: CE 444.

CE 547/647
Earth Dams (4)
Design, construction, and operation of earth and earth-rock dams; seepage analysis, slope stability, and construction procedures. Emphasis includes both the design of new structures and the evaluation of safety of existing facilities. Prerequisite: CE 442.

CE 549/649
Deep Foundation Design and Analysis (4)
Comprehensive study of both driven and augered pile foundations, including concrete, steel, and timber. In-depth review of design methods for axial and lateral capacity. Special emphasis on the differences between driven piles...
and drilled shafts, including the role of full-scale load tests, the semi-empirical and empirical methods. Introduction to group theory in elasticity and plasticity. Prerequisite: CE 444.

'CE 552/652 Highway Design for Capacity (4)
Principles of highway capacity, traffic characteristics, operational analysis, design and planning of freeways, multi-lane and two-lane rural highways, intersections and arterials, transit facilities. Prerequisite: CE 454.

'CE 561/661 Water Resource Systems Analysis (4)
A development of quantitative techniques used in the analysis of water resource systems for planning, design and operation. Emphasis is placed on the physical, legal and economic aspects and their incorporation into simulation models. Applications include reservoir systems for water supply and hydropower, irrigation planning and operation, and water quality management. Prerequisite: CE 464/564 or equivalent.

'CE 565 Watershed Hydrology (4)
Study of the movement and storage of water in watersheds, emphasizing physical processes. Includes systems analysis of watersheds, precipitation, snowmelt, infiltration, evapotranspiration, ground-water flow, stream flow generation, open channel flow, hydrograph analysis, and an introduction to watershed hydrological modeling. Prerequisites: Mth 252, Ph 201, Stat 244; recommended: ESR 320 and/or an undergraduate course, such as CE 464. This course is the same as ESR 525; course may be taken only once for credit.

CE 566/666 Environmental Data Analysis (4)
Application of probabilistic and statistical models to the description of environmental data with a focus on hydrology and water quality. Graphical and quantitative techniques of exploratory data analysis, selection and fitting of appropriate probability distributions, simple and multiple and multivariate regression and their applications to analysis and modeling, and detection of changes and trends in environmental time series. Prerequisites: graduate standing and Stat 243 and 244 or Stat 460.

'CE 568/669 Groundwater Hydrology (4)
Principles of flow and contaminant transport in porous media and application to problems of water supply and contaminant transport. Topics include: properties of porous media; Darcy's law and aquifer equations; solution for steady and unsteady flow problems; flow net analysis; regional vertical circulation; unsaturated flow; well dynamics and pump test analysis; surface-groundwater interactions; water quality and contaminant transport; transport models; transport in heterogeneous porous media and tracer test. Prerequisite: senior/graduate standing in civil engineering.

'CE 570/670 Groundwater Modeling (4)
The objective is to give students a good introduction to practical groundwater flow and contaminant transport modeling. Designed as a hands-on and application oriented. Covers the fundamental equations, numerical methods, and modeling techniques with emphasis on conceptual modeling and teaching students how to solve real world problems using an interactive groundwater modeling and visualization system. Specific topics include conceptual representations and grid design, selecting model boundaries, sources and sinks, profile models, special needs for transient simulations, calibration, verification, sensitivity analysis, and several hands-on projects on modeling groundwater contamination, well-field management, and remediation system. Prerequisite: CE 569/669.

'CE 571/671 Stochastic Subsurface Hydrology (4)
A probabilistic approach to analyzing the effects of complex heterogeneity of subsurface environment on field-scale groundwater flow and contaminant transport. Classical transport processes, heterogeneity/uncertainty and probabilistic representations, temporally variable subsurface flow and lumped parameter water quality models, spatial variability in subsurface flow, contaminant transport processes in heterogeneous media, geostatistical methods, measurement conditioning and parameter estimation, field applications of stochastic methods. Emphasis is placed on analysis of field-scale heterogeneous groundwater systems. Prerequisite: CE 569.

'CE 572/672 Environmental Fluid Mechanics I (4)
Introduction to the basic physical processes which transport pollutants in natural waters; mathematical formulations. Use of predictive mathematical models as a basis for water and air quality management. Prerequisites: EAS 361, CE 371.

'CE 573/673 Numerical Methods in Environmental and Water Resources Engineering (4)
Introduction to the mathematical solution of partial differential equations by finite difference and finite element techniques. Development of solution approaches to water quality and hydraulic problems in surface and groundwater systems. Analysis of model sensitivities, calibration and verification. Prerequisite: senior or graduate standing in civil engineering.

'CE 575/675 Advanced Physical/Chemical Environmental Engineering Processes (4)
Theoretical and laboratory analysis of major physical and chemical processes used to treat water, wastewater, industrial and hazardous wastes. Analysis of reactor hydraulics, reactor kinetics, coagulation, flocculation, solid-liquid separation processes, adsorption, and gas transfer. Prerequisite: CE 474/574.

'CE 576/676 Environmental Fluid Mechanics II (4)
Introduction to the fundamentals of the fluid dynamics of natural surface waters by analysis of the governing equations of mass, momentum, and heat conservation. Applications include turbulence modeling, finite depth water motions, stratified flow phenomena, and seiche phenomena. Prerequisites: CE 572/672 or EAS 361, CE 362, 371.

'CE 578/678 Water Quality Modeling (4)
Introduction to descriptive modeling approaches for analyzing water quality changes in lakes, reservoirs, rivers, and estuaries. Applications include modeling dissolved oxygen, temperature, nutrients, and algal dynamics. Prerequisites: EAS 361, CE 371.

'CE 591/691 Engineering Optimization (4)
Development of optimization methods applicable to the solution of engineering problems. Conditions for optimality, univariate, and multivariate search methods, constrained optimization. Particular techniques include gradient-based methods, linear programming, and dynamic programming. Prerequisite: graduate standing in engineering.

CE 601 Research (Credit to be arranged.)
Consent of instructor.

CE 603 Thesis (Credit to be arranged.)
Consent of instructor.

CE 604 Cooperative Education/Internship (Credit to be arranged.)
Consent of instructor.

CE 605 Reading and Conference (Credit to be arranged.)
Consent of instructor.

CE 606 Special Projects (Credit to be arranged.)
Consent of instructor.

CE 607 Seminar (Credit to be arranged.)
Consent of instructor.

CE 610 Selected Topics (Credit to be arranged.)
Consent of instructor.

COMPUTER SCIENCE COURSES

CS 105 Computing Fundamentals I (4)
Intended as a computer literacy course for non-CS majors. Introduces what computers are and how they can be used. Focus is placed on defining the difference between hardware and software, and then on using computers with various application software packages (e.g., word processors, spreadsheets, database managers, desktop publishing, and graphics). Various operating systems will be introduced: DOS/Windows, MAC, and UNIX. Students will learn file and directory management. Each of the following concepts will be introduced: the central processing unit, I/O, secondary storage, communications, files and databases, information systems, programming languages, emerging applications, and privacy and security. Prerequisite: Mth 111.

CS 106 Computing Fundamentals II (4)
Intended as an introduction to programming for non-CS majors. First, students will learn what a program is and how to think about solving problems with algorithms. Then, the course will transition to teaching an introduction to structured programming using tools such as VISUAL BASIC and Pascal; students will learn about comments,
variables, decision statements, loops, and how to organize information. Introduces algorithm design and computer programming using a current computer language. Emphasis is on structured programming methods. Surveys common algorithms for data manipulation, searching, and sorting. Summarizes the relationships between structured programming languages such as FORTRAN, COBOL, C, and Pascal. Prerequisite: CS 105.

CS 107 Computing Fundamentals III (4) Intended as an introduction to object-oriented programming for non-CS majors. First, students will learn the ease with which object-oriented programs can be developed using many short sample programs. Covers the fundamentals of object-oriented programming and helps students think about object-techniques in creating and using applications with languages such as C++ or SmallTalk. Prerequisite: CS 106.

CS 161 Introduction to Computer Science I (4) Introduction to fundamental concepts of computer science. Problem solving, algorithm and program design, data types, control structures, and subprograms. This course is primarily designed for CS majors. Prerequisite: Mth 111.

CS 162 Introduction to Computer Science II (4) Introduction to software design, use of a variety of data structures, data abstraction, and recursion. Application of recursion in software design. Program correctness, verification, and testing. Students will write a substantial computer program during the term. Prerequisite: CS 161.

CS 163 Data Structures (4) Data abstraction with formal specification. Elementary algorithm analysis. Basic concepts of data and its representation inside a computer. Linear, linked, and orthogonal lists, tree structures. Data structures are implemented as data abstractions. Sorting and search strategies. Data management. Prerequisite: CS 162.

CS 199 Special Studies (Credit to be arranged.)

CS 200 Computer Organization and Assembly Language (4) Introduction to computer organization, number representation and digital logic, hardware interrupts, input/output programming, systems software, operating systems interface, assembly language programming, macros, linking and loading. Prerequisite: CS 162.

CS 201 Computer Architecture (4) Study of the interrelationship and interaction of various parts of computer systems, digital logic, instruction sets, processing and control units, hardwired and microprogrammed control units, buses, input-output, arithmetic and logic processing, memory system hierarchies, virtual memory. Prerequisite: CS 162, 200.

CS 202 Programming Systems (4) Students will become familiar with the language and operating system environment used in most upper-division courses in the Computer Science major curriculum. Use of the file system, operating-system calls, and shell-level programming, low-level debugging of high-level programs. Programming exercises will include applications from data structures (e.g., B-trees) and memory management techniques. Prerequisites: CS 163, 201.

CS 208 Introduction to Programming in FORTRAN (3) Design and construction of computer programs. Use of the FORTRAN language to solve problems over a wide range of applications. The course is introductory in nature and is not intended for students with previous knowledge of FORTRAN. Prerequisite: Mth 111.

CS 250 Discrete Structures (4) Introduction to notations and techniques to represent and analyze computational objects. Sets, bags, and tuples. Functions: combining operations and properties. Relations: equivalence and order. Inductive definition of computational objects. Elementary combinatorics. The Maple language is introduced and used for programming experiments. Prerequisites: CS 163, Mth 252.

CS 251 Logical Structures (4) Introduction to logic from a computational viewpoint: Propositional calculus, first-order predicate calculus, formal reasoning. Resolution and natural deduction. Applications to program correctness and automatic reasoning. Proof techniques. The Prolog language is introduced and used for programming experiments. Prerequisite: CS 250.

CS 299 Special Studies (Credit to be arranged.)

CS 300 Elements of Software Engineering (4) Practical techniques of program development for medium-scale software produced by individuals. Software development from problem specification through design, implementation, testing, and maintenance. The fundamental design techniques of step-wise refinement and data abstraction. A software project will be carried through the development cycle. Prerequisite: CS 202.

CS 311 Computational Structures (4) Algebraic structures in computing: regular languages and finite automata, context-free languages and pushdown automata, Turing machines and equivalent models of computation; computability and unsolvability. The Prolog language is used for programming experiments. Prerequisite: CS 299.


CS 333 Operating Systems and Concurrent Programming (4) Introduction to the principles of operating systems and concurrent programming on uni- and multi-processor computers. Operating system services, file systems, resource management. The concept of a process, process cooperation and interference. Design and coding of concurrent programs. Design of operating systems. Includes programming assignments in concurrent programming. Each student will make a short oral presentation during the term. Prerequisites: CS 202, 300, 311.

CS 334 Operating Systems Design and Implementation (4) Design and implementation of a small object-oriented operating system in a simulated or virtual environment. The course will have a heavy programming component. Lectures will focus first on the assignments and second on the study of operating systems internals as appropriate to the assignments. Assignment tasks may include the construction of a scheduling system, interprocess communication facilities such as messaging and semaphores, a simple file system, simple device drivers, and debugging/logging facilities in the virtual operating system. Three lecture hours plus extensive time out of class programming. Prerequisites: CS 333.

CS 350 Algorithms and Complexity (4) Techniques for the design and analysis of algorithms. Case studies of existing algorithms (sorting, searching, graph algorithms, dynamic programming, matrix multiplication, fast Fourier transform.) NP-Completeness. Prerequisite: CS 311.

CS 399 Special Studies (Credit to be arranged.) Consent of instructor.

CS 401 Research (Credit to be arranged.) Consent of instructor.

CS 404 Cooperative Education/Internship (Credit to be arranged.) Consent of instructor.

CS 405 Reading and Conference (Credit to be arranged.) Consent of instructor.

CS 406 Special Projects (Credit to be arranged.) Consent of instructor.

CS 407 Seminar (Credit to be arranged.) Consent of instructor.

CS 409 Practicum (Credit to be arranged.) Consent of instructor.

CS 410 Selected Topics (Credit to be arranged.) Consent of instructor.

CS 415/515 Advanced Parallel Programming (4/3) Advanced course on parallel languages and programming techniques. Introduces the fundamentals of and different approaches to parallel computing and establishes first-hand experience in programming actual parallel computers. Prerequisites: CS 322 and working knowledge of C, Fortran and Unix.

CS 420/520 Object-oriented Programming (4/3) The fundamental concepts of object-oriented programming languages, including data abstraction and typing, class inheritance and generic types, prototypes and delegation, concurrency
control and distribution, object-oriented data bases, and applications. To illustrate these issues, programming assignments in languages such as Smalltalk, Eiffel, and C++ will be given. Prerequisite: CS 322.

CS 425/525 Distributed Systems (4/3) Basic concepts in distributed systems including networking concepts, remote procedure calling, file servers and shared file systems, protection and security issues. These concepts will be illustrated with case studies of systems such as Locus, Sun NFS, Argus, Xerox Distributed File System, Cambridge Distributed Computing Systems, Amoeba, Mach, Apollo Domain, and the Grapevine mail system. Prerequisite: CS 202.

CS 430/530 Foundations of Logic Programming (4/3) Introduction to theory of logic programming. Models, unification, and fixed points. Declarative and procedural semantics. Negative issues. Topics from deduction and perpetual processes. Prolog will be introduced as an instance of a logic programming language to study the results of theory. Prerequisite: CS 311.


CS 441/541 Artificial Intelligence (4/3) Introduction to the basic concepts and techniques of artificial intelligence. Knowledge representation, problem solving, and AI search techniques. Program will be written in one of the AI languages. Prerequisites: CS 202, 311.

CS 444/544 Introduction to Database Systems (4/3) Introduction to basic concepts of database systems. Database system architecture; relational data model and languages; implementation of database applications; physical data organization, design and tuning; and query processing. Prerequisites: CS 163 and CS 251 and either CS 333 or CS 533.

CS 445/545 Implementation of Database Management Systems (4/3) Components of database management system and how they are implemented, including performance considerations. Components will include concurrency control and crash recovery, operator evaluation, query evaluation, query optimization, and physical storage management. Environments will include parallel and distributed database systems and decision support systems. Prerequisite: CS 444/544.

CS 447/547, 448/548 Computer Graphics (4/3, 4/3) This course will provide an introduction to graphical systems and applications. Basic structure of interactive graphics systems, characteristics of various hardware devices. Control of display devices, implementation of simple pack-

ages, device independence, and standard packages. Distributed architectures for graphics, hidden line and hidden surfaces algorithms, representations of curves and surfaces. Prerequisites: CS 202, Mth 343.

CS 451/551 Numerical Computation (4/3) Introduction to numerical methods. Includes topics from elementary discussion of errors, polynomials, interpolation, quadrature, linear systems of equations, and solution of nonlinear equations. Prerequisites: Mth 343, CS 200, 208.

CS 454/554 Software Engineering (4/3) Current methodologies for the development of large, industrial-strength software systems. Topics include requirements, specification, design, testing, project management, and group dynamics. Will include a large team project. Prerequisite: CS 321.

CS 457/557 Functional Languages (4/3) Introduction to functional notation, recursion, higher-order functions, reasoning about functions, and models for the evaluation of applicative expressions. Use of functional languages. Prerequisites: CS 202, 311.

CS 458/558 Programming Languages (4/3) In-depth study of current and historical issues in the design, implementation, and application of programming languages. Topics range from basic to advanced. Areas include syntax, semantics, scoping, typing, abstraction, exceptions, and concurrency. Computational paradigms such as functional, logic, and/or object oriented are analyzed. Several “recent” programming languages used. Prerequisite: CS 322.

CS 483/585 Cryptography (4/3) The goal of cryptography is the encoding of information via a cryptographic system. Cryptanalysis studies the breaking of cryptosystems. This course focuses on cryptography but with respect to cryptanalysis. An overview of classical systems with an in-depth examination of modern cryptosystems. This includes block algorithms such as DES, public-key cryptosystems, such as RSA, and one-way functions. Additional topics include cryptographic protocols, signature schemes, pseudo-random number generation, Shannon’s information theory, and stream ciphers. Prerequisite: CS 311.

CS 487, 488 Software Engineering Capstone (3, 3) Emphasizes teamwork in small groups on a substantial project that will be performed for a real customer. Projects are chosen so as to provide interdisciplinary content with project proposals being solicited from the community at large. Projects that involve students as well as customers from other disciplines are encouraged. Lectures will be directed towards the management of software development projects such as those being carried out by the teams. It is the intent of the course to provide a capstone experience that integrates the materials contained in the remainder of the CS curriculum through work on a project that applies this material in another discipline. Each team member will contribute to the design, documentation, and testing phases of the project. This course creates an obligation for participation for two consecutive quarters. Prerequisite: senior standing. For CS majors: CS 322, 333, 350. Non-CS majors: permission of the instructor.

CS 494/594 Internetworking Protocols (3) Advanced study of the protocols and algorithms used in the Internet (IETF) family of networking protocols. For example, ARP, IP, UDP, TCP, multicasting, routing protocols like RIP and OSPF, and application protocols like DNS, NFS, SNMP, FTP and HTTP. Issues such as addressing, name service, protocol design, and scalability will be explored. Prerequisite: CS 333.

CS 501 Research (Credit to be arranged.) Consent of instructor.

CS 503 Thesis (Credit to be arranged.) Consent of instructor.

CS 504 Cooperative Education/Internship (Credit to be arranged.) Consent of instructor.

CS 505 Reading and Conference (Credit to be arranged.) Consent of instructor.

CS 506 Special Projects (Credit to be arranged.) Consent of instructor.

CS 507 Seminar (Credit to be arranged.) Consent of instructor.

CS 509 Practicum (Credit to be arranged.) Consent of instructor.

CS 510 Selected Topics (Credit to be arranged.) Consent of instructor.

CS 533/633 Concepts of Operating Systems (3) Survey of concepts and techniques used in modern operating systems. Sample concepts covered are concurrency. IPCs, scheduling, resource allocation, memory management, file systems, and security. Techniques for implementing operating systems taught through a programming project. Prerequisite: CS 333.

CS 546/646 Data Models and Languages (3) Semantic data models, object-oriented databases, the object-relation data model, deductive query languages, multidatabase systems, advanced relational database theory. Readings and lectures, exams, and a substantial project that will involve surveying the literature in a major area of database research. Prerequisites: CS 444/544 and either graduate standing or CS 251.

CS 550/650
Parallel Algorithms (3)
Definition and nature of parallel computation. Parallel computation from the point of view of hardware/architecture, program/scheduling, and algorithms. Why and how parallel computation is different from serial computation. Examples to highlight the differences. Parallel algorithms in general: illustration of the most important features and techniques. Illustration of the limitations. A survey of major results, general form of results, limitations on speed-up. Prerequisite: CS 350.

CS 553/653
Design Patterns (3)
Software design patterns are reusable solutions to recurring software problems. They capture successful experiences and convey expert insight and knowledge to less experienced developers. Course provides an in-depth view of patterns using Java as the presentation language. Course is suitable to software architects and developers who are already well-versed in this language. In addition, it offers continuous opportunities for learning the most advanced features of the Java language and understanding some principles behind the design of its fundamental libraries. Prerequisites: programming in Java and CS 520.

CS 555/655
Software Specification and Verification (3)
Theoretical and practical aspects of the software development process or software lifecycle. Covers the first part of the cycle: formulating the external requirements, specifying what the software is to do, and the abstract design. Emphasis will be on the formal aspects of specification and verification.

CS 556/656
Software Implementation and Testing (3)
Theoretical and practical aspects of the software development process or software lifecycle. Covers the second part of the cycle: detailed design, implementation in a programming language, testing, and maintenance. Emphasis will be on the technical aspects of software testing.

CS 559/659
Software Measurement and Models (3)
Survey, evaluation, and application of software measurement techniques and models. Particular emphasis on product metrics such as Software Science, Cyclomatic Complexity, and Function Points.

CS 560/660
Human-Computer Interaction (3)
Introduction to the basic theory of human-computer interaction. Principles of human cognition and interface design, interface evaluation techniques. Several prototyping tools will be presented. A project is required. Prerequisites: Stat 400, CS 202.

CS 572/672
Operating System Internals (3)
Internals of a specific operating system including structure of the kernel, block buffering cache, file system structure and system calls, process structure and scheduling, memory management, device driver interface, and interprocess communication. Prerequisite: CS 333.

CS 573/673
Computer Communications (3)
Layers of the ISO/OSI reference model, basics of computer telecommunications, networking technology, communications protocols, their function and impact on the performance of computer communications, traffic patterns in a data network. Prerequisites: CS 333, Stat 460.

CS 575/675
Computer Systems Analysis (3)
An advanced course on computer systems. Topics include operating systems, performance evaluation, device analysis, construction and proof of monitors, file systems, objects and processes, reliability, and protection. Prerequisites: CS 333, Stat 460.

CS 576/676
Computer Security (3)
Introduction to the principles of computer security. Development of the notion of security through formal models and the examination of existing secure systems. Systems intended for the protection of classified information as well as commercial systems will be examined. Prerequisite: CS 333.

CS 577/677
Compiler Construction (3)
An advanced course on compiler construction. Topics include LL(k) and LR(k) parsing, code generation, error recovery, and local and global optimization. Prerequisite: CS 322.

CS 579/679
Formal Verification of Hardware/Software Systems (3)
Introduction to the formal verification of functional correctness of hardware and software systems. Topics to be covered include: formal logics for system verification (first-order logic, higher-order logic, temporal logic), formal specifications, theorem proving systems, circuit verification, microprocessor verification, and system software verification. Prerequisites: CS 321, 333.

CS 581/681
Theory of Computation (4/3, 4/3)
Computability theory: study of models of computation (Turing, Church, Kleene), recursive function theory, properties of recursive, and recursively enumerable sets. Prerequisite: CS 311.

CS 582/682
Theory of Computation: Advanced Topics (4/3, 4/3)
Complexity theory: study of resource bounded computation, the complexity classes (P, NP, PSPACE, and PH), NP-completeness, relativized computation, randomized classes. Prerequisites: CS 311, 350.

CS 583/683
Automata and Formal Languages (3)
An advanced study of the theory of automata, formal languages and computational complexity. Main subjects are finite state concepts, formal grammars, computability, Turing machines, and computational complexity. Prerequisite: CS 582/682.

CS 584/684
Algorithm Design and Analysis (3)
An advanced in-depth study in the design and analysis of algorithms. Topics include models of computation, sorting, data structures, graph algorithms, matrix multiplication, fast Fourier transform, polynomial arithmetic, pattern matching, and NP-complete problems. Prerequisite: CS 350 or equivalent.

CS 595/695
Network Routing (3)
Class will study modern packet-based routing protocols as used in the Internet including interior gateway protocols (IGPs) like RIP-1, RIP-2, OSPF and exterior gateway protocols (EGPs) like BGP. Certain routing control theory topics will be introduced, for example, link-state and vector distance routing, policy routing, source routing and tunnels, and the general use of metrics in existing routing protocols. Other aspects of routing protocols may be presented as time permits, for example, multicast routing, mobile routing, and tag-switching protocols. This class may take the form of a seminar with students asked to present various aspects of recent experimental research in routing. Prerequisite: CS 594.

CS 596/696
Network Management and Security (3)
Covers both network management and network security. Network management will include the design of LAN-based networks, including spanning tree protocols, bridge learning protocols, virtual LANs, and Ethernet switches, and the security of switches and routers. Network management protocols will be covered in-depth including switch and router management information bases, as well as associated SNMP protocols, and network monitoring tools. The second half of the class will focus on network security. In order to understand the network security problem, the security section will begin with a review of various forms of network attacks. We then turn to network-side security management including both passive measures like firewall defense schemes including packet filters, and bastion hosts. Newer secure protocols will then be covered including network-layer security and various application-layer secure protocols. Prerequisite: CS 594.

ELECTRICAL AND COMPUTER ENGINEERING COURSES

ECE 171
Digital Circuits (4)
Foundation course in digital design. Topics such as number systems, basic logic gates, TTL device parameters, Boolean algebra, logic circuit simplification techniques, timing analysis, the application of MSI combinational logic devices, programmable logic devices, flip-flops, synchronous state machines and counters. Introduces students to a systematic design methodology. Uses computer-based tools such as schematic capture programs, programmable logic development programs, and digital circuit simulators.

ECE 199
Special Studies (Credit to be arranged.)
Consent of instructor.
ECE 201, 202, 203
Electrical Engineering Laboratory I, II, III
(1, 1, 1)
Prerequisites, or concurrent enrollment in: ECE 221, 222, 223, 271. Pass/no pass only.

ECE 221
Electric Circuits (4)
Experiments with circuits, network theorems, and computer analysis techniques of electrical circuit analysis. Network responses to various forcing functions using time-domain and phasor-domain methods. Prerequisite: Mth 253.

ECE 222
Signals and Systems (4)
Step and impulse response of electric circuits, introduction to the frequency domain, Laplace and Fourier transforms, convolution integrals, and spectra Bode plots. Block diagrams and transfer functions. Prerequisites: ECE 221, Mth 256 or concurrent.

ECE 223
Feedback and Control (4)

ECE 271
Digital Systems (4)
Second course in a sequence of digital and microprocessor courses. Covers shift register devices and circuits, design, timing analysis, and application of synchronous state machine circuits using discrete devices and programmable logic devices; timing analysis of asynchronous state machines, arithmetic circuits and devices; internal architecture of a microprocessor; timing and interfacing of memory systems; and an introduction to design for test techniques. Reinforces the systematic design methodology, documentation standards, and use of computer-based tools introduced in ECE 171. Prerequisite: ECE 171.

ECE 301, 302, 303
Electrical Engineering Laboratory IV, V, VI
(1, 1, 1)
Prerequisites: ECE 201, 202, 203; prerequisites or concurrent enrollment in: ECE 321, 322, 323, 331, 332, 371. Pass/no pass only.

ECE 321
Electronics I (4)
Introduction to solid state electronics, leading to the physical properties and characteristics of solid state electronic devices. Analysis and design of diode, bipolar junction, and field-effect transistor circuits. Application of a computer-aided design (CAD) tool such as SPICE. Prerequisite: ECE 223.

ECE 322
Electronics II (4)

ECE 323
Electronics III (4)
Introduction to differential and operational amplifier circuits. Study of operational amplifier design techniques involving current mirrors and active loads. Design and analyze active filters, waveform generators, and large-signal electronic amplifiers. Computer-aided design. Prerequisite: ECE 322.

ECE 331
Electromagnetic Principles (4)
Review of vector calculus, electric and magnetic fields, Maxwell's equations in integral and differential form, Poisson's equation, Laplace's equation, uniform plane waves. Prerequisites: Mth 256, Ph 223.

ECE 332
Electromagnetic Systems (4)
Review of electromagnetic wave propagation, design of transmission lines, waveguides, resonators, and antennas. Prerequisite: ECE 331.

ECE 371
Microprocessors (4)
This course covers the fundamentals of microprocessor architecture, software development, and hardware interfacing. Emphasis is placed on microcontroller type microprocessor systems. Machine and assembly language programming, applications of microprocessors in controls, microprocessor systems design, and memory and I/O interfacing are among the topics studied. Laboratory work includes several software and hardware development projects. Prerequisites: ECE 271.

ECE 401
Research (Credit to be arranged.)
Consent of instructor.

ECE 404
Cooperative Education/Internship (Credit to be arranged.)
Consent of instructor.

ECE 405
Reading and Conference (Credit to be arranged.)
Consent of instructor.

ECE 406
Special Projects (Credit to be arranged.)
Consent of instructor.

ECE 407
Seminar (Credit to be arranged.)
Consent of instructor.

ECE 410
Selected Topics (Credit to be arranged.)
Consent of instructor.

ECE 411
Industry Design Processes (2)
Design methodologies will be discussed as a framework for solving broadly defined technology problems. Interdisciplinary organizational principles will be presented as tools in the design process and as a foundation for the subsequent project course. Lectures, weekly and term case studies. Prerequisites: communication skills applicable to technical oral and written presentation, senior standing in the University and completion of all junior-level required ECE classes, for non-ECE majors, consent of instructor.

ECE 412
Senior Project Development I (4)
In this course, groups of three to five students will apply the structured design methodology learned in ECE 411 or UnSt 421 to original projects with the assistance of faculty and industrial/community advisers. After initial research, each student group will prepare a written and oral project proposal. Each student is required to keep a log of his or her individual design work and to turn in weekly progress reports. At periodic intervals, each group will give an oral progress report to the entire class. In addition to the direct design work, this class also includes talks by industry speakers on topics such as group dynamics, interdisciplinary interaction, communication, documentation, patents, human factors, and engineering ethics. Prerequisite: ECE 411, ME 491, or UnSt 421 (Industry Design Processes).

ECE 413
Senior Project Development II (2)
Continues development of the design projects started in ECE 412 or UnSt 421 to their conclusion. Each student maintains a log of his or her individual work and turns in weekly progress reports. Each group prepares a final written report and delivers a final oral report to the entire class. Note: Non ECE/CpE majors are welcome in this class, but they do not need it to fulfill the University Capstone requirement.

ECE 415/515
Fundamentals of Semiconductor Devices (4)
Solid-state electronic devices, operation, fabrication and applications; single crystal growth, p-n junction, diodes, bipolar junction transistors, MOS capacitor, FETs. Course provides students with a sound understanding of existing devices and gives the necessary background to understand the problems and challenges of the microelectronics manufacturing. Prerequisite: Ph 318, ECE 323.

ECE 416/516
Integrated Circuit (IC) Technologies (4)
Microelectronic processing of solid-state devices and integrated circuits. A base for understanding more advanced processing and what can and cannot be achieved through IC fabrication. Oxidation, diffusion, and ion implantation will be discussed. Bipolar, CMOS and BiCMOS fabrication processes, DRAM technology. Defining system rules for IC layout. Packaging and yield. New technologies, such as Wafer-Scale Integration and Multi-Chip Modules, will be discussed. Students will be introduced to the concept of designing for manufacturability. Prerequisite: ECE 415/515.

ECE 418/518
Linear System Analysis I (4)
Advanced concepts of continuous-time signals, systems, and transforms. Signals: periodicity, orthogonality, basis functions; system: linearity, super-position, time-invariance, causality, stability, and convolution integral; transforms: Fourier series and Fourier transform, Hilbert and Hartley transform, Laplace transform. Prerequisites: ECE 222.

ECE 419/519
Linear System Analysis II (4)
Advanced concepts of discrete-time signals, systems, and transforms. Signals: periodicity, orthogonality, basis functions; system: linearity, super-position, time-invariance, causality, stabili-
ECE 445/545
Power Electronic Systems Design I (4)
Basic DC-to-DC switching converter topologies are presented. Operation in various modes is examined. Steady state design is undertaken using state space techniques and equivalent circuit modeling. Design issues concerning semiconductor devices and magnetics design are also addressed. Prerequisite: ECE 322.

ECE 446/546
Power Electronic Systems Design II (4)
Dynamic analysis of DC-to-DC converters is presented using state space techniques and the method of equivalent circuit modeling of the switching device. Different control techniques such as current programming and sliding mode control are introduced. Inverter and input current waveshaping rectifier circuits are also introduced. Prerequisite: ECE 445/545.

ECE 451/551
Control Systems Design I (4)
State space description of linear systems. Signal flow graphs. Discrete-time control systems: Z-transforms, recursion, sampling, sampling theorem, design via Z-transform method, Z-plane (root locus, etc.), Bode plot, phase space, etc. Prerequisite: ECE 223.

ECE 452/552
Control Systems Design II (4)

ECE 453/553
AI: Neural Networks I (4)
Introduces approach for developing computing devices whose design is based on models taken from neurobiology and on notion of “learning.” A variety of NN architectures and associated computational algorithms for accomplishing the learning are studied. Experiments with various of the available architectures are performed via a simulation package. Students do a major project on the simulator, or a special programming project. Prerequisites: senior standing in ECE/CPRE or CS, or graduate standing.

ECE 454/554
AI: Neural Networks II (4)
Focuses on applications. Topics in fuzzy set theory, control theory, and pattern recognition are studied and incorporated in considering neural networks. A design project (using NN simulator) in selected application area is done by each student. Prerequisite: ECE 453/553.

ECE 455/555
Learning from Data (4)
Introduces statistical learning theory and practical methods of extracting information from data. Engineering applications are discussed in the areas of communications, control systems, biomedical engineering, and signal processing. The focus of this course is on nonlinear optimization, nonlinear modeling, density estimation, and pattern recognition. Students will apply the methods to solve homework problems and in their projects. Prerequisite: Math 460 or ECE 454/554.

ECE 456/561
Communication Systems Design I (4)
An introduction to signals and noise in electrical communication systems; signal spectra and filters, noise and random signals, baseband transmission of analog and digital signals, linear modulation and exponential modulation. Prerequisite: ECE 222.

ECE 462/562
Communication Systems Design II (4)
Study of the relative merits of communication systems, noise in continuous wave and pulse modulation schemes, information theory, digital data systems, and advanced topics. Prerequisite: ECE 461/561.

ECE 478/578
Intelligent Robotics I (4)

ECE 479/579
Intelligent Robotics II (4)

ECE 485/585
Microprocessor System Design (4)
Advanced topics in microprocessor technology emphasizing newer generations of microprocessors. Hardware and software design for different microprocessor systems and bit slice design are major components of this course. Independent design projects are heavily emphasized as part of the lab work. Prerequisite: ECE 371.

ECE 486/586
Computer Architecture (4)
An introduction to the key concepts of computer system architecture and design. Topics include the design and analysis of instruction set architectures, memory systems, and high-performance IO systems; basic CPU implementation strategies; basic pipelined CPU implementation; performance analysis; and a survey of current architectures. Prerequisite: ECE 485/585.

ECE 491/591
Laser Systems Design I (4)
Laser topics: especially design of laser, fiber-optic, and related optical systems. Formation and propagation of modes and beams, matrix methods for the analysis and synthesis of optical systems. Prerequisite: ECE 331.
ECE 492/592
Laser Systems Design II (4)
Interaction of light with atoms, Maxwell-Schrödinger analysis and rate equation approximations. Effects of gain, dispersion, and saturation in the design of laser amplifiers and oscillators. Prerequisite: ECE 331.

ECE 501
Research (Credit to be arranged.)
Consent of instructor.

ECE 503
Thesis (Credit to be arranged.)
Consent of instructor.

ECE 504
Cooperative Education/Internship (Credit to be arranged.)
Consent of instructor.

ECE 505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

ECE 506
Special Projects (Credit to be arranged.)
Consent of instructor.

ECE 507
Seminar (Credit to be arranged.)
Consent of instructor.

ECE 510
Selected Topics (Credit to be arranged.)
Consent of instructor.

ECE 511/611, 512/612, 513/613
Solid State Electronics I, II, III (4, 4, 4)
The solid state electronics course sequence deals with advanced topics in solid state device physics and modeling. Following a discussion on semiconductor properties and modeling as a function of doping and temperature, advanced bipolar transistor structures and MOS transistors will be treated in detail. Device models aimed at numerical circuit simulators will be discussed. Prerequisite: ECE 323.

ECE 523/623
Analog Integrated Circuit Design III (4)
Integrated-circuit oscillators and timers, frequency-to-voltage converters, phase-locked-loop circuits, IC filters, self-tuning filters, digital-to-analog converters, analog-to-digital converters, CAD tools for circuit design and testing. Prerequisite: ECE 422/522.

ECE 527/627
High Performance Digital Systems (4)
The use of computer-aided design tools in high-performance digital systems is explored. The trade-offs between automated and hand design are examined in the context of performance vs. development time. The impact of new developments in MOS circuit technology are also examined. Prerequisite: ECE 426/526.

ECE 528/628
Layout Techniques (4)

ECE 529/629
Performance-driven Layout (4)
Floor planning, placement, routing, compaction, design rule verification, and module generation. Description and analysis of algorithms used in layout synthesis. Timing-driven layout techniques for performance optimization. Application Specific Integrated Circuits (ASIC) using traditional semicustom techniques and new Application-Specific programmable logic devices, FPGAs, EPLDs. Fitting problem for architecture-specific EPLDs. Prerequisite: ECE 528/628.

ECE 533/633
Advanced Electromagnetics (4)
Advanced course in electromagnetic. Mathematical methods, electrostatics, boundary value problems, magnetostatics, time varying fields, plane waves. Prerequisite: ECE 331.

ECE 543/643
Electric Energy Systems Control (4)
State estimation, security and contingency monitoring, automatic generation control, economic dispatch, optimal power flow, power system stability, unit commitment and pool operation. Prerequisite: ECE 442/542.

ECE 553/653
Control Systems Design III (4)
Topics in modern feedback control theory of nonlinear and multivariable systems, including considerations of stochastic and optimal control. Design methods on computer workstations. Prerequisite: ECE 452/552.

ECE 563/663
Information Theory (4)
Established theoretical limits on the performance of techniques for compression or error correction of signals. This course focuses on communications applications, specifically source coding and channel coding for discrete signals. Topics will include: Entropy and Mutual Information, Asymptotic Equipartition (the Ergodic Theorem of Information Theory), Entropy Rates of Information Sources, Data Compression, and Channel Capacity. This course is also listed as 5S/C 545/645, may only be taken once for credit.

ECE 565/665
Signals and Noise (4)
Students are introduced to “noise” as it appears in communication and control systems, its mathematical and statistical properties and practical filtering methods to minimize its impact on systems. Advanced topics in filter and estimation theory are also introduced. Prerequisite: graduate standing in electrical engineering.

ECE 566/666
Digital Signal Processing (4)
Study of discrete time signals and systems. Mathematics of discrete time systems in time and frequency domains. Discrete Fourier Transform, FFT algorithms and applications, digital filter design, random signals in digital linear systems form the foundations of this course. Prerequisite: ECE 563/665.

ECE 570/670
Computer Vision (4)
Image detection and registration, image analysis (texture extraction, edge detection, segmentation), image reconstruction (radon transform, Fourier reconstruction), stereo imaging and motion analysis, pattern recognition (recognition, classification and clustering). Prerequisite: ECE 568/668.

ECE 572/672
Advanced Logic Synthesis (4)

ECE 573/673
Control Unit Design (4)

ECE 574/674
High-level Synthesis and Design Automation (4)
Comprehensive design automation systems. Problems of system and high-level synthesis. Register-transfer and hardware description languages. Data path design: scheduling and allocation. Design methods for systolic, pipelined,
cellular and dynamic architectures. System issues: System level silicon compilers. Group project: using high-level tools for design of a complete VLSI ASIC chip or FPGA architecture: vision, DSP, or controller. Prerequisite: ECE 573/673.

ECE 573/673
Introduction to Integrated Circuit Test (4)
Course will cover the traditional role of IC test in parametric and functional testing and the changing role of IC testing in semiconductor design and manufacturing. The course is divided into three parts. The first part reviews integrated circuit technologies and fault modeling. The second introduces digital IC test, DC, parametric testing, and functional and structural testing. The third part examines technology trends. Prerequisite: graduate standing or permission of instructor.

ECE 576/676
Computational Methods in Electrical Engineering (4)
Students are introduced to optimization methods used in electrical engineering including methods from linear, nonlinear, integer and dynamic programming. A number of numerical methods for solving nonlinear and partial differential equations are discussed. Prerequisite: ECE 575/675.

ECE 577/677
Interactive Computer Graphics (4)
An introduction to the principles of interactive computer graphics including logical devices, physical devices, transformation, viewing and clipping in two and three dimensions. Prerequisite: ECE 575/675.

ECE 587/687
Advanced Computer Architecture I (4)
An advanced course in computer system architecture and design. Key topics include advanced CPU implementation techniques including pipelineing, dynamic instruction issue, superscalar architectures, and vector processing; high-performance memory and I/O systems design; an introduction to parallel computers; and a survey of current literature in computer architecture and of current advanced computer systems. Students will begin a project that will be completed in ECE 588/688. Prerequisite: ECE 575/675.

ECE 588/688
Advanced Computer Architecture II (4)
Discussion of parallel computer architectures and their uses. Key topics include MIMD architectures; associative processing, shared-memory and message-passing architectures; dataflow and reduction architectures; special-purpose processors; design and analysis of interconnection networks; and an overview of parallel software issues. Students will complete the project started in ECE 587/687. Prerequisite: ECE 587/687.

ECE 589/689
Performance Analysis of Local Area Networks (4)
Studies the structure and performance of local computer networks. Emphasis on performance issues for common protocols used in local computer networks, specifically, polling networks, rings networks, and random-access networks. Allows the student to analyze network performance and read the current literature.

ECE 593/693
Advanced Laser Systems (4)
Transient phenomena in lasers including slow and fast pulsations and instabilities. Semiclassical and quantum mechanical effects on laser performance and applications. Prerequisite: ECE 492/592.

ECE 594
Applied Optics (4)
An overview of optics and such principal applications as fiberoptics, chemical, biological, and physical sensors, optical information processing, acousto-optics, lasers and detectors. Prerequisites: Ph 203 or 213 or 223, Mth 254. This course is the same as Ph 564, course may only be taken once for credit.

ECE 595/695
Optoelectronics I (4)
Techniques of optoelectronic systems including optical modulation, detection, and detection. Anisotropic media, electro-optics, nonlinear optics, harmonic generation. Prerequisite: ECE 331.

ECE 596/696
Optoelectronics II (4)
Nonlinear optics, parametric oscillation, frequency conversion, self-focusing, acousto-optics, Brillouin scattering, Raman scattering, magnetooptics, opto-optics. Prerequisite: ECE 595/695.

ECE 598
Introduction to Quantum Mechanics (4)
An introduction to the formulation and application of wave mechanics; the Schrödinger equation and its application to time-independent problems (both one- and three-dimensional problems); identical particles; approximation methods including mainly time-independent perturbations. Brief exploration of the potential applications of quantum mechanics to engineering quantum nano-structures and quantum computers. Prerequisites: Ph 318 or 311, Mth 256. This course is the same as Ph 511; course may only be taken once for credit.

ECE 560
Research (Credit to be arranged.)

ECE 563
Thesis (Credit to be arranged.)

ECE 507
Special Projects (Credit to be arranged.)

ECE 510
Seminar (Credit to be arranged.)

ECE 520/620
Management of Engineering and Technology (4)
Study of fundamental concepts of engineering and technology management to provide the students with an in-depth understanding of the underlying principles of this discipline: innovation process, technological change, technical organizations, motivation and leadership theories applicable to engineers and scientists, engineering and RD projects, resource management in current and emerging technologies, and strategic management of technological system interfaces are included in the course. Ongoing engineering management research is critically evaluated in classroom discussions. Case studies and a term project are included. Prerequisite: graduate standing.

EMgt 501
Research (Credit to be arranged.)

EMgt 503
Thesis (Credit to be arranged.)

EMgt 504
Cooperative Education/Internship (Credit to be arranged.)

EMgt 505
Reading and Conference (Credit to be arranged.)

EMgt 506
Selected Topics (Credit to be arranged.)
EMgt 530/630 Decision Making in Engineering and Technology Management (4)
Decision and value theory concepts are applied to technical and management decisions under uncertainty. Multicriteria decisions are analyzed. Subjective, judgmental values are quantified for expert decisions and conflict resolution in strategic decisions involving technological alternatives. Hierarchical decision modeling approach is introduced. Individual and aggregate decisions are measured. Decision discrepancies and group disagreements are evaluated. Case studies are included in the course. Prerequisites: EMgt 520/620, knowledge of probability/statistics.

EMgt 535/635 Engineering Economic Analysis (4)
Economic evaluation of engineering and R&D projects is discussed from the engineering management viewpoint. Time value of money, tax considerations, break-even sensitivity analyses, project evaluations under uncertainty, risk sharing, capital budgeting, and multicriteria decisions are studied. Case discussions are included in the course prerequisite: Linear algebra, probability/statistics.

EMgt 537/637 Productivity Analysis (4)
Productivity analysis techniques, applications, and case studies are covered from engineering and management perspectives. Topics covered include benchmarking, process analysis, production functions, parametric productivity analysis techniques, and nonparametric productivity analysis techniques. Prerequisites: linear programming, probability/statistics.

EMgt 540/640 Operations Research in Engineering and Technology Management (4)
The use of operations research techniques in making engineering management decisions; application and interpretation of linear programming and goal programming; problem formulations; mathematical model building; the basic principles behind the simplex algorithm and matrix-iterative linear optimization; postoptimality analysis from the viewpoint of technology management; other operations research techniques such as queuing models; a term project involving an actual operational problem. Prerequisites: linear algebra and probability/statistics.

EMgt 543/643 Project Management in Engineering (4)
Critical issues in the management of engineering and high technology projects; analysis of time, cost, performance parameters form the organizational, people, and resource perspectives; project planning evaluation and selection, including project selection models; project and matrix organizations; project teams; scheduling with CPM/PERT algorithms; budget and schedule control; termination of projects Case discussions and term project are included in the course. Prerequisites: EMgt 520/620, EMgt 530/630.

EMgt 546/646 Project Scheduling and Network Analysis (4)
An in-depth study and review of the major problems and analytical techniques used in the planning and scheduling of major industrial projects. Specific focus on two primary areas: (1) network analysis used in the planning of projects, and (2) scheduling analysis used in the scheduling of resources during the course of a project. Modeling techniques such as CPM, PERT, GERT, etc. in conjunction with mathematical programming and computer simulation. Emphasis on solving real-world project schedules. Prerequisites: probability/statistics, linear algebra, EMgt 545/645.

EMgt 550/650 Manufacturing Systems Engineering (4)
Underlying concepts of manufacturing or production systems; product and process planning; job/flow shops; group technology, and flexible manufacturing cells. Prerequisite: graduate standing or eligibility for admission to the engineering management program.

EMgt 551/651 Manufacturing Systems Management (4)
Traditional and emerging techniques in manufacturing management; the evolution of concepts from EOQ to MRP and JIT including what has gone wrong with them. Other management level issues including shop floor control, production scheduling, and inventory management. Prerequisite: EMgt 550.

EMgt 552/652 Intelligent Manufacturing Systems (4)
Introducing the student to applications of AI expert system tools for solving manufacturing system design and management problems. First part of the course: Introduction of the basic concepts of intelligent manufacturing, knowledge-based (KB) techniques, and software used in the design of products, processes, facilities, and management systems required to manufacture a product. Second part: KB techniques and software used in the design of products, processes, facilities, and management systems required to manufacture a product. Third part: Integration of KB techniques for designing an intelligent manufacturing system, current and future research in each of the functional areas. Prerequisite: EMgt 550/650.

EMgt 553/653 Manufacturing Systems Simulation (4)
Application of discrete system simulation to manufacturing processes, including production cells, assembly operations, materials handling, and scheduling. Students also learn general systems modeling concepts, such as how to model random processes and probabilistic events, and how to use a specific simulation package that features realistic animation of the system under study. Prerequisites: basic knowledge of probability and statistics, and some exposure to manufacturing processes and terminology. This course is the same as SysSc 553/653; course may only be taken once for credit.

EMgt 555/655 Technology Marketing (4)
This course is designed to introduce students to the special issues faced by managers marketing technological products in markets characterized by rapid environmental change. Topics will include an examination of the marketing/engrering/manufacturing interface, product innovation strategies, value-based pricing, buyer behavior and strategic selling, competitive market analysis, and distribution strategies. Emphasis is placed on strategies for marketing technology products in industrial markets.

EMgt 560/660 Total Quality Management (4)
Critical principles and procedures of quality management in a competitive global environment; contemporary definitions of quality, quality in production/services; quality economics, quality philosophies, planning, organizing, and controlling for quality; human resource and empowerment strategies, and QC tools. Case studies, presentations, term projects, and teamwork. Prerequisite: graduate standing, or eligibility of admission to the engineering management program.

EMgt 563/663 Re-engineering the Technical Enterprise (4)
This course presents the critical issues in re-inventing the engineering-drive companies in the real world. The basic building blocks, re-engineering stages and key success factors are covered. Also reviewed are the tools, challenges, and resistance to re-engineering. Case studies, presentations, term projects, and teamwork are included in the course. Prerequisite: EMgt 560/660.

EMgt 565/665 Research Methods for Engineering Management (4)
Research methods in engineering management; statistical techniques including proper selection, use, and interpretation of parametric and non-parametric tests along with factor and discriminant analysis. Design of experiments and model misspecification. The use of statistical software. Prerequisites: graduate standing, probability and statistics.

EMgt 571/671 Expert Systems in Engineering (4)
Insights into artificial intelligence exposing students to the building of expert systems (ES) with an emphasis on solving a variety of engineering management problems; components of ES and an emphasis on solving a variety of engineering management problems; components of ES and design methodology; principles of heuristic and logic programming; fundamental issues related to knowledge acquisition, representation, inference, and learning; design of inference engines and their implementation. Fuzzy reasoning, neural nets, and learning mechanisms and a review of some of the more popular AI and ES shells.

EMgt 589 Capstone Project (4)
Capstone project for the M.S. degree in engineering management, can be taken in lieu of master’s thesis or EMgt 590 to satisfy curriculum requirements. Students conduct individual research on a project approved by the faculty member who supervises the work. Findings are presented in the form of a report after being accepted by the supervising professor. Prerequisites: EMP core.

EMgt 590/690 Engineering Management Synthesis (4)
This is the capstone course in the Engineering Management Program. It synthesizes the concepts and methodologies of engineering and technology management into an individual or group project. The research base for the project may come from any combination of the study areas covered in the Engineering Management Program.
OMSE 500 Principles of Software Engineering (3)
An introduction to software engineering in industry. This course focuses on understanding the nature of software engineering, the software engineering process, and the problems and solutions manifest in real software development and modification projects. Different models of the software engineering process are compared and contrasted. Current best practices in software engineering and various approaches to software process improvement are presented. This course is intended for students who have not received prior instruction in software engineering.

OMSE 511 Managing Software Development (3)
Provides the knowledge and skills needed to plan, organize, lead, and control a software project. Topics include planning and estimating, measuring and controlling, and leading and directing a software project. Quantitative measures and risk management will be emphasized throughout the course. Students will prepare project plans for real or hypothetical software projects, to include effort, cost, and schedule estimates and risk management plans. Prerequisite: OMSE 500.

OMSE 512 Understanding the Software Business (3)
Provides a familiarity with the business and economic aspects of software companies and other high-technology companies that develop software. Topics include fundamental macro-economic concepts, basic accounting and financial principles and methods, basic business law, and the functions and role of marketing in enterprises that develop software products or products that include software. Prerequisite: OMSE 500.

OMSE 513 Professional Communication Skills for Software Engineers (3)
Covers the skills necessary for appropriate professional conduct and effective communication in a professional setting. It includes technical writing, making effective presentations, conducting effective meetings, conflict resolution, team and decision-making skills, and professional ethics. Students will engage in a project that covers the major topics of the course. Prerequisite: OMSE 500.

OMSE 521 Using Metrics and Models to Support Quantitative Decision Making (3)
Provides the knowledge and skills needed to apply quantitative tools based on metrics and models of the software product and development process to make decisions under uncertainty. Topics covered will include measurement concepts, decision-making under uncertainty, and model and metric development for the software development enterprise. Prerequisite: OMSE 500.

OMSE 522 Modeling and Analysis of Software Systems (3)
Abstract models are used to formalize specifications of software systems. Formalized reference specifications serve as a basis for the design of software implementations and for validating critical properties of software systems. Provides the fundamental mathematical concepts needed to understand abstract models of software and to reason about them. Prerequisite: OMSE 500.

OMSE 523 Software Quality Analysis (3)
Processes, methods, and techniques for developing quality software, for assessing software quality, and for maintaining the quality of software. Tradeoffs between software cost, schedule time, and quality. Integrating quality into the software development process; formal review and inspection methods; principles of testing and test planning; module design for testability; maintaining quality while supporting existing software. Prerequisite: OMSE 500.

OMSE 531 Software Requirements Engineering (3)
Principles, tools, and techniques for requirements elicitation, specification, and analysis. Focus on understanding the role of requirements in the development process, goals of the requirements phase, essential difficulties of specifying requirements for real systems, and effective methods, tools, and techniques. Covers techniques for formally modeling and specifying software requirements with hands-on experience. Prerequisites: OMSE 522, 525.

OMSE 532 Software Architecture and Domain Analysis (3)
Methods and principles of the architectural design of complex, large-scale software systems to accommodate change and evolution through many product releases or versions. Survey of the major architectural styles, their strengths and weaknesses, and architectural trade-offs with respect to system goals and desired properties. Study of architectural approaches to development of open systems and frameworks based on case studies. Software engineering of domain-specific software architectures for families of systems (e.g., product lines) including domain analysis, domain modeling, and design of domain-specific software architectures. Relation of software architecture to requirements and its effects on downstream design and software evolution. Students examine domain analysis and the architectural design process and products in the business context including the effect of decisions on cost and schedule. Prerequisite: OMSE 522.

OMSE 533 Software Design Techniques (3)
Covers the principles of software design and a survey of design methods, techniques, and tools. In-depth and hands-on study of at least one method such as object-oriented design as applied to a realistic industrial problem. Examines the effects of design decisions on the functional and non-functional properties of the software (e.g., ease of understanding, maintainability, and reuse) and how software engineering principles are applied to make appropriate trade-offs. Also examines the design process and products in context including the effect of design decisions on function, quality, cost, and schedule. Prerequisite: OMSE 522.

OMSE 534 Software Implementation and Testing (3)
Covers the principles of implementing and verifying computer software. Implementation topics include coding style, packaging principles, reuse, testability, and maintainability. Verification topics include structural (white box) testing and techniques for code verification. Also included will be verification and integration of foreign code, testing techniques and how to apply them, including code-based and specification-based testing, hands-on application of the testing process including test case generation, and test adequacy, test validation, test execution, and automation. Prerequisites: OMSE 522, 525.

OMSE 551 Strategic Software Engineering (3)
Where traditional software engineering focuses on the development and maintenance of individual systems, strategic software engineering addresses the development of multiple systems over time. Significant gains in productivity, cost, and schedule can result from systematic improvement of the software development process and systematic reuse of life-cycle products over multiple developments. Covers the principles, methods, and tools for strategic software development including process modeling and improvement, developing programs as families of systems, and systematic approaches to code generation and the reuse of non-code products, including requirements and design. Prerequisites: OMSE 511, 512, 513, 521, 531, 532, 533, 535.

OMSE 555/556 Software Development Practicum I, II (3, 3)
In the practicum courses, students apply skill gained in the foundation and context courses to synthesize a solution to a real software development problem. Students work in teams to analyze a problem, develop a software concept, plan a software development effort, define requirements, and implement a solution. Students will work closely with OMSE program faculty and, where possible, industrial reviewers to apply advanced software engineering techniques to a disciplined development of a realistic product and evaluate the results. Prerequisites for OMSE 555: OMSE 511, 512, 513, 521, 531, 532, 533, 535; for OMSE 556: OMSE 555.
ME 199  
Special Studies (Credit to be arranged.)  
Consent of instructor.

ME 241  
Manufacturing Processes (4)  
Study from the designer’s viewpoint of the principal manufacturing processes utilized. Includes casting, forming, material removal, and joining processes. Selection will be decided in terms of the economics, process effects on the products, and dimensional and quality of the finished product. Lecture and laboratory. Prerequisite: EAS 213.

ME 304  
Energy and Society (4)  
Study of the energy problem: a complex societal problem which has a major technical component. Designed to help nonscience majors understand the technical side of the energy problem as well as the multidisciplinary effects of technical decisions on the social, political, and economic framework. Examination of energy requirements and usage, energy resources, methods for producing energy, environmental and economic implications of energy production, energy conservation, and energy policies. Power production techniques utilizing coal, nuclear, solar, wind, geothermal, and other energy sources will be studied. Prerequisite: upper-division standing.

ME 313  
Analysis of Mechanical Components (4)  
Stress and deflection analysis of structural components including review of stress and strain, curved beams, pressure vessels, impact loading, stability, and energy methods. Topics will be synthesized in a design project. Prerequisites: EAS 212, Mth 256.

ME 314  
Analysis and Design of Machine Elements (4)  
Analysis and design of machine elements and systems, covering failure theories, fatigue, fasteners, welds, gears, springs, bearings, introduction to stochastic design. Topics will be synthesized in a design project. Prerequisite: ME 313.

ME 321  
Engineering Thermodynamics I (4)  
Study of energy sources and utilization; First and Second Laws of thermodynamics, closed and control volume systems: thermodynamic processes and cycles, thermodynamic properties; heat power systems; Prerequisites: Ph 223, Mth 253.

ME 322  
Applied Fluid Mechanics and Thermodynamics (4)  
Internal flow, external flow, and compressible flow; Lift and drag; Turbomachinery, combustion, and psychometry. Prerequisites: EAS 361, ME 321.

ME 323  
Heat Transfer (4)  
Fundamentals of engineering heat transfer with design applications; steady-state and transient analysis of conduction in one and two dimensions; concepts of convection, forced convection, internal and external flows, natural convection, and heat exchanger design; study of radiation concepts and radiation exchange between surfaces. Prerequisites: Mth 256, ME 321, EAS 361.

ME 351  
Vibrations and System Dynamics (4)  
An introduction to vibrations and system dynamics for single and multiple degree-of-freedom linear systems. The course includes: free and forced vibrations; resonance; modeling of mechanical, fluid, and electrical systems; Laplace transformations; and dynamic system response in the time and frequency domains. Computer analysis and solution techniques will be utilized. Prerequisites: EAS 215, Mth 256, EAS 361, ECE 221, ME 352.

ME 352  
Numerical Methods in Engineering (4)  
Introduction to numerical methods used in engineering. Topics include: number representation and truncation errors, integration, differentiation, interpolation and approximation, linear system of equations, non-linear equations, and solution of differential equations. Prerequisites: EAS 101, Mth 256.

ME 401  
Research (Credit to be arranged.)  
Consent of instructor.

ME 404  
Cooperative Education/Internship (Credit to be arranged.)  
Consent of instructor.

ME 405  
Reading and Conference (Credit to be arranged.)  
Consent of instructor.

ME 406  
Special Projects (Credit to be arranged.)  
Consent of instructor.

ME 407  
Seminar (Credit to be arranged.)  
Consent of instructor.

ME 410  
Selected Topics (Credit to be arranged.)  
Consent of instructor.

ME 411/511  
Engineering Measurement and Instrumentation Systems (4)  
Principles and applications of measurement methods and instrumentation techniques, as used in various engineering disciplines, are studied. Examination of general measurement concepts and instrumentation characteristics. Specific devices for measuring such parameters as displacement, force, strain, pressure, flow, temperature, motion, time, and frequency are discussed. Testing and verification of theory, design, and laboratory evaluation of mechanical components and systems are also made. Lecture and laboratory. Prerequisites: ECE 221, senior standing in engineering.

ME 413/513  
Engineering Material Science (4)  
Study of materials with emphasis on solids; effect of microstructure and macrostructure on properties; equilibrium and non-equilibrium multiphase systems; effects of mechanical and thermal stresses, electromagnetic fields, irradiation, and chemical environments, surface and related phenomena; examples from metallic, ceramic, polymeric, and composite materials. Prerequisite: EAS 213.
Building Energy Use Analysis and Design (4)
A detailed examination of the analysis of annual energy use of residential and commercial buildings. Emphasis on microcomputer simulation techniques for analysis of building energy use and study of energy-efficient building design. Topics include: heat loss and gain in buildings, heating and cooling load calculations, energy use analysis (including bin type, daily, and hourly analysis procedures), daylighting in commercial buildings, and introduction to analysis and design of active and passive systems utilizing solar energy for space and water heating. Project in design/simulation. Prerequisites: ME 323, ME 421/521, familiarity with use of computers and spreadsheets.

Fundamentals of Building Science (4)
Introduction to the fundamental concepts of building science. Buildings as a system, including interactions among subsystems such as heating and cooling, ventilation, the thermal envelope, air leakage, and occupants. Building energy efficiency. Performance and economic analysis of residential heating, cooling, and ventilating systems. Indoor air quality and other health and safety issues, including assessing and resolving moisture problems. Applications of diagnostic tools. Lecture plus in-field demonstration and laboratory. Group project involving diagnostic analysis of student homes. Prerequisite: ME 421/521.

HVAC System Design and Controls (4)
Design of HVAC equipment, integration of systems, and design of controls for buildings. Application of HVAC fundamentals. Subjects include: building, block and zone load estimates; air/hydraulic systems design; refrigeration; air handling units; cooling and heating plants; basic control concepts; sensors and actuators; pneumatic, electronic, and digital controls; HVAC subsystems and controls, complete HVAC systems, and controls. Prerequisites: ME 421/521 and 351.

Advanced Topics in Building Science (4)
Advanced design or analysis topics will be presented. Topics will be chosen for relevance to current technological practice concerned with building science. Examples include clean room design, advanced computer simulation techniques such as advanced building energy use simulation or attic and wall moisture modeling, and advanced lighting design for commercial buildings. Each offering of this course will focus on a different single selected topic.

Pneumatic and Hydraulic Systems (4)
Fluid control and fluid power devices and components; application of Boolean algebra in control circuit design; fluid power circuit analysis; design methodology; component selection; system maintenance; and troubleshooting. Prerequisite: EAS 361.

Mechanical Systems Design (4)
Objective of this course is to integrate various analysis methods in the context of design projects with realistic constraints. Emphasis is on defining problems, identifying solution methods, and synthesizing solutions while considering production and economic factors. Teamwork, communication skills, and ability to learn independently is highly emphasized. Prerequisites: ME 241, 351, 314.

Advanced Fluid Mechanics (4)
Partial differential equations governing the conservation of mass, momentum, and energy of Newtonian fluids are derived. Dimensional analysis is used to simplify the governing equations and in particular justify the assumption of incompressible flow. Exact solution of the Navier-Stokes equations are presented. Boundary layer approximations to the governing equations are derived, and both exact and integral solutions are obtained. Prerequisite: EAS 361.

Advanced Heat Transfer (4)
Advanced treatment of the principles of conductive and convective heat transfer. Analytic and numerical solutions of heat conduction problems. Laminar and turbulent convective heat transfer. Prerequisites: ME 322, 323.

Advanced Engineering Thermodynamics (4)
Thermodynamics of physical and chemical systems with engineering applications: basic thermodynamic relationships; advanced techniques for their use; systems of variable composition; heat effects for reacting systems; equations of state, phase, and chemical equilibria for ideal and nonideal systems. To include one or more of several special topics: chemical kinetics, reactor analysis fundamentals; second law analysis of thermodynamic systems; introduction to statistical thermodynamics; advanced energy conversion systems. Prerequisite: ME 321.

Combustion (4)
Fundamental concepts of the complex phenomena involved in combustion: thermodynamics, fluid mechanics, gas phase chemical kinetics and turbulence. Specific topics include: closed vessel explosions, detonations, flammability, flames, heterogeneous combustion, ignition, and combustion and the environment. Prerequisites: ME 322, 323.

Advanced Topics in Thermal and Fluid Sciences (4)
Course topics are chosen for relevance to current technological practice concerned with thermal and fluid sciences. Each offering of this course focuses on a specific area and is not a survey. Examples include thermal management of electronic equipment and theoretical fluid mechanics.

Compressible Flow (4)

Transfer and Rate Processes (4)
An advanced treatment of heat, mass, and momentum transfer. Development of the conservation laws, transport laws, transport properties, and basic analytic solutions. Applications to heat transfer equipment, catalytic reactors, drying processes. Prerequisites: ME 323, EAS 361, senior or graduate standing.

Applied Computational Fluid Dynamics (4)
Computational fluid dynamics (CFD) is presented as a design tool for analyzing flow and heat transfer. Algorithms implemented in commercial CFD packages are reviewed. Training in the use of a commercial code is provided. Case studies reinforce fundamental understanding of flow and heat transfer, and highlight the implementation-specific aspects of commercial codes. An independent project is required. Prerequisite: ME 441/541.

Solid Modeling (4)
Emphasis is on solid model construction methods using state-of-the-art solid modeling software. Topics include use of parametric geometry, construction and modification of solids, building and animating assemblies, working in groups, building sheet metal parts, drafting, and the presentation of the fundamentals of solids modeling including representation and manipulation of wireframes, surfaces, and solids. Lecture and laboratory. Prerequisite: senior or graduate standing in engineering or a closely related field.

Control Engineering I (4)
Introductory controls class offered to upper-division mechanical engineering undergraduates and graduate students. Includes classical theory as applied to linear systems with topics: mathematical modeling of control systems, transfer functions and block diagrams, transient response; stability; root-locus method; frequency response method; and control system design techniques. Computer analysis and solution techniques will be utilized. Prerequisites: upper division ME undergraduate or graduate student; Mth 256, ECE 221, ME 351.

Control Engineering II (4)
Continuous control system design and applications using transfer function and state variable approaches. Introduction to digital control system design, including: transfer function and state space formulation, and time and frequency domain analysis techniques. Computer analysis and solution techniques will be utilized. Prerequisite: ME 452/552.

Finite Element Modeling and Analysis (4)
The finite element method as related to the solution of mechanical design problems including thermal stress analysis. Various element formulations will be discussed, and existing commercial codes will be used to demonstrate modeling and analysis techniques. Prerequisite: ME 453. ME 314, ME 555. Graduate standing in engineering.
"ME 458/558  
Principles of CNC Machining (4)  
A study of principles of machining, tool path generation and analytic geometry, part design and programming, integration of CAD/CAM software, structure and control of CNC machines, and introduction to computer-integrated-manufacturing. Prerequisite: ME 241 and senior standing in mechanical engineering. Lecture and laboratory. Prerequisites: ME 241 and senior standing in mechanical engineering.

"ME 463/563  
Advanced Topics in Control Engineering (4)  
Mathematical foundations and applications of various advanced topics in control engineering for both continuous- and discrete-time systems. Prerequisite: ME 453/553.

"ME 471/571  
Process Measurement and Control (4)  
Introduction to process control hardware, software, and interfacing. Lecture topics include: number systems, hardware concepts, data movement, programming, and interfacing. Lab exercises involve the use of microcomputers interfaced and programmed for various control and data acquisition applications. Lecture and laboratory. Prerequisites: ME 411/511, ECE 201, 221.

"ME 481/581  
Mechanical Tolerancing (4)  
Presents the principles of current dimensioning and tolerancing standards including their syntax, meaning, methods of verification, and their relation to design requirements. Statistical techniques for tolerance analysis and synthesis relevant to various assembly and fit requirements. Other topics include standards of surface roughness, limits and fits, and relevant hardware and software products. A term project on a mechanical part product intended for manufacturing is required. Prerequisites: ME 241, 491 concurrently.

"ME 488  
Design of Experiments (2)  
Presents the methods of planning the data collection scheme in industrial experimentation. Topics to be covered are methods of statistical inference, randomization, blocking, empirical and mechanistic model building using factorial, fractional factorial designs, and least squares methods. Prerequisite: Stat 460.

"ME 491  
Design Process (2)  
Design methodologies will be discussed as a framework for solving broadly defined technology problems. Interdisciplinary organizational principles will be presented as tools in the design process and as a foundation for the subsequent project course. Lectures, weekly and term case studies. Prerequisites: ME 314, ME 351.

"ME 492  
Conceptual Design Project (4)  
Application of design methodology to original projects performed by groups of 3 to 5 students under faculty and industrial adviser. Design process will encompass engineering analysis and broader factors such as group organization, interdisciplinary interaction, and communication. The problem definition to alternative selection phases will be emphasized. Lectures, group, and class presentations. Prerequisite: ME 491.

"ME 493  
Detailed Design Project (4)  
Application of design methodology to original projects begun in ME 492. The alternative selection to implementation phases will be emphasized. Lectures, group and class presentations. Prerequisites: ME 492.

"ME 501  
Research (Credit to be arranged.)  
Consent of instructor.

"ME 503  
Thesis (Credit to be arranged.)  
Consent of instructor.

"ME 504  
Cooperative Education/Internship (Credit to be arranged.)  
Consent of instructor.

"ME 505  
Reading and Conference (Credit to be arranged.)  
Consent of instructor.

"ME 506  
Special Projects (Credit to be arranged.)  
Consent of instructor.

"ME 507  
Seminar (Credit to be arranged.)  
Consent of instructor.

"ME 510  
Selected Topics (Credit to be arranged.)  
Consent of instructor.

"ME 512/612  
Advanced Vibrations (4)  
Vibration analysis of single and multiple degree of freedom systems. Topics include: (1) modeling of linear systems using matrix methods; (2) modal analysis; (3) general forcing and Fourier series methods; (4) random and self excited vibrations; (5) nonlinear vibrations. Prerequisite: ME 351.

"ME 532/632  
Turbomachinery (4)  
Application of thermodynamics and fluid mechanics principles to the analysis and design of various types of turbomachinery, including pumps, fans, compressors, and turbines. An advanced unified treatment is presented. Theory, operation, performance, use, and selection of turbomachines are discussed. Prerequisites: ME 322, 331.

"ME 551/651  
Engineering Analysis (4)  
Application of mathematical techniques to the solution of controls, dynamics, mechanical, and transport phenomena problems. Emphasis given to modeling, physical interpretation, and normalization. Topics include modeling, linear systems, partial differential equations, and complex variables. Prerequisite: graduate standing.

"ME 554/654  
Integrated Computer-aided Design (4)  
Presents several design analysis computer programs in an integrated fashion. Topics include geometric modeling, motion simulation, and finite element analysis. Emphasizes the understanding of the fundamentals, proper use of programs, and interpretation of results. Prerequisites: EAS 215, ME 314.

"ME 562/662  
Engineering Numerical Methods (4)  
Numerical methods applied to engineering problems. Coverage includes interpolation, integration, root solving, solution of boundary value and initial value problems, solution of linear systems. Programming will include Fortran or C, MATLAB and Maple. Prerequisites: ME 352.

"ME 565  
Advanced Finite Element Applications (4)  
Discussion and implementation of advanced element types and modeling techniques in finite element analysis; topics include plate and shell elements, non-linear problems (geometric, materials, and gap/contact), frequency and buckling, thermal conduction, and steady-state flow problems. Implementation of the above topics using available commercial finite element analysis codes. Prerequisite: ME 455/555.

"ME 587/687  
Statistical Process Control (4)  
Application of statistical methods to process and quality control. Control chart construction and interpretation for variables and attributes. Fundamental concepts in acceptance sampling. Some aspects of life testing and reliability. Prerequisite: Mth 460.

"ME 588/688  
Design of Industrial Experiments (4)  
Presents the statistical basis of industrial experimentation used in process and design improvement. Topics include model building, randomized and blocked designs, Latin squares, analysis of variance, factorial designs, fractional factorial designs, time series analysis, and evolutionary operations. Prerequisite: Stat 460.

"ME 596/696  
Design Optimization (4)  
Application of Numerical Optimization techniques to engineering design process. Mathematical theory of optimization and application problems in structural and machine component design will be discussed. The course involves computer-aided design optimization projects. Prerequisite: graduate standing in engineering.

"ME 601  
Research (Credit to be arranged.)  
Consent of instructor.

"ME 603  
Thesis (Credit to be arranged.)  
Consent of instructor.

"ME 604  
Cooperative Education/Internship (Credit to be arranged.)  
Consent of instructor.

"ME 605  
Reading and Conference (Credit to be arranged.)  
Consent of instructor.

"ME 606  
Special Projects (Credit to be arranged.)  
Consent of instructor.
ME 607
Seminar (Credit to be arranged.)
Consent of instructor.

ME 610
Selected Topics (Credit to be arranged.)
Consent of instructor.

SYSTEMS ENGINEERING

SysE 561
Logistics Engineering (4)
Concentrates on logistics from a systems engineering perspective. Systems will include a mix of products and processes, materials, equipment, software, people, data, information, and services, within some form of hierarchy. The design for supportability/serviceability, the production and effective distribution for customer use, and the sustaining maintenance will be addressed on a total system life-cycle basis, with particular emphasis in the early phases of the development of new systems and/or reengineering of existing systems. Prerequisite: basic knowledge of systems engineering concepts and statistics.

SysE 573
Requirements Engineering (4)
Students gain knowledge to translate needs and priorities into system requirements that are the starting point for the engineering of complex hardware/software systems. Topics include: larger context in which requirements for a system are developed; developing mission needs or market opportunities first versus assessing available technology first; translating needs and priorities into an operational concept and then into specific functional and performance requirements; assessment of requirements, including such aspects as correctness, completeness, consistency, measurability, testability and clarity of documentation; relationship between interface definitions and requirements; risk management of requirement issues, and stakeholders input to increase the prospects for project success. Case studies will be used, many provided by students and involving software-intensive systems. Prerequisite: SysE 591 or SySc 513.

SysE 590
Integrative Workshop (1-4)
Systems engineering is an acquired behavior to be developed throughout the master's degree program. Students and faculty advisers will engage in creative workshop activities integrating technical specialty skills and project experience invoking systems engineering applications of communication, synthesis and creativity, team building, problem solving, management of time and resources, and system life-cycle thinking. A student portfolio will document the program plan and document that the desired behavioral change is taking place. Prerequisite: consent of instructor. Pass/No pass only.

SysE 595
Hardware-Software Integration (4)
Systems engineering is applied to the integration of hardware-software systems, focusing on embedded computer products development and information technology systems. Factors that affect the selection of hardware and software solutions in design will be examined, as well as the use of trade studies to optimize the efficiency of integration issues. Techniques for partitioning of system-level functions and requirements to hardware/software components will be provided, as will practical guidance, through case studies, process templates, and design checklists. Prerequisite: basic understanding of hardware and software development.
SCHOOL OF FINE AND PERFORMING ARTS

ROBERT SYLVESTER, DEAN
349 LINCOLN HALL, 503-725-3105
www.fpa.pdx.edu/

B.A., B.S.—Architecture, Art, Art History, Music, and Theater Arts
B.M.—Music
Minor in Architecture, Art, Music, Jazz Studies, and Theater Arts
Secondary Education Program in Art, Music, and Theater Arts
M.E.A.—Art
M.A.T., M.S.T.—Music
M.M.—Music
M.A.—Theater Arts

The mission of the School of Fine and Performing Arts is based upon the belief that all students make the most creative progress when taught by professional working artists in a thriving urban environment and through faculty and student collaborations with the region’s major arts organizations and arts professionals. The school is committed to the study and practice of architecture, art, music, and theater arts within a nurturing environment, which encourages individual growth and imagination. Located in the heart of Portland, the school resides within the Park Blocks of downtown, in which the major arts organizations are based, such as the Portland Art Museum and the Portland Center for the Performing Arts. We view this as our extended campus. Within blocks of the school reside theaters, galleries, professional studios, and design and architectural firms, which provide a stimulating environment in which our students develop through interactions and internships. The combination of a celebrated faculty and a professional arts environment creates exciting and challenging undergraduate and graduate programs with high professional standards.

ARCHITECTURE

229 Shattuck Hall
503-725-8405
www.arch.pdx.edu/

B.A., B.S.—Architecture
Concentration in Architecture Project Management
Minor—Architecture

Architecture at Portland State University is an aesthetically focused program within the context of cultural and political issues. With close ties to the Department of Art, the program provides a balanced undergraduate liberal arts education for the student planning to enter a graduate level professional degree program in architecture. Approximately 200 architecture majors share a core curriculum together with 400 art students to explore architecture as a communicative, humanistic, and public art which emerges from a synthesis of design, fine arts, humanities, and technology. This broad exposure assures students of career flexibility within the full range of the environmental design fields. The architecture program is designed to develop the student’s creative faculties and sense of critical judgment as well as fundamental skills and techniques. A major asset of the program is its location in Portland, one of the few centers of creative
architectural and urban design practice in the western United States. Faculty are practicing professionals and artists, and since PSU uses the Portland region as a laboratory, there is extensive involvement by the region's architectural community as adjunct faculty, guest lecturers, critics, and mentors. PSU students not only observe, but participate in one of architecture's most dynamic environments.

Most states require that an individual intending to become an architect hold an accredited architectural degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board: (1) the Bachelor of Architecture and (2) the Master of Architecture. A master's program will be shorter for students having a preprofessional bachelor's degree. This four-year, preprofessional degree, such as the one at PSU, is not accredited by NAAB. The preprofessional program is useful to those wishing a foundation in the field of architecture, as preparation for either continued education in a master of architecture first professional degree program or for employment options in fields related to architecture.

**Requirements for Major.** In addition to the general University requirements for a degree, the student who specializes in architectural project management is expected to meet the following departmental requirements:

- Introduction to Architecture (4)
- Arch 199

The Department of Architecture reserves the right to retain for archival or exhibition purposes any student work executed as part of a Department of Architecture instructional program. In addition, the department reserves the right to document, reproduce, and publish images of any such student work in PSU publications, printed or electronic, for the purposes of research, publicity, and outreach, giving publication credit to the student.

**Courses**

*Courses with an asterisk (*) are not offered every year.*

**Arch 120 Basic Drawing (4)**
An introduction to freehand drawing focused on the delineation of both interior and exterior space, starting with direct observation through to conceptual drawings of imagination. Use of different media and color including the study of light and light qualities. Open to non-majors.

**Arch 199 Special Studies (Credit to be arranged.)**

**Arch 200 Introduction to Architecture (4)**
Introductory course designed to introduce concepts, theories, and practices of the discipline of architecture. Includes a study of perceptual, environmental, technical, and organizational concepts through lectures and individual projects in observing architectural spaces and forms. Open to non-majors and those considering the profession.

**Arch 201, 202, 203 Project Management I, II, III (6, 6, 6)**
Series of courses designed to develop in students construction project management techniques for profitable construction administration. Students will demonstrate knowledge of course material by completing projects in light construction administration. Coursework includes utilization of estimating, critical path, and presentation computer software relevant to current practices.

**Arch 201: emphasis on estimating, construction sequence scheduling, critical path, specification interpretation and design standards necessary for successful administration of construction projects.**

**Arch 202: developing standards of performance, bidding, contracts and liability, production scheduling, and techniques for controlling a profitable construction project.**

**Arch 203: developing customer service plans, customer relations, quality control, project evaluation, and planning for future opportunities.**
Prerequisite: Building construction certificate program, instructor’s consent, or equivalent. Courses must be taken in sequence.

Arch 204
Construction Codes and Compliance (6)
Application of Oregon codes and regulations that govern the commercial and industrial construction industry. Students will complete assignments and quizzes in the utilization and interpretation of the standards defined by the Uniform Building Code (UBC), International Mechanical Code (IMC), Uniform Plumbing Code (UPC), the National Electrical Codes (NEC), the Americans with Disabilities Act (ADA), and the Oregon amendments that apply. Upon completion of coursework, students will be able to interpret applicable jurisdictional codes to structures related to their study interests.

Arch 207
Advanced Construction Projects (4)
Course gives students an opportunity to apply project management skills to a construction process. Provides verification of previous project management course content through implementing and evaluating its effectiveness in relation to a direct field application. Prerequisite: Arch 203.

Arch 220
Design Drawing (4)
Lectures and exercises to develop skills in graphic visualization, representation, and communication as used in architecture and related design fields. Concepts and conventions, from freehand to electronic media design and production, will be used as a means to imagine, develop, and represent design ideas. Open to non-majors. Prerequisite: Arch 120 or Art 131.

Arch 225
Digital Graphics (4)
A beginning computer graphics course that has at its core the idea to probe, to experiment, and to investigate the computer’s 3D modeling capability as a tool for rigorous design investigations. Prerequisite: Arch 220.

Arch 280, 281
Design Fundamentals Studio I, II (4, 4)
Studio investigations of fundamental design concepts, issues, and process. Projects and exercises focusing on the concepts of making three-dimensional forms—organization, proportion, scale, human activities, and introductory site and building design relationships. The release of the student’s potential creative capabilities is a primary concern of the course. Includes individual criticism, lectures, and seminars. Courses must be taken in sequence. Open to non-majors. Prerequisite: Arch 200 and 220.

Arch 300, 311
Twentieth Century Architectural History and Theory (4, 4)
Introduction to the history and theories of Modernism from the late 19th century to present day. Explores diverse, contemporary issues with a focus on the relationship between theory and the art and craft of building. Selected topics will emphasize the probing of philosophical and ideological aspects of current practice. Prerequisite: 6 credits lower-division art history.

Arch 340
The Profession of Architecture (4)
Introduction to the profession and practice of architecture. Topics include education, licensure, specialized body of knowledge, ethics, and the range of issues that have an impact on the design of the built environment.

Arch 341
Developing as a Professional (4)
An interdisciplinary course designed for students to gain an understanding of professional development as a sequence of processes. Students will gain an understanding of different problem-solving processes; the importance of communication inside and outside the organization; the role of assessment in terms of self, organization, and client; and gain an understanding of the impact of professional ethics and social responsibilities.

Arch 367
Fundamentals of Environmental Design (4)
Basic concepts of climate and impacts on personal comfort. Thermal, lighting, and acoustical topics covered. Design approaches and concepts discussed from large urban siting projects to individual buildings in order to minimize mechanical systems and reduce energy use. Alternative energy sources and building materials introduced. Prerequisite: junior year standing.

Arch 380, 381, 382
Architectural Design Studio I, II, III (6, 6, 6)
Studio investigations of architectural design based on supporting human activities, structure, and theory. Continued study of design process and methods encompassing concepts of architecture, landscape architecture, and interior design. Includes individual criticism, lectures, and seminars. Courses must be taken in sequence. Prerequisites: Arch 280 and 281.

Arch 399
Special Studies (Credit to be arranged.)
Arch 401/501
Research (Credit to be arranged.)
Arch 404/504
Cooperative Education/Internship (Credit to be arranged.)
Arch 405/505
Reading or Studio and Conference (Credit to be arranged.)
Arch 407/507
Seminar (Credit to be arranged.)
Arch 408/508
Workshop (Credit to be arranged.)
Arch 410/510
Selected Topics (Credit to be arranged.)
Arch 420/520
Advanced Architectural Graphics and Media (4)
Studio assignments exploring a full range of graphic representational techniques and media. Exploratory drawing and modeling work addressing the visualization of ideas in architecture, including speculative thought and concept formation; studies of light and shadow; exploration of color and texture of materials; and the composition of appropriate and coherent forms of visual presentation.

Arch 425/525, 426/526
Architectural Computer Graphics I, II (4, 4)
Introduction to computer-aided design. Courses focus on software as used in architectural field (e.g., AutoCAD). Arch 425 introduces various methods for constructing, editing, and displaying two dimensional architectural drawings. Arch 426 introduces methods for creating, modifying, and visualizing three dimensional architectural forms. Must be taken in sequence. Prerequisite: Arch 220, 280, 281.

Arch 430/530
Contemporary Architectural Theory (4)
Seminar course investigating architectural theory and critical thought by examination of key texts and contemporary architectural works.

Arch 460/560, 461/561
Architectural Building Technology I, II (4, 4)
A two-quarter sequence introducing technologies involved in the design and construction of buildings. Topics include construction materials and methods, envelope design, mechanical systems, thermal, and other environmental building systems. Prerequisite: Arch 200.

Arch 466
Specifications Interpretation (4)
Extensive use of specifications and interpreting plans organized around the Construction Specifications Institute (CSI) format for construction documents. Focus on interpretation and evaluation of stock specifications, plans, and standards of performance. Prerequisites: Arch 460, 461 and passing portfolio review.

Arch 480, 481, 482
Architectural Design Studio IV, V, VI (6, 6, 6)
Advanced investigations of architectural and urban design issues in concluding series of studios. Projects include the design of private and public buildings which require comprehensive, integrative design development. Includes individual criticism, lectures, and seminars. Courses must be taken in sequence. Prerequisites: Arch 380, 381, 382.

Arch 580, 581, 582
Graduate Architectural Design Studio I, II, III (6, 6, 6)
Studio projects and critical discussions addressing themes and issues pertinent to the imaginative design of architectural intervention in urban environments. Encouraging experimental engagement with relations of material, form, human habitation, and cultural meaning. Must be taken in sequence.
ART

Requirements for Studio Major. In addition to the general University requirements for a degree, the student who majors in art is expected to meet the following departmental requirements:

<table>
<thead>
<tr>
<th>First Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 115, 116, 117 Basic Design</td>
<td>9</td>
</tr>
<tr>
<td>Art 131, 132, 133 Introduction to Drawing</td>
<td>9</td>
</tr>
<tr>
<td>ArH 204, 205, 206 History of Western Art</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of 15-24 credits distributed as follows—9-18 credits from the study concentration plus 6-12 additional credits chosen from lower-division art courses outside the study concentration. (Consult departmental adviser for study concentration sheets. All prerequisites must be observed.)</td>
<td>15-24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third and Fourth Years</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper-division art history varies with concentration</td>
<td>8-12</td>
</tr>
<tr>
<td>Upper-division drawing varies with concentration</td>
<td>0-9</td>
</tr>
<tr>
<td>Upper-division approved art electives varies with concentration</td>
<td>0-9</td>
</tr>
<tr>
<td>Plus complete requirements for a study concentration</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>90-96</td>
</tr>
</tbody>
</table>

(Study concentrations: Art History, Drawing/Painting/Printmaking, Graphic Design, and Sculpture. Requirements sheets for each of these study concentrations are available in the Department of Art office.)

The major in art history is offered for students desiring an emphasis in history and liberal arts areas rather than studio skills. It includes Basic Design, Introduction to Drawing, and History of Western Art in the first year and upper-division art history courses in selected periods with related courses in other fields, as approved by an adviser. The art history major requires a minimum of 90 credit hours.

ART EDUCATION: SECONDARY EDUCATION PROGRAM

Grades K through 12. Students who wish to teach art in the public schools must first complete the art major before applying to the School of Education for teacher training in the graduate program.

Prospective teachers should contact the art education adviser in the Department of Art before beginning the program.

The requirements for the standard teaching license include 45 credits of upper-division or graduate work earned subsequent to receipt of a bachelor's degree. The 45 credits are in addition to those required for the basic teaching license. For the standard endorsement in art, the student must take 15-30 credits of art education adviser-approved graduate-level work distributed to strengthen the student's background in art. Each student's program is tailored to meet the needs of the individual and the requirements of the standard endorsement and the standard license. See page 205 for the required education courses.

Although licensure requirements are incorporated into degree programs, changes by the Oregon Teacher Standards and Practices Commission during the life of this catalog may alter the requirements. It is imperative that the prospective teacher be in touch with the art education adviser from the beginning, as applicants for licensure must meet the commission requirements in force at the time of the licensure application.

For Graduate School of Education requirements, see page 205.
GRADUATE PROGRAMS

The Department of Art offers the Master of Fine Arts degree in painting, sculpture, and painting/sculpture. The M.F.A. program is designed to prepare individuals for careers in the fine arts and in higher education.

MASTER OF FINE ARTS

Admission Requirements. Application for admission must be made by March 1 prior to the fall term the student intends to begin work toward the degree. Accepted students are expected to be in full-time residence beginning fall term.

The Department of Art Graduate Admissions Committee bases its decisions on the applicant's undergraduate preparation in art, a letter of intent, three recommendation letters, and most importantly on the portfolio of current creative work.

Applicants must have a B.A., B.S., or B.F.A. degree with a concentration in printmaking, painting, sculpture, studio arts (i.e. any combination of two disciplines and/or installation and performance art) or related field (i.e. drawing).

Application is a dual process between the Department of Art and the Office of Admissions. Contact the department for complete application materials.

Degree Requirements. The student will complete at least 88 credits which must be distributed in the following way:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art History</td>
<td>12</td>
</tr>
<tr>
<td>Project Exhibition/Master's Statement</td>
<td>12</td>
</tr>
<tr>
<td>Electives</td>
<td>8</td>
</tr>
<tr>
<td>Studio work in one area of concentration</td>
<td>46</td>
</tr>
<tr>
<td>(painting, printmaking, sculpture, studio arts)</td>
<td></td>
</tr>
<tr>
<td>Graduate Seminar (1st year candidates)</td>
<td>6</td>
</tr>
<tr>
<td>Graduate Seminar (2nd year candidates)</td>
<td>4</td>
</tr>
<tr>
<td>(2nd year Seminar is an Art History Research Seminar)</td>
<td></td>
</tr>
</tbody>
</table>

During the first two terms in residence each M.F.A. student will be offered an adviser in the appropriate area of interest. Together with the adviser, the student will work out a proposal for directing their creative activity toward the year-end review. At candidacy review, during the end of the first year, the student will present an exhibition of work and a master's statement to a faculty committee. If the work and master's statement are approved, the candidate will spend the second year of the program completing the exhibition and master's statement requirement.

The candidate will stand for a second faculty review to approve the completed exhibition and master's statement and present an exhibition during the spring term of the second year.

A maximum of 15 graduate credits may be transferred into the program with adviser approval.

Students in the M.F.A. program are provided with studio space for a maximum period of two years.

COURSES

Courses with an asterisk (*) are not offered every year.

ART HISTORY COURSES

ArH 199  Special Studies (Credit to be arranged.)

ArH 204, 205, 206  History of Western Art (3, 3, 3)

A historical survey of the visual arts from prehistoric up to the modern world (c. 1800). Selected works of painting, sculpture, architecture, and other arts are studied in relation to the cultures producing them. Open to non-majors.

ArH 207  History of Western Art: The Modern World (3)

This lecture course will survey the visual arts as well as the architecture of Europe and America, from the beginning of the 19th century to the present day.

ArH 311, 312, 313  History of Asian Art (4, 4, 4)

A survey of art and architecture of Asia from prehistoric times to the 19th century. The art and architecture (including ceramics, sculpture, painting, textiles, and other utilitarian implements—e.g., ritual bronze vessels of China) of Asia will be presented in context of chronology, source (indigenous or foreign influence), site and in relation to the forces of each society's culture, religion, politics, geography, and history. Buddhism, Hinduism, Confucianism, Shintoism, Taoism, Shamanism, symbolism, and mythology are basic to the arts of Asia. ArH 311: South Asia (India) and Southeast Asia (Sri Lanka, Cambodia, Thailand, Burma, and Indonesia). ArH 312: China and Korea. ArH 313: Japan. Open to non-majors.

ArH 321  Survey of Korean Art (4)

A chronological survey of art and architecture of Korea, and its uniqueness, in the context of East Asian art history. Prehistoric arts, as well as tomb paintings, and artifacts recognizing Buddhism's effect on Korea's sculptural, painting, and architectural heritage. Also treats Confucianism shaping Korean ink painting, folk painting, and porcelains. Open to non-majors.

ArH 399  Special Studies (Credit to be arranged.)

ArH 401/501  Research (Credit to be arranged.)

ArH 404/504  Cooperative Education/Internship (Credit to be arranged.)

ArH 405/505  Reading and Conference (Credit to be arranged.)

ArH 407/507  Seminar (Credit to be arranged.)

ArH 410/510  Selected Topics (Credit to be arranged.)

ArH 411/511  Chinese Buddhist Art (4)

A concentrated study of the Buddhist art of China and Central Asia. Buddhist art of caves of the Six-dynasties period (220-589 C.E.) to the Tang period will be covered in-depth. Basic concepts of Buddhism, such as Hinayana, Mahayana, and Tantric Buddhism, arts related to specific sects, and the iconography and stylistic changes will be covered. Open to non-majors.

ArH 412/512  Japanese Buddhist Art (4)

A survey of the Japanese Buddhist art and architecture, including: sculpture, painting, Shingon Buddhist art, Zen garden and architecture, and ink paintings through selected examples from the 6th century to the 18th century. Open to non-majors.

ArH 413/515  Issues in Asian Art (4)

Issues in Asian art may be keyed to museum exhibitions or deal with thematic topics or specific media. Examples include Buddhist or other religious art, tomb art, ceramics, special topics in Korean art, or the work of Asian-American artists. Open to non-majors.

ArH 422/522  Chinese Painting (4)

A concentrated study of the Chinese paintings from the 3rd century B.C.E. to the 18th century. Open to non-majors.

ArH 423/523  Japanese Painting (4)

A survey of Japanese painting from the 4th century to the 19th century: Buddhist paintings, ink paintings, and decorative paintings. Open to non-majors.

ArH 425/525  Modern Japanese Painting (4)

Recent scholarship in the history of modern Japanese paintings and prints, from the Meiji, Taisho, and Showa periods covers major themes of Japan's westernization in a new light. The issues revolve around westernization: conflict and nationalism. New art forms, the revival of traditional styles, reclining women's theme, and the gaze of subjects will be explored. Open to non-majors.

ArH 426/526  African Art (4)

Examination of selected African art forms, styles, and traditions. Emphasis on the context of the art and artist and their relationship to politics and society in African history. Open to non-majors. Prerequisites (for art and history majors only): ArH 204, 205, 206. This course is the same as Hist 470/570; course may be taken only once for credit.

ArH 429/529, 430/530, 431/531  Women in the Visual Arts (4, 4, 4)

Studies both the representation of women and gender and the art and patronage by women in various media (painting, sculpture, architecture, printmaking, photography, textiles, illuminated manuscripts, and mixed media). A three-term class ArH 429/529: Antiquity and the Early Middle Ages; ArH 430/530: 11th century (medieval) in Europe through the 18th century; ArH 431/531: 19th century and 20th century America and Europe. Open to non-majors. Prerequisites (for art and history majors only): ArH
**Art 400** Art and Art History Majors only: ArH 204, 205, 206.

**Art 405/505** Great Periods and Themes in Art and Architecture (4)
A concentrated study of the art and/or architecture of a major historical period, for example: Pre-Columbian art and architecture; Native American art of the Pacific Northwest; Islamic art and architecture; Symbolism; and others.

Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 450/550** History of Architecture (4, 4, 4)
A history of architecture from Prehistory to Post-Modernism. Open to non-majors. Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 451/551, 452/552, 453/553** Ancient Art (4, 4, 4)
Art and architecture of the ancient world from Paleolithic through Roman times. ArH 451/551: Prehistoric, Egyptian, Mesopotamian. ArH 452/552: Aegean and Greek. ArH 453/553: Etruscan and Roman. Open to non-majors. Prerequisites (for art or art history majors only): ArH 204, 205, 206.

**Art 456/556, 457/557, 458/558** Medieval Art (4, 4, 4)

**Art 461/561** Northern Renaissance Art (4)
Manuscript illumination, painting, and sculpture in the Netherlands, Germany, and France from the late 14th to the 16th century. Open to non-majors. Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 471/571, 472/572, 473/573** Italian Renaissance Art (4, 4, 4)
Painting, sculpture, and architecture from the 13th to the 16th century in Italy. Open to non-majors. Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 476/576, 477/577, 478/578** Baroque Art (4, 4, 4)
A study of European art and architecture from the late 17th to the late 18th century. ArH 476/576: Italy and Flanders; 477/577: Holland, Germany, and England; 478/578: Spain and France. Open to non-majors. Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 481/581, 482/582** 19th Century Art (4, 4)
A survey of painting and sculpture in the 19th century. ArH 481/581: Neoclassicism, Romanticism, and Realism; ArH 482/582: Impressionism and Post-Impressionism. Open to non-majors. Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 486/586, 487/587** American Art and Architecture 17th through 19th Centuries (4, 4)
ArH 486/586: Colonial through the Early Republic. ArH 487/587: Jacksonian to the 20th century. Open to non-majors. Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 490/590** History of Modern Design (4)
A history of industrial and applied design from c. 1800 to the present, focusing on changes in style within the field, but also on the interconnection between the art of design and other forms of visual expression. Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 491/591, 492/592, 493/593** Modern Art (4, 4, 4)
A survey of the mainstream of modern art including cultural influences, trends in style and expression, and comparative relationships in the visual arts. From 19th century Romanticism, Realism, and Impressionism through the varied movements of the 20th century. Open to non-majors. Prerequisites (for art and art history majors only): ArH 204, 205, 206.

**Art 498/598, 499/599** Art Since WWII (4, 4)

**ART COURSES**
Courses with an asterisk (*) are not offered every year.

**Art 115, 116, 117**
Basic Design (3, 3, 3)
A three-term introductory sequence; a series of studio participation exercises using tools, media and materials in the study of design elements and principles fundamental to the visual arts. Art 115: Two-dimensional graphic illusion, emphasis on manipulation of surface elements which control imagery and expression. Art 116: Theory and application of color. Art 117: Three-dimensional form and space with emphasis on nature of materials, spatial organization and expressive composition.

**Art 131, 132, 133**
Introduction to Drawing (3, 3, 3)
An introduction to drawing with a year-long emphasis upon individual studio instruction. Art 131: Emphasis on observation and various means for finding two-dimensional linear equivalents for three dimensional space. Still life material will be used extensively Art 132: Concepts and skills developed in Art 131 will be applied with a broader range of media and subject matter. Tone will be used more extensively. Approximately one-half of the term will be devoted to introductory figure drawing with some work from the model. Art 133: Experiences of Art 131 and Art 132 will be developed further by extended exploration of various media including some use of color. Subject matter will include landscape and still life. Some imaginary or conceptual problems will extend the student's grasp of composition. Courses should be taken in sequence.

**Art 190** Special Studies (Credit to be arranged.)

**Art 201, 202, 203**
Applied Design (3, 3, 3)
Introduction to three-dimensional design as it applies to manufacturing and product design. Study of visual implications of human factors in design of utilitarian objects. Studio exercises in planning, visualization, and presentation of designs for manufactured and hand-crafted utilitarian objects. Prerequisites: Art 115, 116, 117.

**Art 218**
Calligraphy (3)
A studio course in calligraphic lettering with the broad-edged pen. Students will study the Roman alphabet in three forms: capitals, minuscules and cursive. Emphasis will be on learning correct weights, proportions, and forms of letters. Practical skills required to shape letters with the pen will be learned. Principles of good lettering, historical development of alphabets, materials and drawing tools, letter and word spacing, layout and composition, and presentation of artwork will be covered. Prerequisites: Art 115, 116, 117. Course may be repeated to a maximum of 9 credits.

**Art 224, 227, 226**
Computer Graphics I (3, 3, 3)
Three-term introductory sequence that focuses on graphic arts production processes (manual and electronic), visual design, design theory, principles and practices of graphic design, and processes that lead to creative problem solving techniques. Must be taken concurrently with Art 227, 228, 229 Computer Graphics I. Variety of studio assignments that involve students with two-dimensional design theory and will be finalized/output in the Computer Graphics I course. Courses must be taken in sequence. Prerequisites: Art 115, 116, 117.

**Art 227, 228, 229**
Computer Graphics I (3, 3, 3)
Three-term introductory sequence to the Macintosh as a tool for electronic graphic arts design and production. Must be taken concurrently with Art 224, 225, 226 Graphic Design I. The two sequences work in harmony to instruct in design principles and practices and computer applications which allow students to produce their ideas from Graphic Design I. Art 227: Students survey tools and techniques in graphic environment applications such as, paint (SuperPaint), draw (MacDraw), photo imaging (Adobe Photoshop), illustration (Adobe Illustrator), and layout (QuarkXpress). Art 228: graphics environments are explored through individual projects corresponding to Graphic Design I assignments. Computer graphics theory and production issues discussed. Students gain working knowledge of the Macintosh through a variety of design assignments. Art 229: graphics environments with greater emphasis on typographic as image. Full color (CMYK) design solutions emphasized. Working knowledge of the Macintosh continues with solutions to more
involved design assignments. Course is a prereq-
usite to upper division computer graphics

courses. Prerequisite: Art 115, 116, 117.

Art 230, 231
Alternative Drawing (4, 4)
A two-term sequence to be taken in the second
year for students majoring in either painting or
printmaking. An innovative course intended to
engage the theories and practices involved in the
many processes, methods, and techniques of
drawing. Analytical and critical thought will be
addressed during class time resulting in a final
term of review. Art 230: emphasis will be
placed on experimentation and exploration of the
various mixed media tools and materials
available in drawing. Simultaneously students
will begin to explore the conceptual and theore-
tical thought process. Art 231: continuation of
the experimentation and exploration of mixed
media tools and materials, however, emphasis
will shift towards exploring the conceptual and theo-
etical thought process in the student’s
work. Open to non-majors with instructor’s con-
sent. Prerequisites (for art and art history majors
only): Art 131, 132, 133.

Art 260
Photographic Seeing (4)
Introduction to aesthetics and visual literacy
through photography. Learn photographic
seeing and design principles while investigating
surroundings with a camera. Issues of form, con-
tent, and technique are discussed while learning
effective communication. A coherent visual essay
exploring a particular subject with a written
introduction will be the final project. No dark-
room work. The medium is color slide processed
commercially. Open to non-majors with instruc-
tor’s consent. Maximum: 8 credits

Art 261
Photography (4)
Introduction to the aesthetics and techniques of
black and white photography. Includes experi-
mentation and camera controls, light quality,
film processing, enlarging, mounting, and finish-
ing of prints. Slide lectures on the history and
theory of photography concentrating on the
interplay between form and content. Open to
non-majors with instructor’s consent. Maximum: 8 credits

Art 270, 271
Introduction to Printmaking (4, 4)
A laboratory course in print art taught in
sequence which focuses on a specific technique
each term. From a drawing-based foundation
the thought process involved in making prints is
strongly explored, translating drawn images into
a graphic language. Concepts and content are
investigated appropriate to the technique taught.
Individual and group discussions as well as por-
tfolio reviews are an intricate part of the review
process. Art 270 explores monotype or dry-
point. Art 271 explores etching or relief. Open to
non-majors with instructor’s consent. Prereq-
usites (for art and art history only): Art 131,
132, 133.

Art 281, 282
Painting (4, 4)
A two-term sequence course that introduces the
principles and practice of painting. Art 281:
explores basic theory and use of color and com-
position. Assignments involve both conceptual
approaches and direct observation using still life,
figures and landscape. Art 282: moves from the
basic theory and use of color and composition to
assignments involving both direct observation
using still life, figures and landscape and a more
conceptual approach. Further explores the vari-
ous painting styles, techniques, and media used
together throughout the early 20th century. Courses
must be taken in sequence. Open to non-majors with
instructor’s consent. Prerequisites (for art and art
history majors only): Art 131, 132, 133 and 116.

Art 291, 292, 293
Sculpture I, II, III (4, 4, 4)
Art 291-Mass: students will be introduced to
working in three dimensions through observa-
tion and those materials that lend themselves to
forms that produce actual mass and volume.
Some work from a life model. Plaster mold-
-making will be included. Art 292-Plane: an
approach to three dimensions that involves con-
structive techniques. Mass and volume will be
achieved through planer construction. Art 293-
Space: focus on how an object exists in space
and how that space makes an object. Both planer
and mass forms will be considered. Prerequisite:
Art 117 or consent of instructor.

Art 294
Water Media (4)
The techniques and uses of watercolor, gouache,
and other water-based mediums with attention to
unique characteristics as painting mediums.
Collage and mixed media may be included with
water-soluble pencils and crayons. Lectures on
historic uses of these media and discussions of
the aesthetic possibilities for layering and trans-
parencies. Open to non-majors with instructor’s con-
sent. Prerequisites (for art and art history majors
only): Art 131, 132, 133 and Art 115, 116, 117.

Art 296
Computer Graphics for Studio Artists (4)
Introduces art majors to basic concepts and pro-
cesses in computer graphics through a set of
defined studio problems. Explores the unique
features of digital media and how they differ
from traditional artist’s materials. Students
develop a critical and conceptual framework for
the uses of these tools in a fine art context. Intro-
duces image manipulation programs, techniques
for acquiring and importing digital imagery, and
potential interrelation of digital art with tradi-
tional media. Techniques learned will be applied
a series of 2D images that are developed and
continually transformed throughout the dura-
tion of the course. Open to non-majors with
instructor’s consent. Prerequisites (for art and art
history majors only): Art 115, 116, 117. Studio
artists will be given preference.

Art 297
Book Arts (4)
This mixed media class will explore the book as
an art form. The relationship of images and/or
words will be explored in relationship to narra-
tive and sequential structures. Traditional and
experimental methods of binding will be taught.
Lectures on the history of the artist’s book and
issues in imagery and/or typography will be pre-
sented. Class emphasizes an experimental and
conceptual approach that integrates content and
form. Open to non-majors with instructor’s con-
sent. Prerequisites (for art and art history majors
only): Art 131, 132, 133 and Art 115, 116, 117.
Maximum: 8 credits.

Art 299
Special Studies (Credit to be arranged.)

Art 312
Art in the Elementary School (3)
Art studio: exercises, problems and projects
using tools, media, materials and equipment
applicable to elementary teaching levels. Devel-
opment of attitudes toward art and understand-
ing of child growth and development.

Art 315, 316, 317
Applied Design (3, 3, 3)
Study of form as related to function in nature
and in manufactured products. Investigation
into application of materials as related to specific
design problems. Discussions of the humanistic responsibilities of the designer. Prerequisites: Art 201, 202, 203.

Art 320, 321, 322
Graphic Design II (3, 3, 3)
A three-term, intermediate sequence studio course that explores the application of images, signs and typography to design solutions of visual communication. A variety of assignments will be completed that explore the development of graphic images through many variations of a single idea. Courses must be taken in sequence. Prerequisites: Art 224, 225, 226, 227, 228, 229.

Art 326, 327, 328
Computer Graphics II (3, 3, 3)
Art 326: Emphasis is on publication and print media design for digital and offset reproduction. Primary applications are: QuarkXPress, Adobe Photoshop, and Adobe Illustrator. Emphasis is placed on design, work flow, production, and color prepress. Art 327: Emphasis is on the creation of digital illustration through vector-based and pixel-based tools and techniques using Adobe Illustrator, Adobe Photoshop, and other relevant applications. Art 328: Emphasis is on current topics in computer graphics with work completed from selected applications. Students using state-of-the-art computer graphics technology explore visual concepts. Graphic design majors must take two of the three courses offered. Prerequisites: Art 224, 225, 226, 227, 228, 229. Courses do not need to be taken in sequence.

Art 340
Intermediate Photography (4)
Study of photography as a visual language. Students work on extended assignments that explore technical, aesthetic, and ethical issues of photographic communication. Lectures on contemporary photography. Emphasis placed on the photographic series. Working in either a documental or conceptual approach. Open to non-majors with instructor's consent. Prerequisite: four credits in Art 261. Maximum: 8 credits.

Art 350, 351, 352
Life Drawing (4, 4, 4)
A studio course that develops observational skills and the ability to visualize and draw the human figure. Later, analytic skills are combined with personal expression and invention. Wet and/or dry media will be used to explore the implications of line and the figure in compositional environments. The skeleton and muscles will be studied in relationship to the model's poses. Art 350: emphasis on the skeletal structure of the body. Art 351: emphasis on the muscular system and Art 352: emphasis on compositional and expressive means. Open to non-majors with instructor's consent. Prerequisites (for art and art history majors only): Art 131, 132, 133. Must be taken in sequence. Consent of the instructor is required if taken out of sequence.

Art 373
Creative Sculpture (4)
A creative study of all aspects of sculpture involving various media such as clay, plaster, wood, stone, and/or metal. Focus is on personal expression and invention. Wet-into-wet, gouache, and other variations. Art 383: More advanced development of means introduced during first two terms with emphasis on on-site landscape painting. It is recommended that the course be taken in sequence.

Art 381, 382, 383
Watercolor (3, 3, 3)
An introduction to watercolor with emphasis on its uses as a painting medium. Art 381: Transparent watercolor including means of color, composition, and technical control; landscape and still life subject matter. Art 382: Expansion of means developed during first term to include wet-into-wet, gouache, and other variations. Art 383: A contemporary view of drawing in various media and subject matter. Students develop an independent body of work within a historical and theoretical context. Idea generation is addressed as well as cultural content specific to the student. Techniques and theories in mixed media. Open to non-majors with instructor's consent. Prerequisites (for art and art history majors only): Art 230, 231. Maximum: 6 credits.

Art 392, 393, 394
Intermediate Painting (4, 4, 4)
Study of various concerns in expansion of technical and conceptual approaches dealing with form and content in both historical and contemporary practices. Acting as a bridge between beginning painting and advanced painting, students learn and deal with a variety of ways of seeing. Students will work both individually and in group settings. Art 390: emphasizes the relationships of approach, form, technique and content. Art 391: emphasis will be placed on surface and technical concerns. Art 392: emphasizes multiple traditional and non-traditional technical processes along with the development of the artist's vocabulary. Open to non-majors with instructor's consent. Prerequisites: Art 281, 282 and 230, 231.

Art 399
Special Studies (Credit to be arranged.)

Art 401/501
Research (Credit to be arranged.)
Prerequisite: consent of instructor and chair of Department of Art.

Art 402/502
Art Studio for Elementary and Secondary Education (1-6)
Designed for the education student who may elect regular studio instruction in sculpture, painting, drawing, ceramics, jewelry and metal-smithing, textiles, or graphic design as fits the need of the student's teaching concentration. Arrangements must be made for placement in specific studio classes. Enrollment restricted to elementary education M.A.T./M.S.T. candidates and art students in a certification program only. Credit not transferable to any other graduate program. Maximum: 18 credits.

Art 404/504
Cooperative Education/Internship (Credit to be arranged.)

Art 405/505
Reading or Studio and Conference (Credit to be arranged.)

Art 406/506
Projects (Credit to be arranged.)

Art 407/507
Seminar (Credit to be arranged.)
Terms, section, instructor, and hours to be arranged. Consent of instructor and chair of Department of Art required.

Art 408/508
Workshop (Credit to be Arranged.)—
Prerequisite: consent of instructor.

Art 410/510
Selected Topics (Credit to be arranged.)
Maximum: 12 credits in one area. Prerequisite: consent of instructor and chair of Department of Art.

Art 436/536, 437/537
Painting Topical Issues (4, 4)
Advanced painting problems based on various subjects. Work may include various media. May be offered with specific subtitles such as Figure Painting, Landscape Painting, or others. Open to non-majors with instructor's consent. Prerequisites: Art 421, 422.

Art 466, 467, 468
Graphic Design III (3, 3, 3)
A three-term sequence of advanced graphic design studio assignments that offer students design problems of greater complexity and broader scope than experienced in Graphic Design II. Emphasis on design theory, computer graphics, practical application of “real-world” design problems and professionalism in finished artwork. These courses must be taken in sequence.

Prerequisites: Art 320, 321, 322.

Art 469
Graphic Design Studio/Internship (4)
An advanced course in creative problem solving where real world projects are completed in a classroom environment or off campus at business locations. Student participants will work either in class with their instructor or off campus with a creative art director. This is a required one-term course for students majoring in graphic design with the explicit intent of having students do actual projects that are client-oriented and where the student is completely responsible for the design, production, cost estimates, and monitoring the printing of the project. Prerequisites: Art 224, 225, 226, 227, 228, 229, 320, 321, 322.

Art 470
Graphic Design/Portfolio (3)
A required one-term course for students majoring in graphic design with the explicit intent of developing a portfolio that depicts, in a consistent and professional manner, the cumulative creative, conceptual, and technical abilities they amassed over four years. Prerequisites: Art 320, 321, 322, and 466, 467.

Art 479/579
Advanced Printmaking (4)
Advanced laboratory course in print art in which students specialize in one or more (in combination) of the following techniques, i.e., lithography, etching, monotype, relief, collagraph. Required course for the print major with the intention that each student explore and experiment to arrive at a cohesive body of printed work that speaks to an individual vision which is finalized in portfolio form. Analytical and critical discussion are part of the group and individual

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* Art 350, 351, 352: 300-level classes intended for M.A. students only.
requisite: 12 credits in elementary sculpture. concepts optional, consistent with the facilities methods. Experimental materials, methods, and Bronze casting using the lost wax investment Advanced Sculpture Casting (4)


Advanced Sculpture Welding (4)

Constructivist approaches to working with the focus on steel. Welded metal sculpture fabrication using gas, electric, and heliarc welding methods. Experimental materials, methods, and concepts optional, consistent with the facilities and circumstances. Maximum: 12 credits. Pre-requisite: 12 credits in elementary sculpture.

Advanced Sculpture Casting (4)

Bronze casting using the lost wax investment method. Experimental materials, methods, and concepts optional, consistent with the facilities and circumstances. Maximum: 12 credits. Pre-requisite: 12 credits in elementary sculpture.

Advanced Painting (4)

A contemporary view of painting in various media and subject matter. Students develop an independent body of work within a historical and theoretical context. Idea generation is addressed as well as cultural content specific to the student. Need not be taken in sequence. Open to non-majors with instructor's consent. Prerequisites: Art 281, 282 and 230, 231. Maximum 8 credits.

Advanced Sculpture Topics (4, 4, 4)

Art 494/594, 495/595: series of rotating topics appropriate to student level. Art 514, art education methods of instruction, organization of art materials and tools. Art 515, technology (media-computer) application to art, research in field for visual presentations. Observations at various school levels. Seminars and participation in intercultural, special, and individualized education applied to art. Research into the art community as a resource, art as a career, and art and technology. Developing courses of study that sequence a program balance with two- and three-dimensional studio experiences, art history; appreciation, and methods of criticism appropriate to student level. Art 514, art education methods of instruction, organization of art materials and tools. Art 515, technology (media-computer) application to art, research in field for art education, art history, multicultural art resources, world issues in art education. Art 516: philosophy of art education, problems in field of art education. Prerequisite: Art Department portfolio review required for admission.

Music

231 Lincoln Hall
503-725-3011
www.fpa.pdx.edu/music.html

B.A., B.S.—Music
Minor in Music; Minor in Jazz Studies
B.M.—Performance; Concentration in Jazz Studies
Music Education Certification Program (K-12)
M.A.T., M.S.T.—Music
M.M.—Performance; Conducting

UNDERGRADUATE PROGRAMS

The Department of Music is located within the hub of musical activity in the Pacific Northwest, only three blocks from the Portland Center for the Performing Arts. It maintains close ties to the Oregon Symphony, Portland Opera, Portland Symphony Orchestra, and Portland Youth Philharmonic, among other organizations. Faculty and students alike interact with these performing organizations in various ways. Both traditional and innovative musical opportunities through the study of classical performance, jazz, performance pedagogy, music history, ethnomusicology theory, conducting, composition and music education are available for PSU students who live in the community or in campus housing.

Faculty members in the Department of Music are internationally recognized performers, conductors, composers, and scholars. From the beginning of their studies, music majors and minors study with some of the finest faculty in the nation in the string, wind, percussion, piano, and vocal areas. Standards are high as students pursue the conservatory-like Bachelor of Music degree or the more general Bachelor of Arts or Science in Music. After graduation, students continue in our excellent graduate programs or enter other excellent graduate programs, often as teaching assistants, or pursue careers in studio or public school teaching. Our graduates have consistently demonstrated their excellence in the fields of performance, conducting, composition, and/or scholarship. Many are leaders in music around the Northwest and elsewhere.

Programs in the Department of Music are accredited by the National Association of Schools of Music. The department offers many courses for the non-major, including: applied music, ensembles, Basic Materials, Music Theory 1, Music in the Western World, History of Rock, Jazz History.
Guitar History, World Music, and American Musical Traditions.

Requirements for the Major. Students are required to take an audition before entering departmental programs as a music major.

Students seeking the B.A. or B.S. in music must complete the following courses:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>9</td>
<td>Mus 111, 112, 113 Music Theory I</td>
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<tr>
<td>9</td>
<td>Mus 114, 115, 116 Sight-Singing/Ear</td>
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<tr>
<td>3</td>
<td>Training</td>
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<td>4</td>
<td>Mus 46 Piano Proficiency Exam (no credit)</td>
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<td>9</td>
<td>Mus 203 Music in the Western World</td>
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<td>9</td>
<td>Mus 211, 212, 213 Music Theory II</td>
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<td>3</td>
<td>Mus 214, 215, 216 Sight Singing/Ear</td>
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<tr>
<td>3</td>
<td>Training and Keyboard Harmony</td>
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Four credits selected from the following:

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<tr>
<td>12</td>
<td>Mus 304, 305, 306 Music History II</td>
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<tr>
<td>4</td>
<td>Mus 355 Jazz History</td>
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<td>9</td>
<td>Mus 374, 375 World Music</td>
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<td>Mus 314, 315, 316 Harmonic and Structural Analysis</td>
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<td>Mus 320 Fundamentals of Conducting</td>
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<td>Mus 481 Pedagogy</td>
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<td>6</td>
<td>MuP 194, 394 Chamber Music</td>
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<tr>
<td>12</td>
<td>MuP 195, 395 Band; Mus 196, 396 Orchestra; Mus 197, 397 Chorus</td>
</tr>
<tr>
<td>12</td>
<td>MuP 190, 290, 390, 490 Applied Music (minimum of 6 credits of 490)</td>
</tr>
<tr>
<td>24</td>
<td>MuP 188 Performance Attendance (required through MuP 390)</td>
</tr>
<tr>
<td>3</td>
<td>MuP 195 Band; Mus 196 Orchestra; Mus 197 Chorus</td>
</tr>
<tr>
<td>3</td>
<td>MuP 290 Applied Music</td>
</tr>
<tr>
<td>3</td>
<td>MuP 188 Performance Attendance (6 terms)</td>
</tr>
<tr>
<td>8</td>
<td>A minimum of 6 of the 12 credits of large ensemble must be completed at the upper-division level.</td>
</tr>
<tr>
<td>123</td>
<td>Bachelor of Music in Performance with Jazz Emphasis. In addition to meeting the general University degree requirements, music majors seeking the professional music degree (Bachelor of Music in performance with a jazz emphasis) must complete the following courses:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Mus 111, 112, 113 Music Theory I</td>
</tr>
<tr>
<td>3</td>
<td>Training and Keyboard Harmony</td>
</tr>
<tr>
<td>3</td>
<td>Mus 191, 192, 193 Classical Piano</td>
</tr>
<tr>
<td>4</td>
<td>Mus 46 Piano Proficiency Exam (no credit)</td>
</tr>
<tr>
<td>4</td>
<td>Mus 203 Music in the Western World</td>
</tr>
<tr>
<td>6</td>
<td>Mus 211, 212, 213 Music Theory II</td>
</tr>
<tr>
<td>6</td>
<td>Mus 214, 215, 216 Sight Singing/Ear</td>
</tr>
<tr>
<td>3</td>
<td>Training and Keyboard Harmony</td>
</tr>
<tr>
<td>3</td>
<td>Mus 304, 305, 306 Music History</td>
</tr>
<tr>
<td>12</td>
<td>Mus 271, 272, 273 Jazz Improvisation</td>
</tr>
<tr>
<td>3</td>
<td>MuP 190 Applied Music</td>
</tr>
<tr>
<td>3</td>
<td>MuP 290 Applied Music</td>
</tr>
<tr>
<td>3</td>
<td>Mus 395 Band; Mus 396 Orchestra; Mus 397 Chorus</td>
</tr>
<tr>
<td>8</td>
<td>Total 36</td>
</tr>
</tbody>
</table>

Requirements for a Minor in Music. To earn a minor in music, a student must complete 35 adviser-approved credits (17 credits must be in residence at Portland State University), to include the following:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Mus 111, 112, 113 Music Theory I</td>
</tr>
<tr>
<td>3</td>
<td>Training</td>
</tr>
<tr>
<td>4</td>
<td>Mus 203 Music in the Western World</td>
</tr>
<tr>
<td>3</td>
<td>MuP 194, 394 Chamber Music</td>
</tr>
<tr>
<td>12</td>
<td>MuP 195, 395 Band; Mus 196, 396 Orchestra; Mus 197, 397 Chorus</td>
</tr>
<tr>
<td>12</td>
<td>MuP 190, 290, 390, 490 Applied Music (minimum of 6 credits of 490)</td>
</tr>
<tr>
<td>24</td>
<td>MuP 188 Performance Attendance (required through MuP 390)</td>
</tr>
<tr>
<td>3</td>
<td>MuP 195 Band; Mus 196 Orchestra; Mus 197 Chorus</td>
</tr>
<tr>
<td>3</td>
<td>MuP 290 Applied Music</td>
</tr>
<tr>
<td>3</td>
<td>MuP 188 Performance Attendance (6 terms)</td>
</tr>
<tr>
<td>3</td>
<td>A minimum of 6 of the 12 credits of large ensemble must be completed at the upper-division level.</td>
</tr>
<tr>
<td>35</td>
<td>Total 35</td>
</tr>
</tbody>
</table>

Requirements for a Minor in Jazz Studies. To earn a minor in jazz studies, a student must complete 36 adviser-approved credits (17 credits must be in residence at Portland State University), to include the following:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Mus 111, 112, 113 Music Theory I</td>
</tr>
<tr>
<td>3</td>
<td>Training and Keyboard Harmony</td>
</tr>
<tr>
<td>6</td>
<td>Mus 191, 192, 193 Classical Piano</td>
</tr>
<tr>
<td>6</td>
<td>Mus 46 Piano Proficiency Exam (no credit)</td>
</tr>
<tr>
<td>4</td>
<td>Mus 203 Music in the Western World</td>
</tr>
<tr>
<td>9</td>
<td>Mus 211, 212, 213 Music Theory II</td>
</tr>
<tr>
<td>2</td>
<td>Mus 320 Fundamentals of Conducting</td>
</tr>
<tr>
<td>2</td>
<td>Mus 214, 215, 216 Sight Singing/Ear</td>
</tr>
<tr>
<td>3</td>
<td>Training and Keyboard Harmony</td>
</tr>
<tr>
<td>12</td>
<td>Mus 304, 305, 306 Music History</td>
</tr>
<tr>
<td>6</td>
<td>Mus 271, 272, 273 Jazz Improvisation</td>
</tr>
<tr>
<td>6</td>
<td>Mus 471, 472, 473 Advanced Jazz Improvisation</td>
</tr>
<tr>
<td>4</td>
<td>Mus 355 Jazz History</td>
</tr>
<tr>
<td>24</td>
<td>MuP 190, 290, 390, 490 Applied Music (6 credits of 390 and 6 credits of 490)</td>
</tr>
<tr>
<td>6</td>
<td>Mus 109 Jazz Lab Band</td>
</tr>
<tr>
<td>6</td>
<td>Mus 394 Chamber Music Jazz Combos</td>
</tr>
<tr>
<td>6</td>
<td>Mus 398 Jazz Lab Band</td>
</tr>
<tr>
<td>4</td>
<td>Mus 424, 425, 426 Instrumental Jazz Arranging</td>
</tr>
<tr>
<td>4</td>
<td>Mus 474, 475 MIDI Applications</td>
</tr>
<tr>
<td>2</td>
<td>Mus 344 Jazz Keyboard Fundamentals</td>
</tr>
<tr>
<td>2</td>
<td>MuP 188 Performance Attendance (no credit)</td>
</tr>
<tr>
<td>5</td>
<td>MuP 49 Senior Recital (no credit)</td>
</tr>
<tr>
<td>5</td>
<td>Electives</td>
</tr>
<tr>
<td>123</td>
<td>Total 123</td>
</tr>
</tbody>
</table>

* Music majors and minors and jazz majors and minors must enroll in Applied Music and the related large ensemble (Mus 195/395, 196/396, 197/397, 198/398) each term.
* All B.A./B.S. candidates must complete a final project consisting of one of the following: a half recital (Mus 48); a 20-minute performance, a performance project, or regular performance on area recitals.
* To be taken concurrently with Applied Music each term through completion of MuP 390. Student attends eight performances.
* Related chamber ensemble.
## MUSIC EDUCATION:

### CERTIFICATION PROGRAM (K-12)

Advisers: B. Browne, D. Jimerson (Coordinator), W. Tuttle

The music education program is a graduate curriculum designed to prepare students for licensure for teaching in the state of Oregon. The courses listed below are undergraduate courses designed to prepare the student for the graduate curriculum in music education. The student must complete a bachelor's degree.

**Technical Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mus 235, 236, 237 Wind and Percussion Instruments</td>
<td>3</td>
</tr>
<tr>
<td>Mus 321 Instrumental Conducting</td>
<td>2</td>
</tr>
<tr>
<td>Mus 322 Choral Conducting</td>
<td>2</td>
</tr>
<tr>
<td>Mus 328 Introduction to Musical Careers</td>
<td>2</td>
</tr>
<tr>
<td>Mus 332, 333, 334 Stringed Instruments and Vocal Techniques</td>
<td>3</td>
</tr>
<tr>
<td>Mus 409 Practicum (2 terms, taken with Mus 328 &amp; 484)</td>
<td>2</td>
</tr>
<tr>
<td>Mus 484 Music with Children</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total 17**

### Other Music Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mus 111, 112, 113 Music Theory I</td>
<td>9</td>
</tr>
<tr>
<td>Music 114, 115, 116 Sight-Singing/Ear Training</td>
<td></td>
</tr>
<tr>
<td>Mus 203 Music in the Western World</td>
<td>4</td>
</tr>
<tr>
<td>Mus 188 Performance Attendance (no credit)</td>
<td></td>
</tr>
<tr>
<td>Mus 195, 196, 197 Band, Chorus, or Orchestra</td>
<td>6</td>
</tr>
<tr>
<td>Mus 211, 212, 213 Music Theory II</td>
<td>9</td>
</tr>
<tr>
<td>Mus 214, 215, 216 Sight-Singing/Ear Training and Keyboard Harmony</td>
<td>3</td>
</tr>
<tr>
<td>Mus 304, 305, 306 Music History</td>
<td>12</td>
</tr>
<tr>
<td>Mus 320 Fundamentals of Conducting</td>
<td>2</td>
</tr>
<tr>
<td>Mus 395, 396, 397 Band, Orchestra, or Choir</td>
<td>3</td>
</tr>
<tr>
<td>Mus 474 Midi Applications</td>
<td>2</td>
</tr>
<tr>
<td>MuP 190, 290, 390 Applied Music (minimum of 3 credits of MuP 390)</td>
<td>9</td>
</tr>
</tbody>
</table>

**Total 62**

## GRADUATE PROGRAMS

Advisers: B. Browne, R. Dobson, H. Gray, D. Jimerson, S. Martin, M. Shotola (Graduate Coordinator), T. Stanford, W. Tuttle

The Department of Music offers graduate work in music leading to the degrees of Master of Music (M.M.) in performance and Master of Music in conducting, as well as a Master of Arts in Teaching (M.A.T.) and a Master of Science in Teaching (M.S.T.). The M.A.T./M.S.T. degrees are general master's degrees in music. Graduate students in music may also pursue remediation for standard certification. This curriculum differentiates between specialists in vocal music and instrumental music, but candidates in both areas complete a core of required courses.

For admission to graduate study the student must hold a bachelor's degree representing a course of study equivalent to that pursued by PSU undergraduates in music. In addition to meeting the general requirements for admission to graduate study in the University, each student must successfully take the music entrance examination prepared by and administered in the Department of Music.

### M.A.T./M.S.T. PROGRAM

#### Core Curriculum

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mus 560 Music History: Medieval Period</td>
<td>4</td>
</tr>
<tr>
<td>Mus 561 Music History: Renaissance Period</td>
<td></td>
</tr>
<tr>
<td>Mus 562 Music History: Baroque Period</td>
<td></td>
</tr>
<tr>
<td>Mus 563 Music History: Classical Period</td>
<td></td>
</tr>
<tr>
<td>Mus 564 Music History: Romantic Period</td>
<td></td>
</tr>
<tr>
<td>Mus 565 Music History: Early 20th Century</td>
<td></td>
</tr>
<tr>
<td>Mus 566 Music History: Music Since 1950</td>
<td></td>
</tr>
<tr>
<td>One of the following:</td>
<td>3</td>
</tr>
<tr>
<td>Mus 332 Band Literature</td>
<td></td>
</tr>
<tr>
<td>Mus 333 Orchestral Literature</td>
<td></td>
</tr>
<tr>
<td>Mus 334 Choral Literature</td>
<td></td>
</tr>
<tr>
<td>One of the following:</td>
<td>3</td>
</tr>
<tr>
<td>Mus 521 Band Arranging</td>
<td></td>
</tr>
<tr>
<td>Mus 522 Orchestral Arranging</td>
<td></td>
</tr>
<tr>
<td>Mus 523 Advanced Choral Arranging</td>
<td></td>
</tr>
<tr>
<td>One of the following:</td>
<td>3</td>
</tr>
<tr>
<td>Mus 541 Advanced Conducting (Instrumental)</td>
<td></td>
</tr>
<tr>
<td>Mus 542 Advanced Conducting (Choral)</td>
<td></td>
</tr>
<tr>
<td>All of the following:</td>
<td>3</td>
</tr>
<tr>
<td>Mus 511 Research Methods (Music)</td>
<td></td>
</tr>
<tr>
<td>Mus 520 Analytical Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MuP 590 Applied Music</td>
<td>2</td>
</tr>
<tr>
<td>MuP 591 Applied Music-Seminars</td>
<td>3</td>
</tr>
<tr>
<td>Ensemble: Chosen with advice of graduate faculty</td>
<td>3</td>
</tr>
<tr>
<td>Education/Pedagogy (chosen with adviser's suggestion)</td>
<td>9</td>
</tr>
<tr>
<td>Elective Studies:</td>
<td>10</td>
</tr>
<tr>
<td>Music electives chosen from the following areas: applied music, theory, arranging, composition, music history, world music, music literature, pedagogy, education, conducting, or additional ensemble performance</td>
<td></td>
</tr>
</tbody>
</table>

**Total 45**

## M.M. PROGRAM

#### Master of Music in Performance

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MuP 590 Applied Music</td>
<td>12</td>
</tr>
<tr>
<td>Mus 506 Project and Graduate Recital</td>
<td>2</td>
</tr>
<tr>
<td>MuS 594, 595, 596, 597, 598 Chamber Music</td>
<td>3</td>
</tr>
<tr>
<td>and/or Ensemble</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total 45**

All degree candidates must take a final written examination. A final oral examination also may be required.

## CONTINUING TEACHING LICENSE

Students may elect a program leading to the completion of requirements for the continuing teaching license, but not the M.A.T. or M.S.T. degree. This nondegree, license program emphasizes flexibility of choice from among various upper-division and graduate music courses, while including the education components required for licensure recommendation as listed on page 203.

A program containing a minimum of 45 approved credits is outlined for each student with the assistance of the assigned adviser. Any deficiencies in the student's baccalaureate degree program or initial license program which may appear when compared to departmental and University requirements for the basic norm will also be added to the requirements when making up the planned continuing license program. There is no final examination required for this program.
COURSES

Courses with an asterisk (*) are not offered every year.

Mus 110
Basic Materials (4)
Basic course in the theory, structure, and literature of music, requiring no previous musical experience. Prepares students for enrollment in Music Theory.

Mus 111, 112, 113
Music Theory I (3, 3, 3)
Provides a thorough ground-work in the melodic, harmonic, and rhythmic elements of music with written exercises and analysis based on the styles of Bach, Haydn, Mozart, Beethoven, and other 17th and 18th century composers. Registration in the appropriate Sight-Singing/Ear Training course is required. An entrance placement examination will be given. Basic Keyboard Skills is recommended for music majors and minors.

Mus 114, 115, 116
Sight-Singing/Ear Training (1, 1, 1)
Studies to develop the ability to sing notation at sight and to recognize and notate aural patterns. Registration in the appropriate Music Theory I course is required.

Mus 188
Performance Attendance (No credit.)
The student is expected to attend a minimum of eight live performances approved by the Department of Music for each term registered. It is expected that students will register for Performance Attendance concurrently with registration for Applied Music until the requirement for Performance Attendance is completed.

Mus 189
Repertoire Study (1)
Study and performance of selected repertoire. Available only to students enrolled in large ensemble, chamber music or applied music. Prerequisite: consent of instructor.

MusP 190
Applied Music (1-4)
Freshman year. Individual instruction in organ, piano, harpsichord, voice, guitar, orchestral and band instruments. Maximum: 12 credits. Prerequisite: approval of faculty applied music supervisor.

Mus 191, 192, 193
Class Instruction (2, 2, 2)
Class instruction in instruments or voice. Offerings include piano, guitar, and voice. Students in Mus 193 should be enrolled in Mus 46.

Mus 194
Chamber Music (1)
Instruction in the art of small ensemble performance; the established repertory of string, wind, keyboard, or vocal chamber music. Maximum: 6 credits. Audition may be requested. Prerequisite: consent of instructor.

Mus 195
Band (1)
Maximum: 6 credits. Audition may be requested.

Mus 196
Orchestra (1)
Maximum: 6 credits. Audition may be requested.

Mus 197
Chorus (1)
Maximum: 6 credits. Audition may be requested.

Mus 198
Jazz Lab Band (1)
Performance of jazz literature in a big band setting. Maximum: 6 credits. Audition may be requested.

Mus 199
Special Studies (Credit to be arranged.)

Mus 201, 202
Introduction to Music (4, 4)
Designed for non-majors. Course involves lectures, reading, and listening. Course may emphasize music of different world cultures. Successively the course deals with elements of music and small forms (201), and large forms of music and categories of musical literature (202).

Mus 203
Music in the Western World (4)
Designed for music majors and others with the ability to read music. Introduction to the great composers and their compositions within a historical framework.

Mus 211, 212, 213
Music Theory II (3, 3, 3)
Continuation of the study of harmony. Introduction to harmonic counterpoint. Composition in small forms in various 18th, 19th, and 20th century idioms. Registration in the appropriate Sight-Singing/Ear Training and Keyboard Harmony course is required. Prerequisites: Mus 46, 113, and 116.

Mus 214, 215, 216
Sight-Singing/Ear Training and Keyboard Harmony (1, 1, 1)
Application of theoretical principles to the keyboard; understanding more advanced theory through the keyboard. Elementary score reading, keyboard harmonization of folk tunes, advanced work in sight-singing and ear training. Registration in the appropriate Music Theory II course is required. Prerequisites: Mus 46, 113, and 116.

Mus 217, 218, 219
Harmony (1, 1, 1)
Thorough study of formal analysis, including the phrase unit, period, two- and three-part song forms, developed ternary forms, sonata, symphony, concerto, etc. Prerequisites: Mus 211, 212, 213.

Mus 220
Choral Arranging (2)
Fundamentals of arranging music for vocal ensembles. Emphasis on basic principles of SATB writing. Prerequisite: Mus 213.

Mus 221
Choral Conducting (2)
The principles of conducting and training choral organizations. Prerequisite: Mus 321.

Mus 222
Choral Conducting (2)
The principles of conducting and training choral organizations. Prerequisite: Mus 320.

Mus 223
Choral Conducting (2)
The principles of conducting and training choral organizations. Prerequisite: Mus 320.

Mus 225
Class Instruction (2, 2, 2)
Class instruction in instruments or voice. Offerings include piano, guitar, voice, and small groups of instrumentalists. Maximum: 6 credits. Prerequisite: approval of faculty applied music supervisor.

Mus 226
History of Rock Music (4, 4)
Traces the history and development of a popular music style in the United States, Great Britain, and other parts of the world. Includes other types of popular music in the twentieth century.

Mus 227, 228, 229
Jazz Improvisation (2, 2, 2)
Introduces the fundamentals of jazz improvisation. Beginning jazz skills include scales, song forms, melodic patterns, and repertoire development. Prerequisite: consent of instructor.

Mus 230
Applied Music (1-4)
Sophomore year. Continuation of MuP 190. Maximum: 12 credits. Prerequisites: MuP 190 and audition.

Mus 231, 232, 233
Stringed Instruments and Vocal Techniques (1, 1, 1)
A study of stringed instruments (Mus 332, 333) and vocal and guitar techniques (Mus 334). For students in the teacher education program.

Mus 234, 235, 236
Harmonic and Structural Analysis (2, 2, 2)
Thorough study of formal analysis, including the phrase unit, period, two- and three-part song forms, developed ternary forms, sonata, symphony, concerto, etc. Prerequisites: Mus 211, 212, 213.

Mus 237
Harmonic and Structural Analysis (2, 2, 2)
Thorough study of formal analysis, including the phrase unit, period, two- and three-part song forms, developed ternary forms, sonata, symphony, concerto, etc. Prerequisites: Mus 211, 212, 213.

Mus 238
Introduction to Musical Careers (2)
Introduction to various career choices in music. Emphasis on music education. Concurrence enrollment in an appropriate practicum (Mus 409) required. Prerequisites: Mus 111, 203.

Mus 301, 302
Survey of Music Literature (4, 4)
For non-majors, study of the history of music through examination of the literature of particular periods as follows: Mus 301: Music from 1700 to 1875; Mus 302: Music from 1875 to present.

Mus 304, 305, 306
Music History (4, 4, 4)
Intensive analytical study of the history of music in the Medieval and Renaissance Periods (Mus 304), Baroque and Classical Periods (Mus 305) and Romantic and 20th century periods (Mus 306). Prerequisites: Mus 113, 203.

Mus 311, 312, 313
Counterpoint (2, 2, 2)
Intensive study of music reflecting the polyphonic impulse; analysis and application to exercises in two-, three-, and four-voice counterpoint. Prerequisites: Mus 211, 212, 213.

Mus 318
Institutional Arranging (2)
Fundamentals of arranging music for instrumental ensembles. Emphasis on basic principles of orchestration and their practical applications. Prerequisite: Mus 213.

Mus 319
Choral Arranging (2)
Fundamentals of arranging music for vocal ensembles. Emphasis on basic principles of SATB writing. Prerequisite: Mus 213.

Mus 320
Fundamentals of Conducting (2)
The basic principles of conducting as they apply to both instrumental and vocal ensembles. Basic baton technique and beat patterns. Development of an independent use of the hands. Fundamentals of score reading, both instrumental and vocal. Prerequisite: Mus 213.

Mus 321
Institutional Conducting (2)
The principles of conducting and training instrumental organizations. Prerequisite: Mus 320.

Mus 322
Choral Conducting (2)
The principles of conducting and training choral organizations. Prerequisite: Mus 320.

Mus 328
Introduction to Musical Careers (2)
Introduction to various career choices in music. Emphasis on music education. Concurrent enrollment in an appropriate practicum (Mus 409) required. Prerequisites: Mus 111, 203.

Mus 332, 333, 334
Stringed Instruments and Vocal Techniques (1, 1, 1)
A study of stringed instruments (Mus 332, 333) and vocal and guitar techniques (Mus 334). For students in the teacher education program.
Mus 344
Jazz Keyboard Fundamentals (2)
Study of the basic jazz keyboard fundamentals for jazz instrumentalists. Covers basic chord voicings, chord scale relationships, accompaniment techniques, and reharmonization techniques. Prerequisites: Mus 191, 192, 193.

Mus 351
Accompanying (2)
Theoretical and practical study of the art of accompanying vocal and instrumental solos and performing duo-sonatas.

Mus 355
Jazz History (4)
Examines the development of jazz from its African and European roots and its origins in New Orleans to its florescence in Chicago and New York. Covers period from about 1900 to 1960. Focuses on important musicians and major musical styles. Prerequisite: Mus 201 or 261.

Mus 360
The Guitar: its History and Music (4)
This course is designed to explore the origins of the guitar by examining its history, repertoire and performers. The course will look at all aspects of the guitar’s history from the related ancient Semitic stringed instruments to the modern-day electric guitar.

Mus 361, 362
History of Rock Music (4, 4)
Traces the history and development of a popular music style in the United States, Great Britain, and other parts of the world. Includes other types of popular music from the twentieth century.

Mus 374, 375
World Music (4, 4)
Study of the major musical cultures of Asia, the Middle East, and sub-Saharan Africa. Explores social and cultural contexts, instrument types, and structural organization of the music. Emphasis on listening.

Mus 376
American Musical Traditions (4)
Examines the diversity of musical traditions found in American history and culture. Included are African-American, Anglo-American, Hispanic, and Native-American musical cultures, in the areas of folk, popular, and classical music genres.

Mus 381
Music Fundamentals (4)
Basic musicanship for the elementary teacher.

Mus 389
Repertoire Study (1)
Study and performance of selected repertoire. Available only to students enrolled in large ensemble, chamber music or applied music. Prerequisite: consent of instructor.

MuP 390
Applied Music (1-4)
Junior year. Continuation of MuP 290. Maximum: 12 credits. Prerequisites: MuP 290 and audition.

Mus 394
Chamber Music (1)
Instruction in the art of small ensemble performance; the established repertory of string, wind, keyboard, or vocal chamber music. Maximum: 6 credits. Prerequisite: consent of instructor.

Mus 395
Band (1)
Maximum: 6 credits. Audition may be requested.

Mus 396
Orchestra (1)
Maximum: 6 credits. Audition may be requested.

Mus 397
Chorus (1)
Maximum: 6 credits. Audition may be requested.

Mus 398
Jazz Lab Band (1)
Performance of jazz literature in a big band setting. Maximum: 6 credits. Audition may be requested.

Mus 399
Special Studies (Credit to be arranged.)

Mus 401/501
Research (Credit to be arranged.)
Consent of instructor.

Mus 404/504
Cooperative Education/Internship (Credit to be arranged.)

Mus 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

Mus 407/507
Seminar (Credit to be arranged.)
Consent of instructor. Recent topics have included Style Analysis; Style Criticism; Music History; Music in the Elementary School; Seminar in Composition.

Mus 408/508
Workshop (Credit to be arranged.)

Mus 409/509
Practicum (Credit to be arranged.)

Mus 410/505
Selected Topics (Credit to be arranged.)

Mus 414/514, 415/515, 416/516
Composition (2, 2, 2)
The course involves the study of 20th century composition techniques. Students will compose chamber works using techniques studied in the class. Prerequisites: Mus 311, 312, and 316.

Mus 424/524, 425/525, 426/526
Instrumental Jazz Arranging (2, 2, 2)
In-depth study and application of the fundamentals of composing and arranging for small to large jazz ensembles. Subjects included are history, transposition, instruments, forms, harmonic and melodic construction, rhythm section, voicing, moving harmonization, score and part preparation, vocal arranging techniques, rehearsal techniques, and MIDI applications. Instructor approval required.

Mus 427/527
Opera Workshop (1)
A workshop in preparing and performing operatic literature for advanced singers. Prerequisite: consent of instructor through audition.

Mus 428/528
Opera Production (2)
Annual production of a major operatic work. Designed for singers, orchestral instrumentalists, and technical support staff in the areas of costuming, set design, and other areas. Casting for production is by audition during winter quarter.

Mus 430/530
Song Literature (3)
Study of the solo literature for voice through analysis of scores and recordings and live performances. Historical perspectives from Elizabethan song to 20th-century art songs. Prerequisites: Mus 304, 305, 306.

Mus 431/531
Chamber Music Literature (3)
Historical survey of the music associated with the chamber music repertoire from 1600-1950. Emphasis on analysis of scores and recordings. Prerequisites: Mus 304, 305, 306.

Mus 432/532
Band Wind Literature (3)
A study of literature for ensembles of wind and wind/percussion instruments from about 1600 to the present. Historical perspective will be gained through reading, style-analysis, and listening. Attention will be given to the practical application of band literature in elementary and secondary teaching situations. Prerequisites: Mus 304, 305, 306.

Mus 433/533
Orchestral Literature (3)
A historical survey of the music associated with the symphony orchestra from the development of each orchestral instrument to the present day. Intensive study of those works of great significance is achieved through score study and analysis of several interpretations through recordings. Attention will be given to the practical application of orchestral literature in elementary and secondary teaching situations. Prerequisites: Mus 304, 305, 306.

Mus 434/534
Choral Literature (3)
This course offers an investigation and analysis of literature for choir of all sizes, for secular and sacred use, particularly in relation to use in public school at the junior high and high school levels and in church choir situations. A survey of the development of choral literature from the early 17th century to the important operas of this century. Prerequisites: Mus 304, 305, 306.

Mus 436/536
Opera Literature (3)
An intensive study of the development of opera in western music, from the works of Monteverdi in the early 17th century to the important operas of this century. Prerequisites: Mus 304, 305, 306.

Mus 437/537, 438/538
Keyboard Literature (3, 3)
A study of Baroque, Classical, Romantic, and Twentieth Century literature for keyboard instruments. In addition to providing an overview of the historical development of keyboard music, specific works from the repertoire of each period will be selected for intensive study and performance. Intended primarily for piano or harpsichord majors. Prerequisite: by audition.

Mus 441/541, 442/542, 443/543
Advanced Conducting (3, 3, 3)
A study of technical and interpretative problems encountered in the rehearsal and conducting of standard symphonic or choral literature. Emphasis on conducting this literature. Particular attention given to the problems facing the public school music director. Prerequisite: Mus 321 or 322.
Mus 451/551, 452/552
Advanced Keyboard Skills (3, 3)
This course investigates and applies advanced theoretical concepts to keyboard playing and improvisation. Applications include sight-reading, transposition, harmonization, and figured bass reading. Prerequisite: by audition.

Mus 471/571, 472/572, 473/573
Advanced Jazz Improvisation (2, 2, 2)
Advanced concepts of jazz improvisation. Principles of pentatonics, diminished harmonies, inside-outside playing, synthetic scales, and free improvisation. Instructor approval required. Prerequisites: Mus 271, 272, and 273.

Mus 474/574, 475/575
Midi Applications (2, 2)
Study of the fundamentals of MIDI and computer music programs. Includes work on synthesizers, sequencing, and notation software. Prerequisite: consent of instructor.

Mus 481/581, 482/582, 483/583
Pedagogy (3, 3, 3)
Methods, materials, and philosophical bases for teaching in a private studio and classroom with focus on individual and group instruction. Prerequisites: Mus 213, 216, 304, 305, 306.

Mus 484/584
Music with Children (3)
Methods and materials for teaching general music classes in the elementary school. Designed for the music specialist, required of all students who seek a basic teaching certificate in music. It is presupposed that all students have performing and theoretical skills and at least one year of music history. Concurrent enrollment in an appropriate practicum (Mus 409) required. Prerequisite: upper-division standing in music.

Mus 485/585, 486/586, 487/587
Diction for Singers: Italian, German, and French (2, 2, 2)
Designed for singers and other musicians interested in classical vocal literature in Italian, German, and French. It presents the principles of lyric diction and provides practice in the skills needed to sing the language correctly, idiomatically, and expressively.

Mus 490
Applied Music (1-4)
Senior year. Continuation of MuP 390. Maximum: 12 credits. Prerequisites: MuP 390 and audition.

Mus 491/591
Applied Music in Secondary Area (1-2)
Private instruction in voice, keyboard, guitar, and orchestral or band instruments, not to include the student’s major performance area in order to extend the performance skills of the music specialist in the public schools. Graduate students not passing MuP 390 audition will be assigned MuP 591.

Mus 500
Thesis (Credit to be arranged.)

Mus 506
Graduate Project or Recital (2-3)
Final conducting project or performance recital required for all Master of Music degrees.

Mus 511
Music Research Methods (3)
A systematic study of research techniques and materials in music history, literature, and music education. Emphasis on the use of library resources and practical applications of research techniques. Prerequisite: graduate standing in music.

Mus 512
Graduate Theory Review (3)
A course designed for graduate students who need to review their knowledge of basic theoretical concepts. Can be taken for credit but will not be applied toward completion of degree requirements.

Mus 513
Score Reading (3)
Techniques for reading and studying scores with a goal of performance.

Mus 517, 518, 519
Advanced Harmony (2, 2, 2)
A study of the harmonic practices of the late 19th and 20th centuries. Written work, analysis, and theoretical research. Prerequisite: Mus 316.

Mus 520
Analytical Techniques (3)
A study of the formal structure of musical compositions of various styles with the purpose of discovering the sources of unity, variety, order, and expression present in them. Prerequisite: successful completion of the department’s graduate entrance examination.

Mus 521
Advanced Band Arranging (3)
Designed to develop fundamental skills in arranging music for concert, marching and stage bands, and small wind and/or percussion ensembles, such as those encountered in the public schools. Transcription skills also will be studied. Emphasis will be on practical application of material presented. Prerequisite: successful completion of the department’s graduate entrance examination.

Mus 522
Advanced Orchestral Arranging (3)
Instruction in writing for instruments used in large orchestras, showing basic techniques of scoring for string quartet, woodwind and brass quintet, and percussion ensemble. Practical application through scoring of piano music for various orchestral groups of the nature and capability found in the public schools. Prerequisite: successful completion of the department’s graduate entrance examination.

Mus 523
Advanced Choral Arranging (3)
Study of voice types, text setting, and techniques of writing for various combinations of voices. Practice in arranging melodies for two-, three-, and four-part choruses, mixed and unixed, such as those encountered in the public schools. Prerequisite: successful completion of the department’s graduate entrance examination.

Mus 560
Music History: The Medieval Period (2)
Intensive, analytical study of the history of music of the Middle Ages and its relationship to contemporary historical events. Prerequisite: successful completion of the department’s graduate entrance examination. Normally limited to graduate music majors only.

Mus 561
Music History: The Renaissance Period (2)
Intensive, analytical study of the history of music from 1400 to 1600 and its relationship to contemporary historical events. Prerequisite: successful completion of the department’s graduate entrance examination. Normally limited to graduate music majors only.

Mus 562
Music History: The Baroque Period (2)
Intensive, analytical study of the history of music from 1600 to 1750 and its relationship to contemporary historical events. Prerequisite: successful completion of the department’s graduate entrance examination. Normally limited to graduate music majors only.

Mus 563
Music History: The Classical Period (2)
Intensive, analytical study of the history of music from 1750 to 1825 and its relationship to contemporary historical events. Prerequisite: successful completion of the department’s graduate entrance examination. Normally limited to graduate music majors only.
Mus 564
Music History: The Romantic Period (2)
Intensive, analytical study of the history of music from 1825 to 1900 and its relationship to contemporary historical events. Prerequisite: successful completion of the department’s graduate entrance examination. Normally limited to graduate music majors only.

Mus 565
Music History: Early 20th Century (2)
Intensive, analytical study of the history of music from 1900 to 1950 and its relationship to contemporary historical events. Prerequisite: successful completion of the department’s graduate entrance examination. Normally limited to graduate music majors only.

Mus 566
Music History: Music Since 1950 (2)
Intensive, analytical study of the history of music since 1950 and its relationship to contemporary historical events. Prerequisite: successful completion of the department’s graduate entrance examination. Normally limited to graduate music majors only.

Mus 588
Advanced Choral Methods (3)
Designed for the experienced teacher. In addition to studies of current methods and trends in choral music teaching, the course also provides a forum for problem solving and dealing with special issues and problems in current choral music education.

Mus 589
Advanced Instrumental Methods (3)
Designed for the experienced teacher. In addition to studies of current methods and trends in instrumental music teaching, the course also provides a forum for problem solving and dealing with special issues and problems in current music education.

Mus 590
Applied Music (1-4)
Individual instruction in organ, piano, harpsichord, voice, guitar, and orchestral and band instruments. Maximum: 12 credits. Prerequisite: audition.

Mus 594
Choral Music (1)
Instruction in the art of small ensemble performance; the established repertory of string, wind, keyboard, or vocal chamber music. Maximum: 6 credits. Prerequisite: graduate standing in music.

Mus 595
Band (1)
Maximum: 6 credits. Prerequisite: graduate standing in music.

Mus 596
Orchestra (1)
Maximum: 6 credits. Prerequisite: graduate standing in music.

Mus 597
Chorus (1)
Maximum: 6 credits. Prerequisite: graduate standing in music.

Mus 598
Jazz Lab Band (1)
Performance of jazz literature in a big band setting. Maximum: 6 credits. Prerequisite: graduate standing in music.

Specialized Courses

Mus 10, 20, 30, 40
Repetoire Class (No credit)
For music majors, taken concurrently with MuP 190, 290, 390, 490. Weekly performance of music from a specified list of repertoire.

Mus 46
Piano Proficiency Exam (No credit)

Mus 47
Final Project (No credit)
All Bachelor of Arts and Bachelor of Science degree candidates must complete a final project consisting of one of the following: (1) a half recital, (2) a performance project, (3) regular performances on area recitals.

Mus 48
Junior Recital (No credit)
Required for students in the Bachelor of Music in Performance program. Public recital during the junior year (30 minutes minimum).

Mus 49
Senior Recital (No credit)
Music majors must present all or part of a recital during their senior year.

Theater Arts

The theater arts faculty encourages a firm grounding in all aspects of theater and emphasizes the need for individual excellence. Faculty are active participants in the Portland theater community and have worked and continue to work as actors, directors, designers, and consultants for many of the area’s professional theaters. Because of Portland State’s urban location, students in the department have been able to work in and for local theater companies and are encouraged to do so.

Both majors and minors are urged to arrange with the departmental office for an adviser.

Requirements for Major. In addition to meeting the general University degree requirements, the major in theater arts will meet the following requirements:

Credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 111, 112 Technical Theater I</td>
<td>6</td>
</tr>
<tr>
<td>TA 114, 115 Technical Theater I</td>
<td>6</td>
</tr>
<tr>
<td>TA 141, 142 Acting I and II</td>
<td>8</td>
</tr>
<tr>
<td>TA 252 Makeup</td>
<td>2</td>
</tr>
<tr>
<td>TA 301 Script Analysis</td>
<td>4</td>
</tr>
<tr>
<td>TA 311 Scene Design I</td>
<td>4</td>
</tr>
<tr>
<td>TA 316 Technical Theater Lab</td>
<td>2</td>
</tr>
<tr>
<td>TA 321 Costuming</td>
<td>4</td>
</tr>
<tr>
<td>TA 364 Directing I</td>
<td>4</td>
</tr>
<tr>
<td>TA 464, 465 Development of Dramatic Art I and II</td>
<td>8</td>
</tr>
<tr>
<td>12 credits chosen from the following:</td>
<td></td>
</tr>
<tr>
<td>TA 330 Multicultural Theater</td>
<td></td>
</tr>
<tr>
<td>TA 467, 468 Modern Theater I and II</td>
<td></td>
</tr>
<tr>
<td>TA 471 Theater History: Periods/Topics</td>
<td></td>
</tr>
<tr>
<td>TA 472 Theater History: Major Figures</td>
<td></td>
</tr>
<tr>
<td>4 credits of TA 353 Workshop Theater II: Acting-Directing</td>
<td></td>
</tr>
<tr>
<td>TA 354 Workshop Theater II: Technical Theater</td>
<td></td>
</tr>
<tr>
<td>TA 355 Theater Workshop II: Mangement/Public Relations</td>
<td></td>
</tr>
<tr>
<td>with a maximum of 2 credits in any one.</td>
<td></td>
</tr>
<tr>
<td>Workshop credits in excess of this maximum may be used to satisfy elective and general requirements.</td>
<td></td>
</tr>
<tr>
<td>20 elective credits from the theater arts curriculum with at least 12 carrying numbers 300 or above</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>80</td>
</tr>
</tbody>
</table>

In fulfilling the 20-hour elective requirement, the theater arts major, depending on area of interest and career aspirations, will select one of 3 options:

a. the general option,
The student who chooses the **performance option** should select from the following recommended courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 144</td>
<td>Voice for the Actor I</td>
<td>3</td>
</tr>
<tr>
<td>TA 147</td>
<td>Movement for the Actor</td>
<td>3</td>
</tr>
<tr>
<td>TA 241</td>
<td>Improvisational Acting I</td>
<td>3</td>
</tr>
<tr>
<td>TA 341, 342</td>
<td>Intermediate Acting I and II</td>
<td>8</td>
</tr>
<tr>
<td>TA 346</td>
<td>Stage Dialects</td>
<td>4</td>
</tr>
<tr>
<td>TA 455</td>
<td>Directing II</td>
<td>4</td>
</tr>
</tbody>
</table>

The student who wants to focus on the **design/technical theater option** should select from the recommended courses in one of three tracks: scenography, lighting, or costume.

### Scenography Track

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 313</td>
<td>Scene Design II</td>
<td>3</td>
</tr>
<tr>
<td>TA 314</td>
<td>Lighting Design I</td>
<td>3</td>
</tr>
<tr>
<td>TA 317</td>
<td>Theater Technologies</td>
<td>2</td>
</tr>
<tr>
<td>TA 414</td>
<td>History of Decor</td>
<td>4</td>
</tr>
<tr>
<td>TA 421</td>
<td>Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>TA 430</td>
<td>Scene Design III</td>
<td>3</td>
</tr>
</tbody>
</table>

### Lighting Track

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 313</td>
<td>Scene Design II</td>
<td>3</td>
</tr>
<tr>
<td>TA 314</td>
<td>Lighting Design I</td>
<td>3</td>
</tr>
<tr>
<td>TA 317</td>
<td>Theater Technologies</td>
<td>2</td>
</tr>
<tr>
<td>TA 408</td>
<td>Workshop</td>
<td>2</td>
</tr>
<tr>
<td>TA 421</td>
<td>Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>TA 433</td>
<td>Lighting Design II</td>
<td>3</td>
</tr>
<tr>
<td>TA 472</td>
<td>Theater History: Appia/Craig</td>
<td>4</td>
</tr>
</tbody>
</table>

### Costume Design Track

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 313</td>
<td>Scene Design II</td>
<td>3</td>
</tr>
<tr>
<td>TA 325</td>
<td>Costume Construction</td>
<td>4</td>
</tr>
<tr>
<td>TA 326</td>
<td>Pattern Development</td>
<td>4</td>
</tr>
<tr>
<td>TA 421</td>
<td>Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>TA 423, 426</td>
<td>History of Dress I and II</td>
<td>8</td>
</tr>
</tbody>
</table>

Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department minor requirements, with the exception of TA 101 Theater Appreciation, TA 131 Understanding Movies, and TA 135 Classic Movies.

### SECONDARY EDUCATION PROGRAM

**Adviser:** W.M. Tate

It is imperative that the student who wishes to teach theater arts in secondary school be in contact with the Department of Theater Arts secondary education adviser as early as possible, so that various options and requirements can be fully explained and a program of study developed.

### GRADUATE PROGRAM

The Theater Arts Department offers the degrees of Master of Arts and Master of Science. The program of each graduate student is planned in consultation with the departmental adviser.

A prospective student shall be admitted to graduate study after the department has reviewed the student's qualifications and recommended acceptance into the specific degree program.

The prospective M.A./M.S. graduate student who, after initial admission to the graduate program, does not enroll for classes within one calendar year shall have admission to the degree program canceled.

### Degree Requirements

University master's degree requirements are listed on page 62. Specific departmental requirements are listed below.

### MASTER OF ARTS OR MASTER OF SCIENCE

Prospective graduate students who plan to earn an M.A. or M.S. degree should present a minimum of 24 credits in theater arts, including 8 credits in acting, 4 credits in directing, 8 credits in technical theater, and 4 credits in costume, or equivalent competencies as determined by the department.

Individual students may be required to complete additional graduate and undergraduate courses to make up for deficiencies.

The Master of Arts degree is recommended for students who want to focus their graduate study on research and scholarship in the history, literature, and criticism of the theater and who may also plan to continue their graduate work in a doctoral program in theater. The Master of Science degree is suggested for students who wish to focus more intensively on performance and production areas in preparation for a career in the professional theater and/or further degree work in a Master of Fine Arts theater program.

All master's degree students must successfully complete a minimum of 45 graduate credits with at least 33 credits of approved courses in theater arts. Twelve credits may be taken in approved areas outside the Department of Theater Arts. In addition, the student must successfully complete one of the following projects, for which no fewer than 6 graduate credits in theater arts will be given: (1) a research thesis on an approved topic from the fields of theater history, theory, practice, or dramatic literature and criticism; (2) two papers of appropriate length on subjects chosen from the fields of theater history, theory, practice, or dramatic literature and criticism; (3) a project in directing, set design, lighting design, acting, or costume design; or (4) the composition of two one-act plays or one full-length play. An oral examination is required.

The Master of Arts student must demonstrate competence in the use of a foreign language and will typically complete the degree program with a thesis, playwriting, or two paper project. The Master of Science student must demonstrate expertise in skills pertaining to the advanced theater performance or design and will typically complete the degree program with a project in directing, set design, costume design or lighting design, a project in playwriting, or a two-paper project.

### COURSES

**Courses with an asterisk (*) are not offered every year.**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA 101</td>
<td>Theater Appreciation (4)</td>
<td></td>
</tr>
<tr>
<td>TA 111, 112</td>
<td>Technical Theater I, II (3, 3)</td>
<td></td>
</tr>
</tbody>
</table>
TA 114, 115  
Technical Theater Production I, II (1, 1)  
Attached lab to TA 111, 112 will combine skills in practical construction of stage sets with actual production experience on department productions.

TA 131  
Understanding Movies (4)  
An introductory course in film appreciation with special emphasis on cinema as a dramatic art. Elements to be considered will include cinematography, performance, edited image, and sound. Selected films will be shown.

TA 135  
Classic Movies (4)  
Study and analysis of representative films with special emphasis on the importance of directorial concept and the screenplay. Relationships between film and theater will be examined.

TA 141, 142  
Acting I, II (4, 4)  
This sequence is concerned with both the method and the techniques of the actor. Must be taken sequentially. Students are urged to present themselves in public performance during the sequence.

TA 144  
Voice for the Actor I (3)  
An introductory course in basic principles and techniques of voice production specifically for stage performance including physiology, breath support and resonance, articulation and projection.

TA 145  
Acting Workshop (2)  
Rehearsal, performance, and analysis of scenes directed by Directing I students for studio presentation and critique. Prerequisite: TA 141. Maximum: 6 credits.

TA 146  
Acting/Playwriting Workshop (3)  
Readings, discussions, and walk-throughs of plays written by Playwriting II students. Prerequisite: TA 142.

TA 147  
Movement for the Actor (3)  
Introduction to concepts and techniques of theatrical movement and physical theater. Will utilize a variety of relaxation, centering, stylization, and imagery exercises designed to increase body awareness and expressiveness. Skills in ensemble, mime, mask, and light acrobatics will be developed.

TA 199  
Special Studies (Credit to be arranged.)

TA 241, 242  
Improvisational Acting I, II (3, 3)  
Seeks to acquaint the student through exercises, theater games, and study of basic techniques for creative role playing with the skills and techniques necessary for improvisational acting and development of material for public performance. Must be taken in sequence.

TA 252  
Makeup (2)  
A study of the basic principles of the art and technique of stage makeup.

TA 253  
Workshop Theater I (1-3)  
Training in theater production through the intensive study and rehearsal of scenes and plays. Maximum: 12 credits.

TA 299  
Special Studies (Credit to be arranged.)

TA 301  
Script Analysis (4)  
Examination and analysis of fundamental principles of dramatic structure, form, and style through study and analysis of representative plays selected from major periods. Emphasis on the production implications of selected texts.

TA 302  
Understanding Theater (4)  
An investigation of theater designed to develop a heightened awareness of how the theater arts express and communicate ideas and experiences. To expand critical awareness of the process by which theater creates meaning and communicates through performance to contemporary audiences. Course will examine the dynamic relationship between theater and the society to which both mirrors and influences.

TA 311  
Scene Design I (4)  
A study of visual arts principles as related to scenic design. Projects in stage geography, design composition, and visual imagery are used to develop the student’s communication skills in the area of scenic design. Prerequisites: TA 111, 112, 114, 115, 301, 316.

TA 312  
Scene Painting (3)  
Training to extend the student’s basic skills in traditional methods and techniques of scene painting. Prerequisites: TA 111, 112, 114, 115, 316.

TA 313  
Scene Design II (3)  
Basic principles of scenic design for the theater. Prerequisites: TA 311.

TA 314  
Lighting Design I (3)  
Practical and theoretical study of lighting the stage. Developing student awareness of how light affects objects in the theater laboratory and the crafting of intelligent lighting plots. Prerequisites: TA 112, 301, 316.

TA 316  
Technical Theater Lab (2)  
Laboratory course designed to allow students to further develop stagecraft skills and gain additional practical production experience. Prerequisite: TA 111, 112, 114, 115.

TA 317  
Theater Technologies (2)  
The study and practical application of advanced techniques and materials in all aspects of stagecraft, including drafting and drawing for the scene shop, the organization and planning of scenery construction within a production calendar, and problem solving on current department productions. Prerequisites: TA 111, 112, 114, 115, 316.

TA 321  
Costuming (4)  
An introduction to the theory, techniques, and design principles of contemporary stage costume. Prerequisite: TA 301.

TA 323  
Costume Production (2)  
A study and practical application of stage costume construction techniques, beginning and advanced. Students will participate in the construction of costumes for departmental productions. Prerequisite: 3 credits of theater arts. Maximum 6 credits.

TA 326  
Pattern Development (1-4)  
A study and practical application of the methods for creating patterns for theatrical costumes, including flat drafting, draping, and period pattern adaptation. Prerequisites: TA 321, 325.

TA 327  
Costume Technology (1-4)  
A study and practical application of costume craft and decorative techniques, including fabric dyeing and painting and accessories fabrication. Prerequisite: TA 321.

TA 330  
Multicultural Theater (1-4)  
Exploration of the diversity of our society through theater—comparing and contrasting the works of certain ethnic specific writers and those writers often considered to be in the mainstream of the modern theater.

TA 341, 342  
Intermediate Acting (4, 4)  
Study and practice in acting technique, scene analysis, and interpretation of dramatic materials for performance. Must be taken in sequence. Prerequisites: TA 141, 142.

TA 344  
Voice for the Actor II (3)  
An intermediate course in the principles of voice production for the stage, concepts and techniques for adapting the voice to various stage environments, and techniques necessary for analyzing stage speech problems and developing appropriate solutions. Prerequisite: TA 344.

TA 346  
Stage Dialects (4)  
An introduction to the method and techniques of dialect production for theatrical performance, including a survey of basic American, English, and European dialects.

TA 353  
Workshop Theater II: Acting-directing (1-3)  
Workshop in acting-directing. Maximum: 6 credits toward major requirements. Prerequisite: consent of instructor.

TA 354  
Workshop Theater II: Technical Theater (1-3)  
Workshop in technical theater. Maximum: 6 credits toward major requirements. Prerequisite: consent of instructor.

TA 355  
Workshop Theater II: Management And Public Relations (1-3)  
Workshop in theater management and public relations. Maximum: 6 credits toward major requirements. Prerequisite: consent of instructor.

TA 364  
Directing I (4)  
Study and practice in play analysis and directing of scenes. Prerequisites: TA 141, 142, 301.

TA 370  
Topics: Theater, Media, and Culture (4)  
Study of a variety of dramaturgical, cultural, and historical issues as they appear in film, television, and other theatrical media. From quarter to quarter topics might include: Shakespeare on Film, 50s: Media and Culture, American Cinema, American Culture, and Vietnam on Film.
TA 309
Special Studies (Credit to be arranged.)
TA 401/501
Research (Credit to be arranged.)
TA 402/502
Independent Study (Credit to be arranged.)
TA 404/504
Cooperative Education/Internship (Credit to be arranged.)
TA 405/505
Reading and Conference (Credit to be arranged.)
TA 406/506
Special Projects (Credit to be arranged.)
TA 407/507
Seminar (Credit to be arranged.)
Recent topics have included Introduction to Playwriting and Women, Theater, and Society.
TA 408/508
Workshop (Credit to be arranged.)
TA 409/509
Practicum (Credit to be arranged.)
TA 410/510
Selected Topics (Credit to be arranged.)
*TA 414/514
History of Decor (4)
A historical survey of period decor focusing on furniture and interior architectural detail from ancient Egyptian to modern times with emphasis on the aesthetic, cultural, and political expressions of clothing. Course may be taken out of sequence. Prerequisite: upper-division standing.
TA 430/530
Scene Design III (3)
Advanced study of scenic design problems and concept development. Maximum: 6 credits. Prerequisite: TA 313.
*TA 435/535
Lighting Design II (3)
Advanced lighting design skills and techniques involving the practical application of script analysis and collaboration techniques while working in the department’s Studio Theater lighting student–directed, one-act plays and/or participating in departmental stage productions. Prerequisite: TA 314. Maximum: 6 credits.
*TA 441/541
Acting Studio (1-5)
Advanced studio work and individual projects in acting to consist of analysis, preparation, rehearsal, and studio performance of dramatic material representing a range of forms and styles. Maximum: 18 credits. Prerequisites: 16 credits of acting or equivalent plus instructor approval based on audition and/or interview.
TA 453/553
Directing II (4)
Advanced practice in analysis and directing of plays for public performance. Prerequisites: TA 455 or equivalent experience.
TA 460/560
Advanced Directing (3)
Specific problems in directorial methods and styles for presentation in public performance. Prerequisite: TA 455 or equivalent experience.
TA 464/564, 465/565
Development of Dramatic Art (4, 4)
Survey of dramatic literature and theater history from ancient times to the emergence of the modern theater in the 19th century. The course is chronological in its presentation but each term may be taken separately.
TA 467/567, 468/568
Modern Theater I, II (4, 4)
A consideration of theater and drama from the late 19th and early 20th century to the present: Representative plays chosen from continental European, English, Irish, and American repertoires. Examination of key directors and trends in staging. Course may be taken out of sequence. Prerequisite: upper-division standing.
TA 469/569
Women, Theater, and Society (4)
An examination of ways in which women and sexuality have been represented in Western theatrical production since the Greeks. Selected topics will be analyzed relating feminist theories to the creation of the theater arts by women, with consideration of cultural contexts in which they work. Study of artistic practice by women in relation to issues of power, representation, and access.
TA 471/571
Theater History: Periods and Topics (1-4)
Concentrated study of a particular period and/or topic in theater history: for example, Ancient Greek Theater and Drama, Medieval and Renaissance Theater, Theater and Science, Restoration/18th Century Drama, American Theater and Drama, and Theatrical Expressionism. Prerequisite: TA 464 and 465 or appropriate sophomore inquiry course.
TA 472/572
Theater History: Major Figures (1-4)
Concentrated study of the contribution of one or more major theater artists: for example, Ibsen, Stanislavsky, Appia, Brecht, and Artaud. Prerequisite: upper-division standing.
TA 474/574, 475/575
Playwriting I, II (4, 4)
A sequence in playwriting involving analysis of dramatic structure, practical application of playwriting techniques. Must be taken sequentially. Prerequisite: 8 credits of TA and/or English.
TA 503
Thesis—(Credit to be arranged.)
TA 511
Introduction to Theater Research (2)
An introductory course in research methods and bibliography for graduate study in theater.
The Graduate School of Social Work offers the only accredited graduate social work education programs in Oregon. The School was established at Portland State University in 1962 by a resolution of the Oregon Legislature. Two degree programs are offered by the School: a Master of Social Work (M.S.W.) degree, which is fully accredited by the Council on Social Work Education, and a Ph.D. degree in Social Work and Social Research.

In addition to the two degree programs, the School is composed of four other educational components: Extended Studies Program in Social Work, which offers non-degree programs; the Regional Research Institute for Human Services, a research facility developed by the Graduate School of Social Work for applied research and development; the Child Welfare Partnership, a cooperative program with the State Office for Services to Children and Families; and the Center for the Study of Mental Health Policy and Services, which is a social work research development center.

### GRADUATE PROGRAMS

#### MASTER OF SOCIAL WORK

The Master of Social Work degree program is designed to prepare graduates for entry into advanced practice in direct human services, community-based practice, or social service administration and management. Students may focus their studies on a selected field of service: mental health, children, youth, and families, the elderly; health care; and services in the juvenile justice or adult correctional systems among others.

The curriculum combines concurrent on-campus coursework and field work in a range of human service organizations. Typical practice settings are mental health programs, public welfare and human service agencies, schools, hospitals and health care centers, courts, family service agencies, correctional services, community planning agencies, legislative offices, child and youth service agencies, neighborhood centers, multicultural service centers, and programs for persons who are elderly. Each student’s program of study consists of a combination of required and elective courses. The required core courses are in the following areas: (1) social work practice, (2) social welfare policy and services, (3) human behavior in the social environment, and (4) research. Core courses also cover content in the following areas: economic and social justice, populations at risk, ethics and values, and diversity. Additionally, students participate in field instruction during each of the two years of full-time study.

Three plans of study are available. In the two-year (six-term) option, students enroll in two or three courses and participate in a field practicum each term. In the three-year (nine-term) option, students enroll in two courses per term in the first year and complete additional courses and practica during the next two years. In September 1997, a three-year distance learning option admitted a cohort of students in four sites around the state of Oregon to a concentration in direct human services practice. In the four-year option, students enroll in two courses per term in the first and third years and field practicum and one class per term in the second and fourth years. Day and evening sections of many courses are available. In fall 2001 implementation will begin of a three-year distance graduate education option. The program will be located on the campuses of
Blue Mountain Community College in Pendleton and Southern Oregon University in Ashland and will be delivered through a combination of on-site instruction and interactive technology.

Also, a certificate in gerontology may be obtained through the Institute on Aging while the student completes requirements for the M.S.W. degree.

Admission to the M.S.W. Program. Students are admitted fall term only. Admission is selective; applications and all supporting materials must be submitted by February 1 for consideration for admission in September. Early submission of application materials is encouraged. Further information and application forms may be obtained by writing Graduate School of Social Work, Portland State University, P.O. Box 751, Portland, OR 97207. The telephone number is 503-725-3049 or 725-4712. Application materials for the M.S.W. program are also available on-line through the school’s Web site at: http://www.ssw.pdx.edu.

The M.S.W. program of the Graduate School of Social Work is open to qualified graduates from colleges and universities of recognized standing. Undergraduate preparation should include a broad background in liberal arts and sciences including human biology, social sciences, and humanities. Competence in written and spoken English is important for social work practice. Students whose native language is not English should include the scores of the Test of English as a Foreign Language (TOEFL). Students who have completed up to one year of study toward the M.S.W. degree at another graduate school of social work accredited by the Council on Social Work Education may apply for admission and transfer of credits.

Students admitted to the master’s program are required to be in continuous enrollment unless an approved leave of absence has been granted. A student who withdraws from the School must reapply.

Degree Requirements. The Portland State University general master’s degree requirements are listed on page 62. The social work M.S.W. student is expected to complete a minimum of 90 quarter credits of required and elective courses of which 54 credits are in classroom instruction and research and 36 credits are in field instruction. Research requirements may be satisfied by completion of 8 credits in research courses.

Ph.D. in Social Work and Social Research
The Graduate School of Social Work offers the Ph.D. in Social Work and Social Research. The program offers a unique opportunity to integrate practice, policy, and research. The program prepares students to understand critical social welfare problems, to conduct research and policy analysis related to solutions, to take responsibility for program development and administration in the human services, and to teach and provide leadership. The Regional Research Institute for Human Services and the Child Welfare Partnership with the Oregon State Office of Services for Children and Families are major resources for the program.

Degree Requirements. The course of study is focused for each student by analysis of a specific social problem. The course of study consists of three major components: required and elective coursework; required and elective practicum experiences; and dissertation research. A comprehensive examination must be passed. An oral dissertation defense provides a final opportunity for examination of the area on which work has focused.

Course Requirements. Each doctoral student is required to select a social problem for study. In the course of doctoral studies, the student will become knowledgeable about the theoretical background necessary to understand this area of interest and proficient in the methodology appropriate for study of the problem, as well as other research approaches.

The coursework for the program consists of three elements: core requirements designed to ensure a solid foundation in the history, theory, and organization of social responses to social problems; social research methods and statistics and supervised research practicum experience; and elective courses related to the student’s plan of study. Students declare a cognate area in which they work simultaneously toward the M.S.W. degree. Students are required to attend a Ph.D. seminar that is open to all Ph.D. students and faculty.

A research practicum is required. This involves participating in ongoing or agency- or university-based research under the direction of a qualified supervisor. A teaching practicum (M.S.W. required) may be elected.

Comprehensive Examination. A written comprehensive examination is taken in two parts. The first part is taken after completion of foundation coursework. The second part is written when coursework is substantially complete.

Dissertation. After successful completion of the comprehensive examination, the chairperson and dissertation committee is appointed. The student develops a dissertation proposal which is defended orally before the dissertation committee and other interested faculty and students.

When the proposal has been approved by the dissertation committee and by the University Human Subjects Research Review committee, the student is considered a candidate for the Ph.D. in social work and social research. A dissertation must be completed following the outlines of the approved proposal. Students must maintain continuous registration while engaged in dissertation research.

Final Examination. At the completion of doctoral work, the student defends the completed dissertation before the dissertation committee and other interested faculty and doctoral students. The student is expected to demonstrate knowledge of the topic selected for study, and to show that the dissertation is a contribution to knowledge in the problem area.

Admission to the Ph.D. Program. Applicants for admission to this program must have a master’s degree in social work or have a master’s degree in a related field enhanced by experience in the field of social welfare. Students with a master’s degree in another field may enter a combined program, in which they work simultaneously toward the M.S.W. and Ph.D. degrees. Applicants must have demonstrated capacity for creative and independent work. At least two years’ practice experience in social work or a related field is recommended. Students must apply to and be accepted into the doctoral program after admission to the University as a graduate student. As part of the admission procedure, students must furnish:

- transcripts of undergraduate and graduate studies;
- scores for the Graduate Record Examination (GRE);
- an example of scholarly writing;
- names of four references, two of whom must be academic;
- a statement outlining the social problem area in which the student is interested, and
- a personal statement.

Application must be made by January 15. Admission to the program is in the fall term only.

Residence. The program will require the equivalent of approximately three year’s full-time work to complete if the student enters with an M.S.W. Three consecutive terms must be spent in full-time residence (9 credit hours or more) on campus. The minimum credit hour requirement for the Ph.D. is 90, of which at least 27 must be devoted to the dissertation. The Portland State University general doctoral degree requirements are listed on page 62.
EVALUATION.

curriculum through the use of research and it enhances professional and training and make extended studies in the area of social work and social problems accessible statewide.

In cooperation with professional organizations, the Extended Studies Program in Social Work is prepared to provide conferences, lectures, new career learning, and recent information on practice, human behavior, policy, management, supervision, and ethics. Further information may be obtained by writing to the Graduate School of Social Work, Portland State University, PO. Box 751, Portland, OR 97207.

CHILD WELFARE PARTNERSHIP

The Child Welfare Partnership in 1994, the Graduate School of Social Work, the State Office for Services to Children Families (SCF), and the School of Extended Studies entered into a partnership aimed at improving the delivery of child welfare services to abused and neglected children and their families throughout Oregon. The Child Welfare Partnership consists of three interdependent components:

1. graduate social work education;
2. child welfare training programs; and
3. child welfare research and evaluation.

Further information may be obtained by writing to the Graduate School of Social Work, Portland State University, PO. Box 751, Portland, OR 97207.

CENTER FOR THE STUDY OF MENTAL HEALTH POLICY AND SERVICES

The Graduate School of Social Work added another structural component in May 1996, the Center for the Study of Mental Health Policy and Services: a Social Work Research Development Center (CSMHPS).

The purpose of the CSMHPS is to produce high-quality social work researchers in an active program of public mental health research. This is accomplished through: (1) an organized program of faculty development, (2) recruitment, support, and mentorship of doctoral students in mental health research; (3) expansion and strengthening of current relationships with other research organizations at Portland State University, Oregon Health Sciences University, and community agencies as research collaborators and research practicum sites; and (4) enhancement of the institutional infrastructure, including a specialized mental health library collection.

COURSES

Courses with an asterisk (*) are not offered every year.

SW 301 Introduction to Social Work (4)

An introduction to the profession and practice of social work. Assists students to clarify decisions concerning selection of social work as a profession, relates beginning social science theory to the profession. Prerequisites: 4 credits of psychology and 4 credits of sociology.

SW 399 Special Studies (Credit to be arranged.)

SW 405 Reading and Conference (Credit to be arranged.)

Consent of instructor.

SW 407 Seminar (Credit to be arranged.)

Consent of instructor.

SW 410 Selected Topics (Credit to be arranged.)

Restricted to students in the Child and Family Studies degree program.

SW 500 Field Instruction I-VI (Credit to be arranged.)

SW 501 Data Analysis in Social Work Research (Credit to be arranged.)

Focuses on advanced techniques of qualitative research, data analysis through secondary analysis and/or potential statistics. Introduction to the production of research through secondary analysis and/or original research. Prerequisite: SW 550.

SW 502 Laboratory (Credit to be arranged.)

SW 503 Thesis I, II III (Credit to be arranged.)

SW 504 Cooperative Education/Internship (Credit to be arranged.)

SW 505 Reading and Conference (Credit to be arranged.)

SW 506 Selected Topics (Credit to be arranged.)

SW 507 Workshop (Credit to be arranged.)

SW 510 Social Work and Social Welfare Policy (4)

Advanced policy course analyzes the history of selected health care policies, programs, and disease categories within the context of social work practice in health care. Contemporary outcomes in current health and service delivery systems presented from a policy perspective. Develops skills for policy change. Prerequisite: SW 520.

SW 522 Issues in Child Welfare (4)

Focuses on advanced techniques of qualitative research, data analysis through secondary analysis and/or potential statistics. Introduction to the production of research through secondary analysis and/or original research. Prerequisite: SW 550.
SW 532
Generalist Social Work Practice III (4)
Based on the generalist social work practice model, intervention and evaluation at multiple levels: individual, family, group, organization, and community. Family-centered approach is focused upon. Development of interviewing skills related to assessment with cultural considerations. Collaboration and team work examined. Introduction to evaluation. Application of strengths and ecological systems perspectives to assessment. Prerequisite: SW 530, corequisite SW 500.

SW 533
Advanced Practice for Direct Human Services I (4)
Reviews the problem-solving process and introduces the process of constructing a frame of reference or model of practice. Addresses the evaluation of practice and theories for understanding individuals and how they both seek and resist change. Application of theories to the direct social work practice process with consideration of the importance of culture, strengths, and empowerment. Prerequisite: SW 532, corequisite SW 500.

SW 534
Advanced Practice for Direct Human Services II (4)
Addresses the family of origin perspective on family systems theory. Both the worker's and the client's families of origin considered as sources of influence on the intervention process. Provides advanced consideration of family centered practice and integration of other theories with family systems theory. Prerequisite: SW 533, corequisite SW 500.

SW 535, 536
Advanced Community-Based Practice I, II (4, 4)
Emphasizes the person-environment interplay with a focus on collaborative partnerships between local citizens, leaders, associations, and institutions. Development of planning and intervention at the individual, family, neighborhood, and service delivery system levels. Utilizes an assets-based, community development perspective to assist individuals, families and communities in identifying and meeting community needs. Focuses on working as a team, utilization of community resources, and selection of appropriate intervention strategies. Explores individual and community resilience while assisting in implementing local strategies that strengthen protective factors and lower risk factors for ethically and culturally diverse families, schools, neighborhoods and communities. Prerequisite: SW 532, corequisite SW 500.

SW 537, 538
Advanced Social Service Administration and Management I, II (4, 4)
Examines ways of providing high quality, effective, culturally appropriate social work services. Emphasizes interpersonal and technical skills to manage social work programs, teams, and work groups. Courses focus upon managing organizational issues and human resources. Builds on the philosophy of consumer-centered management. Prerequisite: SW 532, corequisite: SW 500.

SW 540
Human Behavior in the Social Environment (4)
Examines the biological, psychological, social, and cultural factors interacting across the life course from infancy to old age from an ecological systems perspective. Discusses and critiques major theoretical approaches to human development in its social and cultural contexts. considers populations at risk and the impacts of racism and other forms of oppression on development. Emphasis on the sources of diversity such as ethnicity, race, gender, sexual orientation, and handicapping conditions.

SW 545/645
Advanced Theories of Human Behavior in the Social Environment I (4)
Provides an opportunity for students to explore current theoretical developments in the social and behavioral sciences which apply to social work practice including populations at risk. Taught in different sections each of which covers social and cultural contexts for human behavior in the social environment. May be repeated for additional credit. Prerequisite: SW 540.

SW 546
Human Sexuality and Social Work (4)
Physiological, psychological and cultural perspectives of human sexuality presented and discussed. Application of social work assessment and change strategies relevant to personal and interpersonal dynamics of sexual and intimacy concerns. Prerequisites: SW 532, 540.

SW 550
Foundation of Social Work Research (4)
Introduction to research in social work. Stresses the importance of research to social work practice and policy. Introduction to qualitative and quantitative social work research, group designs, single case studies, and evaluation of programs and of practice. Introduction to critical consumption of research, to ethics of social work research. Considers scientific method, systematic inquiry, relation of theory to research, problem formulation, measurement, sampling, design, and data collection.

SW 554
Social Work and Health Care (4)
Provides an overview of social work across health care settings and systems. Physiological, psychosocial, and cultural components of illness considered for individuals, families, and groups. Multidisciplinary teamwork, crisis intervention, and ethical dilemmas in health care practice explored. Prerequisite: SW 532.

SW 555
Social Work Perspectives on Mental Health Disorders (4)
Explores the major mental disorders from an understanding of the biological, psychological, social, and cultural determinants of mental illness. Emphasis given to the changing roles of social workers who work with people diagnosed with a mental illness. Topics include history and theories of mental illness, DSM IV classification systems, biopsychosocial modal assessment which includes diagnostic interviewing, specialty topics (e.g., homelessness, poverty) and critique of conventional and emerging empirical perspectives. Prerequisites: SW 532, SW 540.

SW 557
Social Work with Depressed Clients (4)
Depression is the leading mental health problem known today. Because depressive disorders are characterized by a complex of biological, psychosocial, and intrapsychic components, this course will take a multi-focal approach to assessment and treatment. The goal is for students to be able to determine the most effective interventions for particular subgroups of depressed clients. Includes dual diagnosis and suicide assessment. Prerequisite: SW 532.

SW 558
Abuse and Trauma: Theory and Intervention (4)
Examines the impact of trauma and abuse on adults, children, and families. Acute and long-term sequelae will be identified, emphasizing the interaction of traumatic and developmental effects. An integrative biopsychosocial intervention model for working with individuals, groups, and families will be explored through crisis and trauma, psychodynamic, constructivist, narrative, and feminist theories. Policy practice and advocacy issues, ethical and ideological issues, and current clinical, research, and policy debates in the field will be identified and discussed. The relationship of clinical narrative to contemporary social discourse about abuse and trauma will set the framework for the course, including clinical and empirical knowledge regarding effects of abuse and trauma and efficacy of treatment. Prerequisite: SW 532.

SW 559
Brief Therapy and Other Short-term Social Work Interventions (4)
Overview of brief therapy theories, principles, and interventions including crisis intervention. Application to a variety of clients in a diversity of settings. Client selection, assessment, goals and objectives, intervention, and evaluation covered. Additional focus on types of crisis interventions with integration of applicable theories and strategies. Includes case presentations. Prerequisite: SW 532.

SW 560
Social Work with Lesbians, Gay Males, and Bisexuals (4)
Designed for social work students who want to acquire information on social work with and on behalf of lesbians, gay men, and bisexuals. Educates students to problems lesbians, gay men, and bisexuals face as the result of oppression as well as to the strengths and resilience of this population. Provides academic and experiential content necessary for understanding the culture and social reality of lesbian, gay and bisexual people, examining societal and internalized homophobia and heterosexism, developing practice skills, and identifying policy issues relevant to lesbian, gay, and bisexual rights.

SW 561
Clinical Social Work with Groups (4)
Deals with the theory and practice of clinical social work within the wide range of groups in which social workers participate as workers and co-workers. Articulates issues related to group
process and development as to their effect on the group experience. Includes leadership strategies and diverse populations. Prerequisites: SW 532.

SW 562 Social Work with the Dying and Their Families (4)
Examination of death at all stages of the life cycle with exploration of its effects on the individual, the family, and the helper. Review of theory and research about grief and reconsideration of schema about grief resolution. Coping emphasized, given unique cultural and religious differences. Consideration of the role of technology in end-of-life decision making. Discusses social service assistance for persons with HIV/AIDS, their families, partners, and friends. Prerequisite: SW 532.

SW 563 Social Work with Children and Their Families (4)
Explores clinical social work practice with troubled children and their families. Critically examines theories of normal and abnormal development as well as alternative models of intervention and their applications. Delineation and demonstration of specific clinical strategies and techniques with opportunities to practice and apply to field work. Prerequisite: SW 532.

SW 564 Social Work with Adolescents and Their Families (4)
Explores clinical social work practice with troubled adolescents and their families. Critically examines theories of normal and abnormal development as well as alternative models of intervention and their applications. Delineation and demonstration of specific clinical strategies and techniques with opportunities to practice and apply to field work. Prerequisite: SW 532.

SW 566 Staff Development and Supervision (4)
Supervision and staff development presented and examined in relation to direct management and community-based social work practice. Roles of supervision in a variety of contexts addressed. Models and techniques compared and contrasted with relevant theoretical perspectives. Prerequisite: SW 532.

SW 567 Community Practice with the Long-term Mentally Ill (4)
Focuses on the characteristics of people with long-term mental illness, the impact of the illness on the individuals and their families, and the basic practice principles that contribute to effective community practice with this population. Topics include psychosocial rehabilitation, case management, psychopharmacology, dual diagnosis, and advocacy. Deinstitutionalization and other relevant policies are reviewed. Students are expected to incorporate field work with mentally ill populations or families into class assignments/projects. Prerequisite: SW 532.

SW 570 Program Evaluation (4)
Models of program evaluation, organizational context, evaluation and relationship to treatment, supervisory, and managerial functions in human service organizations. Focuses on the process of conducting a program evaluation, with emphasis on data analysis. Computerized database management models reviewed in relation to evaluation activities. Prerequisite: SW 550.

SW 571 Social Work with Alcoholics, Substance Abusers, and Their Families (4)
Designed to provide students with foundation knowledge in direct social work practice with substance abusers and their families. The primary goal is to assist students in further development and application of knowledge learned in prior methods courses to their work with substance abusers and their families. Prerequisite: SW 532.

SW 572 Women's Issues in Social Work Practice (4)
Examines the experiences of women from developmental, multi-cultural, and gender perspectives. Policy and practice considerations are addressed and applied to circumstances and concerns of women as a group.

SW 573 Social Work with Populations at Risk (4)
Considers forces associated with identification of groups at risk. Examines selected sub-groups using homeless mentally ill people as exemplars. Discusses the structural and cultural differences associated with each. Reviews and explicates policies, principles, and practice of social work with populations at risk.

SW 574 Social Work with the Frail Elderly (4)
Focuses on social work with the frail and vulnerable aged. Social, psychological, physical, and environmental aspects of frailty and vulnerability in old age are studied, and social work interventions with this population are explored.

SW 575 Ethnic Competence in Social Work Practice (4)
Examines different perspectives on acquiring ethnic competence. Reviews different practice methods such as ethnic sensitive practice, cultural awareness, counseling cross culturally and culturally competent practice. Each of the approaches will be examined to determine their relevance, loci, and methods for promoting services which are sensitive to, and appropriate in, the cultural context of the client system. Employs a systems framework for understanding the impact of cultural differences on the helping process. Students will also learn how values and customs of the larger society shape experiences and life chances for ethnically diverse people.

SW 576 Developing Culturally Competent Organizations (4)
Covers the cultural competence model and how organizations and systems prepare for diversity. The genesis and the elements, principles, and value base of the model explored. Examples for agencies and systems preparing for diversity presented. Terminology, theory, and cross-cultural literature are employed by students developing action plans to promote greater competency in agencies and organizations.

SW 577 Social Work with Addictive Behaviors (4)
Presents the basic concepts of addiction, as they relate to various types of chemical dependency and other addictive behaviors such as eating disorders, basic information concerning selected drugs, current approaches of intervention with the addict, and, the role of contextual systems, with emphasis on the family. Also considers how the addictive behavior affects contextual systems.

SW 578/678 Social Work in the Juvenile and Criminal Justice Systems (4)
Grapples with the problem of criminal and delinquent behavior. Considers current controversies concerning the origin and meaning of the behavior, the socio-economic and multi-cultural characteristics of contemporary life contributing to delinquency and crime, social work’s role in the “people-processing system”; the major current treatment modalities and inquiry into their effectiveness; social policy issues confronting the juvenile justice system; and current policy and practice trends toward incarceration and away from rehabilitation. Prerequisite: SW 520.

SW 580 Case Management in Human Services (4)
Presents the development, concepts, and practice principles utilized in the design and delivery of case management within the human service area. Emphasizes strengths and relationships. Perspectives of client, direct service practitioner, planner, and the administrator explored.

SW 601 Research (Credit to be arranged.)

SW 603 Dissertation (Credit to be arranged.)

SW 605 Reading and Conference (Credit to be arranged.)

SW 607 Seminar (Credit to be arranged.)

SW 610 Selected Topics (Credit to be arranged.)

SW 620 Social Problem Analysis: Assessment Phase (4)
First in a three course sequence. Focuses on the assessment phase of the problem solving process applied to the student's selected social problem. Emphasis on gathering the information necessary for a comprehensive analysis of the social problem. Involves examination of the major models of society and relevant cultural, historical, and policy-practice issues.

SW 621 Social Problem Analysis: Intervention Phase (4)
Intervention phase of the social problem solving process applied to the student’s selected social problem. Focus is on the development of a multi-level intervention plan based on review of empirical literature. Program theory and theories of change will be explored. Analysis of policy-level interventions and related effectiveness literature. Construction of logic models. Integration of policy and practice will be emphasized. Prerequisite: SW 620.

SW 622 Social Problem Analysis: Evaluation Phase (4)
Evaluation phase of the problem solving process applied to social problems. Focus on evaluation of decisions and their implementation in social agencies. Multi-level monitoring (population-at-risk, programs, and client) taught as part of continuing intervention planning. Attention given to developments in client tracking, quality control,
multi-level impact analysis, policy/practice outcome measurement, research design and statistical analysis. Internet search techniques and database management techniques taught. Refor-mulation of problems as the outcome of evaluation to help students tie together the phases of problem solving. Prerequisite: SW 621.

SW 630  
**Empirical Methods of Knowledge Building in Social Work (4)**
Examines the assumptions and paradigms under which research is developed in social work. Research methodology for both quantitative and qualitative approaches is applied to research in an agency setting. Alternative methods of monitoring of practice effectiveness and evaluating agency service data discussed. Research methodology of positivist research examined. Ethical issues in research which involves data generated by vulnerable populations discussed. Emphasizes the social implications of the use of research findings.

SW 631  
**Empirical Methods in Social Work Research (4)**
Provides preparation in the selection of research designs and statistical methods appropriate for social work research questions. Discusses descriptive and inferential statistical methods common in social work research and considers validity and reliability issues in measurement. Empirical social work studies analyzed and discussed. Includes an application and analysis laboratory. Prerequisite: SW 630.

SW 632  
**Empirical Methods of Data Analysis in Social Work Research (4)**
Using existing data bases from social service agencies and studies at the Regional Research Institute, course provides substantial laboratory experience in data analysis and interpretation. Emphasis placed on strategies of analysis, including multivariate and nonparametric techniques, with comparison of findings obtained by alternative statistical procedures. Additional emphasis on interpretation and presentation of analysis to highlight policy implications. Prerequisite: SW 631.

SW 640  
**Research Practicum Seminar (2)**
Seminar designed to enable students to explore together their experiences in their respective research projects. Students will gain appreciation of the entire process as well as a deepening knowledge through comparison of experiences. Pass/no pass only. Prerequisite: SW 632.

SW 641, 642  
**Research Practicum (Credit to be arranged.)**
Participation in a research study under the supervision of appropriate faculty. Opportunity to master research skills which fit the student's learning needs. Time on site working on the project is 200 hours: this can be in a block or spread over up to three quarters, the pattern to be determined by student and principal investigator on the project. Portfolio of research experiences developed. Prerequisite: SW 632.

**SW 650  
History and Philosophy of Social Welfare and Social Work (4)**
History, philosophy, and ethics of social welfare and social work. Focus is on the interaction of social work and social welfare developments with wider economic, social, and political forces. Major philosophical, theoretical, and political issues, the growth and impact of professionalization, and the development of social work methods. Traces historical changes in social work's identification of and response to vulnerable populations.

SW 651  
**Integrative Writing Seminar (4)**
Course addresses integration of social work theory, practice, policy, and research. Synthesis developed through writing of manuscript for submission to professional journal, a grant application, or other suitable product. Assistance with submission provided. Prerequisite: completion of Part I of comprehensive examinations.

SW 690  
**Teaching Practicum (4)**
Focuses on the practical aspects of teaching in the social work field. Salient theoretical and practical issues in adult learning explored. Considers the fundamental ideas of social work education. Discusses curriculum planning and issues around human diversity and teaching. Distance learning issues and techniques examined. Supports student teaching experiences.

SW 700  
**Postbaccalaureate Professional Development (Credit to be arranged.)**

**REGIONAL RESEARCH INSTITUTE FOR HUMAN SERVICES**

120 Ondine  
503-725-4040

N.M. Koroloff, Director

The Regional Research Institute for Human Services was established in 1972 by the Graduate School of Social Work at Portland State University with a grant from the Social and Rehabilitation Service (HEW). The RRI has undertaken more than 162 projects, many of them national in scope, in such fields as child and adult mental health, family and child welfare, child care, employment, juvenile justice, alcohol and drug services, rehabilitation, and self-help and support groups. A national program of research in the field of mental health was initiated in 1984 when the Research and Training Center on Family Support and Children's Mental Health began. In 1996, the Center for the Study of Mental Health Policy and Services was funded—the fourth social work research development center in the nation. In 2000, the Robert Wood Johnson Foundation established a national program office at the Regional Research Institute—Reclaiming Futures: Building Community Solutions to Substance Abuse and Delinquency.

The institute enjoys a base of support from the University and has received more than $30 million in grants and contracts.

The aim of the institute is to improve the manner in which social services and service delivery systems are designed, managed, and evaluated. Motivated by a concern for social change, the institute is prepared to examine all aspects of the complex process by which human service policies and services are initiated and modified. By bringing a range of consumers, family members, and researchers into its activities, the institute creates new approaches to old problems. It strives to set high standards for applied social research and to provide a research environment for graduate training.

Some recent projects:
- Participation in a national study of managed care for Medicaid women and children in rural Oregon.
- Development of ways for parents and professionals to collaborate on behalf of children with emotional disabilities.
- Development and testing of ways to increase family participation in service delivery systems.
- A study of integrated services for women affected by violence and co-occurring disorders.
- Development of an enhanced employment program for individuals with long-term mental illness.
- A study of supported housing services for persons with severe mental illness.
- Development of an empowerment-based approach to helping children with challenging behavior in Head Start programs.
- A project comparing consumer- and nonconsumer-operated assertive case management teams for persons with major mental illnesses.
- Evaluation of a strengths/needs based approach to the delivery of child welfare services.

Each project is developed with the collaboration of some sector of the community, and an advisory group is often associated with each program. Staff from state and local agencies, consumers of services and their families, as well as representatives from education, industry, medicine, law, and social work contribute their knowledge and experience to the institute.
The College of Urban and Public Affairs at Portland State University allows students with interests in urban problems and processes to take advantage of the resources of an urban university situated in a major metropolitan area. Opportunities for urban education are available through nine graduate degree programs and four undergraduate degree programs. Undergraduate students may also complement any bachelor’s degree offered by the University with a minor in community development, political science, or health studies by simultaneously conforming to their curricular requirements.

The B.A. or B.S. degree in administration of justice prepares students for a variety of public service careers in the criminal justice system. The B.A. or B.S. in health studies provides training for many professional careers in health promotion and health education. In addition, a student may add coursework necessary to qualify for application to the fifth-year teacher education program. The B.A. or B.S. in political science prepares students pursuing careers in political science, public administration, international organizations, domestic government, communications, or law.

Graduate students can select from among a wide variety of degrees. The M.S. in administration of justice permits students to understand the complex interactions among functional parts of the adult criminal justice system. The graduate certificate in gerontology enables students to develop an understanding of the needs and problems of the elderly in urban areas. The M.A./M.S. in health studies is designed to prepare students for professional careers in education or research in fields of health promotion and disease prevention, and wellness. The Master of Public Administration (M.P.A.) is designed for persons aspiring to positions of management in government and related areas. The Master of Public Health degree (M.P.H.) prepares practitioners and researchers to identify and meet the health needs of defined populations. The M.A./M.S. in political science is designed to prepare students for Ph.D. work in political science or public administration and policy, to pursue graduate-level work in law, or to enter public and private sector jobs requiring advanced knowledge of the political process. The Master of Urban and Regional Planning (M.U.R.P.) permits students to develop professional planning skills, and the Master of Urban Studies (M.U.S.) permits development of urban research capabilities. The Ph.D. program in urban studies prepares students for academic employment and research. The Ph.D. in public administration and policy prepares students for careers in public affairs and administration, including college-level teaching.
The Mauric Clark Fellowship is awarded annually to an outstanding full-time Ph.D. student. The recipient must be a doctoral candidate with an approved dissertation outline who intends to use the fellowship to support research activities. The Admissions Committee reviews applications and selects a number of qualified candidates whose names are forwarded to the dean for final review and selection.

UPA Memorial Award. One award is given annually to an outstanding student in the College of Urban and Public Affairs. The award is given to students who are recommended by their divisions and chosen by a faculty committee.

INTERINSTITUTIONAL PROGRAMS

MASTER OF PUBLIC HEALTH

The School of Community Health and the Division of Public Administration in the Hatfield School of Government jointly offer the M.P.H. degree as participants in a statewide, tri-university public health program, consisting of Portland State University, Oregon Health Sciences University, and Oregon State University. Students in the Portland metropolitan area take a common core of five courses taught on the campuses of OHSU and PSU. These core courses cover the essential knowledge areas of public health as set forth by the Council on Education for Public Health, the national accrediting body for graduate schools of public health and graduate programs in community health/preventive medicine. The core courses consist of: biostatistics, epidemiology, environmental health, health systems organization, and health behavior. Specialty tracks of health education/health promotion and health administration and policy are provided by the School of Community Health and the School of Government, respectively. Please refer to the departmental listings for information on specific degree requirements and admission criteria. The M.P.H. program is accredited by the Council on Education for Public Health.

SCHOOL OF COMMUNITY HEALTH

450 Urban Center
503-725-4401
www.healthed.pdx.edu

B.A., B.S.—Health Studies
Minor in Community Health
M.A., M.S.—Health Studies
M.P.H.—Participating school in Master of Public Health

The mission of public health is to create the conditions in which people can be healthy and community health education plays an important role. It blends public health and related research with a range of strategies such as community organizing, behavior change, public education, and policy development to help create healthy environments. Health educators seek both to aid in the voluntary selection of healthy behaviors and to encourage the development of environmental conditions that support good health. Interest in health education/health promotion has opened new opportunities for health educators in community, business and industry, school, and medical care settings.

The School of Community Health offers programs leading to degrees at both the undergraduate and graduate levels. Both levels provide training for professional careers in health education, health promotion, and health-related fields. The baccalaureate degrees provide the necessary background for advanced studies, leading to graduate degrees in health-related fields such as medicine, physical therapy, dentistry, and nursing. The school also offers a minor in community health. A variety of professional courses are open to all students in the University.

UNDERGRADUATE PROGRAMS

The undergraduate health studies curriculum is designed around a common core of courses and three separate tracks: community health education, physical activity/exercise, and health sciences.

The undergraduate health studies major is designed around a core of required courses and provides students with a variety of electives from which to choose in completing a program of study individually designed to meet their educational objectives.

The community health education concentration prepares students for a wide variety of careers related to health education. It also provides a foundation for the pursuit of graduate study.

The physical activity/exercise concentration is designed for students with interests in physiological and programmatic aspects of exercise, nutrition, fitness, and physical activity. Coursework in practical and applied techniques follows a basic framework in the biological sciences and prepares students for internship experiences related to health promotion.

The health sciences concentration provides students seeking admittance into professional programs in medicine, dentistry, physical therapy, or occupational therapy the opportunity to earn an undergraduate degree in health studies while completing preprofessional prerequisites.

The minor in community health consists of coursework selected from the list of common degree requirements and provides students with a foundation of theory and content related to community health.

A grade of C- or better is mandatory in all coursework required for degrees in the School of Community Health. With the exception of internship credits, courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling the majors or minors offered within the school. Students must fulfill all general University requirements in addition to specific school requirements. Majors and minors may not take required courses under the pass/no pass option.

B.A./B.S. IN HEALTH STUDIES

In addition to meeting the general University degree requirements, the major in health studies must meet the following requirements:

Common Degree Requirements (32) Credits

Stat 244 Introduction to Probability and Statistics 4
PHE 250 Our Community, Our Health 4
PHE 295 Health Promotion and Disease Prevention 4
PHE 350 Health and Health Systems 4
PHE 443 Environmental Health 4
PHE 450 Epidemiology 4
PHE 404 Internship 8
Concentration: Credits
Community Health Education .................................. 44
Physical Activity/Exercise .................................... 56
Health Sciences .................................................. 16

Community Health Education Concentration
In addition to the previously listed common degree requirements, students pursuing a concentration in community health education must complete 44 credits from among the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHE 275</td>
<td>Stress Management</td>
<td>4</td>
</tr>
<tr>
<td>PHE 326</td>
<td>Drug Education</td>
<td>4</td>
</tr>
<tr>
<td>PHE 335</td>
<td>Human Sexuality</td>
<td>4</td>
</tr>
<tr>
<td>PHE 335</td>
<td>Consumer Health Issues</td>
<td>4</td>
</tr>
<tr>
<td>PHE 361</td>
<td>Care and Prevention of Injuries</td>
<td>4</td>
</tr>
<tr>
<td>PHE 363</td>
<td>Communicable Disease and Chronic Health Problems</td>
<td>4</td>
</tr>
<tr>
<td>PHE 365</td>
<td>Health Promotion Programs for Children and Youth</td>
<td>4</td>
</tr>
<tr>
<td>PHE 410/510</td>
<td>Multicultural Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 410/510</td>
<td>Cancer Prevention</td>
<td>4</td>
</tr>
<tr>
<td>PHE 410/510</td>
<td>Film and Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 410/510</td>
<td>Women's Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 425/525</td>
<td>Nutrition for Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 446</td>
<td>Community Health Principles and Practices</td>
<td>4</td>
</tr>
</tbody>
</table>

*PHE 448 Health Education Techniques and Strategies ................................................................. 4

Physical Activity/Exercise Concentration
Adviser: G. Brodowicz
In addition to the previously listed common core requirements, students pursuing a concentration in physical activity/exercise must complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bi 301</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 302</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>Bi 303</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PHE 370</td>
<td>Applied Kinesiology</td>
<td>4</td>
</tr>
<tr>
<td>PHE 425/525</td>
<td>Nutrition for Health</td>
<td>4</td>
</tr>
</tbody>
</table>

*PHE 448 Health Education Techniques and Strategies ................................................................. 4

Community Health Minor
To earn a minor in community health, students must complete at least 28 credits. At least 16 credits must be taken in residence at PSU, and 16 credits must be upper division.

The requirement for the minor includes:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHE 250</td>
<td>Our Community, Our Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 295</td>
<td>Health Promotion and Disease Prevention</td>
<td>4</td>
</tr>
<tr>
<td>PHE 350</td>
<td>Health and Health Systems</td>
<td>4</td>
</tr>
<tr>
<td>PHE 443</td>
<td>Environmental Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 450</td>
<td>Epidemiology</td>
<td>4</td>
</tr>
</tbody>
</table>

Upper-division credits in School of Community Health ............. 8

Minimum Degree Requirements plus 16 credits selected from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHE 361</td>
<td>Care and Prevention of Injuries</td>
<td>4</td>
</tr>
<tr>
<td>PHE 363</td>
<td>Communicable Disease and Chronic Health Problems</td>
<td>4</td>
</tr>
<tr>
<td>PHE 365</td>
<td>Health Promotion Programs for Children and Youth</td>
<td>4</td>
</tr>
<tr>
<td>PHE 370</td>
<td>Applied Kinesiology</td>
<td>4</td>
</tr>
<tr>
<td>PHE 410/510</td>
<td>Multicultural Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 410/510</td>
<td>Cancer Prevention</td>
<td>4</td>
</tr>
<tr>
<td>PHE 410/510</td>
<td>Film and Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 410/510</td>
<td>Women's Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 425/525</td>
<td>Nutrition for Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 435/535</td>
<td>Women's Reproductive Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 456/556</td>
<td>Health Aspects of Aging</td>
<td>4</td>
</tr>
<tr>
<td>PHE 466/566</td>
<td>Mindbody Health</td>
<td>4</td>
</tr>
<tr>
<td>PHE 470</td>
<td>Mindbody Health Program Planning/Evaluation in Health Education</td>
<td>4</td>
</tr>
<tr>
<td>PHE 480</td>
<td>Controversial Issues in Health</td>
<td>4</td>
</tr>
</tbody>
</table>

*Common degree requirements plus 16 credits

<table>
<thead>
<tr>
<th>Subject</th>
<th>Premedicine</th>
<th>Predentistry</th>
<th>Prephysical Therapy</th>
<th>Preoccupational Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Chemistry</td>
<td>32</td>
<td>28</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Physics</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Math/Statistics</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Psychology</td>
<td>12</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Sociology</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Computer Science</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

SCH 48* 48* 48* 48*

Total Track Credits 114 106 122 95

Students who wish to become licensed teachers in health education must complete a required list of courses or their equivalent before applying to the Graduate School of Education for admission into the Graduate Teacher Education Program (see requirements page 205). These courses are required whether the applicant holds a degree in the field or holds a degree in another subject field. Courses in the School of Community Health can be taken to complete the Oregon Continuing Teaching License in Health, and selected courses can provide opportunities for multi-disciplinary research on a wide range of public health issues. The mission of the center is to blend theoretical and practical perspectives in an effort to improve public health. The center emphasizes social/structural strategies for public health problems and also addresses individual behavioral approaches. The Center for Public Health Studies

450 Urban Center
503-725-4401

The Center for Public Health Studies provides opportunities for multi-disciplinary research on a wide range of public health issues. The mission of the center is to blend theoretical and practical perspectives in an effort to improve public health. The center emphasizes social/structural strategies for public health problems and also addresses individual behavioral approaches. The
be taken to complete the Oregon Continuing Teaching License in Physical Education.

All courses taken for the teaching field requirement must be passed with a C- or better grade and must average a 3.00 GPA. Prospective teachers should contact the School of Community Health for specific requirements.

GRADUATE PROGRAM

The School of Community Health graduate programs are designed to prepare students for professional work in the fields of community health, health education, and health promotion in a wide variety of settings. Students may also complete a plan of study that prepares them to pursue an advanced degree in a health-related area.

The School of Community Health offers two graduate degrees: (1) a Master of Public Health (M.P.H.) degree in health education/health promotion offered in cooperation with the Oregon Health Sciences University and Oregon State University, and (2) a Master of Arts/Master of Science (M.A./M.S.) degree in health studies. In addition, the Institute on Aging offers a graduate certificate in gerontology. Students with a wide variety of undergraduate degrees and professional experience are admitted to the School of Community Health.

To apply for admission to the graduate degree program, students are required to:

- Have a cumulative undergraduate GPA of 3.00 or higher.
- Complete the Graduate Record Examination.
- Provide three letters of recommendation from individuals qualified to assess the applicant's potential as a graduate student.
- Submit a 500-word essay describing the applicant's professional goals as well as their goals while in the program in community health.

In addition to providing academic transcripts, a resume of professional work-related experience (if any) should be submitted. The application deadline for fall admission is January 15 of each year. Students pursuing the M.P.H. degree must complete at least 60 credits with a cumulative GPA of 3.00 or higher, including a core of 15 credits, 27 additional required credits (including an internship or thesis), and 12-15 credits in a specialty area. Specialty areas include advocacy and social change; aging; behavior change/health behavior; media, health, and communication; physical activity, research; urban health; and women's health. The student's academic adviser must approve all program electives. Students completing an internship are required to successfully pass a written comprehensive examination, and students completing a thesis are required to pass an oral defense of the thesis.

Students pursuing the M.A./M.S. degree must complete at least 45 graduate credits with a cumulative GPA of 3.00 or higher, including a core of 29 credits, and 18 additional credits from one of two concentrations: mindbody health or physical activity/exercise. All M.A./M.S. students must complete a thesis and an oral defense of the thesis.

A complete description of the required and elective courses available to graduate students in the School of Community Health is available on the school's Web site at http://www.healthed.pdx.edu/.

COMMUNITY HEALTH COURSES

Courses with an asterisk (*) are not offered every year.

PHE 199 Special Studies (1-3)

PHE 250 Our Community: Our Health (4)

PHE 252 First Aid (4)

PHE 275 Stress Management (4)

PHE 295 Health Promotion/Disease Prevention (4)

PHE 301 Health and Health Systems (4)

PHE 305 Consumer Health Issues (4)

PHE 350 Communicable Diseases and Chronic Health Problems (4)

PHE 361 Care and Prevention of Injuries (4)

PHE 363 Health Promotion Programs for Children and Youth (4)

PHE 370 Applied Kinesiology (4)

PHE 401/501 Research (Credit to be arranged.) Consent of instructor.

PHE 402/502 Independent Study (Credit to be arranged.) Consent of instructor.

PHE 404 Cooperative Education/Internship (Credit to be arranged.) A work-related experience designed to connect and integrate theory with specific activities in a "real" environment under supervision. Field hours for students taking the internship will be 30 hours per credit per term. Additionally, students will be expected to attend scheduled seminars.

PHE 407/507 Seminar (Credit to be arranged.) Maximum 9 credits.
PHE 408/508
Workshop (Credit to be arranged.)

PHE 409/509
Practicum (Credit to be arranged.)

PHE 410/510
Selected Topic (Credit to be arranged.)

PHE 425/525
Nutrition for Health (4)
Examines basis for and quality of current nutritional requirements, standards, and guidelines. Studies evidence regarding current food fads and controversies. Analyzes personal dietary practices. Prerequisites: PHE 250 and six hours of upper-division coursework in PHE.

PHE 443
Environmental Health (4)
Designed to enable the student to understand and evaluate complex environmental health issues induced by waste products generated by modern technology. Specific topics include water quality, air quality, solid and hazardous waste, occupational health, ionizing and non-ionizing radiation, chemical contamination of foods, food additives, animal transmission of disease, noise, and selected current topics. Prerequisites: PHE 250 and six hours of upper-division coursework in PHE.

PHE 446
Community Health Principles and Practices (4)
Provides an overview of the scope of problems in the field of community health. Examines disease prevention/ control, community health service delivery, the structure of official/unofficial agencies, and policy/decision-making processes. Course includes field work in a community health agency. Prerequisite: PHE 350.

PHE 448
Health Education Techniques and Strategies (4)
Introduces students to basic techniques and strategies used in planning and carrying out health education programs in a variety of settings. Special emphasis is given to scope and sequencing skills, objective writing, selection/development of health education resources/materials, and methods for and use of technology in the delivery of health education programs. Prerequisite: PHE 350.

PHE 450
Epidemiology (4)
Introduces principles and methods of epidemiological investigation of infectious/non-infectious diseases. Illustrates methods by which properly conducted studies of the distribution and dynamic behavior of disease in a population can contribute to understanding of etiologic factors, modes of transmission, and pathogenesis of disease. Prerequisite: PHE 363.

PHE 453/553
Women's Reproductive Health (4)
Critical review of current public health and socio-political issues in women's reproductive health. Both national and international topics are discussed. Students apply health knowledge in identifying and seeking solutions to the issues which concern health care providers, consumers, and policy makers. Prerequisites: PHE 250 and 335.

PHE 456/556
Health Aspects of Aging (4)
Examination of health-related changes that occur with aging. Review of current scientific literature with an investigation of physiological mechanisms responsible for changes in functional capacity throughout life. Explores the role of physical activity and nutrition in healthy aging. Prerequisites: PHE 295 or 250, and Bi 302.

PHE 466/566
Mind/Body Health: Disease Prevention (4)
An investigation of the integral relationship between body and mind and how that relationship manifests itself in health, illness, and promotes healing. Philosophical and scientific foundations of mind/body health are explored. Mind/body research and its application within allopathic medicine is examined as is research and practice in complementary fields of medicine and health care. Prerequisites: Psy 204, PHE 363.

PHE 467/567
Mind/Body Health: Human Potential (4)
Theory and research in the human potential movement is integrated with research in mind/body medicine to produce an expanded understanding of human transformative capacities. Transformative practices including meditation, yoga, imagery, biofeedback, and sport are examined. Elements common to all transformative practices are identified. Prerequisite: PHE 466/566.

PHE 471
Program Planning and Evaluation in Health Education: Theory and Skill Development (4)
Examines program planning models for health education. Includes needs assessment, program goals and objectives; program content and methodologies, evaluation, budgeting, and proposal writing. Students will gain practical experience in program planning and evaluation through community-based learning. Field work required. Prerequisite: twelve hours of upper-division coursework in PHE.

PHE 473/573
Physiology of Exercise (4)
Examination of physiological responses and adaptations to exercise, with a focus on the interaction of metabolic, endocrine, neuromuscular, circulorespiratory, and environmental factors related to fitness and health. Prerequisites: Bi 301, 302.

PHE 474
Exercise Prescription and Training (4)
Focuses on the basic principles and skills needed for developing and implementing physical fitness programs. Emphasis includes appropriate/safe training procedures and the underlying principles which support such methods, applications to younger and older populations, gender differences, motivational strategies and health behavior theory, and exercise leadership skills. A significant portion of the course involves experiential learning. Prerequisites: PHE 295, 473.

PHE 475/575
Exercise Testing Techniques (4)
Theory and application of assessment methods/tools used to evaluate physiological function relating to fitness and health, including laboratory and field tests. Significant emphasis on developing skills necessary for conducting tests on apparently healthy individuals. Assessment categories include anaerobic performance, muscular strength and endurance, flexibility, body composition, cardiovascular function. Prerequisites: Mth 111, PHE 473.

PHE 480
Controversial Issues in Community Health (4)
Examines controversial issues in the field of community health (e.g., violence, women's health, medical technology, access to health services). Group presentations required. Prerequisites: senior status and 12 credits of PHE.

PHE 503
Thesis (Credit to be arranged.)

PHE 504
Cooperative Education/Internship (Credit to be arranged.)
PHE 511  Foundations of Public Health (3)
Provides students with an understanding of the field of public health. It provides knowledge about public health principles, concepts, values, tools, and applications. Key topics in the class include the mission of public health, the politics of public health, determinants of health in the United States, major models and strategies for health promotion, and community perspectives on public health interventions.

PHE 512  Principles of Health Behavior I (3)
Prerequisites: graduate standing.

PHE 513  Health, Behavior, and the Social Environment (3)
Survey science research and theory concerning the social, economic, and cultural influences on health-related behavioral risk factors. Attention will be given to the divisions within society that affect the disease process, including the etiology and consequences of a wide range of adverse health outcomes. The central focus of each unit of study will be on the implications of a socio-ecology of health for community health practice and public health policy. Prerequisites: PHE 512.

PHE 518  Topics in Health Studies (3)
In-depth analysis of current research and related program developments on one or more health-related topics. Topics vary according to term and instructor. Course may be taken more than once on different topics. Topics may include: mind/body health, nutrition, international health, environmental health, physical activity/exercise, and health of special populations. Prerequisites: graduate standing.

PHE 520  Qualitative Research Design (3)
Presents the philosophical and theoretical bases supporting the development of alternate research paradigms in human inquiry. Essential characteristics of three major alternate paradigms (interpretivist, constructivist, and critical theory) are introduced. Validity, reliability, and related concepts are examined from the perspective of each paradigm. Alternate strategies for inquiry are presented and ethical considerations related to qualitative forms of inquiry are addressed. Prerequisite: graduate standing.

PHE 521  Quantitative Research Design and Analysis (3)
Introduction to quantitative research design and statistical analysis. Emphasis on development of a research proposal. Topics include descriptive research, experimental and quasi-experimental research, univariate statistical procedures, and methods for planning and writing a research report. Prerequisite: Stat 244.

PHE 523  Epidemiology Survey (3)
Designed as an introduction to epidemiology for students in the Oregon Master of Public Health program. Epidemiology is the science of public health that is concerned with the distribution of disease in populations and risk factors that influence health outcomes. Students will learn epidemiologic methods to identify and solve public health problems. The course will cover measures of disease occurrence, screening for disease, study design, association and causation, biases and confounding as well as genetic epidemiology. An emphasis is placed upon critical reading of the epidemiologic literature and to addressing a public health problem with epidemiologic methods.

PHE 541  Drugs, Behavior, and Society (3)
Emphasis will be placed on the relationship between drug and alcohol use and a broad range of social circumstances associated with socioeconomic status, race/ethnicity, and gender. Particular attention will be given to policy and service issues regarding the treatment and prevention of alcohol and drug abuse from a public health perspective. Prerequisite: graduate standing.

PHE 546  Urban and Community Health (3)
Examines the social factors associated with urban health and quality of life, such as social class, gender inequalities, and racism. Emphasis will be placed upon community development and collective responses to the maintenance of health rather than upon individualized health promotion and disease prevention strategies.

PHE 550  Health Promotion Program Planning (3)
Addresses practical applications of health promotion theories. Presents examples of planning, implementation, and evaluation of health promotion programs in a variety of settings as guides for the development of health promotion programs.

PHE 576  Physical Activity, Health, and Disease (3)
Review of current research to explore the relationships between physical activity/exercise and health/disease. Primarily investigates the role of physical activity in disease prevention, but also examines the impact of a variety of physical conditions (e.g., obesity, aging, etc.) on the potential for an active lifestyle. Topics include cardiovascular diseases, musculoskeletal disorders, respiratory conditions, metabolic diseases, cancers, and mental health. Prerequisite: PHE 473.

PHE 577  Exercise, Nutrition, and Performance (3)
Review of metabolic processes and physiological mechanisms involved in nutrient utilization in humans. Examination of the relationships between nutrition and health, with an emphasis on analysis of current research. Topics include carbohydrates, fats, protein, vitamins/minerals, fluids, weight control, and ergogenic aids. Analysis of nutritional modifications presumably related to exercise, health, and performance. Prerequisites: PHE 473.

PHE 580  Concepts of Environmental Health (3)
An intensive course designed to familiarize students with fundamentals of environmental health from a scientific and conceptual perspective. Topics are considered within multi-causal, ecological, adaptive systems, and risk-assessment frameworks. Includes consideration of biological, chemical, and physical agents in the environment which influence public health and well-being. Prerequisite: graduate standing.

PHE 601  Research (Credit to be arranged.)

PHE 605  Reading and Conference (Credit to be arranged.)

SERVICE COURSES IN PHYSICAL EDUCATION

*PE 185  Physical Education: Co-ed (1)
A variety of activities taught for physiological and recreational values.

*PE 280  Physical Education Service Courses: Women (2)
A variety of activities taught for physiological and recreational values. Two hours per week plus field trips and extended experiences.

*PE 285  Physical Education Service Courses: Co-ed (2)
A variety of activities taught for physiological and recreational values. Two hours per week plus field trips and extended experiences.
The Mark O. Hatfield School of Government is one of three schools within the College of Urban and Public Affairs. It consists of three academic divisions and four institutes: Division of Administration of Justice; Division of Political Science; Division of Public Administration; Criminal Justice Policy Research Institute; Executive Leadership Institute; Institute for Nonprofit Management, and the Institute for Tribal Administration. The Center for Watershed Management; and the Institute for Nonprofit Leadership Institute; Institute for Nonprofit Justice Policy Research Institute; Executive Administration and policy Ph.D. program are also housed in the School of Government.

PH.D. PROGRAM IN PUBLIC ADMINISTRATION AND POLICY
The Ph.D. in public administration and policy is an interdisciplinary program designed to prepare individuals to pursue research, teaching, and/or consulting in a variety of settings ranging from private universities to policy research organizations, public agencies, and private consulting firms. The degree may be pursued on a full- or part-time basis.

The degree program is administered through the Hatfield School of Government, but draws on faculty from the entire College of Urban and Public Affairs. Faculty members are drawn from public administration, political science, economics, policy sciences, and urban studies.

The curriculum focus is governance, the integrated study of administrative and policy processes in the public sector. This curriculum is taught against the backdrop of globalizing economies and political systems seeking to recognize governance in a modern world characterized by both cooperation and conflict among the public, private, and non-profit organizations.

Finally, the doctoral program in public administration and policy is designed to enable students to approach governance as an applied area of knowledge in which theory informs and is informed by real-world practice.

Degree Requirements
Prerequisites. All students entering the doctoral program must have completed a basic course in statistics either upon entering or within the first year of study. No degree credit will be awarded for this coursework.

Credit Requirements. The Ph.D. in public administration and policy requires 85 credit hours of required and elective coursework. In addition, the student receives 27 credits for work on his or her dissertation. The credits are distributed as follows:

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core coursework</td>
<td>18</td>
</tr>
<tr>
<td>Field Specializations</td>
<td>25</td>
</tr>
<tr>
<td>Public Administration and Policy</td>
<td>24</td>
</tr>
<tr>
<td>Research Methods</td>
<td>18</td>
</tr>
<tr>
<td>Subtotal</td>
<td>85</td>
</tr>
<tr>
<td>Dissertation credits</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>112</td>
</tr>
</tbody>
</table>

To meet these credit requirements, relevant past academic coursework and previous professional experience is recognized in these ways:

- Up to 30 credits of coursework related to public policy, public administration, or research methods completed at the master's level may be counted toward the Ph.D. degree.
- Up to 12 additional credits may be waived from the student's dissertation field based on the individual's related master's-level work or professional experience.

Students with extensive academic background and/or experience in using quantitative or qualitative research methods may waive one or more required research methods courses with permission of their academic adviser and substitute other coursework.

Coursework. The core curriculum (must be completed during the first year)

<table>
<thead>
<tr>
<th>Core Courses (18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA 620 Seminar in the American Political System</td>
</tr>
<tr>
<td>PAP 611 Theoretical Foundations of Governance</td>
</tr>
<tr>
<td>PAP 612 Governance: Public Administrator and Rule of Law System</td>
</tr>
<tr>
<td>PAP 614 Contemporary Governance</td>
</tr>
<tr>
<td>PAP 616 Policy Process</td>
</tr>
<tr>
<td>PAP 664 Organization Theory and Behavior</td>
</tr>
</tbody>
</table>

Specialization Fields (25)
Sub-field in public administration and policy
- PAP 615 Administrative Process | 3 |
- Electives | 9 |
- Sub-field in public policy
- USP 661 Policy Analysis: Theoretical Foundations | 3 |
- USP 615 Economic Analysis of Public Policy | 4 |
- PAP 610 Political Economics | 3 |
- Electives | 3 |

Dissertation Field: 24 credits of electives designed to prepare a student to write his or her dissertation topic. These are to be chosen with the student's field committee.

Research Methods (18)
- PS 593 Philosophy of Social Science | 3 |
- SOC 591 Theoretical Perspectives in Sociology | 3 |
- USP 510 Research Design I | 2 |
- USP 510 Research Design II | 2 |
- USP 532 Data Collection | 4 |
- USP 534 Data Analysis | 4 |
- SP 534 Qualitative Methods in Communications Research | 3 |
- USP 610 Qualitative Research Design | 3 |

Specialization Fields
All students must complete two specialization fields. One of these combines the two basic elements in governance, public administration and policy. The other is designed to provide background that enables the student to prepare a dissertation. Some courses in the public administration and policy field are required, while others are electives the student chooses with his or her field committee.

The student's field committee is composed of faculty members chosen and organized by the student. This committee should be composed of three members: one who can examine the student in public administration, one in policy, and one in the subject matter of the student's dissertation field. Students may draw committee members from the faculty of the College of Urban and Public Affairs and from the University at large. The student's committee also prepares the Part B comprehensive examination (see below).

Individuals should choose the chair of their committee the fall term in which they complete the Part A comprehensive examinations. The remaining two committee members should be chosen by the beginning of the following spring term.
Comprehensive Examinations
In order to evaluate one’s ability to integrate, analyze, and critique the diverse materials and ideas presented in the PAP curriculum, students are required to complete a two-part comprehensive examination. Part A of the examination (core exam) covers the 18 credit hours of foundational core courses and is given in the fall term following completion of this course sequence. Part B of the comprehensive examination (field exam) covers all coursework done in the student’s two field areas. It is prepared by the faculty committee that assisted the student in selecting field coursework and is administered as soon as practicable after completion of field work. Part B consists of a written examination followed after a two-week interval with an oral examination over the written work submitted.

Dissertation Requirements
The dissertation process is designed to evaluate the student’s ability to successfully conduct a significant, independent applied research project. As such, it represents the culmination of a student’s doctoral studies and must effectively demonstrate the student’s capacity to conduct research of a professional quality.

After completing the comprehensive examination series, a student should form his or her dissertation committee. This committee advises the student during the entire dissertation process. As soon as possible after appointment of the student’s dissertation committee, he or she should begin to frame a dissertation research proposal with the advice and assistance of this committee. This proposal is presented to the faculty and students in a formal colloquium. If the committee approves the proposal, the student starts work on his or her dissertation project. A minimum of one year (27 credits) of dissertation research is required and there is a five-year limit on the time allowed to complete the project. During the time a student is completing the dissertation project, he or she must be continuously enrolled for 3 credits each term. When the dissertation is finished, an oral defense of the findings is held, and, if approved by the student’s committee, the degree is awarded.

Advising
All incoming students in the PAP Ph. D. program are advised by the program coordinator for the first term of their coursework. They are then assigned a faculty member who is their academic adviser until completion of Part A of the comprehensive exam. All students are required to meet with their adviser at least once per term. Until passage of Part B (fields), students are advised by the chair of their field committee. After passage of Part B of the comprehensive, their dissertation chair advises them until graduation.

Program Rules
Limitation on Graduate/Undergraduate Courses. Students in the PAP program are strongly advised to use no more than 12 credits of courses offered simultaneously at the 400- and 500-level in support of their degree programs. These courses must be an integral part of the student’s program, and courses with the same content must not be available on a purely graduate basis.

Limitation on By-Arrangement Courses. Admitted Ph.D. students may utilize no more than 12 credits of Research and/or Reading and Conference credits (501/601 and 503/603). In cases where more than 12 credits are needed because of the lack of regularly scheduled classes, the student must submit a written request waiver to their adviser for approval.

Continuous Enrollment and Leave of Absence. All students admitted to the Ph.D. program in public administration and policy must be continuously enrolled until graduation, except for periods in which they are absent for an approved leave. Taking a minimum 3 credits per term during the regular academic year will constitute continuous enrollment. Failure to register without an approved leave may result in termination of a student’s admission. Students may have no more than six terms of approved leave.

Grade Requirement. A student who receives more than 9 credits of C+ or below in all coursework attempted after admission to the Ph.D. program will be dropped from the program.

Performance in Core Courses. A grade of C+ or below received for work performed in a core course is not considered passing. A PAP doctoral student who receives a grade of C+ or below in one of the core course offerings during fall or winter terms may not proceed to take the core course offerings in the subsequent term until the course in which a failing grade was received has been repeated, and the failing grade is replaced with a passing grade of B- or better.

Research and Teaching Opportunities
The doctoral degree in public administration and policy offers a number of research and teaching opportunities.

Hatfield Residency Program. This program, conducted in cooperation with the Hatfield School’s Executive Leadership Institute, places qualified doctoral students in public and not-for-profit agencies as paid residents. Agency placements provide students opportunities to conduct dissertation research, gain advanced research experience, and receive assistance in financing their educational objectives.

Graduate Research Assistantships. Depending on available funds, a number of graduate research assistantships are available each year. Students must apply for these by February 1 of the academic year in which the assistantships are desired. Assistantships pay tuition and a small additional stipend.

Teaching Opportunities. All doctoral students in the program are strongly encouraged to teach prior to completing their Ph.D. programs. There are a number of opportunities available in this regard.

Teaching apprenticeships with a university faculty member. These duties can include teaching one or more class sessions, assistance in preparing courses, and correction of examinations.

Teaching in the University Studies Program. Advanced doctoral students may also teach in sophomore inquiry coursework sponsored by the Hatfield School of Government. This coursework deals largely with citizen participation and leadership. Advanced doctoral students may also propose and teach a senior Capstone course at the undergraduate level. These are interdisciplinary community-based courses required of all PSU seniors. These students will develop and implement strategies to deal with a community issue in cooperation with one or more community organizations.

Additional Information
Students wanting more information concerning the Ph.D. in public administration and policy may consult the following Web site: http://www.upa.pdx.edu/SOG/

For admission information and materials you may download the application forms from the above Web site, or write, Admissions Officer, Ph.D. Program in Public Administration and Policy, Hatfield School of Government, College of Urban and Public Affairs, Portland State University, P.O. Box 751, Portland, OR 97207-0751; email, johnsonro@pdx.edu; or call, 503-725-4044.

You will automatically be sent an application packet and relevant information concerning the program.

It is also suggested that you set up a personal telephone interview with the program coordinator, if feasible, to discuss the program and your personal academic plans. You may do this by calling 503-725-3921, 503-725-3920, or by e-mailing eyla@pdx.edu.

Additional Information Concerning Program Regulations
Additional rules governing satisfactory completion of field area examinations, presentation of dissertation, and timely completion of doctoral program requirements, appear in the General Handbook for the Public Administration and Policy Doctoral Program issued to incoming students. Students are responsible for maintaining a personal familiarity with the rules and regulations governing the doctoral program.
ADMINISTRATION OF JUSTICE

550 Urban Center
503-725-4014
www.upa.pdx.edu/AJ/

B.A., B.S.
Minor
M.S.
Ph.D.—Participating division in Urban Studies Doctoral Program and Public Administration and Policy Doctoral Program

UNDERGRADUATE PROGRAM

Administration of justice is an academic discipline that critically examines the establishment of legal norms and their use by public and private agencies to control such symptoms of social disorder as crime, delinquency, mental illness, civil wrongs, and discrimination. The undergraduate administration of justice program at Portland State University focuses on the major problems of crime and delinquency. A major goal is to prepare undergraduate students to compete for a limited number of such entry positions as law enforcement officer, investigator, trial assistant, probation and parole officer, and correctional counselor. The undergraduate program also provides academic preparation for advanced study leading to graduate degrees in the administration of justice, law, and other related fields, including such PSU programs as Master of Public Administration, Master of Urban Studies, Ph.D. in urban studies, and Ph.D. in public administration and policy.

Students with other career objectives and with an interest in justice-related issues are invited to enroll in any division course for which prerequisites are met.

In addition to the important skills and knowledge that may be acquired from other curricula within the University, students who major in administration of justice are presented with an opportunity to attain the following specific characteristics that are necessary for successful careers in the justice field:

- **Knowledge** of the causal theories of criminal and delinquent behavior; the legal framework within which justice should be administered; historical and contemporary justice processes; and the problems of administering justice and their potential solutions.

- **Professional ability** to be literate, articulate, scientific, thinking, reasonable, and practical.

- **Personal qualities** of being ethical and compassionate.

The achievement of these important characteristics is facilitated through a program of study that requires students to complete certain lower-division courses before enrolling in upper-division courses. Course prerequisites are enforced to ensure that students have acquired the necessary knowledge and skills to fully benefit from more advanced courses.

Cooperative education placements in Portland metropolitan area administration of justice agencies are available to qualified students.

**Requirements for Major.** In addition to meeting the general University degree requirements, students who major in administration of justice must complete a set of special degree core and supporting courses. Some of these courses have prerequisites and students should read course descriptions in the current PSU Bulletin before registration. Majors are required to achieve a cumulative GPA of 2.50 in the following AJ core courses:

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJ 200 Introduction to Adult Criminal Justice Process</td>
<td>4</td>
</tr>
<tr>
<td>AJ 210 Introduction to Juvenile Justice Process</td>
<td>4</td>
</tr>
<tr>
<td>AJ 220 Crime Literacy</td>
<td>4</td>
</tr>
<tr>
<td>AJ 330 Crime Control Theory and Strategy</td>
<td>4</td>
</tr>
<tr>
<td>AJ 380 Criminal Justice Research</td>
<td>4</td>
</tr>
<tr>
<td>AJ 409 Senior Practicum</td>
<td>8</td>
</tr>
<tr>
<td>AJ 410 Special Topics (selected from a variety of 4-credit courses designed to meet professional interests)</td>
<td>12</td>
</tr>
<tr>
<td>AJ 420 Criminal Law and Legal Reasoning</td>
<td>4</td>
</tr>
<tr>
<td>AJ 440 Constitutional Criminal Procedures</td>
<td>4</td>
</tr>
<tr>
<td>AJ 460 Court Procedures</td>
<td>4</td>
</tr>
<tr>
<td>AJ 490 Senior Colloquium</td>
<td>4</td>
</tr>
</tbody>
</table>

Total AJ core credits | 56 |

**Supporting Courses**

<table>
<thead>
<tr>
<th>Supporting Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 105 Computing Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>Sp 215 Introduction to Intercultural Communication</td>
<td>4</td>
</tr>
<tr>
<td>Phl 202 Elementary Ethics</td>
<td>4</td>
</tr>
<tr>
<td>Psy 434 Introduction to Psychopathology</td>
<td>4</td>
</tr>
<tr>
<td>Soc 200 Introduction to Sociology</td>
<td>4</td>
</tr>
<tr>
<td>Soc 337 Minorities</td>
<td>4</td>
</tr>
<tr>
<td>Soc 418 Criminology and Delinquency</td>
<td>4</td>
</tr>
</tbody>
</table>

Total supporting credits | 28 |

Total major requirements | 84 |

Pass/no pass credits will be allowed for those courses listed above that are offered only on a pass/no pass basis.

**Requirements for a Minor.** To earn a minor in administration of justice a student must complete a minimum of 31 credits (13 credits of which must be taken in residence at PSU), to include the following:

**Required of all minors**

<table>
<thead>
<tr>
<th>Required of all minors</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJ 200, 210, 220, 330</td>
<td>16</td>
</tr>
</tbody>
</table>

Five upper-division AJ electives (must be approved by an administration of justice adviser) | 15-20 |

Total | 31-36 |

All courses submitted to satisfy the requirements for a minor in Administration of Justice must be passed with a grade of "C" or above. Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling division minor requirements.

GRADUATE PROGRAM

The Division of Administration of Justice offers a graduate program that leads to a Master of Science in Administration of Justice, with a concentration in the adult criminal justice system. This degree provides qualified students with an opportunity to understand the complex interactions among the functional parts of the adult criminal justice system, i.e., law making, law enforcement, adjudication, and treatment of criminals by public and private agencies.

A general systems approach is focused by a sequence of advanced perspective seminars which consider the major social forces that influence the performance of the system. A set of research courses presents the skills necessary to apply knowledge toward the solution of system-wide problems. Elective courses permit students to specialize in areas of personal interest.

Administration of justice graduate courses also support other PSU degree programs, such as the Master of Public Administration, Master of Urban Studies, Ph.D. in urban studies, and Ph.D. in public administration and policy.

**Admission Requirements.** Admission is made fall term only. All students must meet the following requirements:

1. An earned baccalaureate degree in a discipline that provides necessary academic preparation for the program of study, e.g., administration of justice, criminology, criminal justice, political science, public administration, and sociology. Students without adequate undergraduate preparation may be required to successfully complete supplemental graduate-level courses designated by the Division of Administration of Justice.

2. Satisfactory scores on the verbal, quantitative, and analytical sections of the GRE General Test.

3. A written statement of academic and professional goals and their relationship to the Master of Science in administration of justice program of study, supplemented by an oral interview with program faculty.
4. Applicants whose native language is not English must present a minimum score of 560 on the Test of English as a Foreign Language (TOEFL).
5. A GPA of 3.0 or higher.

Degree Requirements. Students must complete the following 45 credits:

**Substantive Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJ 511 Historical Perspective of Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>AJ 515 Theories of Crime and Justice</td>
<td>3</td>
</tr>
<tr>
<td>AJ 520 Legal Perspective of Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>AJ 530 Political/Economic Perspectives of Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>AJ 550 Comparative Perspective of Criminal Justice</td>
<td>3</td>
</tr>
</tbody>
</table>

**Research Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>USP 530 Research Design</td>
<td>3</td>
</tr>
<tr>
<td>PA 531 Data Analysis and Statistics for Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>Supporting Elective Courses</td>
<td>18</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Total 45

A thesis must be written and orally defended to demonstrate mastery of the knowledge in the substantive core courses and skill in its application to create new knowledge and to solve system-wide problems.

Due to present scheduling restrictions, students may not be able to complete all degree requirements until the end of their second academic year in this program.

**Courses**

Courses with an asterisk (*) are not offered every year.

**AJ 199**
Special Studies (Credit to be arranged.)
Pass/no pass option.

**AJ 200**
Introduction to Adult Criminal Justice Process (4)
An open system analysis of the decisions made in the adult criminal justice process. Contemporaneous problems and issues, shifting emphases, replacement of one ideology with another, and current operational practices will be analyzed focusing around these critical decisions. Alternatives and the dilemmas of change in policing, prosecution, court administration, and correctional programs will be considered.

**AJ 210**
Introduction to Juvenile Justice Process (4)
A general overview of the various activities and decisions involved in the processing of young law violators. Examination of the justice system specially designed to handle children, consideration of the many stages in the system, and considerations of issues in juvenile justice policy formulation.

**AJ 220**
Crime Literacy (4)
A comprehensive survey of the historical trends and current picture of crime in America that examines: (1) methods used to collect crime data, (2) factual aspects of specific crimes, including definitions and analytical statistics, (3) characteristics of victims and arrestees, (4) public opinion, and (5) personal protection.

**AJ 302**
Police Dynamics (3)
A critical examination of the various professional and community influences on police behavior, together with the social problems generally created by such forces, and potential remedial actions.

**AJ 317**
Punishment and Corrections (3)
Examines theories of punishment as they relate to the various treatment and rehabilitation policies and practices that affect offenders in institutional and community settings. Specific approaches being examined include mandatory sentencing laws, offender education programs, institutional and community drug treatment programs, boot camps, house arrest, intensive supervision probation, work release, and community work service.

**AJ 320**
Theories of Crime and Justice (4)
A comprehensive survey of the major theories of criminal justice and criminology. Course will overview theories from the biological, psychological, social learning, critical, labeling, social-disorganization, conflict, and culture-conflict perspectives on crime and deviance. Philosophical discussions on justice will be reviewed as will theories of discretion in the criminal justice system, organizational adaptation, and development of theory-based policy.

**AJ 330**
Crime Control Theory and Strategy (4)
An analysis of the methods used to control crime in American society. Emphasis on understanding the sometimes conflicting goals of the criminal justice system; attention is given to the general categories of general and specific deterrence, aggressive enforcement, situational and environmental defensive measures, and modification of the social order. Special attention will be given to how other countries control crime and the problems of comparison because of political and cultural differences. Prerequisites: AJ 220, Soc 200, or Psy 204.

**AJ 355**
Perspectives on Terrorism (3)
A survey of international and domestic terrorism, the organizations, philosophies, key players, counter-terror organizations, and response. Investigation of the social, psychological, cultural, historical, political, religious, and economic dynamics of the phenomena will provide preparation for discussion of possible approaches to control.

**AJ 380**
Criminal Justice Research (4)
A critical examination of the usefulness and limitations of research related to criminal justice activities, procedures, and programs. Empirical criminal justice studies analyzed and discussed. Prerequisite: completion of all lower-division major requirements and AJ 330.

**AJ 401/501**
Research (Credit to be arranged.)
Consent of instructor.

**AJ 404/504**
Cooperative Education/Internship (Credit to be arranged.)
Consent of instructor.

**AJ 405/505**
Reading and Conference (Credit to be arranged.)
Consent of instructor.

**AJ 407/507**
Seminar (Credit to be arranged.)
Consent of instructor.

**AJ 409**
Senior Practicum (8)
Placement in an administration of justice professional organization with supervision and evaluation of work performance by both agency and University staff. Minimum 8 credits required with a total maximum of 16 credits that can be applied toward the administration of justice degree. Prerequisites: senior status and a cumulative GPA of 2.50 in AJ core courses.

**AJ 410/510**
Selected Topics (Credit to be arranged.)
Consent of instructor. Pass/no pass option.

**AJ 420**
Criminal Law and Legal Reasoning (4)
Study of the basic concepts related to criminal law, including: historical development, legal elements of crime and proof, defenses and mitigation, reasonable doubt, and presumptions of fact, with particular emphasis on the application of logical reasoning to make legal decisions. Prerequisites: completion of all lower-division major requirements, AJ 330 and 380, and senior status. ( Normally offered fall term only.)

**AJ 440**
Constitutional Criminal Procedures (4)
A critical examination of the legal controls on the administration of criminal justice, with special attention to current court decisions related to such issues as search and seizure, admissions and confessions, wiretapping and eavesdropping, right to counsel, fair trial, self-incrimination, cruel and unusual punishment. Prerequisite: AJ 420. (Normally offered winter term only.)

**AJ 450/550**
Comparative Perspective of Criminal Justice (3)
An exploration of international criminal justice systems that compares and contrasts the general features and cultural foundations of criminal justice procedures and institutions in different countries throughout the world. Prerequisites: AJ 450. AJ 100, 200, 330; AJ 550: admission to graduate program in AJ.

**AJ 460**
Court Procedures (4)
General review of the major activities and procedures involved in the conduct of criminal trials, with extensive use of mock trial exercises. Prerequisite: AJ 440. (Normally offered spring term only.)

**AJ 470**
Management of Justice Agencies (3)
A comprehensive and critical evaluation of the important theories, practices, and current research related to the organizational structure and administrative activities of such agencies as police departments, courts, and prisons. Prerequisites: completion of all lower-division major requirements, AJ 330, 380, and senior status.
**AJ 480/580**  
Community-based Treatment of Offenders (3)  
An analysis of the history, philosophy, theory, and function of probation, parole, pardon, half-way houses, work release centers, and other forms of community-based treatment; evaluation of the effectiveness of treatment of the offender in the community; contemporary usage of the presentence investigation report, selection, supervision, and release of probationers and parolees; exploration of current innovations in corrections such as use of volunteers and offenders as correctional manpower resources. Prerequisites: AJ 480: senior status, completion of lower-division major requirements, and AJ 330, 380; AJ 580: admission to graduate program in AJ.

**AJ 490**  
Senior Colloquium (4)  
An integration of important administration of justice concepts and knowledge for graduating majors, who will individually prepare a research paper on a selected problem and present findings to interested students and faculty. Prerequisites: completion of all other AJ major requirements and scheduled to graduate at end of term in which AJ 490 is taken.

**AJ 503**  
Thesis (Credit to be arranged.)

**AJ 509**  
Graduate Practicum (3)  
A work-experience placement in a criminal justice agency with supervision and evaluation of work performance by both agency and University supervisors. Consent of instructor.

**AJ 511**  
Historical Perspective of Criminal Justice (3)  
A chronological survey of significant social events and trends in Western and Eastern civilizations that have influenced crime and the development of law, the police, the courts, and corrections and have formed the interrelationships among these parts of the criminal justice system. Prerequisite: admission to graduate program in AJ.

**AJ 515**  
Theories of Crime and Justice (3)  
A comprehensive survey of the major theories of criminal justice. The course will overview theories from the biological, psychological, social learning, critical, labeling, social-disorganization, conflict, and culture-conflict perspectives and the philosophical discourses on justice of Hume, Mills, Kant, Rawls, and others. Prerequisite: admission to graduate program in AJ.

**AJ 520**  
Legal Perspective of Criminal Justice (3)  
An advanced course that examines the legal environment within which the criminal and quasi-criminal justice systems function, with particular emphasis on philosophical and procedural issues related to deprivation of liberty decisions. Prerequisite: admission to graduate program in AJ.

**AJ 530**  
Economic and Political Perspective of Criminal Justice (3)  
An advanced course that explores the political and economic influences on the formulation and administration of public policies related to criminal justice system issues. Prerequisite: admission to graduate program in AJ.

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**POLITICAL SCIENCE**

**650 Urban Center**  
503-725-3921  
www.upa.pdx.edu/POLISCI/

**B.A., B.S.**  
Minor Secondary Education Program—Social Science  
M.A., M.S.  
M.A.T. and M.S.T. (General Social Science)  
Ph.D.—Participating division in Public Administration and Policy Doctoral Program

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**UNDERGRADUATE PROGRAMS**

The program in political science leading to the B.A. or B.S. degree is designed to meet the needs of the liberal arts major who wishes to learn more about public and international affairs, government, and the demands of citizenship. It is appropriate for professionally motivated students who wish to pursue careers in political science, public administration, international organizations, domestic government, communications, education, or law. It is also appropriate for inquiring students desiring to learn more about the way human beings live together and the structures and institutions they have developed (or might develop) to facilitate social cooperation and conflict management.

**Requirements for Major.** Students seeking to major in political science may choose a course of study from the three options available in the Division. The basic major option offers a traditional course of study in political science that involves some exposure to three basic areas of the

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*Melody Rose, Political Science*
discipline. The "politics of diversity" option offers students the opportunity to pursue an interdisciplinary course of study, under the supervision of a member of the political science faculty, in some aspect of the politics of diversity. The "politics of conflict and cooperation" option offers students the opportunity to pursue an interdisciplinary course of study, again under the supervision of a member of the political science faculty, in some aspect of the politics of conflict and its resolution at the national and international level. Specific details regarding each of these majors, including their requirements, are set forth below.

Once a student has been admitted to Portland State University, upper-division courses used to meet political science major requirements must be taken at the University. Courses taken at another college or university must have received prior approval from the Division of Political Science. All courses used to satisfy political science major requirements, whether taken at PSU or elsewhere, must be graded C or above.

Basic Major. In addition to meeting the University's general education requirements, a student wishing to pursue a basic major in political science must take a minimum of 48 credits in political science distributed as follows:

1. PS 200 Introduction to Politics
   One 400-level course in each of the three fields listed below:
   Area I—American Politics
   Area II—International/Comparative Politics
   Area III—Political Theory/Methodology
2. Additional electives to make a total of at least 48 credits in political science. A minimum of 32 of the 48 credits must be from upper-division courses.

Politics of Diversity. The politics of diversity option allows students to select an independent and interdisciplinary course of study that focuses on some aspect of the politics of diversity. Students choosing this option must select a faculty adviser from the political science faculty who will supervise the student's program and advise them on how to proceed. This option encourages students to identify some basic issue area or problem area that involves the politics of conflict and cooperation that will become the subject of analysis and research. Courses associated with the politics of conflict and cooperation option are arranged under three topical headings: conflict and cooperation in America, international conflict and cooperation, and theories of conflict and cooperation. Information regarding the courses associated with each of these areas is available at the division office. This option also requires students to select four courses from outside political science, adding up to 60 total credits.

Politics of Conflict and Cooperation. The politics of conflict and cooperation option allows students to select an independent and interdisciplinary course of study that focuses on some aspect of the politics of conflict and cooperation. Students choosing this option must select a faculty adviser from the political science faculty who will supervise the students' program and advise them on how to proceed. This option encourages students to identify some basic issue area or problem area that involves the politics of conflict and cooperation that will become the subject of analysis and research. Courses associated with the politics of conflict and cooperation option are arranged under three topical headings: conflict and cooperation in America, international conflict and cooperation, and theories of conflict and cooperation. Information regarding the courses associated with each of these areas is available at the division office. This option also requires students to select four courses from outside political science, adding up to 60 total credits.

Requirements for Minor. To earn a minor in political science, a student must complete 28 credits in political science (of which 16 must be taken in residence at PSU). This must include the following:

1. PS 200 Introduction to Politics
2. One 400-level course in two of the fields of the discipline listed above
3. Additional upper-division political science electives (no more than 8 credits of PS 404, 405, 409, 410) to total 16 credits.

All courses submitted to satisfy the requirement for a minor in political science must be passed with a grade of C- or above. Students are encouraged to take political science courses that complement their academic interests and scholarly goals. The political science minor is designed to be as flexible as possible to facilitate this end. Students considering a minor in political science are strongly encouraged to consult with a political science adviser to work out an instructional program that meets their needs.

SECONDARY EDUCATION PROGRAM

(See General Studies: Social Science page 131.)

GRADUATE PROGRAMS

The Division of Political Science offers graduate work leading to the Master of Arts and Master of Science degrees. The division also offers Master of Arts in Teaching and Master of Science in Teaching (General Social Science) degrees with a political science concentration for students pursuing a career in teaching. Political science is one of five participating disciplines offering a major concentration in the Public Administration and Policy Ph D. program; for information relating to this program, see page 305.

The Division of Political Science offers work in political theory and philosophy, methodology, international relations and organization, comparative politics, American politics, American Federalism, Public Policy, Public Law, political parties, and political economy.

For admission as a regular degree student, the applicant must:

1. Have at least a B average for all work in the junior and senior years, or must have completed a minimum of 12 credits in graduate-level courses with at least a 3.10 GPA (on a 4.00 point scale).
2. Submit satisfactory scores on either the verbal and quantitative sections of the Graduate Record Examination or the Miller's Anology Test. The Miller's Anology Test is given on campus by Counseling and Testing Services.
3. Request that two letters of recommendation be sent directly to the Division of Political Science from faculty members at colleges or universities previously attended or from others in a position to comment on the student's academic and professional background and experience.
4. Forward to the division a 500-word statement concerning the applicant's academic and professional goals. (This statement should indicate the student's desired fields of concentration.)

5. Submit, if the applicant is a foreign student whose major language is not English, a satisfactory score on the Test of English as a Foreign Language.

Students applying for admission to the fall term who wish to be considered for graduate fellowships should complete their applications by May 1. Other students should have completed their applications at least three weeks prior to the first day of the term in which they plan to enroll.

**Degree Requirements.** Programs leading to the different master's degrees offered by the Division of Political Science are designed to be completed in four academic terms. The University's master's degree requirements are listed on page 62. Specific divisional requirements follow.

**MASTER OF ARTS OR MASTER OF SCIENCE**

All candidates for a master's degree in political science must complete 48 graduate credits from course offerings. Students are expected to pass written examinations in two of the following fields of study:

1. American politics
2. International politics
3. Comparative politics
4. Political theory
5. Methodology

In addition, students are required to take PS 593, Philosophy of Social Science, and to complete and defend a master's thesis or a substantial research paper. Specific requirements are as follows:

1. PS 593 Philosophy of Social Science
2. 20 credits in each of the two fields to be prepared for examination purposes
3. 2 graduate (500-level) seminars (credits to be included in credits for field examinations)
4. 6 credits of thesis or research paper work
5. 4 credits may be taken outside political science with an adviser's approval.

**Thesis and Substantial Research Paper.** Candidates must submit a thesis or substantial research paper to be followed by an oral examination. The substantial research paper must be equivalent to a thesis but need not meet the formal requirements of the graduate school and library.

**MASTER OF ARTS IN TEACHING AND MASTER OF SCIENCE IN TEACHING**

Programs with a political science concentration will be designed to enhance the candidates' capacity to meet their particular teaching responsibilities. See page 55 for University requirements for these degrees.

**COURSES**

Courses with an asterisk (*) are not offered every year.

**PS 101 United States Government (4)**

An examination is made of American government in theory and practice. Topics include: constitutional foundations of American government, federalism, civil liberties, and civil rights, Congress and the legislative process, the presidency and modern bureaucracy, the Supreme Court and judicial policy-making.

**PS 102 United States Politics (4)**

Introduction to issues and trends in political culture, political behavior, and public policy making. Topics include: public opinion, political parties and pressure groups, elections and voting behavior, political participation, the role of the media, policy making, the budget process, domestic policy, and national security policy.

**PS 199 Special Studies (Credit to be arranged.)**

Consent of instructor.

**PS 200 Introduction to Politics (4)**

Basic introduction to the central themes and fundamental issues of political life. Examines the nature and meaning of politics and political association in both domestic and international settings. Fundamental concepts and ideas associated with government, and politics more generally, are explored, along with the nature of political culture and the way this culture is reflected in the institutions and operations of government.

**PS 203 Intro to State and Local Politics (4)**

Provides an introduction to the role and structure of state and local governments, and examines the forces that influence subnational politics. Topics include federalism, intergovernmental relations, elections, the policy-making process, and the problems confronting states and communities.

**PS 204 Comparative Politics (4)**

A general survey of theories, concepts, and methods employed in comparative politics. Attention given to political behavior, structures, and processes.

**PS 205 International Politics (4)**

An analysis of the nature of relations among nations, with specific reference to contemporary international issues. Motivating factors will be examined, including nationalism, economic rivalry, and the quest for security. Also treated will be the problem of national sovereignty and its relationship to international cooperation, changing threats to international security in the post-Cold War era, and the increasing importance of international economic competition and cooperation.

**PS 221 Introduction to Public Law (4)**

Introduction to the nature and function of public law in the United States. The course focuses on fundamental problems of jurisprudence, the relation between law and politics, the nature and function of the court system, judicial process, and the workings of the criminal justice system.

**PS 312 Legislative Process (4)**

An examination of the role of legislatures in state politics. Particular attention is given to the forces that shape legislative elections, the relationship between legislators and governors, and efforts to reform legislative politics. Recommended: PS 101 and 102.
PS 313  
The Power Game: A Simulation of Washington Politics (4)  
Examines the nature of political power, the complexities involved in policy-making, and the relationship between the major political actors in Washington, D.C. The course revolves around a simulation of the U.S. government in which students play the roles of real members of Congress, the executive branch, interest groups, and the press.

PS 318  
Media, Opinion, and Voting (4)  
Course examines the interaction between the mass media, public opinion, and voting behavior in the United States. Competing theories of media effects on public opinion and voting behavior are analyzed, as are competing proposals for reforming electoral campaigns, campaign advertising, presidential debates, and other features of mass-mediated elections in order to enhance citizen participation. Key questions students will consider include the degree of responsibility that politicians, journalists, and citizens should assume for improving citizen engagement with electoral politics. Recommended: PS 102.

*PS 319  
Politics of the Environment (4)  
The human relationship with nature is a source of much political conflict and has been since the emergence of the state. This course explores the short- and long-term origins of current conflicts, the emergence of political movements around environmental issues, alternative world views regarding nature, and the distinctiveness of politics around these issues. Specific conflicts will be examined, including the relationship between human attempts to control nature and human hierarchies, population, water, and conservation of biodiversity.

PS 321  
The Supreme Court and American Politics (4)  
Basic introduction to the relation between law and politics in America through an analysis of the work of the U.S. Supreme Court. The course uses selective case law in order to explore the place of the court in America's constitutional structure, the way the court forms and shapes policy through constitutional interpretation, and the way political forces and influences shape Court practices, judicial selection, and the decision-making processes. Recommended: PS 221.

PS 325  
Politics and the Legal Enforcement of Morals (4)  
Critical examination of law as a mechanism for the enforcement of moral standards. The limits of law and political authority more generally are explored through an analysis of specific problem areas associated with the legal enforcement of morality. These include, but are not limited to, the use of criminal justice to enforce standards of conventional morality, political tolerance, civil disobedience, and the politics of law and order. Recommended: PS 221.

*PS 331  
Oregon Politics (4)  
An examination of political structures and policy trends in the state of Oregon. Attention is given to local governments as well as state government with special emphasis upon the relationships among different governmental entities.

PS 343  
Conflict and Cooperation in World Politics (4)  
This course focuses on substantive global problems and issues areas such as war, conflict resolution, nationalism, arms races, and global scarcities. The historical roots of the problems as well as their contemporary manifestations are examined using both substantive and theoretical materials. The sources of conflict and conflict resolution are also examined. Prerequisite PS 205.

PS 345  
U.S. Foreign Policy: The Cold War and Beyond (4)  
Analysis of the U.S. foreign policy process, its motives, objectives, and manner of implementation, in the major developments of each administration since 1945. Emphasis is on U.S.-relations with the U.S.S.R./Russia and the Third World. Prerequisite: PS 205.

*PS 352  
Western European Politics (4)  
An analysis of the political systems, processes, and policies in major countries of Western Europe, with special reference to France and Germany, as well as an overview of Italy, Sweden, or Switzerland. Also a short look at the organizations for European integration. Prerequisite: PS 204 or 205.

PS 353  
Introduction to Latin American Politics (4)  
An examination of a number of Latin American countries (Argentina, Chile, Brazil, Mexico, Peru, etc.) in comparative perspective. Topics covered include: the emergence and decline of various regime types within each of these nation-states; the role of the state, various state sectors, state autonomy and state capacity; the emergence of various social classes, class coalition and the impact of both of these on the state; the importance of international factors such as the international economy and the United States.

PS 354  
Introduction to Caribbean Politics (4)  
Provides an opportunity to examine a number of Caribbean countries (Jamaica, Surinam, Trinidad, Haiti, etc.) in comparative perspective. Topics covered include: the central role of the state, the impact of prior colonial masters and the manner of acquiring independence upon political and economic outcomes, country size and the performance of these nation-states, political parties, race, and class.

PS 361  
Introduction to the Politics of the Middle East (4)  
Introduction to Middle Eastern political systems. Focus will be on the nature of traditional politics, modernization and political development in the region, social stratification, institutions of government, and the political systems of selected Middle East countries. Prerequisite: PS 204 or 205.

*PS 362  
Arab-Israeli Conflict (4)  
Examination of the conflicting ideological perspectives, the formation of the state of Israel, rise of Arab nationalism, emergence of Palestinian nationalism, the Arab-Israeli wars, rise of Palestinian activism, diplomatic efforts at partial settlements, and possibilities of a comprehensive settlement. Special attention is given to those elements opposed to a final settlement of the conflict, both within Israel and among the Palestinian and greater Arab communities. Prerequisite: PS 204, 205, or 361.

PS 380  
Women and Politics (4)  
Analysis of the political role of women in politics. Reviews the historical and contemporary analyses of women's participation and status in politics. Prerequisite: PS 101 or 102.

PS 381  
Introduction to Theory (4)  
General introduction to the problems of political theory. A selective survey of the political ideas of Plato, Machiavelli, Locke, Rousseau, Mill, and Marx which introduced some of the major traditions of political thought in the west. The foundations of the communitarian, republican, and liberal political discourse are examined and discussed. Recommended: PS 200.

PS 385  
Modern Ideologies (4)  
An examination of the enduring political images of the modern world. Attention is given to the new, developing ideologies in the Third-World countries and the new left as well as to the more traditional concerns of liberalism, communism, and fascism.

*PS 387  
Politics and Fiction (4)  
This course explores various themes associated with politics as they are presented in fictional media. The course integrates traditional academic material with novels, film, television, poetry, etc., in order to expand student awareness of politics and public life. Prerequisite: PS 200.

PS 390  
Special Studies (Credit to be arranged.)

PS 401/501  
Research (Credit to be arranged.)  
Consent of instructor.

PS 403  
Honors Thesis (Credit to be arranged.)  
Consent of instructor.

PS 404/504  
Cooperative Education/Internship (Credit to be arranged.)

PS 405/505  
Reading and Conference (Credit to be arranged.)

PS 407/507  
Seminar (Credit to be arranged.)  
Reading and discussion about an area of political science, with a research project required. Enrollment limited.

PS 409/509  
Practicum (Credit to be arranged.)  
Consent of instructor.

PS 410/504  
Selected Topics (Credit to be arranged.)  
Consent of instructor.

PS 412/512  
The Presidency (4)  
Analysis of the institution, functions, and problems of the presidency. Special attention given to presidential elections, presidential powers, relations with media, presidential leadership. White House staff, executive-legislative relations, and the presidential role in domestic, economic, foreign policy making, and execution. Prerequisites: PS 101 and 102.
PS 413/513
Congress (4)
Study of the structure, organization, powers and operations of Congress. Topics covered include: the evolution of Congress, congressional recruitment and elections, legislative functions, the membership, the leaders, the committee system, the rules and procedures, executive-legislative relations, pressure groups, lobbying, and reform. Prerequisites: PS 101 and 102.

PS 414/514
Issues in Public Policy (4)
A study of selected major policies and programs of governmental regulation and service. Emphasis is placed upon the formation, administration, and substantive content of policies in such areas as transportation, public utility regulation, medical care, civil rights, education, agriculture, natural resources, and antitrust laws and the preservation of competition. Prerequisite: PS 215.

PS 416/516
Political Parties and Elections (4)
An examination of political parties and elections in America. Covers such topics as: the changing role of party organizations, machine politics, electoral rules, candidate recruitment, the nomination process, campaign strategies and tactics, campaign finance, and electoral reform. Recommended: PS 101 and 102.

PS 417/517
Interest Groups (4)
This course analyzes the role of interest groups in the political process. Particular attention is given to why some interests are more successful at forming groups and influencing politics than others. The course also examines techniques used to lobby legislatures, the executive branch, and the courts. Recommended: PS 101 and 102.

*PS 418/518
Contemporary Political Protest in America (4)
Analyzes the role of social movements in recent American history. The course blends theoretical readings with empirical research into specific movements. Movements considered include but are not limited to civil rights, the new left, public interest reform, the freeze movement, the women’s movement, the Christian Right, and the paramilitary/skinhead movement.

*PS 419/519
Political Reform (4)
Examines the concerns that drive the demand for political reform in America, and how specific reform proposals may affect the political system. The first part of the course focuses on a variety of proposals to open up the electoral system and to improve representation. The second part examines various reforms that are designed to make the government work more effectively and efficiently.

PS 422/522
Constitutional Law (4)
A study of the way in which the Supreme Court has shaped and influenced governmental structure and political power. Special attention is given to judicial decisions in the areas of federalism, separation of powers, the commerce clause, and the authority of the presidency. Prerequisite: PS 321.

PS 423/523
Civil Liberties (4)
A study of Supreme Court decisions that affect individual rights and liberties. Areas of concentration include, but are not limited to, freedom of speech and press, religious liberty, criminal justice, racial justice, gender justice, and the right to privacy. Prerequisites: PS 321 or 221.

PS 425/525
Women and the Law (4)
Examines the relationship between women and the law. The first half of the course considers several theories of women’s equality. During the second half of the course students will apply these theories to a variety of problems in gender justice. Substantive issues covered may include: sexual harassment, abortion, fetal protection policies, and pornography.

*PS 426/526
The Politics of the News (4)
Explores the role of the news media in political life and the political and economic forces shaping the news. Examines the purposes and functions of mass media in a democracy, the legal and economic structure of the American media, and the journalistic practices and communication strategies that contribute to news coverage of politics.

PS 427/527
The Politics of Public Opinion (4)
Course provides students with solid foundations for understanding the nature and evaluating the role of public opinion in American democracy. It will also teach students how to interpret public opinion polls intelligently. Specific topics covered will include how “public opinion” has been defined historically and in contemporary discourse; the various influences that shape people’s values, beliefs, and attitudes about politics; the methods that pollsters and survey researchers use to measure public opinion and problems with those methods; and the content of Americans’ views on controversial political issues. Recommended: PS 318.

PS 431/531
State and Local Politics (4)
Intensive examination of the role of the states and cities in the federal system. The course pays particular attention to the importance of political culture in shaping state politics and power relationships between the different levels and branches of government. Oregon’s political experiences are used as example for comparison. Recommended: PS 203.

PS 441/541
World Politics (4)
This course introduces students to the various levels of analysis used in explaining world political events. Examined are a number of conceptual elements of world politics, e.g., power, interdependence, integration, and levels of analysis, as well as certain substantive elements, e.g., international law and organization. Contrasts are drawn between power seeking and order-seeking behaviors of nation states. Prerequisite: PS 205.

PS 442/542
Contemporary Theories of World Politics (4)
This course presents an examination of the major theories and methodological techniques employed in the analysis of world politics. Both qualitative and quantitative methods will be used, evaluated, and applied to problems of research on world politics. Techniques of research design construction will be emphasized. Prerequisite: PS 441.

*PS 443/543
Resolving International Conflicts (4)
A seminar that explores different kinds of international disputes and actual conflicts in order to identify and assess theories, analytical frameworks, and methods of conflict resolution, management, and prevention. Emphasis is on understanding the roots of conflicts and techniques that may be appropriate to different levels and dimensions of conflict.

PS 445/545
American Foreign Policy (4)
Contemporary foreign relations of the United States, objectives, world, and domestic factors affecting American foreign policy; governmental institutions concerned with development and execution of foreign policy; major issues and problems.

PS 446/546
National and International Security Policies (4)
A comparison of national and international security systems, strategies, and policies. Emphasis will be on the current issues arising in these security systems and on the problems that arise when their needs conflict. Particular emphasis will be placed on contending theories of national and international security. Prerequisite PS 205 or 441.

*PS 447/547
International Organization (4)
The nature and extent of the organization of interaction among nations. Focus on the United Nations, but illustrations and generalization from a wide range of regional and functional organizations including the specialized agencies. Emphasis on the processes of communication, interaction, and negotiation within the organizational environment.

PS 448/548
International Law (4)
Introduction to public international law. Particular emphasis is placed on the interplay of politics and law in the international system. Types of law, sources of law, law creating agencies, law applying agencies are considered. Contemporary substantive issues in international law will be discussed. Prerequisite PS 205 or 441.

*PS 449/549
International Environmental Politics and Law (4)
Explores various environmental problems and issue areas that exist between and among nation-states. There will be an exploration of the political difficulties that impede solutions and the various pathways that may lead to environmental cooperation. There will also be a focus on the international legal regimes and international institutions designed to regulate environmental problems.

*PS 451/551
British and Commonwealth Governments (4)
A study of the constitutional development, the political processes, and the political cultures of the United Kingdom and selected member countries of the Commonwealth.
PS 452/552
The European Union (4)
Focuses on how the EU has evolved since its beginnings in the 1950s, on its present-day organiza-
tion and functions, and on how the member countries interact with one another in making EU policies for jointly regulating their internal economies and societies as well as their external policies, i.e., how the EU members also try to manage their relations with the rest of the world.

PS 454/554
International Political Economy (4)
A study of the contending theories of international political economy: power and interdepen-
dence, Regime Theory, dependency, integration, and functionalism, as well as the ideologies of political economy—the liberal, national, and Marxist perspectives. Also considered are the politics of trade, aid, and investment. Prerequisite: PS 205 or 441.

PS 455/555
Politics of Economic Reform in Emerging Market Countries (4)
Explores the process of economic reform in a comparative and international setting by focusing on emerging market countries (e.g., Argentina, Brazil, Mexico, Indonesia, Poland, Turkey, and Thailand). Designed to give a more in-depth analysis of reform policies for the students. Prerequisite: PS 454/554.

PS 460/560
Political Development in Modern Turkey (4)
Designed to provide students with an in-depth study of political development literature with a focus on modern Turkey. Examines how modern Turkish republic emerged from the ashes of the Ottoman Empire and evaluate stages of political development during the first, second, and third republic. Finally, assesses the implications of Turkey’s new geopolitics (since the end of the Cold War) on Turkish political and economic development in a global perspective. This course is the same as Intl 460/560; may only be taken once for credit.

PS 461/561
Politics of Economic Reform in Modern Turkey (4)
Course examines the politics of planned economic growth under the Republican People’s Party, transition to the import-substituting growth model during the post-WWII era, problems associated with economic stagnation in the 1970s, and transformation of the Turkish economy during the 1980s and 1990s. The last two decades provide important insight into how politics and economics (domestic as well as interna-
tional) converge in shaping Turkey’s economic growth strategies. This course is the same as Intl 461/561; may only be taken once for credit.

PS 462/562
International Relations of the Middle East (4)
Examination of the external dimension of Middle East politics, the role of the great powers, brief analysis of the British and French roles since 1945, extended analysis of American and Soviet/Russian policy in the Middle East. Special attention will be given to new patterns of interna-
tional relations in the Middle East in the post-
Cold War, post-Gulf War era. Prerequisite: PS 361.

PS 466/566
Politics of East Asia (4)
Analysis of the principal developments and institu-
tions, formal and informal, that shape govern-
ment and politics in China, Japan, and Korea.

PS 468/568
International Politics of East Asia (4)
Examination of the foreign policy motives, objectives, and systems of the major East Asian states: China, Japan, and Korea. Attention is paid in particular to the political economy of regional and extra-regional relationships.

PS 473/573
Democracy and Development in the Caribbean (4)
Examines issues of democracy and development in the Caribbean. It addresses such topics as the impact of the colonial legacy, political culture, political leadership, the state, civil society, social classes, racial politics, level of socio-economic development, transnational structures of power, their relationship to the possibilities of success or failure for democracy in the Caribbean. Course examines specific cases such as Jamaica, Trinidad and Tobago, Guyana, Puerto Rico, and the Dominican Republic. Recommended: PS 354 or 353.

PS 474/574
Democracy and Development in Latin America (4)
Examines issues of democracy and development in Latin America. It addresses such topics as the role of history, political culture, political leadership, political institutions, the state, the military, civil society, social classes, level of socio-economic development, and their relationship to the possibilities of success or failure for democracy in Latin America. The course examines specific cases such as Argentina, Brazil, Mexico, the Dominican Republic, Guyana, and Uruguay. Recommended: PS 353.

PS 476/576
Politics, Reggae, and Protest (4)
Examines how social movements from below are able to challenge elite-dominated regimes. Poor people’s movements can constrain the cultural and ideological environment in which political parties operate. Course examines the emergence of the Rastafarian movement and its ideological challenge to first the British colonial government in Jamaica, and later the democratically elected governments in independent Jamaica.

PS 479/579
Transitions to Democracy (4)
Comparative analysis of political systems which have experienced a transition from an authori-
tarian to a democratic regime. Attention is given to the conditions supportive of democratic tran-
sition and to the problems of maintaining demo-
cratic stability. Prerequisite: PS 204.

PS 482/582
Liberalism and Its Critics (4)
Critical examination of the theory and practice of liberalism as an ongoing tradition. The basic elements of liberalism are identified and dis-
cussed and criticisms of the liberal tradition, as offered by communitarians, classical republic-
ians, feminists, and postmodernists, are exam-
ined. Liberal responses to these criticisms are also explored. Recommended: PS 381.

PS 483/583
Justice in the Modern World (4)
Critical analysis of the nature and meaning of social justice. Special attention is given to liberal theories of justice, questions of distributive jus-
tice, and the rule of law, inter-genera-
tional justice, and political alternatives to the liberal vision of social justice. Recommended: PS 381.

PS 486/586
American Political Thought: 1600 to 1820 (4)
The development from 1600 to 1820 of Ameri-
can political thought about government and its proper relation to the individual and society. Specific topics considered include the English background, the colonial mind, ideas informing the revolution, the creation of the Constitution; and the ratification debates, the Jeffersonian and Hamiltonian conflict, John Marshall, and the expansion of national power. Attention given to bringing to the surface the fundamental, often inarticulate, patterns, and presuppositions of American thought about political things.

PS 487/587
American Political Culture: 1820 to the Present (4)
The development from 1820 to the present of American political thought about government and its proper relation to life, liberty, property and the pursuit of happiness. Topics consid-
ered include democratization and the Jackson-
ian period, slavery, and the nature of the Union, Social Darwinism and industrialization, the progressive period, the coming of the wel-
fare state, and contemporary concerns. Atten-
tion given to bringing to the surface the fundamental, often inarticulate, patterns, and presuppositions of American thought about political things.

PS 493/593
Philosophy of the Social Sciences (4)
An analysis of the central problems associated with the idea of a “science of society” to a “sci-
ence of politics.” The philosophical foundations of empirical social science are critically exam-
ined and discussed along with the foundations of interpretive social science, critical social sci-
ence, feminism, postmodernism, and rational choice theory. Recommended: PS 381.

PS 495/595
Research Methods for Political Science (4)
Introduction to an examination of methodologi-
cal issues and statistical techniques for empirical political research. Major topics include but are not limited to issues in designing political research, survey research, the role of hypothesis testing, and the major statistical tools commonly employed in empirical political analysis. Prerequisites: Mth 243, 244.

PS 503
Thesis (Credit to be arranged.)
Pass/no pass option.
PUBLIC ADMINISTRATION

650 Urban Center
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M.P.A.
M.P.A.: Health Administration
M.P.H.—Participating Division in Masters of Public Health
Ph.D.—Lead Division in Public Administration and Policy Doctoral Program

The Division of Public Administration offers professionally oriented programs designed for persons in positions of management in federal, state, and local government; not-for-profit agencies, hospitals, and other health care organizations; or those intending such careers who desire preparation for administrative leadership in public service. In addition to its own faculty and courses, the Division of Public Administration draws faculty and courses from a number of departments and programs, such as political science, economics, administration of justice, urban studies and planning, gerontology, and community health. Adjunct faculty members are also drawn from the governmental, nonprofit, and health communities.

The Division of Public Administration admits students with a variety of undergraduate degrees in the social sciences, as well as in business, the humanities, and the sciences. It accepts full- and part-time students, those who have had governmental and nonprofit experience, and those who have not. To accommodate students who are currently working in governmental and nonprofit organizations, the program offers sections of all required courses during the evening, late afternoon, or weekends.

Admission Requirements. In determining admission to the Division of Public Administration, the faculty assesses the applicant's preparation for and commitment to the unique demands of a public service career. It considers the following:

1. The appropriateness and quality of academic preparation demonstrated by the breadth and content of prior academic coursework. A minimum GPA of 3.00 in undergraduate coursework is generally expected of students seeking regular admission status.

2. Three independent assessments of the applicant's ability to perform adequately in graduate studies and potential for high-level performance in public service. The three letters of assessment, on forms provided by the Division of Public Administration, should be provided by faculty members from colleges or universities previously attended or by other persons in a position to comment on the applicant's academic background and professional experience. One letter should be from the applicant's current employer, if any.

3. A resume of professional work experience, if any.

4. A 500-word statement concerning the applicant's professional goals and how the specific master's degree relates to the achievement of his or her goals. This statement should indicate whether the student plans to participate in the program on a full- or part-time basis and when program requirements are expected to be completed.

5. A TOEFL score of 550 is required of every applicant whose first language is not English. This is a requirement even if the applicant has earned an undergraduate degree in the United States.

6. In addition to the above, the Master of Public Health (M.P.H.) degree requires completion of an undergraduate course in statistics and the GRE.

The Division of Public Administration maintains the same application deadlines published for the University. Admission is open fall, winter, and spring terms, and Summer Session.

Pre-service Students. Any admitted student without the equivalent of one year of full-time experience in the public/nonprofit/health/tribal sectors will be required to arrange with their adviser to undertake a pre-service internship.

Limitation on By-Arrangement Courses. Admitted Ph.D. and master's students may utilize no more than 12 credits of by-arrangement classes (501/601 and 505/605). In cases where more than 12 credits are needed because of the lack of regularly scheduled classes, a waiver must be submitted for approval to the Division Curriculum Committee and the College director.

Limitation on Acceptance of C Grades. No student may use more than two C grades toward graduation for a degree in the Division of Public Administration.

M.P.A. DEGREE REQUIREMENTS

Area I—Substantive Core (30 Credits)
PA 511 Public Administration (3)
PA 513 Administrative Ethics and Values (3) (Prerequisite: PA 511)
PA 533 Public Policy: Origins and Processes (3) (Prerequisite: PA 511)
PA 534 Administrative Law and Policy Implementation (3)
PA 540 Administrative Theory and Behavior (3) (Prerequisite: PA 511)
PA 551 Analytic Methods in Public Administration I (3) (Prerequisite: recent course in basic statistics)

PA 552 Analytic Methods in Public Administration II (3) (Prerequisite: PA 551)
PA 582 Public Budgeting (3)
PA 585 Financial Management in the Public Sector (3) (or economics course approved by adviser)
PA 580 Human Resource Management in the Public Sector (3)

Area II—Skill Development (9 Credits)
Three of the following:
PA 507 Research and Information Skills in Public Policy and Administration (3)
PA 532 Organization and Methods (3) (Prerequisite: PA 540)
PA 536 Strategic Planning (3)
PA 545 Organization Development (3) (Prerequisite: PA 540)
PA 547 Interpersonal Communications in the Public Sector (3)
PA 548 Advocacy in the Public Sector (3)
PA 549 Intercultural Communications in the Public Sector (3)
PA 550 Managing Information Resources (3)
PA 555 Program Evaluation & Management (3)
PA 557 Operations Research in Public Administration (3)

Area III—Integrative Experience (6 credits)
Integrative Experience is offered under two options and is available to students only after they have completed 42 credits in their master's program. Option 1 is intended for “in-service” students, those who have had limited or no administrative experience. Option 2 is for those students who have had at least three years of full-time administrative or management experience in public, non-profit, and/or health care organizations.

Option 1: PA 509, Organizational Experience (6). Pass/no pass only.
Option 2: PA 508, Reflective Practice Workshop: Case Development (3) and PA 512, Case Analysis (3)

Area IV—Field of Specialization (15 credits)
Specialty areas and courses must be approved by the student’s adviser. The Division of Public Administration offers specialty areas and courses in human resource management and labor relations, the management of nonprofit organizations, health policy and administration, and natural resources policy and administration. Specialty areas may also be selected from other departments or divisions within the University and may be put together as multi-disciplinary endeavors.

Total Credits: 60

DIVISION SPECIALIZATIONS

Public Sector Human Resource Management and Labor Relations. The Division of Public Administration offers an integrated concentration of course offerings for students desiring to emphasize personnel administration, public sector labor relations, and the management of human resources. Course offerings include Human Resource Management in the Public Sector; Discrimination Law; Affirmative Action;
Public Sector Collective Bargaining. The Legal Framework; Public Sector Collective Bargaining: Negotiations and Impasse Resolution; Public Sector Collective Bargaining: Administering the Agreement; and Labor Law.

Nonprofit Management. For students interested in the operation of nonprofit organizations, the Division of Public Administration offers a substantial specialty and number of courses in the management of nonprofit organizations. Course offerings include: Introduction to Nonprofit Management, History and Foundations of the Nonprofit Sector, Grantwriting for Nonprofits, Nonprofit Accounting, Managing Nonprofit Boards of Directors, Financial Management of Nonprofits, and Strategic Planning for Nonprofits.

Natural Resources Policy and Administration. The Division also offers a new concentration and course offerings in the area of natural resources and the environment. The emphasis is on policy and administration. Courses include: Natural Resources Policy and Administration, Water Resources Policy and Administration, Energy Resources Policy and Administration, and other specialty offerings in natural resources.

Health Policy and Administration. The Division offers a broad specialty area in health policy and administration which gives students the needed conceptual and technical skills in health administration for hospitals, health maintenance organizations, and health-related governmental organizations. Course offerings are available in health policy and administration, health planning, health economics, budgeting and finance. Requirements for the specialty health degrees (M.P.A.: HA and M.P.H.) are indicated below.

Tribal Administration. The Division offers the M.P.A. degree via distance education with a specialty in tribal administration. The tribal administration program utilizes interactive teleconferencing and Web-based instruction with WebCT to engage students in the reservation communities with students at Portland State University. The program is tailored for tribal employees and employees of native nonprofit organizations.

Other Specialty Areas. Courses for a specialty in Administration of Justice are provided by the Administration of Justice Division. In addition, the Division of Public Administration is developing specialty areas in Public Policy and in Budgeting and Financial Management.

M.P.A.: H.A. DEGREE

The Division of Public Administration offers a Master of Public Administration:

Health Administration degree. Students admitted to this degree are required to complete 80 credits of coursework.

For students interested in geriatrics, gerontology, and the administration of aging programs, the Institute of Aging provides a Graduate Certificate in Gerontology, which may be earned in conjunction with the M.P.A.: H.A. degree.

Degree Requirements

Area I—Substantive Core (30 Credits)
PA 511 Public Administration (3)
PA 540 Administrative Theory & Behavior (3) or PA 541 Organizational Behavior in Health (3) (Prerequisite: PA 511)
PA 533 Public Policy: Origins and Processes (3)
PA 534 Administrative Law and Policy Implementation (3)
PA 551 Analytic Methods in Public Administration I (3) (Prerequisite: recent course in basic statistics)
PA 552 Analytic Methods in Public Administration II (3) (Prerequisite: PA 551)
PA 573 Values and Ethics in Health (3) or PA 513 Administrative Ethics and Values (3) (Prerequisite: PA 511)
PA 582 Public Budgeting (3)
PA 386 Introduction to Health Economics (3)
PA 590 Human Resource Management in the Public Sector (3)

Area II—Skill Development (9 Credits)
Three of the following:
PA 545 Organization Development (3) (Prerequisite: PA 540)
PA 576 Strategic Planning in Health (3) or PA 536 Strategic Planning (3)
PA 579 Health Care Information Systems Management (3) or PA 550 Managing Information Systems (3)
PA 588 Program Evaluation & Management in Health Services (3) or PA 555 Program Evaluation and Management (3)

Substitutions of other skill development courses offered by the Division of Public Administration are allowed with consent of adviser.

Area III—Integrative Experience (6 credits)
Integrative Experience is offered under two options and is available to students only after they have completed 42 credits in their master's programs. Option 1 is intended for "in-service" students, those who have had limited or no administrative experience. Option 2 is for those students who have had at least three years of full-time administrative or management experience in public, non-profit, and/or health care organizations.

Option 1: PA 509, Organizational Experience (6) Pass/no pass only.
Option 2: PA 508, Reflective Practice Workshop: Case Development (3), and PA 512, Case Analysis (3)

Area IV—Field of Specialization (15 credits)
Core Specialization Courses (6 credits)
PA 570 Health Administration (3)
PA 571 Health Policy (3)
Three courses selected from the following (9 credits):
PA 510 Managed Care (3)
PA 544 Building Healthy Communities (3)
PA 572 Health Polities (3)
PA 577 Health Care Law & Regulation (3)
PA 578 Continual Improvement in Health Care (3)
PA 587 Financial Management in Health Services (3)
PA 589 Research Methods in Health Services (3)
Other health-related courses not listed may be selected in consultation with the adviser.

Total credits: 60

M.P.H. DEGREE

The Division of Public Administration offers the Master of Public Health degree with a specialty track in health administration and policy as part of the Oregon MPH Consortium offered by Portland State University, Oregon State University and Oregon Health Sciences University. Students admitted to the health administration and policy track of the M.P.H. degree are required to complete 60 hours of coursework. Instruction is provided at Portland State University and Oregon Health Sciences University.

Degree Requirements

1. M.P.H. Core Courses (15 credits)
PA 512 Epidemiology Survey (3)
PA 525 Biometry Survey (3)
PH 580 Concepts of Environmental Health (3)
PH 512 Principles of Health Behavior (3)
PA 574 Health Systems Organization (3)

2. Health Administration and Policy Required Concentration (27 credits)
PA 540 Administrative Theory and Behavior (3)
PA 570 Health Administration (3)
PA 571 Health Policy (3)
PA 573 Values and Ethics in Health (3)
PA 586 Introduction to Health Economics (3)
PA 589 Research Methods in Health Services (3)
PA 577 Health Care Law and Regulation (3)
PA 578 Continual Improvement in Health Care (3)
PA 579 Health Care Information Systems Management (3)
PA 587 Financial Management of Health Services (3)
PA 588 Program Evaluation and Management in Health Services (3)

3. M.P.H. Elective Courses (12 credits)
In consultation with his or her adviser, the student selects elective credits from appropriate course offerings of the participating universities. Elective courses may be selected to reflect an area of special interest. The choice of elective courses should relate to the broad discipline of public health and its support disciplines.

4. Field Work (6 credits)
PA 509 Organizational Experience (6)

Total Credits: 60

† OHSU courses
PH.D. IN PUBLIC ADMINISTRATION AND POLICY

The Division of Public Administration cooperates with other units within the College of Urban and Public Affairs to offer a doctoral degree in public administration and policy. For details, see the program description on page 305.

COOPERATIVE DEGREE PROGRAMS IN COMMUNITY HEALTH CARE SYSTEMS AND PUBLIC HEALTH

The Division of Public Administration along with the School of Community Health, College of Urban and Public Affairs at Portland State University, collaborates with the Oregon Health Sciences University and Oregon State University in offering the Oregon Master of Public Health degree. Coursework can be taken at any one of the participating institutions. The three universities jointly administer the M.P.H. degree program.

INTERINSTITUTIONAL COOPERATION AND PROGRAM MERGER

Portland State University and Lewis & Clark College, a small private institution in southwest Portland, were authorized to provide M.P.A. degrees in the fall of 1976. For twenty years the faculty of the two degree programs cooperated in academic and other professional endeavors. In the fall of 1996, the Lewis & Clark program merged with Portland State. The Lewis & Clark public administration faculty became Portland State faculty and students who had been admitted to the graduate public administration program at Lewis & Clark were admitted to Portland State.

The Lewis & Clark program brought with it to Portland State specialty areas in natural resources policy and administration and nonprofit management, as well as two institutes. The Institution of Nonprofit Management and the Executive Leadership Institute. These institutes, which are integral parts of the Division of Public Administration, are described below.

INSTITUTE FOR NONPROFIT MANAGEMENT
239 College of Urban and Public Affairs
503-725-8221

The Institute for Nonprofit Management, established in 1993, serves the professional leadership and management of the nonprofit community. The Institute offered the first graduate and noncredit courses in nonprofit studies in the Northwest and is considered a leading program for nonprofit management and professional education.

Graduate and noncredit courses as well as certificates, seminars, conferences, forums, and community workshops are offered through the Institute. The Institute provides more than 20 course offerings in the noncredit program which are designed to provide practical skill-based education for nonprofit managers. Adjunct faculty members from the nonprofit community complement full-time faculty.

Graduate students interested in a specialization in nonprofit studies may choose from more than 10 courses, both theoretical and applied, to complement their M.P.A. degree requirements.

EXECUTIVE LEADERSHIP INSTITUTE
239 College of Urban and Public Affairs
503-725-8216

The Executive Leadership Institute’s mission is to meet the needs of public service practitioners by serving as the external delivery arm of the Division of Public Administration. The Institute accomplishes this mission through the following five sets of activities: (1) master’s degree preparation at near-in, off-campus sites; (2) research; (3) technical assistance to agencies in managing technological and organizational innovations; (4) continuing professional education; and (5) community and professional service.

THE CENTER FOR WATERSHED AND COMMUNITY HEALTH
205 College of Urban and Public Affairs
503-725-8101

The Center for Watershed and Community Health (CWCH) is not organizationally part of the Hatfield School of Government, but is an important entity affiliated with the School and housed within it. It works closely with the faculty, students, and staff of the Division of Public Administration, providing research and evaluation opportunities, internship and program administrative experience, and links with practitioners in their fields.

The Center for Watershed and Community Health was organized in 1997 to explore ways to link environmental and economic goals within watersheds to enhance both economic and community well-being.

COURSES

Courses with an asterisk (*) are not offered every year.

PA 501 Research (Credit to be arranged.)
PA 504 Cooperative Education/Internship (Credit to be arranged.)
PA 505 Reading and Conference (Credit to be arranged.)
PA 507 Seminar (Credit to be arranged.)
PA 508 Reflective Practice Workshop: Case Development (3)

This workshop is designed to provide the M.P.A. and M.P.A. HA mid-career student with administrative experience an opportunity to develop the skills of reflective practice. It requires students to prepare a written administrative case problem based on significant issues and incidents in their own practice. Cases must be suitable for classroom level classes. Prerequisites are at least three years of full-time administrative or management experience in a public, non-profit, and/or health care organization and 42 hours of completed course work toward the degree.

PA 509 Organizational Experience (6)

This offering is a Public Service Internship or Problem Analysis Project and is required of all M.P.A. and M.P.A. HA “in-service” students, those who have limited or no administrative experience. This offering is required of all M.P.H. students, either in-service or mid-career. The student is expected to complete a field experience with an appropriate agency, culminating in a project report systematically analyzing an administrative problem that is both instructive to the student and of importance to the agency. Students also attend several seminars to aid them to integrate their field experience with their coursework and cultivate the habit of reflective practice. PA 509 is available to master’s degree students only after they have earned 42 credits in their programs. Pass/No pass only.

PA 510 Selected Topics (Credit to be arranged.)

PA 511 Public Administration (3)

The role of administration in a democratic society. The course surveys the field, the development of the profession and practices in public administration, and examines the legal, historical, economic, and political foundations of the American governmental and nonprofit traditions.

PA 512 Case Analysis (3)

This course is designed to provide mid-career students with administrative experience an opportunity to develop skills in the areas of reflective practice, administrative problem solving, consulting, and coaching. Students will be required to present the case problem they developed in PA 508, Reflective Practice Workshop: Case Development, as the basis of an exercise in administrative problem solving and coaching for their fellow students. Prerequisite: PA 508.
PA 513  Administrative Ethics and Values (3)
Exposes values, ethics, and morality in public sector administration. It considers such concepts and issues as the following: personal and professional values and roles, the myth of value neutrality, the public interest, values, ethics, and change; value trade-offs; ethical ambiguities; ethical codes, fiscal ethics, and ethics and administrative discretion.

PA 515  Public Works Administration (3)
A general overview of administrative practices in public works, including an evaluation of organizational practices, project management, and relationships to political processes. The course will consider actual problems in the administration of public works.

PA 516  Current Issues in Public Management (3)
Explores two major strategies for the reform of public organizations: (1) an economic-centered approach that emphasizes private market-place incentives and the measurement of outcomes and (2) a civic dialogue approach that advocates the use of deliberative processes, reliance on collaboration, and a greater role of nonprofit organizations in the design and delivery of public services. The purpose of this course is to examine these approaches within the context of traditional models that have guided the public policy and management role of the bureaucracy in the American system of democratic governance.

PA 517  Leadership Development for Public Organizations (3)
Course focuses on two activities: (1) use of assessment instruments to prepare individual leadership profiles and (2) an examination of various leadership theories with applications to specific leadership situations. The goal of the course is to assist participants in understanding their own individual leadership styles and capacities and to better appreciate what is required to successfully lead at an individual, team/group, organizational, and larger community level.

PA 518  Administrative Practices (3)
Designed to familiarize students with the substantive and range of work performed by management in the public sector, commonly referred to as organization and methods. Emphasis will be on developing skills and the ability to conduct management analysis studies. Specific content will include: conducting reorganization studies, work measurement and productivity analysis, procedures analysis, forms control, management by objectives, management information systems. Prerequisite: PA 340.

PA 519/619  Civic Capacity (3)
Examines the factors that contribute to the capacity of communities to create social agreement and to sustain collective action over time. Provides students with an opportunity to evaluate current research on the factors that contribute to the development of social capital and to apply this research to field-based community building activities.

PA 520  Introduction to Nonprofit Management (3)
Introduces students to a wide range of management needs, problems, and issues of not-for-profit organizations. It considers such items as the following: executive director as manager; aspects of governance; volunteer/staff relations; personnel administration; budgeting and financial management; fund raising and sources of revenue; long-range planning; and community organization.

PA 521  History And Foundations of the Nonprofit Sector (3)
Provides an introduction to the history and development of the private, nonprofit sector in the United States. It explores theories and concepts that describe the social, political, legal, and economic meaning of voluntarism, philanthropy, and the nonprofit sector as a sector separate from government and business. It provides a specific focus on the relationship of nonprofit to government in the delivery of public services within the context of a welfare state.

PA 522  Governance of Nonprofit Organizations (3)
Addresses the history and functions of boards in the nonprofit sector, including an examination of the roles of boards in governance and leadership, policy and administration, decision-making processes, board-staff relations, resource development, board composition and recruitment, ethics and liability; and current research on boards and organizational effectiveness.

PA 524  Financial Management in Nonprofit Organizations (3)
Designed to provide participants without formal accounting or finance training with the conceptual framework and practical tools needed to provide strong fiscal management and fiscal leadership in the nonprofit environment. For students with formal finance and/or accounting background, the course will provide opportunities to compare and contrast fiscal management objectives and functions in nonprofit with those found in for profit and/or governmental entities. It is structured to illustrate the nonprofit fiscal management cycle: planning, execution, recording, reporting, and monitoring.

PA 525  Grantwriting for Nonprofit Organizations (3)
The process of grant acquisition, beginning with the formulation of a fundable idea and concluding in an application and its review. Students are expected to identify potential funding sources, initiate inquiries, and develop an application for funds to support a program or study of special interest. The steps in this process are discussed in general terms and in the context of each student's application. The focus is the development of grants from private rather than public funders.

PA 526  Fundamentals of Fundraising in Nonprofit Organizations (3)
Creating an environment for successful fund development within a nonprofit organization is a serious undertaking that requires a substantive understanding of, and experience with, development programs and fundraising practices. Course provides the learner with the basic theories, principles, and techniques for fund development.

PA 528  Organizational Leadership and Decision Making in Nonprofit Organizations (3)
Introduces students to the theory and practice of leadership and decision-making in the nonprofit sector. It focuses on the relationship of leadership to management, governance, and organizational effectiveness of nonprofit organizations. It covers classic, modern, and contemporary theories of leadership, including trait, style, situational, contingency, charismatic, transactional, transformational, team, and contemporary approaches to leadership and decision-making.

PA 529  Nonprofit Field Study in Oaxaca, Mexico (3 or 6)
An intensive immersion program in Oaxaca, Mexico, offered by the Institute for Nonprofit Management in the Hatfield School of Government. Course includes nonprofit field study and site visits, cultural immersion homestays, and visits to cultural sites. The program varies from year to year in the types of nongovernmental nonprofit organizations the students visit, based in part on the interests of the students who register. Site visits in recent years have included programs for juvenile offenders and gang members, human rights advocacy groups, medical clinics, an AIDS education program, and a coalition of environmental groups. On-site translation is provided so that proficiency in Spanish is not necessary, but Spanish language study is part of the immersion experience.

PA 532  Organization and Methods (3)
Designed to familiarize students with the substance and range of work performed by management analysts in the public sector, commonly referred to as organization and methods. Emphasis will be on developing skills and the ability to conduct management analysis studies. Specific content will include: conducting reorganization studies, work measurement and productivity analysis, procedures analysis, forms control, management by objectives, management information systems. Prerequisite: PA 340.

PA 533  Public Policy: Origins and Process (3)
Drawing on the general concept of the policy cycle, this course explores the central actors, processes, and issues associated with the formation of public policy. The course gives particular weight to interaction among the three branches of government, interest groups, and the private sector. Tensions between technocratic and political approaches to policy development also receive attention, as do intergovernmental concerns.
PA 534 Administrative Law and Policy Implementation (3)
When policies receive the formal status of laws, they acquire a special significance for the executive and judicial branches. This course examines the process of policy implementation through the use of administrative discretion and the rule-making process. Delegation of legislative power, judicial review, informal adjudication, and the role of the administrative law judge are emphasized. The limits of discretionary authority are explored. Students address the theoretical, practical, and ethical issues in implementation, giving particular attention to the relationship between stated goals and actual outcomes.

PA 535 Administrative Law and Regulation (3)
The constitutional basis for administrative law; the Administrative Procedures Act, promulgating regulations, notice, hearings and reasoning processes; practical problems in rule making; administrative adjudication: discovery, hearings, and decisions; informal administrative decisions: fairness vs. efficiency; technical law: jurisdiction, standing, rightness, court procedures; designing administrative procedures to reach good decisions quickly with reasonable resources, freedom of information, current administrative law problems.

PA 536 Strategic Planning (3)
Provides an overview of the application of planning systems to public sector functions and explores newer “stakeholder” theories of planning, planning models, and the step-by-step process for initiating and engaging in strategic planning processes at various levels of government. Through the use of case studies and hands-on exercises, students are exposed to practical applications of strategic planning approaches and techniques.

PA 539 National Policy Process (3)
As a seminar in public administration, the National Policy Process is studied on-site in Washington, D.C. Attention is paid to the actors and the action of policy process, to the institutionalization of that process, and to the administrative components of that process. Meetings are arranged with key policy actors in appropriate organizations including the Office of Management and Budget, Congressional staff, lobbyists and think tanks, the General Accounting Office, regulatory boards, and various agencies. A current piece of legislation or set of legislative initiatives is used as a case study throughout the week.

PA 540 Administrative Theory and Behavior (3)
Managing organizational systems to accomplish purposeful outcomes. Attention is given to how formal structures and informal processes influence organizational goals in public and nonprofit environments. This includes theories of organizational, group, and individual behavior such as organizational design, power and authority, leadership, teamwork, communications, work design, and motivation. Emphasis is on managers and managing in public purpose organizations by reviewing major theories and their application and effective use.

PA 541 Organizational Behavior in Health Service Organizations (3)
Provides an overview of organizational theory and behavior in health services organizations. Emphasis is on developing an understanding of the factors and forces which influence the organization, behavior, and operations of health services delivery organizations through consideration of organizations, their environments, and the roles of individuals working in management.

PA 543 Creating Collaborative Communities (3)
Collaboration is perceived as an important method for addressing complex community issues through alliances with other organizations in the nonprofit, for-profit, and government organizations. This course introduces students to the theory and practice of collaboration through in-class and “living” case studies in the community. Students will learn the success factors, barriers to, and preconditions of collaboration at the intraorganizational, interorganizational, and intersectoral levels. They will explore the potential for using collaboration in a variety of community settings.

PA 544 Building Healthy Communities (3)
Examines the concept of health in its broadest sense as it relates to the well-being and quality of life for our communities. Course focuses on approaches and methodologies to organize and implement initiatives to build healthier communities. Students will engage in a series of exercises that are designed to provide a practical experience in devising organizational means to develop, implement, and assess community efforts to bring about a better quality of life.

PA 545 Organization Development (3)
A consideration of organization development as a strategy for organizational change. This course emphasizes concepts and methodologies relating to organizational problem diagnosis, action research, process change, implementation and evaluation, and the development of appropriate interpersonal competencies and skills. Focuses on the public manager as change agent.

PA 546 Supervision in the Public Sector (3)
Focuses on the role of the supervisor in contemporary public and nonprofit organizations and the knowledge, skills, and abilities needed to effectively perform this role. Among the topics considered are the ethics and values of supervision; work planning, delegating, motivating, and empowering; communicating effectively; developing a team, coping with conflict, monitoring and evaluating performance, and dealing with the boss(es).

PA 547 Interpersonal Communications in the Public Sector (3)
Explores the theory and practice of human communication in an organizational context. Special emphasis will be placed on theories of task-group communication, interpersonal conflict resolution and cross-value (intercultural, interethnic) communication. Various exercises will emphasize skills in verbal presentation, group communications, and interpersonal communication in the context of status, cultural, ethnic, and gender differences.

PA 548 Advocacy Roles in Public Management (3)
Explores the skills of advocacy as they relate to the duties of the public administrator. The basic principles of argumentative procedure are emphasized with a focus on oral advocacy, briefing arguments, and conducting public hearings. Videotape will be used to help develop the oral communication skills of the advocate.

PA 549 Crosscultural Communication in the Public Sector (3)
An examination of intercultural communication aspects, processes, and scenarios occurring in public sector interactions. Emphasis on external-client/constituent relationships. Development of intercultural awareness is a key goal introduced through class discussion, scenario investigation, and research projects. The course is highly interactive with class discussion required.

PA 550 Managing Information Resources (3)
Considers information management and computer information systems as they affect public management and public policy. Basic concepts are covered, and emphasis is placed on the use of computerized information technologies as management tools for public sector administrators. Substantial use is made of case studies to highlight how the public sector manager may most appropriately and effectively use computer resources and avoid inappropriate and misleading use of these resources.

PA 551 Analytic Methods in Public Administration I (3)
Topics to be covered include: research design, sampling methods and theory, data collection, techniques of data analysis and presentation, statistical reasoning, and computer applications for statistical analysis. Prerequisite: PA 810 Basic Statistics for Public Administration, or other recent course in basic statistics.

PA 552 Analytic Methods in Public Administration II (3)
A continuation and expansion of topics covered in PA 551, focusing on analytic methods used in research and evaluation of public sector policies, systems, and programs. Topics to be covered may include: qualitative and quantitative applications in research design and data collection; statistical modeling, forecasting, program evaluation, and other areas of applied research. Prerequisite: PA 551.

PA 554 Policy Analysis Research (3)
Course requires student to become proficient in the use of reference tools for successfully undertaking policy research. Students are required to identify a policy issue and to use library and online resources to track a piece of public policy through the stages of agenda-setting, legislative policy-making, administrative implementation, court adjudication, and follow-up analysis and evaluation of consequences. The course consists of a series of on-line exercises corresponding to each stage of the policy development and implementation process. The exercises are supplemented with discussion and lectures.
PA 555 Program Evaluation and Management (3)
Examines program evaluation from the perspective of the public administrator. Covers the major approaches, methods, and concepts in the field of program evaluation. Topics include impact assessment, research design, qualitative evaluation methods, performance auditing, benefit-cost analysis, and other selected topics.

PA 566 Water Resources Policy and Administration (3)
Reviews the history, politics, and institutions related to current water policy and administration in the United States. Examines policy history leading to present institutional and legal arrangements for federal, tribal, regional, state, and local water quality and quantity decision making. Attention is given to the industrial development of the East and created water resources of the and West as a way to understand changing social sentiments toward water and water policy. Examines the evolution of purpose in pollution laws from human health protection to include ecosystem health protection and explores implementation of such protection through “watershed” approaches to land use and water quality management by NGOs, and federal, state, and local government. A major theme is the problem of developing coherent water policies in a policy arena which has divided authority, plural traditions, and multiple resource and social issues.

PA 561 Operations Research in Public Administration (3)
Addresses the need for today’s public administrators to have some understanding of the increasingly important tools of management science and operations research. It has no prerequisite: quantitative or technical background is not required. A variety of topics will be covered, with some flexibility in choice of topics according to students’ interest. Topics include: linear programming, queuing, simulation, decision analysis, forecasting, PERT/CPM, inventory analysis, and replacement analysis. Methods taught in the course will be in the context of public administration.

PA 569 Fish and Wildlife Policy and Administration (3)
Reviews the history, politics, and institutions related to fish and wildlife policy and administration. Focuses on how policy affecting fish and wildlife is made and implemented. Case studies, largely from the northwestern United States, are used to examine these processes. Policy history is studied at the state and federal level with particular attention to the federalization of authority in this arena and the role of interest groups in policymaking and implementation. Current issues like endangered species, the role of tribes, biodiversity conservation, and inter-jurisdictional management of fish and wildlife are the focus of study.

PA 570 Health Administration (3)
An examination of issues related to the administration of health care systems. Topics include: changing patterns of health care, budget and financial management techniques, and political influences on health administration.

PA 571 Health Policy (3)
Centers on an investigation of the public policy process as it affects the health care field. Specific health care policies and programs are used to explore the characteristics of the health care policy process and the factors involved in the formulation, implementation, and evaluation of health care policies and programs.

PA 572 Health Politics (3)
This course is designed to survey the interworkings of health care legislation. By examining the nuts and bolts of health law development, a better understanding of health policy development within the context of the political system can be realized. Health legislation is examined in terms of historical analysis and the legislative process, including the role of interest groups, the use of information in the political system, the role of bureaucracy, and the budget process.

PA 573 Values and Ethics in Health (3)
Explores a number of issues and questions in health care, including the following: conflicting and competing values, making choices by policy makers and health care professionals and administrators as to who gets what health services; the conflict between money and profits and the concept that all people within the American democratic system are entitled to at least basic health care.

PA 574 Health Systems Organization (3)
Course focus is on the manner in which health care in the United States is organized and administered, as well as the forces which are influencing change in the structure and delivery of health services. Specific topics of analysis and discussion include: structure of the health care system, the providers, health care personnel, financing health care, planning, and evaluation.

PA 576 Strategic Planning in Health Services (3)
Introduces general concepts, models, and theories of strategic planning and develops them in terms of applications in the health services industry. Through participation in an actual strategic planning process, students will gain experi-
ence and some expertise in the planning, decision-making, and conduct of strategic planning. Prerequisite: PA 570.

PA 577 Health Care Law and Regulation (3)
Formulated to give students a working knowledge of substantive law and legal procedures as they relate to the health field. Among the topics considered are negligence, vicarious liability, labor law, criminal aspects of health care law, and courtroom procedures. National and state health care policy reform proposals are also discussed, as are other contemporary topics such as assisted suicide, abortion, and AIDS. Prerequisites: PA 570, 571, 574.

PA 578 Continual Improvement In Health Care (3)
Intended to introduce students to the concepts of continual improvement and illustrate applications of these concepts in health care. The basic content will be drawn from the industrial quality improvement literature; this will be elaborated through presentation and analysis of health care case studies. Students will gain an understanding of different approaches to process improvement and quality management and will be prepared to apply this knowledge in the practice setting. Prerequisite: PA 570.

PA 579 Health Care Information Systems Management (3)
Two foci: health information systems and health care organization re-engineering. The first focus looks at information systems in health care as clinical care and operational management tools. Included are business needs, the relationship between organizational needs and technology capabilities, and the management and control of IS resources. The focus on health care organization re-engineering includes the role of evolving technologies in development of the community health resource and information needs in the shift from inpatient clinical settings to community provider networks.

PA 582 Public Budgeting (3)
Focuses on the major dimensions of public sector budgetary systems. Major emphasis will be devoted to the local budget processes. Topics will include basic concepts of public budgeting, the budget cycle, budget strategy, planning and presentation, alternative budgeting systems, the budget as a political and management tool.

PA 583 Financial Management in the Public Sector (3)
An investigation of the sources, methods, and mechanisms available for financing public organizations in a dynamic and complex environment. It includes a consideration of the administrative and behavioral as well as the economic dimensions of financing public organizations. The examination identifies and explores the skills which are appropriate for managing contemporary public finance systems. Among the specific topics considered in this course are the following: tax and nontax sources of revenue; intergovernmental fiscal relations; debt management; productivity; rate analysis; cash flow management; and managing fiscal retrenchment.

PA 586 Introduction to Health Economics (3)
Focuses on defining and measuring the performance of the health care sector, defining and explaining microeconomic concepts, and evaluating various policy initiatives to improve efficiency, equity, and technological progress in health care. Specific topics include description of the health care industry, production of health, measurement of health care price changes, theory of demand for health care, theory of production and cost, measurement of inputs and outputs, cost-benefit and cost-effectiveness analysis, and structure and functioning of markets. In addition, the role of government in a private economy in dealing with market failure is discussed, especially as it relates to the goal of assuring universal access to health care. Does not require any specific preparation in economics or mathematics, although graphical presentation of economic concepts is emphasized. Prerequisite: PA 570.

PA 587 Financial Management of Health Services (3)
Focuses on the analysis and administration of resources in the health care field. Among the specific topics included in this course are financial statements, budgeting, cash flow, costing, capital decision making, sources of capital and operating funds, depreciation and government reimbursement schemes, and human resources planning and management. Prerequisites: PA 570, 571, 574.

PA 588 Program Evaluation and Management In Health Services (3)
Introduces the theory and practice of program evaluation in the health services system. Includes multiple methods and uses of evaluation from the perspectives of managers, health professionals, and health services researchers, with an emphasis on the utilization of evaluation findings in program planning and management in health services. Course learning will be synthesized through a community-based learning experience involving working with a community partner to develop an evaluation framework and methodology for an existing or proposed health program.

PA 589 Research Methods in Health Services (3)
Provides an introduction to traditional methods of designing and conducting health services research. It is intended that at the completion of the course students will understand multiple approaches to health services research, be able to be both participants in and consumers of the research process, and will be competent in conducting critical appraisals of the health services literature and in writing research proposals. Prerequisites: PA 570, 571, 572, 575.
PA 500
Human Resource Management in the Public Sector (3)
Administration and management of human resource systems in public sector and nonprofit organizations. Focus is on the underlying values of human resource management, related public policies, structural patterns, and the functional areas of HRM systems. Specific attention will be directed to the strategic roles of human resource management in day-to-day operations, merit system concepts and practices, position and wage classification systems, methods of securing a qualified labor force, and labor relations. Legal requirements in each of these areas will be examined. Emphasis will be on learning by doing through use of skill-building exercises, simulation and analysis of case materials, review of relevant case law, administrative rule-making, and current literature. This course serves as a foundation for PA 591.

PA 591
Policy Issues in Public Human Resource Management (3)
Provides an in-depth analysis of evolving issues in the management of human resource systems in public sector and nonprofit organizations. Topics for analysis vary from term-to-term. Examples of topics include: the design and implementation of employee performance evaluation programs, determining training needs and planning a programmed response, compensation systems, including problems of wage compression, negotiated wage settlements and other economic benefits related to wages and salaries, employee morale and motivation, incentive, and occupational health and safety issues. Noted practitioners from the region are frequent guests of the class. This course is a continuation of material covered in PA 590. Students may take this course without completing PA 590.

PA 592
Volunteerism and Volunteer Management (3)
Examines the historical, social, and cultural context of voluntarism in America as a way of understanding who volunteers and why, and what difference it makes in the lives of organizations and communities. The course includes skill development in the management and administration of volunteer programs in a nonprofit organizational context, including volunteer program planning, evaluation of volunteer programs, recruitment, training, and retention of volunteers.

PA 593
Discrimination Law (3)
Examines state and federal laws prohibiting discrimination, the major legal theories of proof, the employer’s defenses against discrimination charges, the administrative agencies involved, the complaint process, and remedies for violations. It is recommended that this course be taken prior to taking PA 594.

PA 594
Affirmative Action Planning (3)
Designed to instruct the student in the affirmative action requirements imposed on federal contractors by federal laws, presidential executive orders and implementing regulations. Lectures, readings, and discussions will be directed toward an exploration of federal and state case law, the enforcement agencies in the administrative process, complaint investigation, resolution of noncompliance, and the elements of an affirmative action compliance program, including the concepts of availability and goals. Recommended that students have had PA 593.

PA 595
Public Sector Collective Bargaining: The Legal Framework (3)
The history and development of public sector collective bargaining in the United States. Specifically included: the role and importance of public sector collective bargaining law; the diversity of collective bargaining laws; comparison of various state laws with proposed national legislation; an in-depth analysis of Oregon’s public sector collective bargaining law, the Oregon Employment Relations Board (ERB)—its structure and operation, the rules of procedure of ERB, major functional areas of ERB—bargaining unit determination, representation and decertification procedures, unfair labor practices, the conduct of elections, the Oregon Mediation Service, impasse procedures and continuing legal issues (mandatory vs. permissible home rule and sovereignty bargaining in good faith). This course is a prerequisite for PA 596 and PA 597.

PA 596
Public Sector Collective Bargaining: Negotiations and Impasse Resolution (3)
Deals with the diversity of roles of the parties in negotiation; planning for negotiations; development of original demands and fallback positions; negotiation strategy and tactics; the major issues in negotiating; and the diversity and similarity of negotiations in state government, cities, counties, school districts, and higher education. A mock negotiation case will be bargained. This course will also deal with the process of mediation, fact-finding, and interest arbitration. Prerequisite: PA 595.

PA 597
Public Sector Collective Bargaining: Administering the Agreement (3)
Deals with the nature of the collective bargaining agreement, the establishment of grievance procedure; the meaning of a grievance; the processing of grievances and the role of conciliation in solving grievances; the American Arbitration Association; the role that administration plays in the American arbitration process; the role of the mediator; and the role of the grievance arbitrator. Prerequisite: admission to the Ph.D. program in public administration and policy.

PA 598
Values-based Management I (3)
Introduces the model of values-based management as a method to enhance the compatibility between the individual and the organization that is essential for decision-making and supervision, particularly in nonprofit organizations. Students will develop a theoretical understanding of the elements of effective supervision and of the impact that a director/supervisor has on the human resource system in their organizations. Students will work through the process of clarifying agency mission, purpose, and values and develop skills for aligning their practices with these values.

PA 601
Research (Credit to be arranged.)
PA 603
Thesis (Credit to be arranged.)

PA 605
Reading and Conference (Credit to be arranged.)
PA 607
Seminar (Credit to be arranged.)
PA 610
Selected Topics (Credit to be arranged.)

PAP 611
Theoretical Foundations of Governance (3)
This course analyzes the foundational, political, social, and economic theories which have shaped institutions and processes of governance during the modern era. Prerequisite: admission to the Ph.D. program in public administration and policy.

PAP 612
Governance, Public Administration, and Rule of Law Systems (3)
This course provides students with an understanding of the ways in which the “rule of law” influences the theory and practice of governance and public administration. This understanding is developed by comparing rule of law systems with other ways of creating social order and organizing community life; examining the origins of the rule of law within both liberal democratic theory and the American constitutional tradition; exploring the distinctive institutional role that administration plays in the American rule of law system through its participation in administrative rule making and policy implementation; examining the role ambiguity created for career administrators in carrying out their responsibilities within the American rule of law system. Prerequisite: admission to the Ph.D. program in public administration and policy.

PAP 613
Institutional Foundations of Governance (3)
This course examines the basic concept of governance in the context of the nation state and its political economy. Particular attention is paid to archetypical systems, structures, and functions of governance which developed in the modern era. This material is then related to the development of the American administrative state. Prerequisite: admission to the Ph.D. program in public administration and policy.

PAP 614
Contemporary Governance (3)
Contemporary factors impacting governance world wide: political instability and fragmentation of government, erosion in the jurisdiction and power of the nation state and its causes; the search for new approaches and substitutes to government; accelerated blurring of sector boundaries—increasing use of third party providers; and non-political boundaries. Prerequisite: admission to the Ph.D. program in public administration and policy.

PAP 615
Administrative Process (3)
The purpose of this course is to explore the nature of the administrative process and its relationship to organizational structure, process, and behavior within the broader context of programmatic and organizational governance. Emphasis will be placed on the following topics: the influence of structural alternatives on behavior; value systems and normative prescriptions, organizational culture, and the influence of the administrative process on the way in which agencies formulate and implement policy within the con-
text of their respective legislative mandates. Prerequisite: admission to the Ph.D. program in public administration and policy.

**PAP 616  
Policy Process (3)**
This course focuses on the politics of the policy process. It examines the role, influence, and interaction of legislatures, executives, bureaucracies, courts, policy communities, and citizens. The course follows the stages of policy development: problem definition, agenda setting, budgeting, authorization, implementation, and oversight. Case material is taken from federal, state, and local governments with special consideration given to the intergovernmental aspects of the policy process. Prerequisite: admission to the Ph.D. program in public administration and policy.

**PAP 618  
Political and Organizational Change (3)**
An investigation into the nature of change, particularly its political and organizational manifestations. The focus is on change as a process (i.e., how it happens) as well as a product (i.e., the outcome). Conceptual and theoretical concerns in understanding change, the sources of political and organizational change, change in the governance system, change in contemporary society, and managing in complex and nonprofit organizations will be examined.

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**SCHOOL OF URBAN STUDIES AND PLANNING**

350 Urban Center  
503-725-4045  
www.upa.pdx.edu/USP/

**B.A., B.S.—Community Development**

**Minor in Community Development**

**Graduate Certificate in Gerontology**

**M.U.R.P.**

**M.U.S.**

**Ph.D.**

The School of Urban Studies and Planning provides an interdisciplinary approach to understanding the urban setting. The school’s programs are structured to allow students living or working in the Portland metropolitan area to take advantage of the broad range of resources available at Portland State University and in the community.

Opportunities for urban education are available through five programs. Undergraduates can major in community development or complement their bachelor’s degree in another field by simultaneously meeting the curricular requirements for a minor in urban studies. Students wishing to pursue issues related to working with the elderly may complement their other degrees by meeting the requirements for a graduate-level certificate in gerontology.

Students interested in developing professional planning skills may pursue a Master of Urban and Regional Planning. Interest in developing urban research capabilities may be pursued through a Master of Urban Studies. Individuals desiring higher levels of research skills and/or academic employment may choose the Ph.D. in urban studies.

**PA 700  
Basic Statistics for Public Administration (3)**
Course prepares students with no background in statistics for PA 551. Public administration examples and public sector use of statistics are emphasized. Topics include: measurement, frequency distributions, probability, estimation, confidence intervals, hypothesis testing, and computer applications. Course serves as a prerequisite for PA 551. Course does not fulfill M.P.A. degree requirements.

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**UNDERGRADUATE PROGRAMS**

The School of Urban Studies and Planning offers an undergraduate major in community development. Community development is a process in which people act together to promote the social, economic, political, and physical well-being of their communities. Career opportunities are available in not-for-profit organizations, private consulting firms, and state, regional, or local governments.

Community development practitioners work on a range of issues including housing, community organizing, transportation, the environment and economic development. The major prepares students for postbaccalaureate employment or graduate work in a professional academic field.

The curriculum is grounded in applied social science and incorporates a great deal of field research. The program takes advantage of the wealth of resources available in the Portland metropolitan area and draws from a variety of academic disciplines and departments. Students specialize in one of three areas of concentrated study: community organization and change, housing and economic development, or communications and community development.

Students may also pursue a 27-credit minor in community development.

**Admission.** Students must be formally admitted to the community development program by submitting an application to the School of Urban Studies and Planning. Candidates are selected based on written statements of intention. Fall enrollment is strongly recommended to allow students to take core classes in sequence and to create a community environment among each group of students.

Majors in community development must complete the following degree requirements. Substitution of coursework is acceptable only by permission from the faculty adviser.

**Major in Community Development**

**Freshman/Sophomore:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS 200 Introduction to Politics</td>
<td>4</td>
</tr>
<tr>
<td>EC 201 Principles of Economics</td>
<td>4</td>
</tr>
<tr>
<td>Stat 243 Introduction to Probability and Statistics</td>
<td>4</td>
</tr>
<tr>
<td>Stat 244 Probability and Statistics</td>
<td>4</td>
</tr>
<tr>
<td>Soc 200 Introduction to Sociology</td>
<td>4</td>
</tr>
<tr>
<td>Ec 201 Principles of Economics</td>
<td>4</td>
</tr>
<tr>
<td>PS 200 Introduction to Politics</td>
<td>4</td>
</tr>
</tbody>
</table>

Total credits 20

**Required Core Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>USP 301 Theory and Philosophy of Community Development</td>
<td>4</td>
</tr>
<tr>
<td>USP 302 Methods of Community Development</td>
<td>4</td>
</tr>
<tr>
<td>USP 303 Community Development Field Seminar</td>
<td>4</td>
</tr>
</tbody>
</table>

Total credits 12

**Community Development Concentrations (29-30 credits)**

Students will choose to concentrate their work in one of the following areas. Each field of concentration includes a set of required USP courses and elective course-related courses from the School of Urban Studies and Planning and from other departments, including: Black Studies, Economics, Finance, Geography, History, Political Science, Sociology, and Speech Communication. Lists of elective courses for each field of concentration are available from the school office.
Community Organization and Change
USP 311 Introduction to Urban Planning . . . .4
USP 426 Neighborhood Conservation and Change . . . .4
USP 428 Concepts of Community Development . . . .3
USP 429 Urban Poverty and Social Policy . . . .3
USP 450 Citizen Participation . . . .4
Elective credits from approved list . . . . . . . . . .8
Total 31

or

Housing and Economic Development
USP 311 Introduction to Urban Planning . . . .4
USP 312 Urban Housing and Development . . . .4
USP 423 Development Process . . . . . . . . . . . . . . . .3
USP 428 Concepts of Community Development . . . .3
USP 451 Community Economic Development . . . .3
Elective credits from approved list . . . . . . . . . .13
Total 30

Communication and Community Development
USP 311 Introduction to Urban Planning . . . .4
USP 426 Neighborhood Conservation and Change . . . .4
USP 428 Concepts of Community Development . . . .3
USP 450 Citizen Participation . . . .4
Two of the following five courses . . . .8
Sp 215 Introduction to Intercultural Communication (4)
Sp 218 Interpersonal Communication (4)
Sp 322 Political Communication (4)
Sp 337 Communication and Gender (4)
Sp 437 Urban Communication (4)
Elective credits from approved list . . . . . . . . . .8
Total 31

Field Experience (6 credits)
Community development majors will complete six credits of community-based work, either through an individual internship or through participation in an approved capstone.

Total credits required for the major: 68-72

Requirements for a Minor. To earn a minor in community development a student must complete 27 credits (18 credits must be in residence at PSU). These courses should include a Sophomore Inquiry community studies course or its equivalent, USP 311 and USP 428. Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling divisional minor requirements.

GRADUATE PROGRAMS

PH.D. IN URBAN STUDIES

Dynamic metropolitan regions are increasingly seen as central to economic, social, and political development throughout the world. Composed of one or more central cities, suburbs, and adjacent agricultural and natural areas, they are the essential building blocks of the global economy and the sources of social and political innovation. Understanding metropolitan regions and their problems and analyzing policies to shape their evolution are major concerns of the Urban Studies doctoral program. The program explores these issues from multi-disciplinary and interdisciplinary points of view. Through participation in classes and seminars and supervised research and teaching activities, Ph.D. students prepare for careers in institutions of higher education and in research organizations.

Core Requirements. Entering students in the Ph.D. in urban studies take the following common courses: USP 613 Urban Economic and Spatial Structure; USP 614 History and Theory of Urban Studies; USP 617 Sociology and Politics of Urban Life; USP 530 Research and Design; and USP 697 Urban Studies Seminar. The first four are normally taken in the first year, with USP 697 taken at the beginning of the second year. Students in USP 697 produce a fully developed research paper as a requirement for continuation in the program.

Field Area Requirements. Doctoral specializations are available in the following areas of advanced interdisciplinary study: planning, community development, policy analysis, gerontology, and social demography. Each student offers two fields of specialization, at least one of which should be chosen from among those listed above. A student-nominated field, developed in conjunction with School faculty, may be offered as a second specialization. Faculty groups specify field-specific course requirements, including methodology courses and courses essential to a multidisciplinary approach. These groups work closely with students to develop coherent specializations that prepare each individual to do doctoral-level research in that field.

Planning focuses on the development and implementation of mechanisms for organizing social, economic, political, and environmental change at the local, state, and regional levels. The field includes study of the relationships and interactions among public and private institutions, organizations, citizens, and landscapes; the design of processes for facilitating dialogue among public actors; and the tools for planning analysis and evaluation. As a pioneer in state land use law and a place in which planning discourse is highly visible, Oregon provides a rare vantage point for the study of planning history, planning processes and strategies, and professional practice.

Community Analysis deals with the dynamics of neighborhood and community formation and change and with public policies that address the needs of groups and places within contemporary society. The rich civic culture of Portland and the Pacific Northwest and the region’s connections to the Pacific Rim provide numerous examples for study and analysis. Within the broad field of Community Development, students can address such topics as ethnic and neighborhood history, housing and economic development, the roles of public and nonprofit institutions in community building, mediation and conflict resolution, changing patterns and systems of communication, and the changing meanings of place.

Policy Analysis provides an opportunity for students to identify urban problems, contemporary and historical policy issues, and stakeholders in the policy process. It also allows for analysis of the effects of policies and of the historical and political contexts in which they emerge. Students may approach this field from any combination of applied, theoretical, or critical perspectives, such as program evaluation, policy critique, or historical analysis. Students should identify at least one substantive policy area (such as transportation, housing, the environment, aging, community development, or information infrastructure) and complete a course of study in that area.

Gerontology addresses the social issues, problems, policies, and programs that affect the quality of life for our rapidly aging population. Students have the opportunity to work directly with faculty on publicly- and privately-funded research at the College’s highly regarded Institute on Aging. Adult development and aging is approached from a multidisciplinary and collaborative perspective. Faculty research interests include: family caregiving and work-family balance, social networks and widowhood, diversity in aging, long-term care policy and programs, housing environments, development and evaluation of training for health professionals, and planning for the aging of the baby-boom generation and beyond. As a state with a national reputation as a leader in the development of community-based, long-term care, Oregon provides a unique environment for the study of aging processes, policies, and services.

Social Demography provides training in the tools of demographic analysis, with particular attention to the methods of data collection, techniques of demographic analysis, and the interpretation of research findings. Social demography involves the use of the principles and methods of demography in decision-making and plan-
PH.D. IN PUBLIC ADMINISTRATION AND POLICY

The School of Urban Studies and Planning cooperates with other schools in the College of Urban and Public Affairs to offer an interdisciplinary degree in public administration and policy. For details, see the program description on page 305.

MASTER OF URBAN STUDIES

The Master of Urban Studies provides training for students seeking employment in public and private urban research organizations. For some students, employment opportunities can be found in colleges offering two-year degree programs.

The M.U.S. degree requires a total of 52 credits. M.U.S. students pursue a common core of courses dealing with the analysis of urban phenomena (17 credits). Each student also defines a field area which is pursued through coursework (29 credits) and individual research leading to a thesis or research paper (6 credits). In addition, the degree provides for a specialized option in social and policy research.

Core-Area Requirements. The urban core-area requirements for the M.U.S. degree include the following courses:

- USP 513 Urban Economic and Spatial Structure ........................................... 3
- USP 514 History and Theory of Urban Studies .................................................. 3
- USP 517 Sociology and Politics of Urban Life .................................................... 4
- USP 530 Research Design .................................................................................. 4
- USP 597 Urban Studies Seminar ..................................................................... 4

The first four are normally taken in the first year, with USP 597 taken at the beginning of the second year. Students in USP 597 produce a fully developed research paper as a requirement for continuation in the program.

Field-Area Requirements. The student selects a pattern of coursework that equips him or her for research in areas of applied interest. Field areas may focus on urban aspects of social science theory, in one of the fields emphasized in the urban studies Ph.D. program or on a substantive issue of particular concern to the student. Relevant courses are available within the School of Urban Studies and Planning and in many other departments within the University.

Research Requirements. The M.U.S. degree provides for thesis and nonthesis options. The thesis option requires registration for 6 credits of USP 503 Thesis and completion of a formal thesis. The nonthesis option requires preparation of a substantial research paper (involving registration in 6 credits of USP 501 Research) and successful completion of a written field area examination.

Social and Policy Research Option. Students with a primary interest in advancing their urban research skills may choose a specialized field area in social and policy research. This field requires completion of the following:

- USP 534 Data Analysis ...................................................................................... 4
- USP 536 Policy Evaluation Methods ................................................................. 3
- USP 563 Program Evaluation ......................................................................... 3
- Additional courses within the field ................................................................ 9

Total 19

Students selecting this option must present a thesis.

MASTER OF URBAN AND REGIONAL PLANNING

The Master of Urban and Regional Planning program provides diversified preparation for professional planning practice. Graduates of the program will acquire skills suiting them for employment in public agencies and private firms involved in the urban development process. The program offers six fields of specialization, to allow the graduate either to enhance previous work experience or to enter the job market with defined specializations.

These are:
- Urban Transportation
- Land Use
- Urban and Regional Analysis
- Community Development
- Environment
- Policy Planning and Administration

Degree Requirements: Master of Urban and Regional Planning

Core Courses (37 credits):

- Planning Sequence
  - USP 540 History and Theory of Urban Planning I ........................................ 3
  - USP 541 History and Theory of Urban Planning II ....................................... 3
  - USP 595 Reshaping the Metropolis ............................................................... 3

- Methods Sequence
  - USP 531 Geographic Data Analysis and Display ......................................... 3
  - USP 533 Planning Analysis ........................................................................... 3
  - USP 535 Metropolitan Data Analysis ............................................................ 3

- Analytical Methods
  - USP 515 Economics: Applications to Urban Studies .................................... 4
  - USP 525 Design Analysis in Planning ........................................................... 1
  - USP 543 Geographic Applications to Planning ............................................. 3
  - USP 553 Legal Processes in Urban Planning ................................................. 1

- Workshops (10 credits)
  - USP 558 Planning Workshop ....................................................................... 9
  - USP 559 Planning Practice Workshop .......................................................... 1

Specializations (35 credits).

Field Paper/Project. Each student must prepare and defend a research paper or project in their field of specialization demonstrating their ability to integrate and

Total Credits 72
apply material from their coursework. Each student must register for at least 3 credits of USP 501 Research. Up to 6 credits of USP 501 may be counted toward meeting the field area requirement.

**GERONTOLOGY**

The graduate certificate in gerontology provides multidisciplinary specialized training for postbaccalaureate students interested in acquiring or upgrading skills appropriate to working with the aged in a variety of settings. The certificate program provides training in any one of the following subspecialty areas: human services planning and assessment; program administration; research and evaluation; counseling and direct services; and health and long-term care. Students need not be enrolled in a degree program to receive the graduate certificate in gerontology.

The certificate program consists of a six-course format (18 credits minimum) made up of a three-course multidisciplinary core, two elective courses, and an internship or independent project. The coursework will provide students with a general multidisciplinary introduction to the field of aging while internship or independent project will allow a student to acquire experiential learning in a community-based aging agency.

**ADMISSION**

All qualified applicants receive consideration for admission without regard to sex, race, handicap, age, creed, marital status, or national origin.

In addition to the general University requirements listed on page 56, the student should arrange for the School of Urban Studies and Planning to receive: Graduate Record Examination scores (advanced optional)—not required for applicants to the Master of Urban and Regional Planning; three recommendations from individuals familiar with the student’s academic or professional background on the forms provided; and a personal essay.

Ph.D. applicants are strongly urged to complete successfully an introductory sequence of statistics courses before entering the program. The doctoral applicant’s personal essay should include a discussion of the field area(s) in which the applicant intends to concentrate and ideas about research topics that are of interest.

For the M.U.R.P. program, students are admitted fall and winter terms. There are no spring term admissions. For the M.U.S. program, students are admitted fall, winter, and spring terms. For the doctoral programs, students are admitted fall term only. The deadline for fall term applications is February 1; winter term deadline is September 1; and spring term deadline is November 1. Students interested only in the graduate certificate in gerontology may request application forms from the Institute on Aging.

**FINANCIAL AID**

Financial aid programs are administered without regard to race, creed, national origin, handicap, marital status, or sex. The school awards a significant number of graduate assistantships to qualified students. Assistantship awards are reviewed annually and can be renewed for up to two additional years. More advanced students may compete for dissertation fellowships. Applications for graduate assistantships and fellowships should be submitted to the school by February 1. New students seeking financial support must complete their application for admission by February 1, since a student must be admitted as a regular graduate degree student to hold an assistantship.

Second-year M.U.R.P. students may apply for the David Evans and Associates Scholarship. $2,500 is awarded each year.

In addition, many students find opportunities for part-time work in the Portland area. The faculty maintain contact with a number of public agencies that have such positions.

**PROGRAM RULES**

Advanced Standing in Urban Studies and Planning Graduate Program. A total of 72 credits in nondissertation graduate training is required of all Ph.D. students. Ph.D. students are also required to take a minimum of 27 dissertation credits. For students with a master’s degree in a related discipline, a maximum of 24 advanced standing credits may be requested. All such requests must be accompanied by a listing of previous graduate work for which advanced standing is sought.

The Master of Urban Studies program requires a minimum of 52 credits in graduate courses, of which at least 36 must be taken at Portland State University. A maximum of 17 credits of advanced standing credit may be requested. The Master of Urban and Regional Planning program requires a minimum of 72 credits in graduate courses of which at least 48 must be taken at Portland State University. A maximum of 24 credits of advanced standing credit may be requested.

An M.U.R.P. student may request advanced standing for the 1-credit USP 559 Planning Practice Workshop. If advanced standing credit is approved, the

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Gerald Sussman, Urban Studies and Planning
students are considered to have fulfilled the internship requirement. Such advanced standing credit will be included in the 24-credit maximum for all advanced standing; only professional work completed within seven years of the date the degree is granted can be included.

Requirements with regard to both the pattern of coursework and total credits must be satisfied prior to either advancement to candidacy in the Ph.D. program or graduation in the M.U.S. and M.U.R.P. programs. A student is not obligated to enroll in a required course if the student has already acquired knowledge of the subject through earlier graduate coursework. In such cases, the student may request exemption from the course. Permission is granted only after obtaining written verification from the instructor that the student has met the requirements of the required course. All such requests should be made within one year after entrance to the program.

Limitation on Graduate/Undergraduate Courses. Students in the M.U.R.P., M.U.S., and Ph.D. programs are strongly advised to use no more than 12 credits of courses offered simultaneously at the 400- and 500-level in support of their degree programs. Courses must be an integral part of the student's program and courses with the same content must not be available on a purely graduate basis.

Limitation on By-Arrangement Courses. Admitted Ph.D. and master’s students may utilize no more than 12 credits of by-arrangement classes (501/601 and 505/605). In cases where more than 12 credits are needed because of the lack of regularly scheduled classes, a waiver must be submitted for approval by the school Curriculum Committee and by the school director.

Continuous Enrollment. All students admitted to the M.U.R.P., M.U.S., and Ph.D. programs in urban studies must be continuously enrolled until graduation, except for periods in which they are absent by approved leave. Taking 3 credits per term during the regular academic year will constitute continuous enrollment. Failure to register without an approved leave may result in termination of student admission.

Grade Requirement. A student who receives more than 9 credits of grades of C+ or below in all coursework attempted after admission to an urban studies graduate degree program will be dropped from that program. A student attempting both a master's and a Ph.D. degree in urban studies may receive no more than 9 credits of C+ or below in both programs. MURP students must receive grades of at least B- in all required courses.

Research Facilities

The School of Urban Studies and Planning benefits from the activities of three research units: the Population Research Center, the Center for Urban Studies, and the Institute of Portland Metropolitan Studies. These units provide numerous opportunities for student involvement in research projects through graduate assistantships, research credit, and informal participation in current studies.

Courses

Courses with an asterisk (*) are not offered every year.

USP 199 Special Studies (Credit to be arranged.)
USP 299 Special Studies (Credit to be arranged.)
USP 301, 302, 303 Community Development Colloquium (4, 4, 4)
USP 304, 305 Reading and Conference (Credit to be arranged.)

Consent of instructor.

USP 401/501 Research (Credit to be arranged.)
USP 404/504 Cooperative Education/Internship (Credit to be arranged.)
USP 407/507 Seminar (Credit to be arranged.)


USP 409/509 Practicum (Credit to be arranged.)

Consent of instructor.

USP 410 Selected Topics (Credit to be arranged.)

Consent of instructor.

USP 423/523 The Development Process (3)

The Development Process introduces students to the development process, particularly at the local level. Explores the political, economic, social, and legal forces that influence the planning function and the roles of planners. Changing concepts in practice are also considered. Prerequisite: upper-division standing.

USP 312 Urban Planning: Environmental Issues (4)

Problems of housing, development, and redevelopment in an urban setting are analyzed from economic, demographic, and planning perspectives. Introduction to the nature of the urban economy and residential location, with a focus on housing problems and their associated social, physical, and racial aspects. Role of federal and community-based housing policies and programs. Prerequisite: USP 311.

USP 313 Urban Planning: Environmental Issues (4)

Environmental issues and problems are evaluated in the context of planning alternatives. Particular emphasis on the economic and social implications of environmental problems. The planner’s concern for achieving balance between these factors is explored through an analysis of various planning approaches, e.g., environmental impact studies, land use controls, and resource analysis. USP 311 recommended.

USP 385 History of American Cities (4)

Traces the evolution of urban centers from the colonial period to the present. Focuses on the development of cities, on growth within cities, and on the expansion of public responsibility for the welfare of urban residents. Particular attention is given to the industrial and modern eras. Prerequisite: upper division standing. Also listed as Hst 337. May be taken only once for credit.

USP 399 Special Studies (Credit to be arranged.)

USP 401/501 Research (Credit to be arranged.)

Consent of instructor.

USP 404/504 Cooperative Education/Internship (Credit to be arranged.)

USP 407/507 Seminar (Credit to be arranged.)


USP 409/509 Practicum (Credit to be arranged.)

Consent of instructor.

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USP 313 Urban Planning: Environmental Issues (4)

Environmental issues and problems are evaluated in the context of planning alternatives. Particular emphasis on the economic and social implications of environmental problems. The planner’s concern for achieving balance between
USP 426/526
Neighborhood Conservation and Change (4)
The dynamics of neighborhood development, including economic and institutional factors in neighborhood change; neighborhood definition and image, residential choice, neighborhood segregation, neighborhoods in the political process, and neighborhood preservation strategies. Prerequisite: junior standing. Graduate students undertake a substantial independent project in addition to other course requirements.

USP 427/527
Downtown Revitalization (3)
This course deals with the growth and revitalization of downtowns and commercial districts. It examines the evolution of downtown core areas, introduces the theoretical explanations for commercial location, and looks at approaches for maintaining activities in older commercial areas. The major emphasis is on the United States, with some attention to the experience of other nations. Graduate students undertake a substantial independent project in addition to other course requirements.

USP 428/528
Concepts of Community Development (4/3)
An investigation of models and perspectives on community development. Both structural and dynamic concepts related to processes of community-based change will be explored, including methodological approaches for assessing community settings, and the various roles and relationships in a community-based decision-making environment. Includes required field observation and a substantial independent field research project which examines and analyzes cases of community problem-solving. Such project will utilize methodologies appropriate to field and survey research. USP 312 recommended. Graduate students undertake a substantial independent project in addition to other course requirements.

USP 429
Poverty in the Urban Community (3)
An introductory course about the nature, extent, and causes of poverty in the United States. It covers a broad historical overview, demographics and trends, explanations of poverty, and anti-poverty policies. Questions of race, gender, and the special manifestation of poverty will be addressed.

USP 430
Urban Studies Research Methods (4)
This course introduces students to social research in urban studies. It deals with hypothesis development, research design, and approaches to the measurement of urban phenomena. It also treats the application of quantitative data analysis to typical problems in urban studies and planning. Prerequisites: Mth 243 and 244 or equivalent.

USP 445/545
Cities and Third World Development (3)
Critical survey of historical, economic, cultural, political, and urban aspects of Third World development, starting with the colonial era. Historical patterns of integration of the Third World with the emerging world market system. Covers problems of the post-independence period, focusing on urban sectoral issues and policy alternatives. Specific topics include trade, investment, industrialization, finance, technology transfer, political participation, land use, housing, transportation, information, infrastructure, population growth, social services, militarism, and cultural conflict.

USP 430/530
Concepts of Citizen Participation (4)
Examination of principles, methods, and programs for giving explicit attention to the perspectives of citizens in the development and implementation of public policies and programs. Sets citizen participation in its historical context with an assessment of its impact to date. Participation from the perspective of both the citizen and the government will be covered as will the variety of approaches for achieving participation goals and objectives.

USP 431/531
Community Economic Development (3)
Course sets community economic development within the context of traditional state and local economic development policy and compares their underlying theoretical perspectives. It examines the impact of recent economic, social, and demographic transformations on local labor markets and surveys the labor-market problem solving activities of local governments and community-based organizations. Business and commercial development strategies are also explored.

USP 434/534
The Urban School and “At Risk” Status (3)
Draws upon theory, research, and practice for the examination of the conditions of being “at-risk” in urban schools. Explores the family, community, and school environments and their relationships in the hindrance of development of children and youth leading to their “at-risk” status. This course is cross-listed as EPFA 456/556. May be taken only once for credit.

USP 435/535
Land Use: Legal Aspects (3)
Land use and planning from the legal perspective. Includes historical review of attitudes toward property tenure and ownership, the relationship between local planning and regulations, and current issues and perspectives on land use including emerging state and federal roles. Graduate students undertake a substantial independent project in addition to other requirements.

USP 436/536
Urban Transportation: Problems and Policies (3)
An introduction to urban transportation policy from a historical and political perspective. Historical developments in transportation policy are traced from the early streetcar days up through the present. Federal, state, and local transportation policies are examined for their impact on urban spatial and economic development. An overview of current issues in transportation policy and planning includes transportation demand management strategies, transit-oriented design, road pricing, and alternative transportation modes. The intersection of environmental and transportation policy is also examined, as is the decision-making structure at the local, regional, and state level.

USP 437/537
Information Cities (3)
Focuses on the political, social, and cultural impacts of mass media and information technologies within the urban matrix. Contextualizes the “information society” in historical, institutional, political, economic, and global settings. Topics include the flexible production, the segmentation of consumption, alternatives to mass media, the Web, the reorganization of work, the transnationalization of culture, commercial and political surveillance, and the development of urban information infrastructure.

USP 480/580
Political Economy of Nonprofit Organizations (3)
Considers theories of altruism, trust, and social capital. Examines the connections between wealth and social responsibility and between elite status and social reproduction. Explores the broad scope of nonprofit activity in the economy, the interdependence of government and nonprofit organizations in the modern state, and the role of think tanks in shaping public policy. Surveys the dramatic rise of non-governmental organizations in developing countries and the future of nonprofits in a global economy.

USP 490/590
Green Economics and Sustainable Development (3)
Examines prevailing assumptions about economic growth, production, consumption, labor, and leisure. Considers how changes in these basic assumptions might help us design an economic system that includes alternative values such as appropriate scale, community impact and environmental sustainability.

USP 493/593
Advanced GIS Applications (3)
Offered as a studio-based GIS class. The objective is for students to apply GIS skills acquired in previous GIS courses to a specific real-world spatial problem. Tasks will involve problem definition, primary data collection, advanced GIS analysis, and presentation of results. This format will give students practical experience in implementing GIS technologies with specific emphasis on planning problems. Students will be required to work in small groups in a simulated professional planning practice environment. Prerequisites: USP 591 and 592, or USP 591 and practical experience.

USP 503
Thesis (Credit to be arranged.)

USP 510
Selected Topics (Credit to be arranged.)

USP 511
Urban Social Structure (3)
In this seminar, we examine the city as a field of social interaction, as a built form, as a part of a system of cities, and as an epiphenomenon of political and economic forces. Two themes recur throughout our examination. The first considers the extent to which cities enhance or inhibit human interaction and human need for community. The second considers the extent to which urban development and its consequences are the result of inevitable economic forces or are the result of the continual and purposeful adaptations by human agents.

USP 512
Urban Political Structure (3)
An introduction to the political aspects of urban areas. Provides an overview of the structure and operation of local governments, how they are constrained by and interact with other levels of government and how the existence of many local governments in an urban area affects political decision making. It will also consider political questions that are of particular importance in
urban areas; how different responses arise between local contexts; and how these different responses then influence the urban areas.

USP 513/613 Urban Economic and Spatial Structure (3)
Provides an introduction to the economic and spatial aspects relevant to the field of urban studies. Provides an overview of existing theories and empirical evidence relating to urban spatial and economic relationships. Examines the impact of federal, state, and local government policies, and changing economic conditions on these relationships.

USP 514/614 History and Theory of Urban Studies (3)
Leading thinkers and milestonies in the analysis of urban development and urban life. Complementary theories and models of the social sciences. Postmodern approaches. Visionary and critical responses to the possibilities of metropolitan life.

USP 515 Economics: Applications in Urban Studies (4)
Prepares students for advanced urban studies seminars requiring a background in urban economic analysis. Microeconomic analysis of individual and firm behavior is developed with emphasis on applications to urban studies. Topics which may be covered include: land use and land rents, urban structure, poverty, housing and slums, transportation, environmental quality, and local government finance.

USP 516 Cities in the Global Political Economy (3)
Introduction to political theory and the political economy of globalization. Begins with core political ideas from classical works of political economy (Locke, Rousseau, Smith, Mills, Marx, Marshall, Keynes, Friedman, and Rawls) and proceeds to an analysis of the rise of transnationalism and globalization. Looks at changes in the global economy, revolutionary changes to capitalism, the fall of communism, and impacts of globalization on cities, communities, the state, work, social mobility, welfare, cultural diversity, and the environment.

USP 517/617 The Sociology and Politics of Urban Life (3)
A survey of important theories of and empirical research about the social structure and political dynamics of urban areas. The impacts of globalization on urban social and political life, the changing nature of community and social relations within cities and suburbs, and evolving patterns of intergovernmental cooperation and conflict within metropolitan regions will be analyzed.

USP 519/619 Principles of Social Demography (4)
Covers the basic substantive areas of demography—population size, composition (age, sex, race), distribution, and processes (mortality, fertility, and migration)—as well as a number of topics of special concern to demographers and policy makers, including family and household structure, income and poverty, and economic development and the environment. Lectures and readings are used to identify current and historical demographic trends (U.S. and international), to consider the consequences of these trends for various groups within the population, and to examine the policy issues they raise. A schedule of topics to be covered is provided below. While this is a substantiative course, an introductory knowledge of basic demographic techniques is helpful to understand lectures and readings.

USP 520/620 Applied Demographic Methods I (4)
The first of a two-course sequence. The purpose is to introduce the various basic methods of demographic analysis. The topics to be covered include data sources, population characteristics and change, and measures of mortality and fertility. In addition, the course will help students develop good judgment about data availability and quality; and acquire skills for presenting data. Prerequisite: a course in regression analysis, such as USP 534.

USP 521/621 Applied Demographic Methods II (4)
The second of a two-course sequence. The purpose is to introduce more advanced methods of applied demographic analysis. The topics to be covered are: data sources, internal and international migration, data evaluation, population estimates, and projection projections. The course will consist of readings, lectures, laboratory sessions, homework exercises, one examination, and one term-long project.

USP 522/622 Practicum in Applied Demography (4)
Represents the capstone course for the graduate concentration in applied demography. The focus is on integrating a practicum experience with the methods of applied demography into a research paper. Students will develop, revise, and resubmit numerous drafts of a final research paper. Students will also provide professional peer review in evaluating the development of fellow student research papers.

USP 524 Site Planning (3)
An exploration of the subject with emphasis on practical applications. The class will consist of a series of progressively difficult site planning exercises supported by lectures and presentations. Students will be exposed to the geological, aesthetic, environmental and legal aspects of site planning. Attention will be focused on environmentally sensitive lands, preservation of wildlife habitat and natural vegetation, compatibility with surrounding development, and both zoning and subdivision codes. The exercises will explore methods of subdivision, planned unit, and cluster developments. Prerequisites: USP 525 or 311 and 421. Graduate students undertake a substantial independent project in addition to other course requirements.

USP 525 Design Analysis in Planning (1)
Approaches to the design of analysis issues in urban planning. The definition of urban space through mass, rhythm, and scale. Design and urban circulation. Planning tools for the implementation of design goals.

USP 529 Qualitative Research for Planners (2)
Gives students in the M.U.R.P program experience with (a) designing research using qualitative approaches to data collection, (b) exposure to a variety of qualitative research methods with professional applications, (c) experience in using at least one approach, (d) experience with analyzing qualitative data.

USP 530 Research Design (4)
Principles of research design, including philosophical bases of scientific research, approaches to research, problem identification, problem statement, development of research questions, development of research hypotheses, and the relationship of research hypotheses to modes of data gathering and analysis. The laboratory (530L) must be taken concurrently. Prerequisite: USP 430.

USP 531 Geographic Data Analysis and Display (3)
Introduction to principles and methods of collecting, organizing, analyzing, and visualizing of geographic information. Explores types and sources of geographical data used in urban and regional studies and planning with an emphasis on Census data. Provides an overview of principles and components of Geographic Information Systems (GIS) as a primary tool of spatial data analysis and visualization. Attention is given to practical applications of GIS and to developing essential skills in desktop mapping and spreadsheet software.

USP 532 Data Collection (4)
The acquisition of data for research in an urban context. Emphasis is on the concepts, terminology, and methods related to the use of survey research and secondary data. Prerequisite: USP 430 and/or an introductory undergraduate statistics sequence and USP 530. The laboratory (USP 532L) must be taken concurrently.

USP 533 Planning Analysis (3)
Introduction to applied research planning with emphasis on problem definition, planning/policy research design, collection and analysis of secondary data, and the use of qualitative observations. Other topics include land use surveying and the development of communication skills, including writing, presentations, interpersonal dialogue, and group process. Prerequisite: USP 531.

USP 534 Data Analysis (4)
Application of multivariate statistical analysis in urban context. Emphasis on applications of various techniques within the general linear model. Prerequisite: USP 532. The laboratory (USP 534L) must be taken concurrently. Prerequisite: USP 430.

USP 535 Metropolitan Data Analysis (3)
Introduction to primary data acquisition and elementary statistical analysis for planners. Prerequisite: undergraduate statistics introduction.

USP 536 Policy Evaluation Methods (3)
Focuses on the methodological issues that must be addressed in attempting to evaluate programs and policies. Course offers an introduction to a variety of techniques useful in policy evaluation. Topics which may be covered include difference equations, Markov models, and queueing models. A section of the course considers the methodological issues that arise in cost-benefit analysis, such as present value calculations, determining the value of nonmarket benefits, and correctly evaluating costs. Prerequisite: USP 515 or equivalent.
USP 532/637 Economics of Urban Transportation (3)
The transportation system is critical to the functioning of an urban area. The movement of people and goods affects both the productivity and livability of the region. Transportation systems also affect and are affected by land use and location decisions. This course presents the economic analysis of urban transportation. This will include analysis of the effects of transportation systems on land use and location as well as the evaluation of transportation investments. These methods will then be applied to evaluation of various proposals to improve the urban transportation system. Prerequisite: USP 515 or 615.

USP 538 Grantwriting (3)
This course is intended to familiarize students with the principles and procedures of funding acquisition for urban and public services, to develop expertise in evaluating grant proposals, and to acquaint students with funding sources for public and nonprofit agencies and the federal and local review processes. Students will be required to study and critique existing proposals, examine successful and unsuccessful proposals, and develop proposals in their areas of interest.

USP 539 Statistical Methods in Regional Science and Planning (2)
Demonstrates the application of statistical methods to problems in the fields of regional science, transportation, and land use planning. Material is organized to provide a general description of a statistical technique and a related set of applications. Data sets used in the actual applications are also provided to students, allowing them to replicate or recast the analysis. Methods covered include correlation, multiple regression, multivariate regression, time series analysis, and limited dependent variable techniques.

USP 540 History and Theory of Planning (3)
The evolution of the urban planning field from its 19th century European origins through 20th century U.S. history provides the setting for critical analyses of the internal dimensions and external relations of the theory and practice of planning. Specific topics include: problems of rationality in forecasting, analysis, decision making and design, philosophical issues and political-organizational contexts of professional activity; and the place of planning in the political economy of U.S. metropolitan development.

USP 541 History and Theory of Planning II (3)
Continuation of USP 540 focusing on theoretical and practical issues involved in plan implementation. Topics include alternative institutional approaches to implementing plans, such as government production, regulation, the use of market mechanisms, and various forms of coproduction; and professional roles associated with implementation alternatives, such as investor, developer, regulator, negotiator, mediator, and facilitator. Prerequisite: USP 540.

USP 542 Land Use Implementation (3)
An examination of alternative approaches to implementation of plans. Topics include: regulatory tools, e.g., zoning and subdivision ordinances; review functions, e.g., design review and administrative review; and programs, e.g., growth management, development movements, community development, housing assistance plans; and political-procedural issues, e.g., permit streamlining, cost impacts.

USP 543 Geographic Applications to Planning (3)
Urban ecology/land use/cartography, metropolitan commercial structure/analog method of market area analysis; graph analysis and gravity concepts within transportation analysis, urban climate, geomorphology, and ecosystems/McHarg method/floodplain zoning.

USP 544 Urban Transportation Planning (3)
Principles of urban transportation planning. Urban transportation problems and policy formation. Techniques used in transportation planning. Prerequisite: USP 519.

USP 547 Planning for Developing Countries (3)
The nature of the urban and regional planning process in developing countries. Tools, approaches and/or improvisations utilized in regions where data and information are unreliable or insufficient. Relationship of planning process to the economic and political realities of developing nations. The impact of rapid social change and conflict on the urban and regional development process. Differences between poor and rich countries in planning approaches and expectations.

USP 548 Administrative Law (3)
Introduction to the legal and decision-making implications of administrative rules, regulations and forums at federal and local levels of government. Emphasis on the functional and operational consequences of administrative law on the planning functions and the emerging importance of rule making and policy analysis in urban planning in the United States.

USP 549 Regional Planning Methods (3)
Techniques and methodological approaches utilized in the preparation of regional development plans. Application of various methods of analysis with a focus on the regional planning process for urban regions. Techniques include the identification of regional development issues, nature and direction of growth, regional goal formulation, establishment of development strategies, and delineation of urban growth boundaries. Attention is paid to the role of regional planning in the economic development process and the techniques utilized in assessing the economic impact of development strategies.

USP 552 Urban Poverty in Critical Perspective (3)
Examines historical, empirical, and theoretical perspectives on urban poverty in the United States. It addresses the politics of poverty dis-course by examining why explanations and policy prescriptions have emphasized morality and behavior; race, family, and culture, and dependency and responsibility rather than systemic economic inequality.

USP 553 Legal Processes in Urban Planning (1)
Covers the legal context within which land use planning and plan implementation takes place at the local level. Requirements for the conduct of hearings, appeals, and evidentiary processes are analyzed; skills for and techniques of writing findings and conditions of approval, foreclosed, and questions of ordinance interpretation and liability are discussed.

USP 558 Planning Workshop (3, 6)
Organized team approach to a current planning problem in the Portland metropolitan area. Focus on applied planning practice, field investigation, data analysis, written and oral communication. Work program includes strategies, methods, and skills needed to identify issues and draw together all participants in the search for solutions. Emphasis is on the blending of practical skills with knowledge gained from core-area courses. Two-term sequence, credit for first term dependent upon successful completion of second term.

USP 560/660 Policy Process (3)
Focuses on the politics of the policy process. It examines the role, influence and interaction of legislators, executives, bureaucracies, courts, policy communities and citizens. Follows the stages of policy development: problem definition, agenda setting, budgeting, authorization, implementation and oversight. Case material is taken from federal, state, and local governments with special consideration given to the intergovernmental aspects of the policy process.

USP 561/661 Policy Analysis: Theoretical Foundations (3)
Theories and ideologies of modern age that guide and constrain policy formation, implementation and evaluation. Of particular concern is the understanding of the concepts of individualism, collectivism and community developed by the philosophers and social and behavioral scientists of this period.

USP 562/662 Policy Implementation (3)
Critical analysis of how policies are implemented. Examination of different theoretical and practical approaches to studying policy implementation. Emphasis on case studies of the implementation of current policy initiatives, including identification of policy goals, actors in the policy process, intergovernmental relations and conflicts, revision procedures, legitimation issues, and the role of bureaucracy. Examination of how various stakeholders and actors in the policy process can have an impact on the implementation process.

USP 563/663 Program Evaluation (3)
This course is designed as a graduate introduction to the field of evaluation research and program evaluation. Topics covered include contemporary and emerging theoretical perspectives on evaluation research, experimental and quasi-experimental design, internal and exter-
nal validity and reliability, measurement, analysis of change, ethical issues in evaluation, administra-
tion of program evaluation.

USP 564 Political and Administrative Issues in Aging (3)
Coverage of organizational dynamics as related to the elderly including the provision and use of services. Covers voting behavior and advocacy as well as administrative and legal issues that are particularly applicable to the elderly.

USP 566/666 National Urban Policy (3)
Examination of the federal government’s involvement with urban issues from a historical and political perspective. Focus on policies pertaining to social welfare and economic development, with an overview of other policy arenas such as housing, health, and education. Critical analysis of how and why the federal government responds to urban crises with national policy initiatives and how changes in political regime correspond with changes in policy emphases and perspectives.

USP 567/667 Urban Housing Policies (3)
Review of the history and the role of public policy in the housing sector. Study of past and current trends in the delivery of housing services in urban areas. The basic philosophies related to the supply of housing are analyzed and examined relative to current trends in the delivery of housing services in urban areas. Critical review of the role of the federal government and the construction industry. Equal attention to the role of public housing and the impact of urban renewal. Active participation in discussion and a research paper are required.

USP 568/668 National Long-term Care Policy (3)
This course examines the need for long-term care services and the risk factors associated with utilization of them as well as familiarizing students with the financing and delivery mechanisms in long-term care, both public and private. The policy issues in current long-term care initiatives are explored.

USP 569 History of Urban Development (3)
This course aims toward a better understanding of the nature of cities, their functions, and their evolution. It reviews the history of city development and analyzes the rise of the metropolis and changes in social, economic, and political systems. Emphasis is placed on the origin of contemporary urban phenomena, problems, and policies in the developed and developing worlds.

USP 570/670 Transportation and Land Use (3)
An analysis of transportation and land use interactions in urban areas. The impact of highway and transit changes on travel behavior and location decisions are examined. Prerequisites: USP 515 and 544.

USP 571/671 Environmental Policy (3)
Surveys federal, state, and international environmental policy-making with an emphasis on process design. Political and technical objectives for policy, the roles and responsibilities of institutions, federal-state tensions, representation and analysis of stakeholding interests, the role of the media, and environmental justice are key elemen-
tments. Topical areas include issues concerning resource management as well as pollution prevention.

USP 572/672 Regional Economic Development (3)
This course focuses on methods of analyzing why regions differ economically, how they interrelate, and why and how they react to changes in economic policies and conditions. Part of the course will be devoted to a study of models of regional structure and growth, such as economic base or input-output, and the strengths and weaknesses of each in modeling the regional economy. The remainder of the course will be concerned with the development of models for use in regional forecasting and/or evaluation of policy changes on regional development. Prerequisite: USP 515.

USP 573/673 Housing Economics (4)
Looks at the economics of real estate and housing, including land rent, interest rates, apartment rents, and housing prices, using an economic framework. Basic concepts in urban economics such as land rents, externalities, and public goods are reviewed. Explores the technique most commonly used in real estate and housing economics: hedonic pricing. Explores the rationale and impact of government intervention in the private real estate market.

USP 574/674 Spatial Analysis (3)
The use of geographically coded data to identify and anticipate future patterns of human activity in metropolitan areas and systems of cities. Emphasizes techniques to establish whether the characteristic landscapes associated with static and dynamic models of behavior are present. Diffusion processes, expanded location theories, and models of decision making from spatially arrayed cues receive particular attention. Prerequisites: USP 532.

USP 575 Urban Service and Facility Planning (3)
Examination of process of converting land to urban use, with particular emphasis on fiscal impacts and the planning and financing of urban services and facilities. Examines economic, engineering, and design issues associated with the provision of urban infrastructure. Prerequisite: USP 515.

USP 576/676 Activity Location (3)
The location of human activities in urban systems. Location of economic activities where profit maximization is desired, and location decisions with equity maxima. Prerequisite: USP 519.

USP 577/677 Urban Environmental Management (3)
An accelerated survey of principles, concepts, and techniques employed in the management of urban environmental problems, with particular emphasis to “best practice” and emerging ideas. Selected topics may include: watershed stewardship, brownfield development, green spaces, protection or urban wildlife, stormwater management, urban agriculture, residential toxics.
USP 578/678
Impact Assessment (3)
Empirical techniques employed in measuring the impacts associated with land use change. Topics: goals achievement matrix approaches to impact assessment, trade-offs between community and regional welfare, distance and time in urban analysis, estimating the social profitability of land development, cost-benefit analysis applied to freeway location, techniques for valuation of nonpriced resources, measuring municipal revenue and expenditure impacts, gravity models and transport demand estimation, economic base analysis for employment and population impact assessment, estimating air and noise pollution associated with land development. Prerequisite: USP 515.

USP 579
Metropolitan Fiscal Structure (3)
The course will focus on the following topics: the tax burdens, fiscal resources and expenditure patterns of local governments in metropolitan areas. The impact of revenue sharing and categorical grants. The spatial distribution of local government services, transfer payments, and tax burdens. Review of literature on the urban-suburban exploitation thesis, the Tiebout-Oates model, etc. Prerequisite: USP 515.

USP 581/681
Environmental Psychology (3)
Examination of the relationship between people and their physical environments. Specific topics include human spatial behavior (personal space and territoriality), the contribution of the behavioral sciences to architectural and urban design, community and neighboring in the city, and environmental cognition. USP 518 recommended.

USP 582/682
Poverty, Welfare, and Income Distribution (3)
Looks at the problem of poverty in the United States and the various programs designed to alleviate or reduce the level of poverty. Looks at the measurement of the poverty level, the competing theories of poverty, and the related problems of racial discrimination. Looks at the rationale behind our anti-poverty programs and assesses how well those programs are meeting their intended goals.

USP 583/683
Urban Stress (3)
The city as a source of stress: physiological and psychological response to stress, processes of adaptation. Among the sources of stress considered will be density, noise, spatial mobility. Impact of stressors on mental and physical health, techniques of assessing stress, social means of reducing stress. USP 528 recommended.

USP 584/684
Negotiation in the Public Sector (4)
Overview of conventional and innovative applications of negotiations in public sector activities, and the potential and limitations of negotiation-based approaches to public decision making. Key components include negotiation theory, individual skill development, and a review of the institutional, legal, and political context of negotiations.

USP 585/685
Housing and Environments for the Elderly (3)
The urban environment as a physical and social context for the diverse lifestyles of its elderly residents. Theoretical approaches to aging and the environment. Perception and impact of living environments on older adults. Specific topics include housing and services alternatives, issues in developing, regulating, and managing housing for the elderly, and housing design.

USP 586/686
Urban Social Networks (3)
Analysis of the social psychological and anthropological literature on social networks: the structure and content of interpersonal networks (including kinship, friendship, instrumental) in an urban setting. Specific topics will include: the nature of interpersonal ties in the city, urban migration and networks, access to urban resources, methods of analyzing personal and group networks. Prerequisite: USP 517 or 518.

USP 587/687
Perspectives on Aging (3)
An introduction to the field of gerontology is presented from the perspectives offered by multiple disciplines including sociology, psychology, biology, economics, political science, and demography. Stereotypes of aging and theoretical frameworks for understanding aging are examined, as are normal age-related changes, the impact of social, political, and economic conditions on the process of aging, and the myriad consequences of a growing population of elders.

USP 588/688
U.S. Health Care System: Historical, Comparative, and Political Perspectives (3)
Survey of the historical development of the health care system in the United States, focusing on relationships between professionals, health care institutions, and government. The changing structure of the U.S. system will be compared with developments in other countries, and the politics of current policy proposals will be analyzed.

USP 589/689
Economics of Aging (3)
Objectives are (1) understand the roots of income inequality between the aged and non-aged, (2) review the economic and policy factors that influence the decision to retire, (3) understand the political economy of old age income support in the U.S. and abroad, (4) explore the history, operation, and policy questions of our major public pension system, social security, and (5) discuss private pensions in relation to U.S. income maintenance policy.

USP 591
Geographic Information Systems I: Introduction (4)
The use of computers in Geographic Information Systems (GIS) and mapping. Includes theory of databases related to geographic information management and practical aspects of database design. Students will use a variety of programs for mapping and spatial analysis of geographic information. Each student completes a series of exercises demonstrating a variety of approaches to the analysis and display of spatial data. Prerequisite: Geog 270 or equivalent experience in cartography. Students enrolling in this class must register for a computer lab section. Also listed as Geog 488/588, may only be taken once for credit.

USP 592
Geographic Information Systems II: Applications (4)
Analysis and applications of geographic information systems concepts and technology to land planning and management issues. The multipurpose land information systems concept is used as an organizing device for spatial registration of data layers to achieve data sharing and compatibility among functions. User needs assessment and systems design provide the basis for systems procurement, implementation, and use. Prerequisites: Geog 488/588 or USP 501, and USP 519 or 543. Students enrolling in this class must register for a computer lab section. Also listed as Geog 492/592, may only be taken once for credit.

USP 594
Planning in the Pacific Northwest (3)
This course will utilize the work of Pacific Northwest historians, writers, critics, and others as a vehicle for equipping planners with a somewhat systematic and certainly eclectic cultural overview of the region they hope to serve. This course will attempt to prepare them to be members of a place and of a culture of place, and to embrace the art and literature of the Pacific Northwest as part of their ongoing professional development. Though focused on the Pacific Northwest, the general approach used in this course should be applicable to other regions as well.

USP 595
Reshaping the Metropolis (3)
Examination of the contrast between classic models of metropolitan settlement and new patterns emerging in the late twentieth century. Land use changes in the context of new patterns of economic activity; ideas about the physical form of the good city and the societal implications of development patterns; issues of residential choice, community change, globalization, and environmental protection as affected by metropolitan growth.

USP 596/696
Theory of Urban Form (3)
Seminar which addresses itself to two basic questions: what forces determine urban form and, how do these forces interact. Urban form in this seminar is interpreted as more than just physical form—it includes political, social, economic, cultural, etc., individually and combined. Participants prepare and present a major research paper on subjects of theoretical relevance to urban form.

USP 597/697
Urban Studies Seminar (4)
Research seminar required for second-year students in the urban studies Ph.D. and Master of Urban Studies programs. Students apply their substantive background and methodological training to develop all the components of a social science research paper: statement of focused research question, literature review, development of hypotheses, definition of appropriate methodology, design of data acquisition, and pilot testing of data acquisition strategy. Prerequisites: USP 530, 514/614, 513/613, and 517/617.

USP 601
Research (Credit to be arranged.)

USP 603
Thesis (Credit to be arranged.)
The Population Research Center provides a setting for demographic research within the College of Urban and Public Affairs. The center provides a research and teaching focus for the investigation of the causes and consequences of demographic change in current society.

As the lead agency of the Oregon State Data Center Program, the center has access to the various files produced by the U.S. Bureau of the Census. This information includes current and past census data for the State of Oregon, information from the monthly Current Population Surveys, and the results from other Census Bureau surveys as the American Housing Survey, American Community Survey, and the Survey on Income and Program Participation. These data are housed in the center's library and are available to faculty, students, and the public. In addition to providing outreach to Oregon's counties and communities, the center faculty teach courses in applied demography.

One of the important responsibilities of the center is to produce the official population estimates for Oregon's counties and incorporated cities. The center also provides population projections for Oregon's cities and counties. Typical research activities found within the center include enrollment forecasts for school districts, market analysis for housing projects, survey research on population issues, social and economic factors affecting demographic change, population distribution and population migration, population geography, and demographic methods. Center staff regularly assist city, county, and state governments on examination of population issues.

The center's current staff includes personnel trained in demography, sociology, geography, statistics, and data processing. This variety of expertise enables the center to provide an eclectic and multidisciplinary approach to population research.
INTRODUCTION

The Portland Metropolitan Studies Institute (IMS) at Portland State University is an independent and neutral organization that focuses on research and education related to the region's challenges. The Institute sponsors research projects, technical assistance activities, and field course projects, with a strong emphasis on issues concerning the elderly. Past research projects have addressed the needs of the elderly, focusing on their lives, work, sociology, speech and hearing sciences, and urban studies.

The Institute offers technical assistance activities, short-term training, and field course arrangements. Research activities are designed to provide faculty and students with appropriate learning experiences while simultaneously investigating critical issues concerning the elderly. Past research projects have been conducted in cooperation with a wide variety of community agencies, both public and private.

Funding for this work has been awarded by national, state, and local governmental agencies as well as by private foundations. The Institute offers special services to the community through the Senior Adult Learning Center, which sponsors various programs that serve persons of retirement age.

Further information about the Institute, including criteria for admission to the Graduate Gerontology Certificate Program, is available through the Institute on Aging, located at 470 Urban Center, or by visiting the Institute's website at www.upa.pdx.edu/IOA.

THE INSTITUTE ON AGING

470 Urban Center
503-725-3952

As a multidisciplinary center of gerontology, the Institute on Aging is a research and training center concerned with adult development and aging. Major work focuses on the problems, policies, and program alternatives which affect the lives of older adults. The program draws on faculty and includes community members from health and physical education, psychology, public administration, social work, sociology, speech and hearing sciences, and urban studies.

Research activities of the Institute are designed to provide faculty and students with appropriate learning experiences while simultaneously investigating critical issues concerning the elderly. Past research projects, technical assistance activities, short-term training, and field course arrangements have been conducted in cooperation with a wide variety of community agencies, both public and private.

Funding for this work has been awarded by national, state, and local governmental agencies as well as by national and local private foundations.

The Institute offers through appropriate departments, a number of survey courses, research seminars, and policy and program development courses relating to adult development and aging, which can lead to the Graduate Certificate in Gerontology. (See Graduate Programs, Urban Studies and Planning.)

The Institute also provides special services to the community through the Senior Adult Learning Center, which sponsors programs that serve persons of retirement age.

Further information about the Institute, including criteria for admission to the Graduate Gerontology Certificate Program, is available through the Institute on Aging, located at 470 Urban Center, or by visiting the Institute's website at www.upa.pdx.edu/IOA.

THE TRANSPORTATION STUDIES CENTER

350 Urban Center
503-725-4020

The Transportation Studies Center is a research unit that is organized within the Center for Urban Studies. It is supported by grants and contracts from the U.S. Department of Transportation, the Oregon Department of Transportation, and Tri-Met. The center also emphasizes transportation planning, technology transfer, and research on transportation and land use interactions, and the financing of transportation systems.

While administratively located within Portland State's College of Urban and Public Affairs, the Institute is a resource for all departments and for all higher education institutions in the state.

THE CRIMINAL JUSTICE POLICY RESEARCH INSTITUTE

550 Urban Center
503-725-4014

The Institute has recently been approved as an operating unit by the University and the Oregon University System. The Institute is a multi-disciplinary research unit serving the entire PSU community, but affiliated with the Administration of Justice Division of the School of Government. It is designed to provide policy makers throughout the state with a forum in which issues of policy and practice may be explored, using objective performance-based criteria. It is also designed to bring together the varied resources of Portland State University and coordinate those resources with other institutions of higher education to address issues emanating from the justice community.

The Institute has an external advisory board, representing a broad cross-section of justice agencies, which serves to focus attention on issues of concern to the community, state, and region.

Projects currently underway, or recently completed by faculty associated with the Institute include:

- Evaluation of the Oregon “Boot Camp” programs.
- System modeling of the Multnomah County justice system to advise on jail capacity.
- Evaluation of the Portland Police Bureau’s Domestic Violence Reduction Unit.
- Development of an evaluation and assessment system for the Governor’s Juvenile Crime Prevention Program.
- Evaluation of training materials for domestic violence prevention activities.
- Assessment of the impacts of prison sitting in multiple communities within Oregon.
The School of Extended Studies is a major provider of continuing adult education in Oregon. Working together with campus and community partners, Extended Studies provides a vital link that responds to new opportunities with innovative programs for meeting the growing continuing education needs of the region. Recognized nationally for its commitment to excellence, Extended Studies has received numerous awards for its programming, including: U.S. Department of Housing and Urban Development Community First Award; National University Continuing Education Association (NUCEA) Outstanding Credit Program Award; NUCEA Exemplary and Innovative Program Award; Region X Head Start Award. Each year, in cooperation with other academic units, Extended Studies offers over 1,600 courses, seminars, and workshops, totaling more than 60,000 registrations.

Extended Studies delivers both credit and noncredit programs spanning many fields of study. Subjects range from conflict management and multimedia professional to teacher education and the arts. Offerings include degree-oriented courses as well as customized professional development offerings (programs/instructional packages/workshops/training/educational opportunities) designed to meet the specific needs of the community. Courses are offered in the evenings, on weekends, and in daytime short-course formats to accommodate the schedules of working adults.

In addition to year-round professional development opportunities, Extended Studies coordinates a comprehensive Summer Session. Courses are taught by Portland State University faculty and visiting faculty and are offered in formats ranging from two-day workshops to eight-week courses.

In partnership with the School of Business Administration, Extended Studies offers the Statewide M.B.A. distance learning program and the off-campus Liberal Studies with business minor undergraduate degree. In 1996 it partnered with the Graduate School of Social Work to launch the Statewide M.S.W distance learning program, the first of its kind in the United States.

INFORMATION
Call 503-72-LEARN
E-mail: learn@ses.pdx.edu
http://extended.pdx.edu
Mail: PO Box 1491, Portland, OR 97207
Registration, 503-725-4832
Accounts Payable/Receivable, 503-725-4819

PROGRAMS
CONTINUING EDUCATION
GRADUATE SCHOOL OF EDUCATION (CE/ED) 503-723-4670
Provides credit and noncredit professional development for PreK-12 educators, administrators, and support staff, post secondary educators and administrators; the broad spectrum of human service professionals (e.g., counselors, social workers, psychologists); and training professionals. Courses and workshops are offered on campus, at a variety of sites throughout the state, and by contract on-site in school districts and human service agencies. Offerings include: off-site master’s degrees, administrative licensure programs, the added elementary endorsement, the ESL/ Bilingual endorsement, the special education continuing endorsement, and a number of certificate of completion programs (e.g., Training and Development, Child and Adolescent Treatment, Early Intervention/Early Childhood Special Education, Instructional Technology, and Standards-Based Education).

CONTINUING EDUCATION PRESS 503-723-4891
Publisher of a series of Italic Handwriting books and materials for adults and children, as well as other varied titles including: Getting Funded: A Complete Guide to Proposal Writing by Mary S. Hall; The Art of Legal Interpretation by Constance E. Crooker; Helping Children Heal From Loss: A Keepsake of Special Memories by Laurne Van-
Si and Lynn Powers; and Working on the Bomb by Stephen L. Sanger. Brochures and detailed information on publications available upon request.

**DEGREE COMPLETION**

Designed specifically for working adults wanting to complete their bachelor's degree evenings and weekends. Available at four sites: Beaverton and Harmony (503-725-2148), Salem (503-399-5262), and Downtown main campus (503-725-3822).

**DISTANCE LEARNING, 503-725-4863**

Instructors combine a variety of technologies (telephone, video, computer, e-mail, and Internet) for course delivery. Extended Studies works with PSU academic units to deliver master's degrees in education, business administration, social work, and public administration.

**EARLY CHILDHOOD TRAINING CENTER (ECTC), 503-725-4813**

Provides credit and noncredit courses, conferences, workshops, on-site consultation, and technical assistance to individuals and programs serving children age 0-5 and their families. ECTC administers the Region X Head Start Quality Center and Quality Center for Disabilities Services. The center also publishes The Oregon Assessment Tool for Young Children.

**INDEPENDENT STUDY, 503-725-4865**

University and high school credit courses offered by correspondence, with e-mail/online support. These self-paced courses are open to anyone at any time. Catalog available.

**PROFESSIONAL DEVELOPMENT CENTER, 503-725-4820**

Quality programs developed to meet the needs of the business community. Courses and seminars are taught from a practical perspective and scheduled during times convenient for most working adults. Offerings include award-winning certificate of completion programs, focused seminars, specialized refresher courses, and customized on-site training programs. Topics include: human resource management, multimedia professional, project management, executive assistant, engineering and technical communications, environmental, international/ESL, Tax Institute, and workplace conflict resolution. Catalog available.

**PSU'S BEAVERTON SITE, CAPITAL CENTER, 503-725-2148**

Brings PSU offerings to Washington County. Serves as a training and education center for PSU undergraduate and graduate degrees, certificate of completion programs, and on-site customized training.

**PSUS CLACKAMAS SITE, HARMONY CENTER IN CLACKAMAS COUNTY, 503-725-2148**

PSU's newest off-campus site. Students can now take courses in Clackamas County. Catalog available.

**PSU SALEM CENTER, 503-399-5262**

Extends PSU offerings to the Salem community and explores ways that the institutions in the Oregon University System can cooperatively serve the Salem area. Serves as a training and education center for PSU degree completion, certificate of completion programs, and training in child welfare, as part of the Child Welfare Partnership.

**PSU STATEWIDE M.B.A., M.P.A, 503-725-4822**

Delivers PSU's M.B.A and M.P.A. programs to admitted students in remote locations throughout the state.

**SUMMER SESSION, 503-725-3276**

Approximately 1,200 courses are offered June-August for academic credit through the more than 40 departments that comprise PSU. Formal admission is not required for Summer Session and all students are charged in-state tuition, except non-residents taking 9 credit hours or more.

Summer Session offers the greatest possible flexibility in scheduling, with classes starting throughout the summer in formats that include two-day workshops through one-, two-, four-, and 11-week courses. Sequential courses are offered to enable students to complete a full year of courses (languages, science) in one term.

In addition to on-campus courses, there are several programs offered off campus and abroad. Students may choose from a variety of special events, including concerts, recitals, and lectures. Summer session highlights include:

- Bel Canto Vocal Training Institute
- Chamber Music for Strings
- Chamber Winds
- Deutsche Sommerschule am Pazifik
- Haystack Program in the Arts and Sciences
- International Visiting Professors
- Kodaly Certificate of Completion Program
- PIP Fest (Portland International Performance Festival)
- Self-Enhancement, Inc. Music Camp

The Summer Session office is located in the School of Extended Studies building, 1633 S W Park Avenue, Portland, Oregon. Open weekdays 8:00 a.m. to 5:00 p.m. throughout the year. A PSU Summer Session catalog is issued in early April. To request a copy, call 503-72-LEARN, or write to: PSU Summer Session P.O. Box 1491 Portland, Oregon 97207.
INSTITUTIONAL PROGRAMS

OFFICE OF INTERNATIONAL AFFAIRS

KIMBERLEY A. BROWN
VICE PROVOST
101 EAST HALL
503-725-3455
www.intl.pdx.edu

The Office of International Affairs houses International Education Services (International Student and Faculty Services and Study Abroad), the Global Graduates program, the Institute for Asian Studies, the Institute for the Study of U.S.-Latin American Relations, and the Middle East Studies Center, and is the administrative office for the International Studies Bachelor of Arts Program of the College of Liberal Arts and Sciences. Information on International Studies can be found on page 149.

INSTITUTE FOR ASIAN STUDIES

Director: Larry Kominz
308 East Hall, 503-725-8571
The Institute for Asian Studies coordinates Asia-related university and community programs to promote the development of Asian and Asian-American studies at Portland State University and in the metropolitan area. The institute, in conjunction with Friends of Asian Studies, links student and community interests by underwriting student scholarships, international conferences, library acquisitions, faculty development, teacher workshops, and public programs such as the annual Trena Gillette Memorial Lecture which brings to campus experts on various Asian topics. The institute also coordinates various events, including guest speakers and visiting scholars from East Asia (China, Japan, Korea).

INSTITUTE FOR THE STUDY OF U.S.-LATIN AMERICAN RELATIONS

Director: Shawn Smallman
309 East Hall, 503-725-8195
The Institute for the Study of U.S.-Latin American Relations provides an opportunity to explore and study Latin American countries, cultures, economies, and societies. This includes foreign relations between Latin America and Asia, Africa, Europe, and North America. The institute empowers the student to examine the social, political, economic and cultural complexity of Latin American countries from a student perspective. The institute has links with the social service community in the greater Portland Metropolitan area and their connections with Latin America, as well as the Latin American Trade Council of Oregon.

Through the institute's library, students can enhance their work toward a degree in associated disciplines. Students can also gain skills for employment in business, government, national and international non-governmental agencies, social work, and academia.

MIDDLE EAST STUDIES CENTER

Director: Jon E. Mandaville
320 East Hall, 503-725-5467
The Middle East Studies Center (MESC) is the first federally supported undergraduate program in the United States for Arabic language and area studies. Dating from 1961, the Center's mandate today is to support the academic study of the Middle East at PSU and to provide Oregon's community with information on the peoples, cultures, languages, and religions of the region in an open and objective atmosphere. MESC is one of PSU's oldest and flourishing institutional bridges between the campus—its resources and expertise—and the commu-
MESC also serves as a regional information center providing support to business, media, and educational systems throughout the Northwest.

Options in Middle Eastern Studies:
- Bachelor of Arts Degree in International Studies with a concentration in the Middle East.
- Middle East Studies Certificate complements a Bachelor of Science or Arts degree in any other PSU degree program.

MESC participates in a number of consortia programs with universities and organizations world-wide that maximize resources and expand student opportunities. Such activities, dating from 1991, include: a consortium with the University of Washington's Center for Middle Eastern Studies as a national resource center with funding from the Department of Education's Title VI program; participation in the Western Consortium for Middle East Studies which sponsors an annual intensive summer language and area studies program (hosted by PSU in 1990 and 1996); membership in national and international academic and professional organizations including the Middle East Studies Association, Middle East Outreach Council, National Council on U.S.-Arab Relations, American Institute for Yemeni Studies, American Research Institute in Turkey, and others. In 1994 MESC entered into a partnership with Osh State University (Kyrgyzstan) which promotes student and faculty exchanges and cooperation in various disciplines.

Branford Price Millar Library's largest specialized collection is the substantial Middle East vernacular holdings, a nationally recognized resource owing its existence to the federal Foreign Language and Area Studies Acquisition Program, augmented through private donations over the years. The collection includes a number of rare books and is available to the public through local and Internet online access.

A number of scholarship and fellowship opportunities are available to students in support of Middle East language and area studies. These include the Elizabeth Ducey Scholarship Fund, the Patricia and Gary Leiser Scholarship in Middle Eastern Languages, and the recently established Noury Al-Khaledy Scholarship in Arabic Studies (see page 35 for details).

COMMUNITY OUTREACH
PSU's mission as an urban university includes a strong commitment to community outreach with service at its core. MESC's outreach program supports the following activities:
- Teacher workshops
- Free, public lending library of over 500 educational resources housed in "Building Bridges," a community resource center for international, peace, and multicultural education, 121 Sixth Avenue Building
- Guest lectures and presentations by PSU faculty, students, and friends
- Public school curriculum development
- Northwest Model League of Arab States (hosted by PSU in 1994 and 1995)
- Sponsorship of public lectures, conferences, speakers' bureau, cultural and arts events including plays, concerts, dance performances, films, and museum exhibits
- Cooperating with local organizations, including American-Arab Anti-Discrimination Committee, Institute for Judaic Studies, Oregon Interreligious Committee for Peace in the Middle East, Muslim Educational Trust, Iranian Women's Association, Turkish-American Student Cultural Association, and the refugee resettlement network
- Cooperating with other educational service organizations such as World Affairs Council of Oregon, Oregon International Council, and public and private schools.

GLOBAL GRADUATES INTERNSHIP PROGRAM
Coordinator: Arlene Brockel
306 East Hall, 503-725-5895

The Global Graduates Internship Program is administered by the Oregon University System and is another way PSU students can augment their program of study. Participation in Global Graduates will enable students from all fields of study to acquire international experience for credit as part of their degree program.

The benefits gained from an international internship are numerous: personal
growth and better understanding of world affairs; competitive advantage in the job market; proficiency of foreign language and an understanding of foreign cultures; knowledge of professional practices in another country; maturity and confidence; and professional contacts for your future career.

Global Graduates offers internships throughout the world in private-sector companies, government agencies, and non-profit organizations. The latest information on available internships and application information can be found on the Global Graduates Website: www.orst.edu/dept/int_ed/global_grads. Scholarship funding is available.

**INTERNATIONAL EDUCATION SERVICES**

**Director:** Dawn L. White  
212 East Hall

The Office of International Education Services provides a variety of academic and support services to international students and faculty and to students studying abroad through PSU-sponsored programs.

**IES/STUDENT AND FACULTY SERVICES**  
212 East Hall, 503-725-4094

The International Education Services staff who work with admitted international students, visiting scholars, and international faculty are a central source of information on the services available to these groups. The office works closely with sponsoring agencies, diplomatic missions, the Immigration and Naturalization Service, and other government agencies to resolve academic, financial, and immigration issues.

Services offered to international students and scholars include:

- An intensive orientation program for all incoming international students and faculty;
- Opportunities to live in American homes and visit with American families through a host family network;
- An English conversation program which promotes both conversation and cross-cultural understanding between international and American students;
- Participation in the International Cultural Service Program (ICSP) which sponsors cultural presentations by international students throughout the greater Portland metro area. Students at PSU are invited to apply for this program, and those selected receive a partial tuition credit;
- Sponsorship of a wide variety of educational and social events for international students with University and community groups;
- Provision of technical immigration assistance for visiting scholars and faculty in securing legal employment at PSU;
- Assistance to various departments at PSU in meeting the legal requirements for employment for visiting scholars and faculty.

For information about international student admissions, call the Office of Admissions, International Student Admissions, 503-725-3511.

For information about the English as a Second Language program (ESL), call the ESL program in the Department of Applied Linguistics, 467 Neuberger Hall, 503-725-4088.

**IES/STUDY ABROAD**  
212 East Hall, 503-725-4011

The Office of International Education Services sponsors a wide variety of study abroad programs for PSU students year-round. The University administers some of these programs directly, while others are conducted in cooperation with the Oregon University System (OUS), universities offering programs abroad jointly, such as the Northwest Council on Study Abroad (NCSA†), and educational associations such as the Council on International Educational Exchange (CIEE).

The office also seeks to facilitate teaching and other opportunities abroad for faculty and to develop bilateral exchanges with universities abroad which will provide exchange opportunities for both faculty and students.

The University supports a long-standing tradition that study of other cultures and places is an essential component of modern education.

The office houses the Study Abroad Library, which catalogs thousands of opportunities for overseas study. People seeking information on academic programs offered by educational institutions in this country and abroad are welcome to read the materials available in the office. Qualified students planning to travel or study abroad may also purchase the International Student Identity Card—good for discounts, identification, and insurance—in the Office of International Education Services.

Advisers in the Office of International Education Services provide guidance and assistance for students who seek to enrich their university education through study abroad. The University’s study abroad opportunities are highlighted in the following sections. Because these programs offer residence credit and home campus registration, participating students who are eligible for financial aid at PSU may apply it, in most cases, to these study programs.

**PROGRAMS**

**ARGENTINA: Buenos Aires**  
Council on International Educational Exchange (CIEE) Program

An advanced social studies program is offered fall and spring semesters at the Universidad de Buenos Aires and the Argentine branch of the Facultad Latinoamericana de Ciencias Sociales (FLASCO). Students live in homestays or in student residences.

**AUSTRALIA: Melbourne**  
Council on International Educational Exchange (CIEE) Program

A wide variety of subjects are available to PSU students at the University of Melbourne, Royal Melbourne Institute of Technology. Monash University, and La Trobe University. Programs range in length from a semester to a full academic year.

**AUSTRALIA: Perth**  
Council on International Educational Exchange (CIEE) Program

Murdoch University, located in Perth on the southwest coast of Australia, is the site of this program offered fall and spring semesters. Students may enroll in a wide range of course offerings in the liberal arts, sciences, and social sciences. Housing is in university dorms.

**AUSTRALIA: Sydney**  
Council on International Educational Exchange (CIEE) Program

The University of Sydney, University of New South Wales, University of Technology, and Macquarie University offer a wide variety of academic disciplines to study. Programs range in length from a semester to a full academic year.

**AUSTRALIA: Wollongong**  
Council on International Educational Exchange (CIEE) Program

Environmental sciences and health sciences are the focus of this program held at the University of Wollongong, located south of Sydney on the southeast coast of Australia. The program is offered fall or spring semester or for an academic year. Students are housed in university dormitories or off campus.

† NCSA members: University of Alaska-Anchorage, University of Alaska-Fairbanks, Central Washington University, Oregon State University, University of Oregon, Portland State University, Southern Oregon University, University of Washington, Washington State University, Western Oregon University, Western Washington University.
AUSTRIA: Vienna
Northwest Council on Study Abroad (NCSA) Program
The beautiful city of Vienna is home to this fall term and spring semester program. In both programs, German language study is an integral component, but the other courses, taught in English, vary. The emphasis fall term is on international business and European studies, while the spring program is more centered on the humanities. Students live with host families and enjoy academic excursions in and outside Vienna.

BELGIUM: Brussels
Council on International Educational Exchange (CIEE) Program
Held at the Universite Libre de Bruxelles, this program features study of French and Dutch languages as well as social sciences, humanities, and international relations. Students can apply for spring semester or full academic year. Housing is in student residences or private homes.

BRAZIL: São Paulo
Council on International Educational Exchange (CIEE) Program
The University of São Paulo is home for this fall or spring semester or academic year program emphasizing acquisition of Portuguese language skills necessary to take courses in Portuguese in a wide range of academic fields. Housing is in boarding houses or shared apartments.

CARIBBEAN: Trinidad/Tobago, Jamaica
Aspects of Caribbean history and culture are the focus of this program, which begins on the PSU campus during the first eight weeks of winter term and concludes with a two-week field experience in the Caribbean. The program is designed as a short-term community-based learning experience integrated into the curricula of International Studies and Black Studies. Depending on faculty research interests and expertise, students are involved in archaeological research, museum studies, and cultural studies.

CHILE: Santiago
Council on International Educational Exchange (CIEE) Program
The Universidad de Chile and the Pontificia Universidad Católica de Chile jointly host this program, offered fall and spring semesters with a year-long option. Courses in the liberal arts and social sciences are offered on both campuses. Housing is in private homes with Chilean families.

CHILE: Valdivia
Northwest Council on Study Abroad (NCSA) Program
Held at the Southern University of Chile in Valdivia, this program offers students a cross-cultural learning experience which combines Spanish language training with integrated academic courses. Valdivia, a city of 140,000 inhabitants, is the center for culture and industry in the region of Los Lagos. Excursions to important cultural and historic sites in the region are part of the program. Students have the option of living with a host family or in a pension (boarding house).

CHINA: Beijing
Oregon University System (OUS) Program
Intensive study of Chinese language is the focus of this fall semester program held at the Chinese Institute of Nationalities. The program also provides the opportunity to learn about minority peoples of China. A three-week excursion to a minority region in China is included. Students live in the Institute’s dormitory for foreign students and scholars.

CHINA: Beijing
Council on International Educational Exchange (CIEE) Program
Peking University is host for this program, available fall and spring semester, which offers Chinese language and area studies. Students reside in dormitories on campus. An intensive Chinese language program is also offered during the summer. Students in both programs stay in the university dormitory.
CHINA: Zhengzhou
This exchange program with Zhengzhou University, PSU's sister university in Henan Province, offers students the chance to study Chinese for fall or spring semester (or both). Located near the Yellow River about 450 miles south of Beijing, Zhengzhou is an industrial city of more than one million. Housing is in the University of Zhengzhou's student dormitory.

COSTA RICA: Monteverde
Council on International Educational Exchange (CIEE) Program
This fall or spring semester program focusing on tropical biology, ecology, and conservation is held at the Monteverde Institute in west central Costa Rica. Students live at a biological station next to a rainforest. During the week prior to exams, participants live with rural Costa Rican families. An eight-week summer program is also offered.

CUBA: Havana and Santiago
Council on International Educational Exchange (CIEE) Program
This new program, focusing on contemporary Cuban society, is offered for three weeks in the summer.

CZECH REPUBLIC: Prague
Council on International Educational Exchange (CIEE) Program
Social science, humanities, and Czech language are offered at Charles University, where students live in dormitories. The program is available fall and spring semesters. A three-week summer business program is also offered.

DENMARK: Copenhagen
Denmark's International Study (DIS) Program
PSU students can study a variety of topics at the University of Copenhagen. Semester and year-long programs are offered in humanities and social sciences, international business, architecture and design, and marine environmental studies. Summer programs in architecture and design and “Europe in Transition” are also available. Courses are taught in English by Danish professors. Participants live with Danish families or in student residence halls.

GERMANY: Tübingen
A 15-week intensive German language program is offered in the spring to students who have completed two quarters of first-year college level German. The intensive format enables students to complete the first year and the entire second-year sequence in German language. Housing is in university dormitories.

GHANA: Legon
Council on International Educational Exchange (CIEE) Program
Most fields of study are available at the University of Ghana, host of this new program open for fall and spring semester and academic year study. Twi language and area studies are also offered. Housing is in student residences on campus.
GREAT BRITAIN: London
Council on International Educational Exchange (CIEE) Program
Students can study at Goldsmiths College and take courses in art history, anthropology, drama, English, psychology, and sociology. Students with a background in the sciences can study at Imperial College. Course offerings are available in biochemistry, chemical engineering, chemistry, civil and environmental engineering, computing, electrical engineering, earth sciences, fusion, and physics. The University of Westminster offers courses in architecture, business and management, communications, design and media, health care, international relations, law, tourism, and urban design.

GREAT BRITAIN: London
Northwest Council on Study Abroad (NCSA) Program
Historic London is the setting for this term-long program offered every fall, winter, and spring quarter. Courses in the liberal arts and social sciences are integrated with academic excursions. Students live with British families.

GREAT BRITAIN: Reading
This direct exchange program with the University of Reading allows PSU students to spend a quarter or an academic year studying a wide range of courses covering the liberal arts and social sciences, business studies, education, and engineering. The city of Reading is situated on the River Thames, about 40 miles west of London. Students live in residence halls on campus.

GREECE: Athens
Northwest Council on Study Abroad (NCSA) Program
Courses in modern Greek, history, art history, and political science are featured in this fall and spring quarter program held at the Athens Centre in the heart of Athens. All courses are taught in English, with the exception of modern Greek. Excursions in and around Athens and the Greek Islands complement the coursework. Lodging is in apartments.

HUNGARY: Budapest
Council on International Educational Exchange (CIEE) Program
Budapest University of Economic Sciences is host for this fall and spring semester program, which offers courses in Hungarian language, humanities, and social science. Students live in apartments with other program participants or with Hungarian families.

HUNGARY: Szeged
Students can attend this program fall or spring semester (or both) at József Attila University in Szeged, Hungary, studying Hungarian language and culture. Classes through the Institute for Foreigners are offered in English, although participants with proficiency in Hungarian may enroll directly in the university, choosing from a wide range of courses within the fields of arts and letters, social science, and science. Student dormitories or shared apartments are housing options for students.

INDONESIA: Java
Council on International Educational Exchange (CIEE) Program
The Institut Keguruan Dan Ilmu Pendidikan (IKIP) Malang in Java is host of this fall and spring semester program. Participants study Indonesian language and literature, performing arts, development studies, and social science. Housing is in Indonesian homes.

ITALY: Asolo
As a member of the Consortium of Universities for International Business Studies, PSU offers M.B.A. students an opportunity to study business in a distinctive international environment with a diverse international business culture. Held in the northeastern Italian city of Asolo, about 25 miles north of Venice, the four-week summer program and the spring semester program offers courses taught in English by consortium professors who are recognized leaders in international business education and consulting.

ITALY: Macerata
Northwest Council on Study Abroad (NCSA) Program
The lovely hill town of Macerata, located in east central Italy near the Adriatic Sea, is the site of this semester-long program available fall, winter, and spring terms. Participants study Italian language at the University of Macerata and enroll in international studies courses taught in English by Italian professors. Students live with Italian families or in apartments shared with other students.

ITALY: Paderno del Grappa
A new undergraduate business program offered fall and spring semester by the Consortium of Universities for International Business Studies, of which PSU is a member, gives PSU students a unique opportunity to study abroad while maintaining their graduation timeline. Held at the Consortium’s European campus in Paderno del Grappa, north of Venice, the program offers upper-division business courses held in English, along with optional courses in Italian language and culture, and a program of excursions, lectures, and other activities designed to enhance the international business experience.

ITALY: Siena
Northwest Council on Study Abroad (NCSA) Program
Italian language, humanities, and social science are emphasized in this term-long program located in the Tuscan hills of central Italy. Focus of the program is on Italian language, offered at all levels, and other courses taught in English. Lodging is in shared apartments; a limited number of host stays is available.

JAPAN: Tokyo
Oregon University System (OUS) Program
Participants attend Aoyama Gakuin University’s School of International Politics, Economics, and Business (SIPER), studying Japanese language, although other coursework is offered in English. This 10-month program follows the Japanese academic calendar, beginning in April and ending in February. Housing is in university dormitories.

JAPAN: Tokyo
Oregon University System (OUS) Program
Offered at the Ichigaya campus of Sophia University, this program is designed for students with an interest in Japanese business and economics as well as area studies and Japanese language. Non-language courses are taught in English. Available fall and spring semesters, as well as all year, the program includes company visits, cultural activities, and field trips. Students are housed with Japanese families.

JORDAN: Amman
Council on International Educational Exchange (CIEE) Program
At the University of Jordan in Amman, PSU students can study history, culture, anthropology, political science, economics, Arabic language, art history, and literature. The program is offered on a semester basis, fall and spring.

KOREA: Seoul
Oregon University System (OUS) Program
Students may study at Yonsei University and/or Ewha University, located within walking distance of each other in Seoul. Classes in the program, offered through the international division at each university, are taught in English. The curriculum includes Korean language and area studies. Housing is in university dormitories, although private arrangements may be made.
**SOUTH AFRICA: Cape Town**
Council on International Educational Exchange (CIEE) Program

The University of Cape Town is host to a new spring semester or South African academic year (February-December) program. The academic program allows students to pursue academic studies in a number of disciplines while providing first-hand knowledge of contemporary South African life and society.

**SPAIN: Alicante**
Council on International Educational Exchange (CIEE) Program

Held at the University of Alicante, this fall and spring semester program, with a year-long option, balances language instruction with area studies courses in the history, culture, and economy of Spain, taught in English. In addition, a six-week summer program provides Spanish language study and an introduction to contemporary trends in Spanish culture. In both programs, students live with Spanish families.

**SPAIN: Barcelona**
Institute for Social and International Studies (ISIS) Program

Students can spend fall, winter, and/or spring quarters on this international studies program. ISIS also offers a four-week summer program. Courses are selected each term from such fields as political science, economics, history, sociology, and art history, all taught in English. Spanish language instruction, offered at all levels, is an integral part of the curriculum. Housing is with Spanish families or in residencias.

**SPAIN: Oviedo**
Northwest Council on Study Abroad (NCSA) Program

An intensive Spanish language program offered to students with at least one year of prior college-level Spanish is available at the University of Oviedo. Located in north central Spain just a few miles from the coast, Oviedo reflects both its pre-Moorish past and elements of European Spain. The program is available fall term, spring semester, and all year. Students in the program live with Spanish families, although housing at the university is an alternative option.
SUPPLEMENTAL PROGRAMS

ARMY RESERVE OFFICER TRAINING CORPS
503-943-7353

The Military Science Program is designed to provide college students on-campus instruction and experience in the art of organizing, motivating, and leading others. It includes instruction to develop self-discipline, physical stamina, and professional bearing. Army ROTC classes are designed to be taken along with the student's other normal academic curriculum. Enrolling in Military Science classes does not obligate students to serve in the Army. Upon completion, the student is eligible for commissioning as a second lieutenant into the Active Army, Army Reserve, or National Guard. Army ROTC offers 2-, 3-, and 4-year scholarships worth over $16,000 per year.

PROGRAMS

Basic Program. The Basic Program is voluntary and comprised of the 1-2 credit lower-division courses listed below. The Basic Program is normally completed during the freshman and sophomore years, and it, or credit for equivalency, is a prerequisite for the Advanced Program. Students may alternatively satisfy the Basic Program requirements by previous military

FULBRIGHT PROGRAM
Adviser: Dawn L. White

Portland State participates in the International Educational Exchange Program authorized by the Fulbright-Hays Act. Awards available include those offered by the U.S. government, foreign governments, universities, and private donors. Grants are available to qualified graduating seniors and graduate students for advanced research, to qualified faculty for lecturing and research, and to teachers for teacher exchange programs.

Grants for Graduate Study Abroad. Fulbright opportunities are announced annually about May 1, and applications should be prepared as soon as possible. The deadline for submission of application materials to the Fulbright adviser is the last week of September 2001 for the 2002-2003 academic year. The Fulbright program adviser disseminates information about grant opportunities and assists in processing grant applications.

University Lecturing/Advanced Research. The Office of International Education Services provides information to faculty on grants for university lecturing or advanced research. Application deadline is August 1.

Opportunities Abroad for Teachers. The U.S. Information Agency sponsors teaching positions abroad and summer seminars for teachers and professors through its Opportunities Abroad for Teachers program. Interested persons should apply by October 15 directly to the U.S. Information Agency. Interviews for Oregon-area applicants are arranged by the Fulbright adviser at PSU and are held on campus in December.
experience or by completing the following class. MS 240 Leadership Intern Program.

There is no obligation incurred from participation in the Basic Program classes. The students decide if they wish to apply for the Advanced Program.

Advanced Program. Students who wish to apply for the two-year Advanced Program, comprised of the 3-credit upper-division classes listed below, must apply and be accepted. Students in the Advanced Program receive a $200 per month stipend while in school.

Other Programs. Provisions exist for a number of special programs depending on student qualifications and curriculum, including the Simultaneous Membership Program (SMP).

COMMISSIONS

Students who complete the Advanced Program are eligible for appointment and commission by the President of the United States as officers in the U.S. Army. Having received a commission, the officer may serve full time in the Active Army or serve as a member of the Army Reserve or National Guard.

SCHOLARSHIPS

Army ROTC offers competitive scholarships that pay up to $16,000 in tuition and fees, a book allowance of $520 per school year, and a $200 per month tax free stipend during the school year. These scholarships are available to undergraduate and graduate students in four-, three-, and two-year increments. Scholarships are available to most students, even if not enrolled in the program. More information is available by calling the Military Science Department, 503-943-7353.

COURSES

The term Basic Course refers to first- and second-year courses, MS 111, 112, 113, 211, 212, and 213, which are designed for beginning students who may want to try Military Science without obligations. A number of popular or challenging extracurricular activities are associated with these courses.

MS 111 Introduction to Leadership (1)
Increase self-confidence through team study and activities in basic drill, physical fitness, rappelling, first aid, survival skills, and making presentations. Learn fundamental concepts of leadership in a profession in both classroom and outdoor laboratory environments. One-hour and a leadership lab, MS 121, plus optional participation in a one-hour session of physical fitness two times a week, MS 131.

MS 112, 113 Introduction to Decision Making I & II (1, 1)
Learn/apply principles of effective leading. Reinforce self-confidence through participation in physically and mentally challenging exercises with upper-division military science students. Develop communication skills to improve individual performance and group interaction. Relate organizational skills to improve individual performance and group interaction. Relate organizational ethical values to the effectiveness of a leader. One hour and a leadership lab, MS 122 or 123, plus optional participation in a one-hour session of physical fitness two times a week, MS 132 or 133.

MS 121, 122, 123, and 221, 222, 223 Basic Course: Leadership Laboratory (1, 1, 1, 1, 1, 1)
Open only to students in the associated Military Science course. Series with different roles for students at different levels of the program. Learn and practice basic leadership and development skills. Build self-confidence and team-building leadership skills that can be applied throughout life.

MS 131, 132, 133, and 231, 232, 233 Basic Course: Physical Fitness (1, 1, 1, 1, 1, 1)
Open only to all students. Series with different roles for students at different levels in the program. Participate in and learn to lead a physical fitness program. Emphasis on the development of an individual fitness program and the role of exercise and fitness in one's life.

MS 199 Special Studies (Credit to be arranged)
Open to all students.

MS 211 Self/Team Development (2)
Learn/apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams of people. Develop skills in oral presentations, writing cooly, planning events, coordination of group efforts, land navigation, and basic small group dynamics. Two-hours and a leadership lab, MS 221, plus optional participation in a one-hour session of physical fitness two times a week, MS 231.

MS 212/213 Fundamentals of Team Training I and II (2, 2)
Introduction to individual and team aspects in small unit operations. Includes use of radio communications, making safety assessments, movement techniques, planning for team safety/security and methods of pre-execution checks. Learn techniques for training others as an aspect of continued leadership development. Two-hours and a leadership lab, MS 222 or 223, plus optional participation in a one-hour session of physical fitness two times a week, MS 232 or 233.

MS 240 Leadership Intern Program (6)
A five-week summer course conducted at Fort Knox, Kentucky. The student receives pay, Travel, lodging, and most meal costs are defrayed by the Army. No military obligation incurred. Learn and apply principles of leadership, develop communication skills, organizational effectiveness, and ethics integration. Practice leading groups from 9-40 students.

Spaces are limited. Candidates can apply for a space any time during the school year prior to the summer. Pass/No pass only.

The Advanced Course is open only to students who have completed the Basic Course or earned placement credit for it (various methods). The Advanced Course is designed to qualify a student for a commission as an officer in the United States Army. Students must complete a five-week Advanced Leadership Course during the summer, usually between the junior and senior years. The courses must be taken in sequence unless otherwise approved by the Professor of Military Science. Students receive $200 per month during the school year.

MS 311 Leading Small Organizations I (3)
Series of practical opportunities to lead small groups, receive personal assessments and encouragement, and lead again in situations of increasing complexity. Uses small unit training and opportunities to plan and conduct training for lower-division students both to develop such skills and as a vehicle for practicing leading. Three-hours and a required leadership lab, MS 321, plus required participation in a one-hour session of physical fitness three times a week, MS 331.

MS 312, 313 Leading Small Organizations II and III (3, 3)
Continues methodology of MS 311. Analyze tasks, prepare written or oral guidance for team members to accomplish tasks. Delegate tasks and supervise. Plan for and adapt to the unexpected in organizations under stress. Examine and apply lessons from leadership case studies. Examine importance of ethical decision making in setting a positive climate that enhances team performance. Three-hours and a required leadership lab, MS 322 or 323, plus required participation in a one-hour session of physical fitness three times a week, MS 332 or 333.

MS 321, 322, 323 and 421, 422, 423 Advanced Course: Leadership Laboratory (1, 1, 1, 1, 1, 1)
Open only to students in the associated Military Science course. Series with different roles for students at different levels in the program. Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training and activities with Basic Course students and for the ROTC program as a whole. Students develop, practice, and refine leadership skills by serving and being evaluated in a variety of responsible positions.

MS 331, 332, 333 and 431, 432, 433 Advanced Course: Physical Fitness (1, 1, 1, 1, 1, 1)
Required of students in MS 311, 312, 313 and 411, 412, 413 of which this program is an integral part. Series with different roles for students at different levels in the program. Participate in and learn to plan and lead physical fitness programs. Develops the physical fitness required of an officer in the Army. Emphasis on the development of an individual fitness program and the role of exercise and fitness in one's life.
Karen Tosi

MS 340
Advanced Leadership Intern Program (3)
A five-week camp conducted at Ft. Lewis, Washington. Only open to students who have completed MS 311, 312, and 313. The student receives pay. Travel, lodging, and most meal costs are defrayed by the Army. The course environment is highly structured and demanding, stressing leadership at small unit levels under varying, challenging conditions. Individual leadership and basic skills performance are evaluated throughout the camp. Graded on a pass/no pass basis only.

MS 405
Reading and Conference (Terms and credit to be arranged.)
Consent of Instructor.

MS 411
Leadership Challenges and Goal Setting (3)
Plan, conduct, and evaluate activities of the organization. Articulate goals and put plans into action to attain them. Assess organizational cohesion and develop strategies for improvement. Develop confidence in skills to lead people and manage resources. Learn/apply various policies and programs in this effort. Three-hours and a required leadership lab, MS 421, plus required participation in a one-hour session of physical fitness three times a week, MS 431.

MS 412, 413
Transitions in Leading (3, 3)
Continues the methodology from MS 411. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law as it relates to leading as an officer in the Army. Three-hours and a required leadership lab, MS 422 or 423, plus required participation in a one-hour session of physical fitness three times a week, MS 432 or 433.

Challenge Program
503-725-3430
Karen Tosi, Coordinator
The Challenge Program is a cooperative program between Portland State University and metropolitan area high schools. It provides high school seniors an opportunity to take regular college courses on their own campuses.

Students who have a cumulative grade point average of 3.00 or above after the completion of six high school semesters (or the equivalent in high school credits) are eligible to enroll in the Challenge Program. School district staff members review transcripts of high school students who wish to enroll in Challenge courses and select those students who have demonstrated substantial academic achievement. Students may enroll for a maximum of two classes per quarter.

The Challenge Program currently offers introductory college courses in computer science, English, foreign languages, history, and mathematics. Course content is identical to that offered to Portland State University students on the home campus. College-level texts and materials are used.

Students who successfully complete their Challenge Program coursework are entitled to a regular Portland State University transcript. The credit earned by the student can be transferred to a large number of colleges and universities regionally and nationally.

PSU Link
503-725-3430
Karen Tosi, Coordinator
Portland State University is committed to serving the needs of the metropolitan area by providing an academic environment for intellectually gifted students. The LINK Program makes it possible for selected gifted high school students to attend the University for part-time advanced study in a particular academic discipline. The Program is designed to serve those students who have exhausted all coursework in a particular discipline at their high schools. If a student in the field of mathematics, for example, is ready to go beyond the study of calculus, he/she can enroll in a mathematics class at the University while simultaneously maintaining his/her high school schedule. To qualify for the Program, students must be recommended to the University by their school district and must successfully complete the LINK admissions process. First opportunity goes to high school seniors. If there is space available after seniors have been accommodated, other qualified applicants may be accepted into the Program.

Chiron Studies Project
503-725-4452
Jennifer Hamilton, Student Development Adviser
Chiron Studies Project is a student-oriented program funded by student incidental fees. The purpose of the program is to support the development of courses not normally offered by the academic departments. Instruction in Chiron courses is conducted with faculty sponsorship; these courses are approved in the same manner as other courses by the appropriate departments and deans.

The program’s objectives are:
- To provide a structure within the University where students can participate actively in implementation of courses.
- To encourage the formal use of student learning through teaching, tutoring, and advising.
- To supplement and enhance existing departmental offerings.
- To foster the development of alternative learning formats and seek, generally, to improve the experience of undergraduate education.

Proposal forms are available in 441 Smith Memorial Center.
The Oregon State Board of Higher Education, the statutory governing board of the seven-campus Oregon University System, is composed of 11 members appointed by the Governor and confirmed by the Oregon State Senate. Nine members are appointed to the Board for four-year terms; two members are students, appointed for two-year terms.

Terms expire June 30

Don VanLuvanee, Portland 2004
President
James Lussier, Bend 2001
Vice President
Herbert Aschkenasy, Salem 2001
Shawn Hempel, Keizer 2001
Tom Imeson, Portland 2003
Leslie Lehmann, Portland 2003
Geri Richmond, Eugene 2002
Jim Willis, Salem 2001
Phyllis Wustenberg, Bay City 2004
Tim Young, Eugene 2002

OFFICERS OF THE SYSTEM

Joseph W. Cox, Ph.D.
Chancellor

Shirley Merritt Clark, Ph.D.
Vice Chancellor for Academic Affairs

Thomas Anderes, Ph.D.
Vice Chancellor for Finance and Administration

Robert Dryden, Ph.D.
Vice Chancellor for Engineering and Computer Science

Diane Vines, Ph.D.
Vice Chancellor for Corporate and Public Affairs and Board Secretary

The Oregon University System, organized in 1932, provides educational opportunities to young people and adults throughout the state of Oregon. Member institutions are elements of an articulated system, parts of an integrated whole. Opportunities for general education are distributed as widely as possible throughout the state, while specialized, professional, and technical programs are centered at specific institutions.

MEMBERS OF THE OREGON UNIVERSITY SYSTEM

Eastern Oregon University
La Grande
Oregon Institute of Technology
Klamath Falls
Oregon State University
Corvallis
Portland State University
Portland
Southern Oregon University
Ashland
University of Oregon
Eugene
Western Oregon University
Monmouth
Oregon Health Sciences University*
Portland

The Chancellor’s Office of Academic Affairs provides coordination and service to assure that a broad-based continuing education program is available through the member institutions.

An interinstitutional booklet, The OUS Viewbook, lists fields of study at all Oregon University System institutions and offers other important information for prospective students. For a free copy, write The OUS Viewbook, Oregon University System, P.O. Box 3175, Eugene, OR 97403-0175.

*Affiliated

INSTITUTIONAL EXECUTIVES

Daniel O. Bernstine, LL.M.
President
Portland State University

Phillip Creighton, Ph.D.
President
Eastern Oregon University

Martha Anne Dow, Ph.D.
Interim President
Southern Oregon University

Dave Frohnmayer, J.D.
President
University of Oregon

Betty J. Youngblood, Ph.D.
President
Western Oregon University
PORTLAND STATE UNIVERSITY

Faculty members are listed with their programs. Academic faculty are listed starting on page 334. The dates in parentheses indicate the beginning of academic service at Portland State University. The earliest date shown is 1955, the year in which Portland State became a degree-granting institution. The faculty listings were compiled in February 2001 and may not include changes and appointments made after that time.

OFFICE OF THE PRESIDENT


Roderic C. Diman (1960) Ph.D. Special Assistant to the President; Professor of Spanish. B.A. 1957 Trinity College; M.A. 1958, Ph.D. 1971 University of Wisconsin.


AFFIRMATIVE ACTION


GOVERNMENT RELATIONS


ACADEMIC AFFAIRS OFFICE OF THE PROVOST


CENTER FOR ACADEMIC EXCELLENCE

Deborah A. Lieberman (1987) Ph.D. Vice Provost and Assistant to the President, Campus Initiatives; Director, Teaching and Learning Excellence; Professor of Speech Communication. B.A. 1975 Humboldt State University; M.A. 1977 San Diego State University; Ph.D. 1984 University of Florida.


SCHOOL OF EXTENDED STUDIES AND SUMMER SESSION


Thomas Luba (1998) M.S. Director, Distance Learning. B.S. 1978 Oregon State University; M.S. 1997 Purdue University.


INSTITUTIONAL RESEARCH AND PLANNING


INTERNATIONAL AFFAIRS


Jon E. Mandaville (1965) Ph.D. Director, Middle East Studies Center; Professor of History and International Studies. B.A. 1959 Dartmouth College; Diploma in International Studies (Scotland), M.A. 1964, Ph.D. 1969 Princeton University.


COLLEGE OF LIBERAL ARTS AND SCIENCES


LIBRARY


Evelyn I. Crowell (1972) M.L. Extirid Librarian; Librarian; Associate Professor. B.A. 1959 Portland State University; M.L. 1961 University of Washington.


Donald G. Frank (2000) M.P.A. Assistant Director of Public Services; Professor. B.S. 1966 South-east Missouri State University; M.A.L.S. 1972 University of Missouri; M.P.A. 1982 Texas Tech University.


Faye Powell (1985) M.A. Social Science Librarian, Professor. B.A. 1962 Mercer University; M.L.S. 1977 University of British Columbia (Canada); M.A. 1982 San Francisco State University.

Gretta Siegel (1998) M.S. Science Librarian; Assistant Professor. B.A. 1979 Humboldt State University; M.L.S. 1985 Syracuse University; M.S. 1984 Oregon State University.


Emeriti Faculty


UNIVERSITY HONORS PROGRAM

Faculty


Lawrence P. Wheeler (1976) Ph.D. Director, University Honors Program, Associate Professor of Humanities and Applied Linguistics, University Honors Program. B.A. 1976, M.A. 1978 Portland State University; Ph.D. 1993 University of Oregon.

UNIVERSITY STUDIES

Judy Patton (1978) M.A. Professor and Director, University Studies. B.A. 1969 University of California, Santa Barbara; M.A. 1996 Reed College.


OFFICE OF STUDENT AFFAIRS

Susan Hopp (1993) M.S. Associate Vice Provost for Enrollment and Student Services and Director, Student Development. B.A. 1975 Stetson University; M.S. 1979 Indiana University.

ADMISSIONS AND RECORDS


CAREER CENTER


COUNSELING AND PSYCHOLOGICAL SERVICES


STUDENT HEALTH SERVICES
Sandra J. Franz (1968) B.S.N. Administrative Director. B.S.N. 1968 Oregon Health Sciences University.

OFFICE OF THE VICE PRESIDENT FOR FINANCE AND ADMINISTRATION

ATHLETICS
Carrie Lee Carlascio (1997) Executive Assistant to Athletic Director.
Michael C. Lund (1989) B.S. Assistant Athletic Director; Media Relations Director. B.S. 1987 Lewis & Clark College.

BUSINESS AFFAIRS

CAMPUS PUBLIC SAFETY

 FACILITIES AND AUXILIARY SERVICES

INFORMATION TECHNOLOGIES
Emeriti Faculty

HUMAN RESOURCES
Office of University Relations

Gary Withers (1996) J.D. Vice President for University Relations. B.S. 1975 Lewis & Clark College; J.D. 1979 Lewis & Clark College, Northwestern School of Law.


ALUMNI RELATIONS


COMMUNITY PROGRAMS

DEVELOPMENT


Deborah Gruenfeld (2000) Executive Assistant to the Assistant Vice President of Development.


MARKETING AND COMMUNICATIONS


PUBLICATIONS


Kathryn Kirkland (1987) B.S. Editor, PSU Magazine and Currently B.S. 1983 University of Oregon.


ADMINISTRATIVE FACULTY EMERITI


Ronald F. Ronacher (1964) Ph.D. Counselor; Professor Emeritus. B.A. 1957 Hamilton College; M.A. 1959 Ohio University; Ph.D. 1963 University of Utah.


Nancy J. Stuart (1965) B.A. Assistant Professor Emerita. B.A. 1947 Willamette University.


ACADEMIC FACULTY

College of Liberal Arts and Sciences

Marvin A. Kaiser (1993) Ph.D. Dean, College of Liberal Arts and Sciences; Professor of Sociology. B.A. 1961 Cardinal Glennon College; M.A. 1973 Kansas State University; M.S.W. 1977 University of Kansas, Ph.D. 1979 University of Nebraska.

Department of Anthropology

Faculty


Marc R. Feldesman (1971) Ph.D. Chair, Department of Anthropology; Professor of Anthropology. B.A. 1969 California State University, Northridge; M.A. 1971, Ph.D. 1974 University of Oregon.


Emeriti Faculty


Associated Faculty


Patricia Kramer (1992) Ph.D. Adjunct Associate Professor of Anthropology B.A. 1972 Portland State University; M.S. 1976 University of Oregon; Ph.D. 1979 University of New Mexico.


Department of Applied Linguistics

Faculty


Emeriti Faculty


Department of Biology

Faculty


Emeriti Faculty


Clyde L. Calvin (1968) Ph.D. Professor Emeritus of Biology. B.S. 1960 Washington State University; M.S. 1962 Purdue University; Ph.D. 1966 University of California, Davis.


John H. Wirtz (1957) Ph.D. Associate Professor Emeritus of Biology. B.S. 1952 Loyola University; M.S. 1954 University of Wyoming; Ph.D. 1961 Oregon State University.

DEPARTMENT OF BLACK STUDIES

Faculty

Koti Agorsah (1992) Ph.D. Chair, Department of Black Studies; Professor of Black Studies and International Studies. B.A. 1971, M.A. 1976 University of Ghana; Ph.D. 1983 University of California, Los Angeles.


Ridwan L. Nytagodien (1997) Ph.D. Assistant Professor of Black Studies and International Studies. B.S. 1986 Towson State University; Baltimore; M.S. 1990 Indiana State University; Terre Haute; Ph.D. 1997 Howard University.

DEPARTMENT OF CHEMISTRY

Faculty


David W. McClure (1966) Ph.D. Chair, Department of Chemistry; Professor of Chemistry. B.S. 1958 Washington State University; Ph.D. 1963 University of Washington.


Gwendolyn P. Shusterman (1989) Ph.D. Associate Professor of Chemistry. B.S. 1979 University of California, Irvine; Ph.D. 1983 University of California, Berkeley.


Mingdi Yan (1998) Ph.D. Assistant Professor of Chemistry. B.S. 1988 University of Science and Technology of China; Ph.D. 1994 University of Oregon.

Emeriti Faculty


Associated Faculty


Shankar B. Rananavare (1996) Ph.D. Research Associate Professor of Chemistry. B.Sc. 1977 Bombay University (India); Ph.D University of Missou, St. Louis.

CHICANO/LATINO STUDIES


Elizabeth Flores (1999) Ph.D. Assistant Professor, B.A. 1990, M.A. 1996 Humboldt State University; Ph.D. 1999 Azonza State University

CHIL AND FAMILY STUDIES

Faculty/Program Advisers


Carol A. Morgaine (1995) Ph.D. Associate Professor, Child and Family Studies; B.S. 1970, Kansas State University; M.S. 1979 Portland State University; Ph.D. 1990 University of Minnesota


DEPARTMENT OF COMMUNICATION

Faculty


Emeriti Faculty

LaRay M. Barna (1956) M.S. Associate Professor Emerita of Communication. B.S. 1944 Northwestern University; M.S. 1970 Portland State University.


DEPARTMENT OF ECONOMICS

Faculty


Mary C. King (1992) Ph.D. Chair, Department of Economics; Associate Professor of Economics. B.A. 1979 Stanford University; M.A. 1986, Ph.D. 1991 University of California, Berkeley.


Emeriti Faculty
Joseph C. Blumen (1957) Ph.D. LL.D. President, Portland State University, 1974-86, Distinguished Service Professor; Professor Emeritus of Economics. B.S. 1950, M.A. 1956 University of Nebraska; Ph.D. 1965 University of Oregon; LL.D. 1976 University of Hokkaido (Japan).


DEPARTMENT OF ENGLISH

Faculty


Primus St. John (1973) Professor of English.


Anthony W. Wolk (1965) Ph.D. Professor of English. B.S. 1957, M.A. 1959 Northwestern University; Ph.D. 1965 University of Nebraska.

Emeriti Faculty


ENVIRONMENTAL PROGRAMS


William Fish (1998) Ph.D. Associate Professor of Civil Engineering and Environmental Sciences. B.S. 1979 University of Florida; Ph.D. 1984 Massachusetts Institute of Technology.


Mark D. Szyma (1998) Ph.D. Associate Professor of Environmental Sciences. B.S. 1978 University of Iowa; M.S. 1984 University of Washington; Ph.D. 1992 University of California, Davis.

J. Alan Yackley (1994) Ph.D. Assistant Professor of Environmental Sciences. B.S. 1986 East Texas State University; M.S. 1988 University of Texas; Ph.D. 1993 University of Virginia.

Associated Faculty Nancy J. Bowers (1995) Ph.D. Adjunct Research Associate in Environmental Sciences and Resources. B.S. 1975 University of Massachusetts; M.S. 1983 Virginia Polytechnic Institute and State University; Ph.D. 1994 Pennsylvania State University.


DEPARTMENT OF FOREIGN LANGUAGES AND LITERATURES

Faculty Pelin Basci (1997) Ph.D. Assistant Professor of Turkish. B.A. 1985, M.A. 1988 Ege University (Turkey); Ph.D. 1995 University of Texas–Austin.


Roderic C. Diman (1960) Ph.D. Vice Provost for Academic Affairs; Professor of Spanish. B.A. 1957 Trinity College; M.A. 1958, Ph.D. 1971 University of Wisconsin.

Louis J. Elteto (1970) Ph.D. Chair, Department of Foreign Languages and Literatures, Professor of German and Hungarian. B.A. 1961, M.A. 1964 Kent State University; Ph.D. 1972 Louisiana State University.


DEPARTMENT OF HISTORY

Faculty


Emeriti Faculty


John P. Cavarnos (1964) D Phil Professor Emeritus of History. B.A. 1941 Boston University; M.A. 1942, Ph.D. 1947 Harvard University; D.Phil. 1948 Athens University (Greece).


Bernhard Fedde (1958) J.D. Adjunct Professor Emeritus of History and International Law. A.B. 1930 Williams College; J.D. 1936 University of Oregon; A.M. 1964 Oregon State University.


Associated Faculty


INTERNATIONAL STUDIES Faculty


Kofi Agorsah Ph.D. (Black Studies)

L. Rudolph Barton M.Arch. (Architecture)
DEPARTMENT OF MATHEMATICAL SCIENCES

Faculty

Jagiłdż C. Ahuja (1966) Ph.D. Professor of Mathematical Sciences. A.B. 1953, M.A. 1955 Banaras University (India); Ph.D. 1963 University of British Columbia (Canada).


Eugene A. Enneking (1968) Ph.D. Chair, Department of Mathematical Sciences; Professor of Mathematical Sciences. B.S. 1962 St. Martin's College; M.A. 1964, Ph.D. 1966 Washington State University.


Mara Tableman (1990) Ph.D. Associate Professor of Mathematical Sciences. B.S. 1971 University of Pittsburgh; M.S. 1973 New Mexico State University; Ph.D. 1984 Pennsylvania State University.


Emeriti Faculty


Mildred L. Bennett (1956) B.S. Professor Emerita of Mathematical Sciences. B.S. 1942 Oregon State University.


George F. Coggins (1956) B.S. Assistant Professor Emeritus of Mathematical Sciences. B.S. 1931 Union College.


Bruce A. Jensen (1966) Ph.D. Professor Emeritus of Mathematical Sciences. B.A. 1952 Dana College; M.S. 1955 University of Wisconsin; Ph.D. 1966 University of Nebraska.

Ethel L. Lawrence (1964) B.S. Associate Professor Emerita of Mathematical Sciences. B.S. 1946 University of Oregon.


Cecil E. Sanford (1955) M.S. Associate Professor Emeritus of Physics. B.S. 1947 Linfield College; M.S. 1949 University of Oregon.

Raymond Sommerfeldt (1966) Ph.D. Professor Emeritus of Physics. Diploma 1943 Tohoku University (Japan); M.S. 1951, Ph.D. 1953 University of Oregon.

Associated Faculty


DEPARTMENT OF PSYCHOLOGY

Faculty


Keith L. Kaufman (1998) Ph.D. Chair, Department of Psychology; Professor of Psychology. B.A. 1978, M.A. 1982, Ph.D. 1985 University of South Florida.

Thomas A. Kindermann (1989) Ph.D. Associate Professor of Psychology. B.A. 1976, M.S. 1980, University of Trier, (Germany); Ph.D. 1986 Free University of Berlin (Germany).


Nancy A. Perrin (1986) Ph.D. Associate Dean, College of Liberal Arts and Sciences; Professor of Psychology. B.A. 1980 University of California, Los Angeles; M.A. 1983, Ph.D. 1986 Ohio State University.


Emeriti Faculty


Linda A. George (1996) Ph.D. Assistant Professor, Center for Science Education. B.S. 1983 Loyola University; Ph.D. 1991 Portland State University.


DEPARTMENT OF SOCIOLOGY

Faculty


Grant M. Farr (1975) Ph.D. Chair, Department of Sociology; Professor of Sociology. B.S. 1966, M.A. 1970, Ph.D. 1974 University of Washington.


Marvin A. Kaiser (1993) Ph.D. Dean, College of Liberal Arts and Sciences; Professor of Sociology. B.A. 1961 Cardinal Glennon College; M.A. 1973 Kansas State University; M.S.W 1977 University of Kansas; Ph.D. 1979 University of Nebraska.


Associated Faculty

Donald K. Freeborn (1972) Ph.D. Adjunct Professor of Sociology. B.A. 1955 Lynchburg College; M.A. 1957 Medical College of Virginia; Ph.D. 1968 University of Michigan.


Associated Faculty

Donald K. Freeborn (1972) Ph.D. Adjunct Professor of Sociology. B.A. 1955 Lynchburg College; M.A. 1957 Medical College of Virginia; Ph.D. 1968 University of Michigan.


Marwyn R. Greenlick (1965) Ph.D. Vice President, Research, Kaiser Foundation Hospitals, and Director, Health Services Research Center, Adjunct Professor of Sociology and Social Work. B.S. 1957, M.S. 1961 Wayne State University, Ph.D. 1967 University of Michigan.


Clyde Riley Pope (1973) Ph.D. Adjunct Professor of Sociology. B.A. 1957 Anderson College; M.A. 1960 University of Chicago; Ph.D. 1963 University of Oregon.

WOMEN'S STUDIES PROGRAM

Faculty


COLLEGE OF LIBERAL ARTS AND SCIENCES
EMERITI FACULTY


SCHOOL OF BUSINESS ADMINISTRATION


Accounting Faculty
Elizabeth Allmer (2001) Ph.D. Assistant Professor Business Administration. B.S. Santa Clara University; Ph.D. Arizona State University.


Cathy Finger (1999) Ph.D. Assistant Professor of Business Administration. B.S. 1981, University of the Pacific; M.B.A. 1985, University of Southern California; Ph.D. 1991 University of California, Berkeley.


Roderick Rogers (1995) Ph.D., C.P.A. Assistant Professor of Business Administration. B.A. 1980 Ohio Northern University; M.B.A. 1981 Bowling Green State University; Ph.D. 1995 Case Western Reserve University; C.P.A.

Richard Sapp (1978) Ph.D., C.P.A. (Texas) Associate Dean of Academic Affairs, Professor of Business Administration. B.A. 1970 University of Toledo; M.S. 1976, Ph.D. 1978 University of Houston; C.P.A.


Kristi Yuthas (1999) Ph.D. Assistant Professor of Business Administration. B.S. 1990 University of Utah.

Emeriti Faculty

Michael R. Gaines (1965) Ph.D., C.P.A.
Professor Emeritus of Business Administration. B.A. 1957 Texas A&M University; M.B.A. 1961 University of Denver; Ph.D. 1969 University of Washington, C.P.A.

Hjalmar J. Rathe (1964) M.B.A., C.P.A.
Associate Professor Emeritus of Business Administration. B.S. 1946 University of Washington; M.B.A. 1955 University of Oregon, C.P.A.

Professor Emeritus of Business Administration. B.S., B.A. 1957, M.A. 1961 University of North Dakota, C.P.A.

Finance Faculty

Leslie P. Anderson (1986) Ph.D.
Professor of Business Administration. B.S. 1951, M.S. 1954, Ph.D. 1960 University of Wisconsin.

John M. Bizjak (1998) Ph.D.
Assistant Professor of Business Administration. A.B. 1983 University of California, Berkeley; Ph.D. 1992 University of Utah.

Beverly Fuller (1987) Ph.D.
Associate Professor of Business Administration. B.S. 1966 Webster College; M.B.A. 1981, Ph.D. 1987 Virginia Polytechnic Institute and State University.

Janet Hamilton (1986) Ph.D.
Associate Professor of Business Administration. B.A. 1976 University of Washington, Ph.D. 1986 Michigan State University.

Duncan Kretovich (1999) Ph.D.
Assistant Professor of Business Administration. B.S. 1971, M.B.A. 1972 Eastern Michigan University; Ph.D. 1989 Michigan State University.

John Oh (1979) Ph.D.
Professor of Business Administration. B.A. 1968 Howard Payne University, Ph.D. 1978 University of Virginia.

Shafiqu Rahman (1986) Ph.D.
Professor of Business Administration. B. Com. Honors 1975 Dhaka University (Bangladesh); M.B.A. 1979 University of Minnesota; Ph.D. 1986 University of Illinois.

John W. Settle (1984) Ph.D.

Emeriti Faculty

Chi-Cheng Hsia (1987) Ph.D.
Professor Emeritus of Business Administration. B.A. 1951 National Taiwan University (Republic of China); M.S. 1971, Ph.D. 1974 University of California.

James H. Hugon (1962) Ph.D.


Gerald D. Wygant (1970) J.D.
Assistant Professor Emeritus of Business Administration. B.S. 1956 University of Oregon, J.D. 1960 Northwestern College of Law.

Management Faculty

Hayward Andres (1965) Ph.D.
Assistant Professor of Business Administration. B.S. 1987 Southern University at New Orleans, M.S. 1980 University of West Florida at New Orleans, Ph.D. 1995 Florida State University.

Talya N. Bauer (1994) Ph.D.
Associate Professor Emeritus of Business Administration. B.A. 1989 Humboldt State University, Ph.D. 1994 Purdue University.

Steven N. Brenner (1971) D.B.A.

Leland Buddress (1990) Ph.D.
Assistant Professor Emeritus of Business Administration B.S. 1968 University of California, Berkeley, Ph.D. 1995 Michigan State University.

Alan M. Cabelly (1980) Ph.D.
Professor of Business Administration. B.A. 1972 State University of New York, Stony Brook; M.B.A. 1975 Pennsylvania State University, Ph.D. 1979 University of Washington.

Professor of Business Administration. B.A. 1971 Colorado College; M.S. 1973 Case Western Reserve University, D.B.A. 1982 University of Colorado.

Instructor in Business Administration. B.S., M.B.A. Portland State University.

Jeanne Enders (2000) Ph.D.
Instructor in Business Administration. B.A. Pacific Lutheran University, M.A., Ph.D. University of Chicago.

David Gerbing (1987) Ph.D.


Earl A. Molander (1975) Ph.D.
Professor of Business Administration. B.S. 1964 University of Wisconsin, Madison; M.B.A. 1966 Harvard University; Ph.D. 1972 University of California, Berkeley.

William Pfeiffer (1996) Ph.D.
Associate Professor of Business Administration. B.A., M.E., Ph.D. University of Idaho.

Alan R. Raedels (1980) Ph.D.
Professor of Business Administration. B.S., M.E. 1969 Colorado State University, M.B.A. 1973 Portland State University, Ph.D. 1977 Purdue University.

David Raffo (1995) Ph.D.

Neil Ramiller (1999) Ph.D.
Assistant Professor of Business Administration. B.A. 1974, B.S. 1982 Sonoma State University; M.B.A. 1987 University of California, Berkeley; Ph.D. 1996 University of California, Los Angeles.

Jeremy Short (2000) Ph.D.
Assistant Professor of Business Administration. B.B.A. University of Texas, Arlington; M.B.A. University of North Texas; Ph.D. Louisiana State University.

Mary S. Taylor (1989) Ph.D.

Pamela Tierney (1992) Ph.D.
Associate Professor of Business Administration. B.A. 1986, Ph.D. 1992 University of Cincinnati.

Ellen L. West (1982) Ph.D.
Associate Professor of Business Administration. B.A. 1962 University of Oregon, M.A. 1970 Reed College, Ph.D. 1981 Oregon State University.

Alan R. Zeiber (1996) Ph.D.

Emeriti Faculty

William F. Boore (1964) Ph.D.
Professor Emeritus of Business Administration. B.S. 1942 Lehigh University; M.S. 1950 Colorado School of Mines; M.B.A. 1954 University of Chicago; Ph.D. 1963 University of Washington.

Lewis N. Goslin (1968) Ph.D.

William A. Manning (1969) Ph.D.

Roger L. Moseley (1967) Ph.D.

Leonard E. Robertson (1964) Ed.D.

Richard J. Robinson (1962) D.B.A.

Grover W. Rodich (1966) Ph.D.
Professor Emeritus of Business Administration. B.S. 1931 Oregon State University; B.S. 1953 University of Oregon; M.A. 1963 Sacramento State College; M.B.A. 1966 Oregon State University; Ph.D. 1973 University of Oregon.
Marketing Faculty
Instructor in Business Administration.
B.S. 1968, M.B.A. 1972
Portland State University.

Ph.D.
Professor of Business Administration.
B.S. 1975 California State University, Bakersfield; M.B.A. 1977 Utah State University; Ph.D. 1985 University of Oregon.

Robert R. Harmon (1979)
Ph.D.
Professor of Business Administration.

Joanne M. Kehaba (1985) Ph.D.
Professor of Business Administration.

Michael Sisavie (1992) Ph.D.
Assistant Professor of Business Administration.
B.S. City University of New York; M.S. Adelphi University; Ph.D. Portland State University.

Bruce L. Stern (1975) Ph.D.
Professor of Business Administration.

Associate Professor of Business Administration.
B.B.A. 1977 National Taiwan University; M.B.A. 1983, Ph.D. 1988 University of Texas, Arlington.

Ramaprasad Unni (2000) Ph.D.
Assistant Professor of Business Administration.
M.B.A. Indian Institute of Management; Ph.D. Indiana State University.

Emeriti Faculty
Robert E. Dodge (1959) Ph.D.
Professor Emeritus of Business Administration.
B.A. 1934, M.A. 1951 University of Oregon; Ph.D. 1956 New York University.

Edward L. Grubb (1966) Ph.D.
Professor Emeritus of Business Administration.
A.A. 1954 Wenatchee Valley College; B.A. 1956 University of Washington; M.S. 1960 University of Oregon; Ph.D. 1965 University of Washington.

D. James Manning (1960) Ph.D.
Professor Emeritus of Business Administration.

Donald D. Parker (1955) Ph.D.
Dean Emeritus, School of Business Administration, Professor Emeritus of Business Administration.
B.A. 1941 Linfield College; M.B.A. 1942 Northwestern University; Ph.D. 1958 University of Washington.

Jack L. Taylor Jr. (1962) M.B.A.
Associate Professor Emeritus of Business Administration.
B.S. 1961 Portland State University; M.B.A. 1965 University of Portland.

G R A D U A T E S C H O O L O F E D U C A T I O N
Dean, Graduate School of Education; Professor of Education.

Professor of Education.
B.S. 1973 University of Nebraska, Kearney; M.A. 1979 University of Nebraska, Lincoln; Ph.D. 1995 University of Oregon.

Professor of Education.

Associate Professor of Education.

Susan M. Bert (1997) M.S.
Instructor in Education.
B.S. 1977 Indiana State University; M.S. 1981 University of Oregon.

Patricia Mulhearn Blasco (1999) Ph.D.
Associate Professor of Education.

Assistant Professor of Education.
B.A. 1972 Hendrix College; M.Ed. 1975 University of Arkansas; Ph.D. 1988 University of Oregon.

David J. Bullock (1994) M.S.
Director, Metropolitan Instructional Support Lab.
B.A. 1973 University of Oregon; M.S. 1985 Western Oregon State College.

Thomas D. Capuzzi (1978) Ph.D.
Professor of Education.

Carolyn Carr (1999) Ph.D.
Professor of Education.

Micki M. Caskey (1998) Ph.D.
Professor of Education.

Christine Chaille (1991) Ph.D.
Professor of Education.
B.A. 1971 University of California at Berkeley; M.A. 1973 San Francisco State University; Ph.D. 1977 University of California at Los Angeles.

Associate Professor of Education.

Christine Cress (1990) Ph.D.
Professor of Education.

Emily C. de la Cruz (1992) Ph.D.
Professor of Education.

Sara McCormick Davis (2000) Ph.D.
Assistant Professor of Education.
B.S. 1975 Oklahoma State University; M.S. 1984 University of Central Oklahoma; Ph.D. 2000 Oklahoma State University.

Assistant in Education.

Robert B. Everhart (1986) Ph.D.
Professor of Education; Adjunct Professor of Sociology.

Ruth A. Falco (1986) Ph.D.
Associate Professor of Education.

Ann Fullerton (1990) Ph.D.
Associate Professor of Education.
B.S. 1977 Reed College; M.A. 1980 Peabody College; Ph.D. 1990 Vanderbilt University.

Patricia G. Gildroy (2000) M.A.
Professor of Education.
B.A. 1974 Western Illinois University; M.A. 1980 San Diego State University.

Ph.D.
Chair, Department of Educational Policy, Foundations, and Administrative Studies; Professor of Education.
B.A. 1966 Miami University of Ohio; Ph.D. 1973 University of New Mexico.

Paul Gregorio (1993) M.L.
Assistant Professor of Education.
B.A. 1966 University of Redlands; M.A. 1969 San Francisco State University; M.L. 1979 University of Washington.

Cheryl Grindol (1990) M.S.Ed.
Assistant Professor of Education.

Loyde Hales (1978) Ed.D.
Professor of Education.

Susan Halverson (1999) Ph.D.
Assistant Professor of Education.
B.S. 1980 Southwest State University; M.A. 1983 Regent University; Ph.D. 1999 College of William & Mary.

Director of Special Projects; Professor of Education.

Samuel Henry (1992) Ph.D.
Chair, Department of Curriculum and Instruction; Associate Professor of Education.

Jean E. Horton (1995) Ph.D.
Assistant Professor of Education.

Assistant Professor of Education.
Stephen L. Isaacson (1995) Ph.D. Chair, Department of Special Education and Counselor Education; Professor of Education. B.S. 1970 University of Washington; M.S. 1974 Oregon College of Education; Ph.D. 1985 Arizona State University.


Cheryl L. Livneh (1987) Ed.D. Associate Dean of Extended Studies; Associate Professor of Education. B.S. 1972 Miami University of Ohio; M.S. 1974 University of Wisconsin, Madison; Ed.D. 1986 Boston University.


Carol L. Mack (1986) Ph.D. Associate Dean, Graduate School of Education; Associate Professor of Education. B.S. 1977 Arizona State University; M.Ed. 1979 Southwest Texas State University; Ph.D. 1988 University of Illinois.


Russell Miers (1993) Ph.D. Assistant Professor of Education. B.A. 1976 Kent State University; Ph.D. 1981 University of Iowa.


Dannelle D. Stevens (1994) Ph.D. Associate Professor of Education. B.A. 1965 University of California, Berkeley; M.S. 1985 University of Utah; Ph.D. 1993 Michigan State University.


Emeriti Faculty


Madge Leslie (1965) C.A.S. Professor Emerita of Education. B.A. 1940 Willamette University; M.A. 1959 San Francisco State College; C.A.S. 1963 Syracuse University.


COLLEGE OF ENGINEERING AND COMPUTER SCIENCE


Associated Faculty


Morgan D. Pope (1990) M.S. Associate Dean for Outreach, College of Engineering and Computer Science. B.S. 1959 University of Missouri; M.S. 1962 New Mexico Highlands University

DEPARTMENT OF CIVIL ENGINEERING

Faculty
Robert I. Bertini (2000) Ph.D., P.E. Assistant Professor of Civil Engineering. B.S. 1988 California Polytechnic State University; M.S. 1991 San Jose State University; Ph.D. 1999 University of California, Berkeley.

William Fish (1998) Ph.D. Associate Professor of Civil Engineering and Environmental Sciences and Resources. B.S.E. 1979 University of Florida, Ph.D. 1984 Massachusetts Institute of Technology.


B. Kent Lall (1977) Ph.D., P.E. Professor of Civil Engineering. B.S. 1961 Panjab University (India); M.E. 1964 University of Roorkee (India); Ph.D. 1969 University of Birmingham (England).

Shu-Guang Li (1992) Ph.D., P.E. Associate Professor of Civil Engineering. B.S. 1982, M.S. 1985 Chengdu University of Science and Technology (China); M.S. 1988 University of Iowa; Ph.D. 1993 Massachusetts Institute of Technology.

Wendelin H. Mueller (1973) Ph.D., P.E. Professor of Civil Engineering. B.S. 1962 St. Louis University; M.S. 1966, Ph.D. 1972 University of Missouri, Rolla.

Franz N. Rad (1971) Ph.D., P.E. Chair, Department of Civil Engineering; Professor of Civil Engineering. B.S. 1968, M.S. 1969, Ph.D. 1973 University of Texas, Austin.


Associated Faculty


Emeriti Faculty
H. Chik M. Erzurumlu (1962) Ph.D., P.E. Dean Emeritus, College of Engineering and Computer Science; Professor Emeritus of Civil Engineering. Professional Degree 1957 Technical University of Istanbul (Turkey); M.S. 1962, Ph.D. 1967 University of Texas, Austin.

DEPARTMENT OF COMPUTER SCIENCE

Faculty


Cynthia Brown (1998) Ph.D. Chair, Department of Computer Science; Professor of Computer Science. B.S. 1965 Michigan State University; M.A. 1966, Ph.D. 1977 University of Michigan.


Jingke Li (1990) Ph.D. Associate Professor of Computer Science. B.S. 1982 University of Science and Technology of China; M.S. 1985, Ph.D. 1990 Yale University.

Associated Faculty
Emeriti Faculty
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
Faculty
Associated Faculty
Emeriti Faculty
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
Faculty
Associated Faculty
Emeriti Faculty
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
Faculty
Anne McClanan (1909) Ph.D., Assistant Professor of Art. A.B. 1989 Columbia University; M.A. 1990 John Hopkins University; Ph.D. 1997 Harvard University


Emeriti Faculty


DEPARTMENT OF MUSIC Faculty


Hamilton Cheifetz (1977) Professor of Music (cello, bass).


Darrell Grant (1997) M.M., Assistant Professor of Music (jazz). B.M. 1984 Eastman School of Music; M.M. 1986 University of Miami.

Charles Gray (1988) M.M., Professor of Music; Director of Jazz Studies. B.M. 1974 San Francisco State University; M.M. 1988 North Texas State University.

Harold K. Gray Jr. (1977) M.M., Chair, Department of Music; Professor of Music (piano). B.M. 1969, M.M. 1970 Florida State University.


William J. Tuttle (1977) D.M.A., Professor of Music; Director of Bands. B.M. 1964 Simpson College; M.M. 1966 Northwestern University; D.M.A. 1977 University of Texas, Austin.


Emeriti Faculty

Milena E. Sheridan (1959) Ph.D., Dean Emerita, School of Fine and Performing Arts; Professor Emerita of Music. B.M. 1945 Willamette University; M.Mus.Ed. 1955 Lewis & Clark College; Ph.D. 1979 University of Oregon.


Associated Faculty


DEPARTMENT OF THEATER ARTS Faculty


William M. Tate (1968) M.A. Chair, Department of Theater Arts; Professor of Theater Arts. B.A. 1966 Portland State University; M.A. 1967 University of Birmingham (England).


Emeriti Faculty


Graduate School of Social Work


Faculty


Risa Kiam (1997) M.S.W. Director of Field Instruction, Assistant Professor of Social Work. B.S. 1964 State University of New York, Potsdam; M.S.W. 1974 University of Denver.

Nancy M. Koroloff (1973) Ph.D. Director, Regional Research Institute for Human Services; Professor of Social Work. B.S. 1968 University of Oregon; M.S.W. 1972 Portland State University; Ph.D. 1985 University of Oregon.


Janet Putnam (1985) M.S.W. Director of Student Affairs; Assistant Professor of Social Work. B.A. 1973 Pacific Lutheran University; M.S.W. 1973 Portland State University.


Julie M. Rosenweig (1985) Ph.D. Associate Professor of Social Work. B.S. 1970 University of California, Davis; M.S.W. 1976 California State University, Sacramento; Ph.D. 1985 University of Kansas.


Vikki L. Vander (1992) Dr.P.H. Associate Professor of Social Work. B.S. 1983 University of Houston, Clear Lake; M.S.W. 1985 University of Houston, Dr.P.H. 1991 University of Texas.

Emeriti Faculty

James L. Bredlove (1964) D.S.W. Professor Emeritus of Social Work. B.S. 1951 Central Missouri State College; M.S.W. 1954 University of Kansas; D.S.W. 1962 Case Western Reserve University.


Guido Pinnamonti (1969) D.S.W. Professor Emeritus of Social Work. B.A. 1949 Loyola University; M.S.W. 1951 St. Louis University; D.S.W. 1961 University of Southern California.
Lynn Thompson (1968) M.S.W Associate Professor Emeritus of Social Work. B.A. 1962, M.S.W. 1964 University of California, Berkeley


Associated Faculty


Mary Beth Collins (1984) M.S.W. Director of Counseling and Psychological Services; Adjunct Assistant Professor of Social Work. B.A. 1969 Stanford University; M.S.W. 1978 University of Southern California.


David L. Cutler (1990) M.D. Professor and Director of Public Psychiatry Training Program, Oregon Health Sciences University; Department of Psychiatry; Adjunct Professor of Social Work. B.S. 1962, M.D. 1967 Ohio State University.


David H. Kim (1986) M.S.W. President, Holt International Children’s Services, Eugene, Oregon; Adjunct Professor of Social Work. B.A. 1959 Seoul National University (Korea); M.S.W. 1966 Portland State University.


David S. Phillips (1995) Ph.D. Professor of Medical Psychology, Professor of Public Health and Preventive Medicine, Oregon Health Sciences University; Adjunct Professor of Social Work. B.A. 1958 Washash College; M.S. 1960, Ph.D. 1962 Purdue University.


Michael Taylor (1997) M.S.W. Program Administrator, Clackamas County Mental Health; Adjunct Instructor in Social Work. B.A. 1971 University of California, Los Angeles; M.S.W. 1977 Portland State University.

Kay Dean Toran (1971) M.S.W. Administrator, Children’s Services Division, Adjunct Associate Professor of Social Work. B.A. 1964 University of Portland, M.S.W. 1970 Portland State University.


REGIONAL RESEARCH INSTITUTE FOR HUMAN SERVICES
Associated Faculty


CHILD WELFARE PARTNERSHIP

Faculty


Associated Faculty


COLLEGE OF URBAN AND PUBLIC AFFAIRS

Nohad A. Toulan (1972) Ph.D. Dean, College of Urban and Public Affairs; Professor of Urban Studies and Planning. B.S. 1954 University of Cairo (Egypt); M.C.P. 1959 University of California, Berkeley, Ph.D. 1965 University of Pennsylvania.


SCHOOL OF COMMUNITY HEALTH

Faculty

Mark Kaplan (1997) Dr.P.H. Associate Professor of Community Health. B.S. 1975 University of Miami-Florida; M.S.W. 1977 Arizona State University; M.P.H. 1978, Dr.P.H. 1984 University of California, Berkeley.

Elizabeth A. Kutza (1987) Ph.D. Director, Institute on Aging, Professor of Community Health. B.S. 1966 Loyola University (Chicago); M.S. 1969 Boston University; Ph.D. 1977 University of Chicago.


James E. Wallis (1989) M.S. Assistant Professor of Community Health. Head Athletic Trainer; B.S. 1983 Washington State University; M.S. 1984 University of Arizona.


Emeriti Faculty


Alice E. Lehman (1959) M.S. Professor Emerita of Physical Education. B.S. 1954, M.S. 1958 Oregon State University.


Associated Faculty

MARK O. HATFIELD SCHOOL OF GOVERNMENT


DIVISION OF ADMINISTRATION OF JUSTICE
Faculty


Division of Political Science
Faculty


Charles R. White (1971) Ph.D. Associate Dean, University Studies; Professor of Political Science and Urban Studies and Planning. B.A. 1965 Colorado College; M.A. 1968 New Mexico State University; Ph.D. 1977 University of Arizona.

Emeriti Faculty


Associated Faculty


DIVISION OF PUBLIC ADMINISTRATION
Faculty


Associated Faculty


Linda Golaszewski (1996) M.A. Adjunct Assistant Professor of Public Administration. B.A. 1975 Loyola University, M.A. 1977 University of Illinois.


Pamela Hanes (1980) Ph.D. Adjunct Associate Professor of Public Administration. B.S. 1974 West Virginia University, Morgantown; M.S.W. 1978 California State University, Sacramento; Ph.D. 1986 University of California, Berkeley.


Eric Levine (1996) B.A. Adjunct Associate Professor of Public Administration. B.A. 1968 Queens College.


Michael Wells (1998) M.A. Adjunct Assistant Professor of Public Administration. B.A. Thomas Edison State College; M.A. 1993 California State University, Dominguez Hills.


SCHOOL OF URBAN STUDIES AND PLANNING
Faculty


RESIDENCE CLASSIFICATION POLICY AND PROCEDURES

In Oregon, as in all other states, instruction fees at publicly supported four-year colleges and universities are higher for nonresident students than for resident students. Currently, nonresident students are assessed instruction fees that approximate the full cost of instruction.

The current rules and amendments used in determining residency seek to ensure that only bona fide Oregon residents are assessed the resident fee. Those rules—Oregon Administrative Rules, Chapter 580, Division 10 Board of Higher Education—appear below.

Only duly authorized admissions officers have authority to apply and interpret these rules and procedures. No other indication of presence, or determination of residency by any other institutional office, department, program, or staff represents the official institutional determination of residency.

Summary of Key Considerations in Determining Classification as a Resident:
1. Establishment of a domicile in Oregon for a period of 12 months or more prior to the beginning of the term for which residency is sought.
2. Financial dependence on an Oregon resident or financial independence.
3. Primary purpose for being in Oregon other than to obtain an education.
5. Various other indicia of residency, e.g., ownership of Oregon living quarters, permanent Oregon employment, payment of Oregon income taxes.

OREGON BOARD OF HIGHER EDUCATION ADMINISTRATIVE RULES

These are the rules the Board of Higher Education adopted to be effective November 1, 1993.

Residence Classification

Definitions 580-10-029 For the purpose of rules 580-10-030 through 580-100-45, the following words and phrases mean:

(1) "Domicile" denotes a person's true, fixed, and permanent home and place of habitation. It is the place where a person intends to remain and to which the person expects to return when the person leaves without intending to establish a new domicile elsewhere.

(2) "Financially independent" denotes a person who has not been and will not be claimed as an exemption and has not received and will not receive financial assistance in cash or in kind of an amount equal to or greater than that which would qualify him or her to be claimed as an exemption for federal income tax purposes by another person except his or her spouse for the current calendar year and for the calendar year immediately prior to the year in which application is made.

(3) A "dependent" is a person who is not financially independent.

Determination of Residence

580-10-030 (1) For purposes of admission and instruction fee assessment, Oregon University System (OUS) institutions shall classify a student as Oregon resident or nonresident. In determining resident or nonresident classification, the primary issue is one of intent. If a person is in Oregon primarily for the purpose of obtaining an education, that person will be considered a nonresident. For example, it may be possible for an individual to qualify as a resident of Oregon for purposes of voting or obtaining an Oregon driver's license and not meet the residency requirements established by these rules.

(2) An Oregon resident is a financially independent person who, immediately prior to the term for which Oregon resident classification is requested:

(a) Has established and maintained a domicile in Oregon of not less than 12 consecutive months; and
(b) Is primarily engaged in activities other than those of being a college student.

(3) An Oregon resident is also a person who is dependent on a parent or legal custodian who meets the Oregon residency requirements of these rules.

(4) The criteria for determining Oregon resident classification shall also be used to determine whether a person who has moved from Oregon has established a non-Oregon residence.

(5) If institution records show that the residence of a person or the person's legal custodian upon whom the person is dependent is outside of Oregon, the person shall continue to be classified as a nonresident until entitlement to resident classification is shown. The burden of showing that the residence classification should be changed is on the person requesting the change.

Residency Consideration Factors

580-10-031 (1) The following factors, although not necessarily conclusive or exclusive, have probative value in support of a claim for Oregon resident classification:

(a) Be primarily engaged in activities other than those of a student and reside in Oregon for 12 consecutive months immediately prior to the beginning of the term for which resident classification is sought;
(b) Reliance upon Oregon resources for financial support;
(c) Domicile in Oregon of persons legally responsible for the student;
(d) Acceptance of an offer of permanent employment in Oregon; and
(e) Ownership by the person of his or her living quarters in Oregon.

(2) The following factors, standing alone, do not constitute sufficient evidence to effect classification as an Oregon resident:

(a) Voting or registration to vote;
(b) Employment in any position normally filled by a student;
(c) The lease of living quarters;
(d) Admission to a licensed practicing profession in Oregon;
(e) Automobile registration;
(f) Public records, for example, birth and marriage records, Oregon driver's license;
(g) Continuous presence in Oregon during periods when not enrolled in school;
(h) Ownership of property in Oregon, or the payment of Oregon income or other Oregon taxes; or
(i) Domicile in Oregon of the student's spouse;
(j) Reliance upon non-Oregon resources for financial support is an inference of residency in another state.
(4) The resident classification of a dependent person shall be that of his or her parents or legal custodians, or, in case of divorce or other similar circumstances, the parent or legal custodian upon whom the person is financially dependent, unless the dependent has been in Oregon with the other parent or a legal custodian and established Oregon residency under these rules 12 months prior to the term for which Oregon resident classification is requested.

Evidence of Financial Dependency
580-10-033 (1) In determining whether a student is financially dependent and whether his or her parent, or legal custodian has maintained a bona fide domicile in Oregon for one year, a student must provide:
(a) Legal proof of custodianship;
(b) Evidence of established domicile of parent or legal custodian;
(c) The identification of the student as a dependent on the federal income tax return of the parents, or legal custodian. Additional documentation to substantiate dependency during the current calendar year may be required at a later time if deemed necessary by the institution.
(2) A student who provides evidence that he or she is a dependent of a parent or legal custodian who has maintained a one-year domicile in Oregon shall not be required to establish a one-year domicile prior to classification of resident status, provided such a student may not be classified as a resident while receiving financial assistance from another state or state agency for educational purposes.

Residence Classification of Armed Forces Personnel
580-10-035 (1) For purposes of this rule, armed services means officers and enlisted personnel of the United States Army, Navy, Air Force, Marine Corps, and Coast Guard. (2) Notwithstanding OAR 580-10-030, members of the armed services and their spouses and dependent children who reside in this state while assigned on duty at an Oregon port of shore establishment as other than an Oregon resident under these rules shall complete Oregon residency until it is voluntarily relinquished. (4) An Oregon resident who has been in the armed services and assigned on duty outside of Oregon must return to Oregon within 60 days after completing service to retain classification as an Oregon resident. (5) A person who continues to reside in Oregon after separation from the armed services may count the time spent in the state while in the armed services to support a claim for classification as an Oregon resident.

Residence Classification of Members of Oregon Tribes
580-10-037 (1) Students who are enrolled as members of federerally recognized tribes of Oregon who are enrolled members of a Native American tribe which had traditional and customary tribal boundaries that included parts of the state of Oregon or which had ceded or reserved lands within the state of Oregon shall be considered resident for purposes of this rule. (2) For purposes of this rule, the federally recognized tribes of Oregon are: Burns Paiute Tribe, Confederated Tribes of Coos, Lower Umpqua and Siuslaw, Confederated Tribes of Grand Ronde Community of Oregon, Confederated Tribes of Siletz Indians of Oregon, Confederated Tribes of Umatilla Indian Reservation, Confederated Tribes of Warm Springs Indian Reservation, Coquille Indian Tribe, Cow Creek Band of Umpqua Indians, Klamath Tribes. (3) For purposes of this rule, the Native American tribes which had traditional and customary boundaries that included parts of the state of Oregon or which had ceded or reserved lands within the state of Oregon are: (a) CALIFORNIA: Benton Paiute Tribe, Big Bend Rancheria, Big Lagoon Rancheria, Blue Lake Rancheria, Bridgeport Indian Colony, Cedarville Rancheria, Fort Bidwell Indian Tribe, Hoopa Valley Tribe, Karuk Tribe of California, Likely Rancheria, Loekout Rancheria, Lytton Rancheria, Melochnundum Band of Tolowa Indians, Montgomery Creek Rancheria, Pit River Tribe, Quartz Valley Indian Community, Redding Rancheria, Roaring Creek Rancheria, Smith River Rancheria, Susanville Rancheria, Tolowa-Tututni Tribe, Winnemucca Colony, XL Ranch; (b) IDAHO: Nez Perce Tribe of Idaho, Shoshoni-Bannock Tribes; (c) NEVADA: Duck Valley Shoshone-Paiute Tribes, Fallon Paiute-Shoshone Tribe, Fort McDermitt Paiute-Shoshone Tribe, Lovelock Paiute Tribe, Pyramid Lake Paiute Tribe, Reno-Sparks Indian Colony, Summit Lake Paiute Tribe, Walker River Paiute Tribe, Winnemucca Indian Colony, Yerington Paiute Tribe; (d) OKLAHOMA: Modoc Tribe of Oklahoma; (e) WASHINGTON: Chehalis Community Council, Colville Confederated Tribes, Quinault Indian Nation, Shoalwater Bay Tribe, Yakama Indian Nation. (4) A student seeking to be assessed residential tuition under the provisions of this rule shall submit, following procedures prescribed by the OUS institution where the student seeks to enroll, a photocopy of tribal enrollment which documents tribal membership.

Residence Classification of Aliens
580-10-040 (1) An alien holding an immi- grant visa of any type, A, B, C, D, F, J, K, L, N, R, N, N, NATO, TC, TN, or TD visa, or granted ref- ugee or political asylum, Family Unity or Voluntary Departure in Lieu of Family Unity status, or otherwise admitted for permanent residence in the United States is eligible to be considered an Oregon resident if OAR 580-10-030 is otherwise satis- fied. The date of receipt of the immigrant visa, the date of approval of political asylum or refugee status, or the date of approval of lawful permanent residence, whichever is earlier, shall be the date upon which the 12 months and other residency requirements under OAR 580-10-030 shall begin to accrue. (2) Notwithstanding any other rule, an alien possessing a nonimmigrant or tempo- rary, i.e., B, C, D, F, J, or M visa cannot be classified as a resident.

Changes in Residence Classification
580-10-041 (1) If an Oregon resident student enrolls in an institution outside of Oregon and later seeks to re-enroll in an OUS institution, the residence classification of that student shall be reexamined and determined on the same basis as for any other person. (2) A person whose nonresident legal cus- todian establishes a permanent Oregon residence as defined in OAR 580-10-030 during a term when the dependent is enrolled at an OUS institution, may register as a resident at the beginning of the next term. (3) Once established, classification as a resident continues so long as the student remains in continuous academic year enrollment in the classifying institution. (4) A person who seeks classification as a resident under these rules shall complete and submit a notarized Residence Information Affidavit. The affidavit and all required supportive documents and materials must be submitted by the last day to register for the term in which resident status is sought.
(3) No OUS institution is bound by any determination of residency except by duly authorized officials under procedures prescribed by these rules including timely submittal of the notarized affidavit.

Review of Residence Classification Decisions by IRC
580-10-045 (1) An interinstitutional residency committee (IRC) is established consisting of the officers determining student residence classification at Department institutions and a member of the Chancellor's staff appointed by the Chancellor. The member of the Chancellor's staff, shall serve as chairperson. A majority of the members of the Committee shall constitute a quorum. A majority of a quorum may make decisions.

(2) Residence cases of unusual complexity, especially where there may be conflict of rules, may be referred by an institution residence classification office to the IRC for decision.

(3) Any person who is aggrieved by the institution residence classification may, within ten (10) days of the date of mailing or other service of classification decision, appeal the classification to the IRC. An aggrieved person may supply written statements to the IRC for consideration in reviewing the case and may also make an oral presentation to the IRC. The decision of the IRC shall be final unless appealed.

(4) A person dissatisfied with the IRC decision may, within ten (10) days of the date of the mailing or other service of the IRC decision, appeal the IRC decision to the Vice Chancellor for Academic Affairs or designee. An appeal to the vice chancellor shall be in writing only. The vice chancellor's decision shall be final.

(5) A person granted a meritorious hardship exception to residency under this rule prior to July 1, 1990, shall not lose the exception solely because of the repeal of the exception authorization.

Residents Under WICHE
580-10-047 A certification officer, designated by the Board, shall determine the residence classification of any person seeking certification as an Oregon resident pursuant to the terms of the WICHE Compact. Any person dissatisfied with the decision of the certification officer may appeal to the IRC. The decision of the IRC shall be final unless further appeal is made to the Vice Chancellor for Academic Affairs pursuant to OAR 580-10-045 (4).

PAYMENT OF STUDENT FEES
Payment of Nonresident Instruction Fee
580-10-080 (1) All students who are classified as nonresidents shall pay a nonresident fee.

(2) Refunds of the nonresident fee may be granted if the student shows that the classification previously assigned was in error, but no such refund shall be made unless the student applies and submits all supporting information for residency status prior to the last day to register for the term in which the student seeks change of status.

WAIVER OF NONRESIDENT INSTRUCTION FEE
580-10-081 (1) Notwithstanding the provisions of rule 580-10-080, the following nonresident students shall be permitted to pay instruction fees at the same rates as Oregon resident students:

(a) Students who are residents of the State of Washington attending an Oregon institution and who are granted a tuition waiver under the terms of reciprocity agreement;

(b) All undergraduates attending Eastern Oregon State College;

(c) Graduate students who are residents of a participating WICHE state enrolled in a WICHE Regional Graduate Program or a WICHE Northwest doctoral student exchange program at a Department institution; and

(d) Students attending Oregon graduate or professional schools under terms of the WICHE Compact.

(2) When provisions of this rule are limited to residents of specific states or counties, determination of residence in those states or counties shall be made in the same manner as for students claiming Oregon residence.

Student Exchanges
580-10-085 (1) (a) Under the WICHE Student Exchange Program, certification of students as Oregon residents for purposes of attending institutions not under Board control or in other states shall be guided by rules set forth in Division 10. In order to be considered for WICHE certification, the student's completed application must be received by the certifying officer on or before October 15 of the year preceding admission. An application received after that date in an envelope postmarked not later than October 15 will be deemed to have been received on the 15th. Residence shall be determined as of the date of the application for WICHE certification, not as of the date of expected admission or registration to an institution. (b) Persons applying for WICHE certification must be certified as Oregon residents and placed in ranked preference order within each program. Ranked preference order is determined by a score based on the grade point average of all college work plus 25 times the number of years of residence in Oregon up to a maximum of ten years.

(2) (a) The department and separate institutions may enter into agreements with individual institutions in other states or other countries whereby resident students specified by name in the Oregon institutions may transfer to the other institution, and an equal number of students specified by name from the other institution may transfer to the Oregon institution with a reciprocal waiving of additional fees ordinarily assessed to nonresident students in both institutions.

(b) The recommendation for a student exchange program, together with a copy of the proposed agreement between the institutions, shall be approved by the Chancellor or designee before the exchange program is undertaken. Further, the program recommendation and the proposed agreement between institutions shall set forth the reasons why the exchange would be of particular benefit to the students in their chosen study programs and specify fees to be paid by incoming and outgoing students; student responsibility for costs of transportation, housing, books, board and room, and other incidents; responsibility of institutions to assist students in obtaining housing, counseling, and interpreters; procedures to be followed in state entitlement funding and counting credit hours; action to be taken if students do not regularly participate in the academic program being pursued, and procedures for providing transcripts.

(c) If an approved agreement provides for exchange of equal numbers of students, then unforeseen circumstances which later might cause a student to withdraw from the program shall not void the arrangements agreed upon by the two institutions.

(d) Attendance at a Department institution as an exchange student from another state or country cannot be used in establishing residence.

(3) Notwithstanding any other rule, and effective fall term of the 1989-90 academic year, a Department institution may provide that a vacant WICHE opening may be occupied by a nonresident, non-WICHE student who agrees not to seek residency status for the duration of the student's degree program and who agrees to pay a fee equal to the nonresident tuition fee for the duration of that program.

ENROLLMENT OF SPOUSE AND DEPENDENT CHILDREN
580-10-086 (1) The spouse and dependent children of regular Department staff members with a full-time equivalent of at least .50 may enroll as students at resident fee rates in Department institutions.

(2) The spouse and dependent children of Department visiting instructors from other countries or other states with a full-time equivalent of at least .50 may enroll in Department institutions at resident fee rates during the terms that the parent, guardian, or spouse is serving a Department institution as a visiting instructor.
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