1998

Bulletin: General Catalog Issue 1998-1999

Portland State University

PORTLAND STATE UNIVERSITY

Bulletin

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PORTLAND STATE UNIVERSITY BULLETIN 1998-99

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Information in this *Bulletin* is accurate as of February 1998. It has been compiled with care but may contain errors. Any errors discovered should be reported to the Office of Academic Affairs, which maintains an errata sheet that is available on request.

The *Portland State University Bulletin* is not a contract but rather a guide for the convenience of students. The University reserves the right to change or withdraw courses; to change the fees, rules, and calendar for admission, registration, instruction, and graduation; and to change other regulations affecting the student body, at any time.

Portland State University supports equal opportunity in admissions, education, employment, and use of facilities by prohibiting discrimination in those areas based on race, color, creed or religion, sex, national origin, age, disability, sexual orientation, or veteran status. This policy implements state and federal law (including Title IX). Inquiries about it should be directed to the Office of Affirmative Action, 122 Cramer Hall, 725-4417; TDD: (503) 725-6503.

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General Catalog Issue

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ACADEMIC CALENDAR

	FALL 1998	WINTER 1999	SPRING 1999	SUMMER 1999	FALL 1999
Last day to submit: International application	March 1	July 1, 1998	Sept. 1, 1998	Dec. 1, 1998	March 1
Graduate study application	April 1	Sept. 1, 1998	Nov. 1, 1998	Feb. 1	April 1
Undergraduate application or re-enrollment	June 1	Oct. 1, 1998	Feb. 1	May 1	June 1
†**Advance registration begins, touchtone phone and Web Access**	May 18	Nov. 9, 1998	Feb. 17	‡April	May 17
Continuous registration and adjustments until	Oct. 9	Jan. 15	April 9	June 25	Oct. 8
Classes begin (day and evening)	Sept. 28	Jan. 4	March 29	June 21	Sept. 27
Last day to enroll in classes, add a class, or make section changes	Oct. 9	Jan. 15	April 9	varies	Oct. 8
Late payment fee begins	Oct. 12	Jan. 19	April 12	§	Oct. 11
Last day of refund period and drop/withdraw without course recorded	Oct. 23	Jan. 29	April 23		Oct. 22
Last day to make changes in grading option, drop/withdraw from a class	Oct. 30	Feb. 5	April 30	varies	Oct. 29
Last day to drop a class or withdraw from school	Nov. 20	Feb. 26	May 21	varies	Nov. 19
Final examinations	Dec. 7-12	Mar. 15-20	June 7-12	◊Aug. 12-13	Dec. 6-11
††**Commencement days**			June 12	Aug. 14	
Term ends	Dec. 12	March 20	June 12		Dec. 11
Holidays	Nov. 11 Nov. 26-27	Jan. 18	May 24	July 5	Nov. 11 Nov. 25-26

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.

PROGRAMS OF STUDY

	Minor	Certificate	Bachelor's	Master's	Doctorate
Accounting		■ 1			
Administration of Justice			■	■	
Anthropology	■		■	■	2
Applied Linguistics Teaching English as a Second Language	■	■	■	■ 3	
Architecture	■		■		
Art Options: Applied Design[4]; Art History; Drawing/Painting/Printmaking; Graphic Design; Sculpture	■		■	■ 5	
Athletic Training	■				
Biology	■		■	■	6
Black Studies	■	■			
Business Administration Undergraduate options: Accounting; Advertising Management; Finance; General Management; Human Resource Management; Information Systems; Marketing; Supply and Logistics Management	■		■	■	2
Chemistry Undergraduate option: Biochemistry	■		■	■	6
Chicano/Latino Studies		■			
Child and Family Studies			■		
Civil Engineering Environmental Engineering minor	■		■	■	2, 6
Community Development	■		■		
Computer Applications	■				
Computer Engineering			■		
Computer Science	■		■	■	
Economics Graduate options: General Economics; Applied Economics	■		■	■	2, 6, 7
Education[8] Elementary Education Secondary Education Specialist Program options: Counseling; Curriculum and Instruction; Media/Librarianship; Policy, Foundations, and Administrative Studies; Special Education Educational Leadership Options: Administration; Curriculum and Instruction; Postsecondary Education; Special and Counselor Education				■	■
Electrical Engineering	■		■		
Electrical and Computer Engineering				■	■
Engineering Management				■	2
English Professional Writing	■		■	■	
Environmental Management				■	
Environmental Sciences and Resources Options: Biology; Chemistry; Civil Engineering; Economics; Geography; Geology; Physics				■	■
Environmental Studies	■		■		
European Studies		■			
Foreign Languages 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	■	■	■	■	
Foreign Literature and Language				■	

	Minor	Certificate	Bachelor's	Master's	Doctorate
General Arts and Letters				■4	
General Social Science				■	
General Studies Options: Arts and Letters; Science; Social Science			■		
Geography	■		■	■	6, 7
Geology Graduate option; Geohydrology	■		■	■	6
Gerontology		■ 9			
Health Education Undergraduate options: Community Health; Health and Fitness Promotion; School Health; Health Sciences M.P.H. option: Health Education/HealthPromotion	■		■	■	
History	■		■	■	
International Business Studies		■			
International Economics	■				
International Management				■	
International Studies African Studies; East Asian Studies; European Studies; Latin American Studies; Middle East Studies	■		■		
Latin American Studies		■			
Manufacturing Engineering (joint degree with Oregon State University)				■	
Mathematics Graduate option: Statistics	■		■	■	2
Mathematics Education					■
Mechanical Engineering			■	■	2
Middle East Studies		■			
Music Jazz minor	■		■	■	
Philosophy	■		■		
Physics	■		■	■	6
Political Science	■		■	■	7
Psychology	■		■	■	2, 7
Public Administration M.P.A. option: Health Administration; M.P.H. option: Health Administration and Policy				■	
Public Administration and Policy					■
Science Options: Biology; Chemistry, Environmental; General; Geology				■	
Social Work				■	■
Sociology	■		■	■	2, 7
Speech Communication Options: General Speech Communication; Speech and Hearing Sciences	■		■	■	
Systems Science Options: Anthropology; Business Administration; Civil Engineering; Economics; Engineering Management; General; Mathematics; Mechanical Engineering; Psychology; Sociology					■
Theater Arts	■		■	■	
Urban Studies and Planning		■		■	■
Women's Studies	■	■ 1	■		

Preprofessional Programs: 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

1 Postbaccalaureate 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 Program temporarily suspended.
5 The M.F.A. is offered only in painting and sculpture.
6 Departments participating in multidisciplinary doctoral program of environmental sciences and resources.
7 Departments participating in multidisciplinary doctoral program of urban studies.
8 M.A./M.S. offered by Graduate School of Education. M.A.T./M.S.T. offered in cooperation with appropriate department.
9 Graduate certificate.

CONTENTS

WELCOME TO PORTLAND STATE UNIVERSITY

THE UNIVERSITY

Portland State University is a comprehensive public university of growing distinction. The University has nearly 15,000 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. By the year 2000, the population of greater Portland is expected to increase to slightly more than 1.7 million people from slightly under 1.5 million in 1990. 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 the metropolitan area. The University actively promotes the development of a network of educational institutions that serves the community, and it conducts research and community service to support a high quality educational environment and reflect issues important to the metropolitan region.

Presidents who have served the University are John F. Cramer, 1955 to 1958; Branford P. Millar, 1959 to 1968; Gregory B. Wolfe, 1968 to 1974; Joseph C. Blumel, 1974 to 1986; Natale A. Sicuro, 1986 to 1988; Roger N. Edgington (interim president) 1988 to 1990; and Judith A. Ramaley, 1990-1997. Daniel O. Bernstine took office August 1, 1997.

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 more than 500 full-time and several hundred part-time members. More than 80 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 School of Engineering and Applied Science's undergraduate programs in civil, electrical, and mechanical engineering are accredited by the Engineering Accreditation Commission/ Accreditation Board for Engineering and Technology.

In the Department of Speech 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 College of Liberal Arts and Sciences, the College of Urban and Public Affairs, and the professional schools of Business Administration, Education, Engineering and Applied Science, Fine and Performing Arts, 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 eight doctoral degrees. One is in engineering, one is in education, one in mathematics education, one is in social work and social research, and four are 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 3-4 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 2 for important dates.

UNDERGRADUATE ADMISSIONS

113 Neuberger Hall
P.O. Box 751
Portland, Oregon 97207-0751
725-3511

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 less 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 Entrance Examination 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 Entrance Examination 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 Entrance Examination 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 with a minimum 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. Must satisfactorily complete 14 units (one year equal to one unit) of college preparatory work in the following subject areas:

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), advance 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. **Foreign Language (2 units).** Shall include two years of the same foreign language.

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

i. Score an average of 470 or above (1410 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

† Fees subject to change without notice.

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, it is necessary to contact the Director of Admissions in writing: Portland State University, Office of Admissions and Records, P.O. Box 751, Portland, OR 97207-0751.

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 student has been admitted.

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 appropriate committee.

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 Scholastic 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.

Candidates for admission are given priority if complete applications are filed by:

- March 1 for fall term
- July 1 for winter term
- September 1 for spring term
- December 1 for Summer Session

Applications will be considered for all terms subject to department and/or University restrictions and/or 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, P.O. Box 899, Princeton, NJ 08540.

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, 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, 725-4088, for additional requirements.

VETERANS' ADMISSION REQUIREMENTS

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 2.00. 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.

A drop period of five weeks from the beginning of the term is in effect at the University. During this period all students may drop classes without the courses being recorded on their permanent academic records. This in no way relieves student veterans of their responsibility to report 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, 725-3876, 118 Smith Memorial Center, for more information.

PART-TIME STUDENTS/ NONADMITTED STUDENTS, 725-3511

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 Registration Office 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.

Non-admitted students are allowed to register after all other students. Space can be limited in a course or a term.

A student may earn most University degrees as a part-time student. Some degrees may be earned by taking courses exclusively at night. A student who wishes to earn a degree will need to be admitted before getting too far into the program. Part-time students, especially, need to meet regularly with an adviser to keep up-to-date with changing degree 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; and the right to correction of errors, and a hearing if necessary. 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 deadline for application 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. No college credit is given for courses from proprietary colleges. No college credit is given for courses with D grades, or sub-college (remedial or developmental) courses.

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 Program. Beginning fall term 1997, Portland State University and Clackamas Community College offer a co-admission program for simultaneous enrollment at both institutions. Co-admitted students make one application to both institutions and receive PSU academic advising at either the CCC or PSU campus. Students in this program may register for courses at either campus and may receive financial aid award for courses at both campuses during any one academic term. Co-admission applicants are initially restricted to 8 or fewer credit hours at PSU. Applicants should contact either CCC Counseling Office at (503) 651-6958, ext. 2213, or 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. Wr 323 is waived. The student must still fulfill diversity course 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.

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 288.

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 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 C- 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.

THE ENROLLMENT PROCESS
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 a student needs to select and register for classes.

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 "Registration," at the bottom of the page.

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 at the Admission and Registration 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 18 under "Grading System for Undergraduates." Students who withdraw or drop may be entitled to certain refunds of fees paid. See page 22 for more information.

The University reserves the right to drop students who do not attend classes.

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) can purchase a photo ID card by presenting their paid tuition receipt at the ID center, located in the south end of 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 had used for registration. A cross-listed course may only be taken once for credit.

KEY TO COURSE DESCRIPTIONS

❶ ❷ ❸ ❹

Art 489/589 Metal Sculpture (3)
Bronze or aluminum sculpture cast by the lost wax process. 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. Prerequisite: 12 credits in elementary sculpture or consent of instructor.

❺ ❻

❶ **Course prefix/Subject.** These letters indicate the department or academic unit which offers the course.

❷ **Course numbering system.** Courses throughout the State System of Higher Education 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 doctorate 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 OSSHE 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, Special 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.

❸ **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.

❹ **Credits.** The numeral or words in parentheses indicate the number of credits granted for one term of study in a particular course. Where 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).

❺ **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.

❻ **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

UNDERGRADUATE 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 3-4 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: 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

Students will be graduated according to the requirements of the PSU catalog in force when they enroll at PSU or any other 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 1998-99 catalog will expire at the end of summer term, 2005. 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 General Studies Option II do not need to meet the general education requirement and upper-division requirement in the academic distribution areas. Specific requirements for a baccalaureate degree are detailed by the chart on page 15. 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 General Studies Option II): List 2a for students graduating under post-1994 *Bulletins* including transfer students who commenced study at an institution of higher education on or after fall 1994; list 2b 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.

2a.UNIVERSITY STUDIES (GENERAL EDUCATION REQUIREMENT)

University General Education Requirement for students graduating under post-1994 Bulletins. See University Studies, page 61.

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 or four 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*: Students transferring into PSU with 90 or more credits should complete the Sophomore Inquiry course directly linked to the upper-division cluster they choose. . . . 12 credits
- **Senior Capstone**
  This 6-credit capstone course is the culminating general education experience 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 who commenced study at an institution of higher education on or after fall 1994 will be required to complete the University Studies requirement.

- 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.
- 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.

2b.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, 255, 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.

Note: Mathematics courses accepted in transfer as Mth 199 (waives Stat 243 or 244) and foreign language courses accepted in transfer as Hum 199 or FL 199 are exceptions and count toward the general education requirement.

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

Continued on next page

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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 advisers. 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.

3. REQUIREMENTS FOR BACHELOR OF ARTS, BACHELOR OF MUSIC, BACHELOR OF SCIENCE DEGREES

(Students must choose one.)

- **For the Bachelor of Arts Degree:**
  Students must complete two years of college-level work in one foreign language or demonstrate equivalent proficiency. For students who have received their secondary education in another language, competence in English language satisfies the foreign language requirement. (See alternative Means of Meeting Some University Requirements, page 17.)
- **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 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 or the 12 credits in the science distribution area must be in coursework with integrated or associated laboratory or 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, Computer Science, Environmental Studies, Geology, Mathematical Sciences/Statistics (except Mth 95, 100), Physics, Science.
- **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 General Studies Option I or II: see General 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.

ALTERNATIVE MEANS OF MEETING SOME UNIVERSITY REQUIREMENTS

Writing 121 Requirement. A system of regular examinations allows students to demonstrate competence and may confer credit in Wr 121. Times and places of the examinations are available from the Department of English.

Writing 323 Requirement. (1) A portfolio assessment allows students to demonstrate competence and may confer credit in Wr 323. Information is available in the Department of English. (2) A "Writing Intensive Course" with a grade of C- or better will substitute for Wr 323.

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 30 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-, P, 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 20); 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 99.)

DOUBLE MAJOR

Students with two or more departmental or school majors must satisfy the University distribution requirements for only one of the majors. The student must identify the departmental or school major for which the University requirements are to be satisfied. When a double major includes both a departmental and a general studies Option II major, the University distribution 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.

APPLICATION FOR A DEGREE (AND DEGREE AUDIT)
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. 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
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 two years of college-level work in a foreign language or demonstrate equivalent proficiency.

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., 36 credits from the science area or 36 credits from the social sciences.

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 completion of a certificate program.

ACADEMIC CREDIT

A credit is the basic unit of measurement of educational accomplishment. One credit normally connotes 10 hours of lecture-recitation or 20 or more hours of laboratory, studio, or activity work. The majority of courses at Portland State University involve three or four hours per week of lecture-recitation. PSU is on the quarter-system calendar. Semester credits transferred from other accredited schools may be converted to PSU's credits by multiplying by 1.5.

A student should enroll for an average of 15 credits per term in order to be graduated within the normal 12 terms. Employed students should make sure they are not overloading themselves. They may want to plan to spend more than 12 terms to complete degree requirements. Undergraduate students desiring to take more than 21 credits must obtain approval as follows:

22-25 credits: Obtain approval of adviser on Consent for Overload form available at the Registration window, Neuberger Hall lobby.

26 or more credits: Petition to Academic Requirements Committee. Forms are available at the registration window, Neuberger Hall lobby. Such petitions must be submitted by the last day to pay without a late fee.

Class Standing. Class standing is based on the number of credits a student has completed, according to the following schedule:

Acceptable Status	**credits completed**
Freshman	1-44
Sophomore	45-89
Upper-division standing	90 or more
Junior	90-134
Senior	135 or more
Postbaccalaureate	Hold a degree from an accredited college or university

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:

A = 4.00	B- = 2.67	D+ = 1.33
A- = 3.67	C+ = 2.33	D = 1.00
B+ = 3.33	C = 2.00	D- = 0.67
B = 3.00	C- = 1.67	F = 0.00

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

A—Excellent
B—Superior
C—Average
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 which shall be binding. An agreement to a longer period must be by petition to the Scholastic Standards Committee.

An Incomplete mark becomes part of the permanent transcript record after the deadline expires. To remove an I, an instructor must file a supplementary grade report. *Note:* Other colleges and universities may treat a permanent incomplete as a failure.

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.* To avoid having to pay a check-in fee, students should check in any assigned laboratory or studio desks.

A student may withdraw with no course 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 Committee or Graduate Council. 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 F, D, NP, or whatever grade the work has earned.

Grade Point Average (GPA). The registrar 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. A grade of D+, D, D-, or F may be disregarded in the GPA calculation if the student repeats the course once for a differentiated grade (not P/NP) at PSU and earns another grade. Only the first D or F in a given course is subject to this policy. If course credit has changed, credit is granted according to the repeated course. Complete a Notification of Repeat of Course with D or F Grade form at the Registration Window, Neuberger Hall lobby, by the middle of the repeat term.

The last grade received and its credits contribute toward graduation. However, for graduation honors only the first grade is used. No grades are changed on the student's academic record.

Note: Other colleges and professional schools may have a different policy with respect to calculating a GPA when a class is repeated.

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.

Note: Even though PSU does not accept credits in transfer when a D or F was earned, the GPA for the major will include Ds and Fs earned in the major field at other colleges unless the course is repeated at PSU. The GPA Repeat Policy is then applied.

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: Probation, Disqualification, and Requalification. The faculty Scholastic Standards Committee has the authority to place on academic probation or disqualification any student according to the following standards:

Academic Probation. Any student whose cumulative GPA† at PSU is below the following scholastic requirements shall be placed on academic probation:

Total Credits Including Transfer Credits	12 or more
Minimum PSU GPA **Probation Levels**†	2.00

Academic Disqualification. Any student with 12 total credits enrolled at PSU while on probation will be automatically disqualified at the end of the term in which the student has not met at least one of the following requirements:

1. Raised the cumulative PSU GPA† above the probation level, or
2. Earned a GPA for the given term of 2.25 or above.

If only the second of these requirements is met, the student will be continued on probation subject to the same requirements as those specified above for any initial term on probation. A student's status at any term when on probation does not change by repeating courses.

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

Requalification. A student who is disqualified 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.

APPEALS AND GRIEVANCES

Grievances and requests for exceptions to University requirements may be filed with committees which deal with specific student concerns.

UNDERGRADUATE STUDENTS

Academic Requirements Committee. This committee develops policies and adjudicates petitions regarding academic regulations such as credit loads, transfer credit, and graduation requirements for all undergraduate degree programs. It also develops and recommends policies and adjudicates student petitions regarding initial undergraduate admissions, including entering freshmen.

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.

† The Scholastic Regulations use a GPA combining the undergraduate GPA with any graduate coursework.

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 Registrar's Window in Neuberger Hall. For further information students should consult the Registrar's Office.

CREDIT BY EXAMINATION
725-3412

Undergraduate students may obtain Credit by Examination in three basic ways:

I. Examinations in Portland State University courses approved for Credit by Examination and administered by Portland State departments or schools.

II. Examinations approved by Portland State and 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. Wr 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. A student may attempt to acquire credit by examination only once for any course.

   b. 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.

4. 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).

5. 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.

6. Credit by examination does not count toward residence credit.

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. Phone request number is (609) 771-7865.

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 head 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 ArH 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 223 and 229. 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 confers 8 credits in Hst 101 and 102, and 3 credits in history, unassigned.

Foreign Languages. French, German, and Spanish Language Test: A score of 3 confers 15 credits for the first year sequence; a score of 4 confers 15 credits for the second-year sequence and 3 additional upper-division foreign language elective credits for a total of 18 credits; and a score of 5 confers 15 credits for the first- and second-year sequences, plus 8 credits in the third-year sequence, for a total of 23 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 Hst 201 and 202.

EXPENSES

Tuition and Fees/Student Status. Entering and continuing students at Portland State University should plan their study programs and work loads with a 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, postbaccalaureate, 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 are assessed at the graduate rate. Part-time students are entitled to such services as the University Library, Smith Memorial Center, Student Development programs, and use of the open recreation areas of the Peter Stott Center. They are not entitled, however, to incidental fee privileges, such as free admission to most athletic events or subsidized use of the Helen Gordon Child Development Center, or health services or insurance; however, students taking 4-8 hours may opt to purchase health services and insurance. Residency and admission requirements are waived for students in this category.

All students registered for coursework on or after the first day of the term have a financial obligation in the form of an accounts receivable. The financial obligation is the maximum load enrolled after the start of the term.

All tuition and fees may be paid at the Cashier Windows located in Neuberger Hall lobby, or in accordance with the instructions received with the monthly billing statement. For specific deadlines refer to the appropriate *Schedule of Classes* published each term. Tuition and fees must be paid in full each term; however, students may elect to pay in installments by making a one-third payment at the beginning of the term with the balance due by the term's end (Revolving Charge Account Plan). First-time participants must sign an agreement which is available at the Accounts Receivable office, Neuberger Hall lobby.

Tuition and Fee Schedules/Regular Tuition Schedule. *Note:* The 1998-99 tuition and fee schedules have not been set by the Oregon State Board of Higher Education. The charges listed in the chart on the following page are effective during the 1997-98 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 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 instructional fee for each is combined and added to the single building, technology, and incidental fee to arrive at the total charge.

When courses are added, tuition is calculated upon the difference between the original credit-hour payment and total credits. When credits exceed 8, tuition policy for 9 credits or more applies.

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 8 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.

Noncredit and Extended Studies Self-Support. Enrollment in these courses may not be combined with regular PSU credit classes for fee calculations.

Senior Citizen Fee Schedule. Senior citizens are defined as persons age 65 or older who do not wish to earn course credit. Such persons 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 $59 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, 725-3443.

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

Students may elect to pay installments by making a one-third payment at the beginning of the term with the balance due by the term's end. 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 one or more classes can be accomplished before classes begin via touch-tone phone or Web access with a 100 percent reversal of charges. After classes begin, withdrawals and class drops are accomplished via touch-tone phone, Web access, or Special Registration Form at the Registration windows in the Neuberger Hall lobby, with the applicable tuition percentage charge remaining due and payable. Refund consideration is automatic; no special request is necessary.

Fees for the purchase of a student health insurance plan are nonrefundable. Refunds of special course fees must be approved by departments. Physical education, speech, and music special activity course fee refunds are subject to the schedule for complete withdrawal listed on page 23.

TUITION AND FEES

(Charges for 1997-98)

Credits	Undergrad Resident	Undergrad Nonresident	Graduate Student Resident	Graduate Student Nonresident
Full-time:				
12-18	$1,119.00	$3,641.00	....	....
9-16	....	....	$1,956.00	$3,362.00
Part-time:				
1*	142.50	142.50	267.00	267.00
2*	222.00	222.00	465.00	465.00
3*	301.50	301.50	663.00	663.00
4*	381.00	381.00	861.00	861.00
5*	460.50	460.50	1,059.00	1,059.00
6*	540.00	540.00	1,257.00	1,257.00
7*	619.50	619.50	1,455.00	1,455.00
8*	699.00	699.00	1,653.00	1,653.00
9	857.50	2,749.50	....	....
10	945.00	3,047.00	....	....
11	1,032.50	3,344.50	....	....
Over-time: Each additional credit	75.00	285.00	192.00	349.00

Graduate assistants pay $224 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.

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 will 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

Before the beginning of classes 100%
Before the close of the 14th calendar day after classes begin . . . . . 85%†
Before the close of the 21st calendar day after classes begin . . . . . 50%†
Before the close of the 28th calendar day after classes begin . . . . . 25%†

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.

FINANCIAL AID

174 Neuberger Hall
725-3461
e-mail: askfa@ess.pdx.edu
www.ess.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 BUDGETS

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) or the Renewal FAFSA. Forms are available through high school counseling offices, the PSU Student Financial Aid Office, or other college financial aid offices.

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 mail 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 new to Portland State must be admitted before processing of the application for financial aid may occur. Funds will not be disbursed until the applicant has been accepted for admission to the University.

In order to be eligible to receive state or federal financial aid, a student must remain in good academic standing as defined in the University Scholastic Standards Policy, and enroll for and complete at least 12 credits per term in the case of undergraduate or postbaccalaureate status, or 9 credits per term in the case of graduate student status. Students enrolled on a half-time basis, 6 credits per term in the case of undergraduate or postbaccalaureate status, or 5 credits in the case of graduate status, may apply for a limited number of aid programs. The student must be in a degree or certificate program and must be a U.S. citizen or be an eligible non-citizen.

CONFIRMATION AND DECISION NOTIFICATION

Applicants will be advised by letter of the decision on their financial aid application. 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, institution, and donor sources.

† Less nonrefundable health insurance for regular students ($16.00 in the 1996-97 academic year).

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 Need Grants (Oregon residents). All undergraduate students needing financial aid are eligible to apply for the Need Grant awarded by the Oregon State Scholarship 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 Director of Athletics. Each varsity coach is responsible for selecting the recipients based upon their athletic ability and eligibility. The national governing organization, NCAA, sets forth the exact eligibility and financial aid regulations for men's and women's athletics.

Any prospective Portland State student may apply for an athletic grant-in-aid. Upon application, the student is required to fill out a Department of Athletics questionnaire. Once the eligibility status of the student athlete is determined, an interview is arranged with the particular sport coach. The coach then selects the recipients after considering each candidate's ability, eligibility, finances available, and the need of the particular sport. Each coach submits a list to the Director of Athletics of those athletics students qualifying for grant-in-aid.

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 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; $5,000 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 with proof of full payment of tuition and fees. Eligibility is based on proof of ability to repay.

The following is a list of donors of Portland State Loan Funds:

Beaverton Business and Professional Women's Club Fund
Division of Continuing Education Loan Fund
East Side Rotary Club Student Loan Fund
East Side Rotary Women Loan Fund
Louis Gevurtz Memorial Student Loan Fund
Albert Joe Ingalls Memorial Fund
Grace Irish Memorial Loan Fund
Dan Jones Memorial Loan Fund
Nina Mae Kellogg Loan Fund for Girls
Karl Kemper Memorial Loan Fund
Lents Lodge No. 156 AF & AM Masonic Educational Revolving Fund
Hugh B. McGuire Memorial Student Loan Fund
Patrons of Mu Phi Epsilon (Alpha Lambda Chapter)
Adelia Pritchard Scholarship Loan Fund of the Business and Professional Women's Club of Portland
PSU Co-op Loan Fund
PSU Women's Association Loan Fund
Sandy Business and Professional Women's Club Loan Fund
School of Social Work Loan Fund
Frida D. Wahlgren Loan Fund for Girls
Ellis T. Waring Memorial Loan Fund
West Linn Lions Club

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 non-profit 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 Student Financial Aid 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, 725-4958, 402F University Services Building.

CHECKS AND TUITION CREDITS

Financial aid funds and tuition credits are disbursed by the Cashier's Office each term. Students may authorize the cashier to pay tuition and other PSU charges using financial aid; any remaining aid is deposited electronically to the student's bank account. The authorization form is included with the student's Award Notification Letter. Students who do not choose this option go to the cashier in person to pay tuition and receive 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 Neuberger 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 administered by Portland State University. Additional information is available in the Scholarship Handbook, printed by the Office of Academic Affairs and available in 349 Cramer Hall; or, contact 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, 725-3521.)

Ackerley Communications Merit Award. A $1,000 scholarship awarded to a high school senior who has expressed or demonstrated an interest in communications, broadcast management, graphic arts, business, or sports administration. The award may be reinstated for the recipient's senior year in college provided certain requirements are met. Preference is given, but not limited to, Washington and Oregon residents. (Office of Academic Affairs, 349 Cramer Hall, 725-5251.)

A-DEC Scholarship. Awarded to admitted School of Business Administration students interested in marketing. (240 School of Business Administration, 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, 503-283-7216.)

Marjorie Albertson Scholarship. Awarded to a senior student majoring in music. The individual is selected on talent and scholarship. (Department of Music, 231 Lincoln Hall, 725-3011.)

†**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. Applicants must be studying Arabic at PSU. (Department of Foreign Languages, 393 Neuberger Hall, 725-3522.)

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

APWA (American Public Works Association) Oregon Chapter Scholarship. Scholarship is granted to a full-time civil engineering student based on scholarship and financial need. (Civil Engineering Department, 138 Science Building II, 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, 283-7353.)

ASCE (American Society of Civil Engineers) Oregon Section Scholarship. Scholarship is granted to a senior civil engineering student (must be in the junior year in June of the year application is made).
(Civil Engineering Department, 138 Science Building II, 725-4282.)

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, 725-3917.)

Boeing. 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. (School of Engineering and Applied Science, Fourth Avenue Building, Suite 20, 725-4631.)

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 Depart-

† Also for graduate students.

ment of English. (Department of English, 405 Neuberger Hall, 725-3521.)

Earle A. Chiles Scholarship. Awarded to French Language majors showing academic excellence, leadership, and financial need. Selection is based on a 350-word statement (in French), transcripts, financial need, and two letters of recommendation. (Department of Foreign Languages, 393 Neuberger Hall, 725-3522.)

The Frank Andrew 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, 725-3521.)

Coral Sales Company/D.P. Daniels Scholarship. Two scholarships are made to full-time Civil Engineering students, one male and one female, based on leadership qualities, extra-curricular activities, and interest in highway/transportation engineering. (Civil Engineering Department, 138 Science Building II, 725-4282.)

Corporate Associates Scholarship. One scholarship awarded to an outstanding undergraduate student admitted to the School of Business Administration. (240 School of Business Administration, 725-3712.)

†**Deutsche Sommerschule am Pazifik.** Scholarships are awarded to students attending the German Summer School Program. (Department of Foreign Languages, 393 Neuberger Hall, 725-3522.)

Diversity Achievement 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. Each scholarship provides up to full remission of instructional fees for a maximum of 15 terms (academic year only). 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, 725-4457.)

Diversity Achievement 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. Each scholarship provides up to full remission of instructional fees for a maximum of 9 terms (academic year only). Students receive academic support services and must complete at least 12 credits per term, maintaining a 2.50+ cumulative GPA with a 2.70+ GPA in their major area of study. Priority is given to Oregon residents. (Educational Equity Programs and Services, 725-4457.)

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, Sixth Avenue Building, 725-4011.)

David Evans & Associates Scholarships. Three scholarships are awarded to full-time, upper-division Civil Engineering students based on scholarship and need. (Civil Engineering Department, 138 Science Building II, 725-4282.)

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

C.G. Fanger Scholarship Fund. This award is made to an outstanding mechanical engineering student based on scholarship, need, and potential success in the profession. The award is restricted to upper-division engineering students. (Mechanical Engineering Department, 118 Science Building II, 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, 117-A Cramer Hall, 725-5974.)

Farmers Insurance Group of Companies Scholarship. Scholarships are awarded to undergraduates who have completed at least 45 credits, have a major field of study relating to the insurance industry, and have a minimum GPA of 2.5. Financial need is a consideration. (School of Business Administration, 240 SBA, 725-3712.)

Goodman Scholarship. One full-tuition, renewable scholarship is awarded to an incoming freshman from among 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, 113 Neuberger Hall, 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, 117-A Cramer Hall, 725-3921.)

Walter D. Hershey Memorial Scholarship. Four awards given to outstanding students admitted to the School of Business Administration, on the basis of scholarship, future plans, and need. (240 School of Business Administration Building, 725-3712.)

†**Paul W. Howell Award.** Award is made to students working on bachelor's or master's degrees in the Department of Geology. Based on academic records and written recommendations of two faculty members. (Department of Geology, 17 Cramer Hall, 725-3022.)

Arthur M. James Scholarships. Three scholarships are made to full-time, upper-division civil/structural engineering students, based on scholarship and need. (Civil Engineering Department, 138 Science Building II, 725-4282.)

Jantzen. One award for a computer science senior with a minimum 3.00 GPA. This scholarship includes a summer internship at Jantzen prior to the recipients senior year. (Computer Science Department, 120 PCAT, 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 II, 725-3811.)

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

† Also for graduate students.

approach faculty about nomination. (For more information, contact the Nina Mae Kellogg Committee, Department of English, 405 Neuberger Hall, 725-3521.)

Patricia and Gary Leiser Scholarship in Middle Eastern Languages. Annual award to undergraduate engaged in the study of Middle Eastern languages. (Middle East Studies Center, Sixth Avenue Building, 725-4074.)

Drew Lippay Scholarship in Human Resource Management. Scholarship to an outstanding student in Human Resource Management. (240 School of Business Administration Building, 725-3712.)

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

LSI Logic. Three renewable awards. 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. (School of Engineering and Applied Science, Fourth Avenue Building, Suite 20, 725-4631.)

Vergil V. Miller Corporate Associates Scholarship. This is a tuition 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, 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, 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, Sixth Avenue Building, 725-4094.)

†**Thomas M. Newman Scholarship.** Annual award for 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, 725-3081.)

†**Helen Oliver Memorial Fellowship Award.** An annual cash award given to a graduating student with an official degree (B.A., B.S., M.A., M.S., M.A.T., Ph.D.) who demonstrates promise of being a responsible and mature civic leader. Award is not based on need or scholastic attainment, although good scholarship is assumed, but rather on good character and dedicated spirit. (Office of Academic Affairs, 349 Cramer Hall, 725-5251.)

Oregon Logging Conference Scholarship. Awarded to senior-level, high academic achievers in the College of Liberal Arts and Sciences programs. Students must have a cumulative GPA of 3.25 or above, complete 120 credit hours by the time award is made, be enrolled full time during the period of the award, and have demonstrated interest in the future of the Oregon timber industry. (College of Liberal Arts and Sciences, 491 Neuberger Hall, 725-3514.)

Oregon 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, 313 UPA, 725-4018.)

Joseph J. O'Rourke Accounting Scholarship. Scholarship awarded to an outstanding student in accounting who is admitted to the School of Business Administration. (240 School of Business Administration Building, 725-3712.)

†**Oregon Laurels Scholarships.** The Oregon Laurels Scholarship Program provides instructional fee remission scholarships to academically qualified applicants; minimum 3.25 GPA. These scholarships are available to graduating high school seniors, to 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 12 academic terms, depending upon the status of the recipient at the time of the award. (Office of Academic Affairs, 349 Cramer Hall, 725-5251.)

Donald D. Parker Award. Applicants must be admitted to the School of Business Administration. Awarded to a student with an outstanding scholastic record. (240 School of Business Administration, 725-3712.)

Portland Society of Financial Analysts Scholarship. Two tuition scholarships. Students must be admitted to the School of Business Administration and have an interest in investments. (240 School of Business Administration, 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, 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 Academic Affairs, 349 Cramer Hall, 725-5251.)

Professional Engineers of Oregon (PEO) Educational Foundation Scholarships (Kendal B. Wood and R. Wilson Hutchinson Scholarships). To provide financial aid to students in ABET-accredited professional engineering programs. Candidates shall be graduates of Oregon high schools or at least one of their parents shall be a bona fide resident of Oregon. Candidates shall be U.S. citizens. Preference will be given to seniors. Potential contributions to society and the engineering profession will be a principal consideration. Financial need will be a secondary consideration. Term and cumulative GPA will be of tertiary consideration. (School of Engineering and Applied Science, Fourth Avenue Building, Suite 20, 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, 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.

† Also for graduate students.

(Department of Art, 239 Neuberger Hall, 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. (Department of Music, 231 Lincoln Hall, 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, 725-4612.)

Julie and Bill Reiersgaard 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. (School of Engineering and Applied Science, Fourth Avenue Building, Suite 20, 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, 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, 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. The scholarship, a grant of about $5,000, will provide funds for tuition, fees, books, and some living expenses. It is renewable for up to four years provided certain criteria are met. (Women's Studies, 401 Cramer Hall, 725-3510.)

†**Florence Saltzman-Heidel Art Scholarship.** Annual award to a full-time declared art major at PSU. The recipient is chosen on the basis of a portfolio and GPA. Applications available spring term. (Department of Art, 239 Neuberger Hall, 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. U.S. citizenship not required. Financial need is a primary consideration. (Educational Equity Programs and Services, 725-4457.)

Jack Schendel Scholarship. Awarded to an outstanding health education major with a minimum 3.25 GPA. (School of Community Health, 212 Peter Stott Center, 725-4401.)

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, 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. Applicants will usually have been admitted to the School of Business Administration. (240 School of Business Administration, 725-3712.)

Grant Thornton Scholarship. Awarded to outstanding juniors in accounting. (240 School of Business Administration Building, 725-3712.)

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. (Office of the Dean, School of Fine and Performing Arts, 349 Lincoln Hall, 725-3105.)

3rd Regiment Drum and Bugle Corp Brass Scholarship. Awarded to one brass or percussion student each year. (Department of Music, 231 Lincoln Hall, 725-3199.)

†**UPA Memorial Award.** Award is given annually to an undergraduate or graduate student (on alternate years) in the School of Urban and Public Affairs who is recommended by their department and chosen by a faculty committee. (College of Urban and Public Affairs, 101 UPA, 725-5140.)

Jane Wiener Memorial Alumni Scholarship. Awarded to the son or daughter of alumni who obtained a degree from PSU. Full tuition and fees for up to 15 terms of undergraduate study; documentation of financial need; community service component; minimum 2.5 GPA. (Alumni Relations Office, 725-5073.)

†**Lucille S. Welch 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 made in April. (Department of Art, 239 Neuberger Hall, 725-3515.)

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, 117-A Cramer Hall, 725-3921.)

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

The Harold Zeh and The Rev. James G. Anderson Chemistry Award. Citywide 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 II, 725-3811.)

GRADUATE

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

Robert Garner Cameron Memorial Scholarship. Annual award to graduate student in the School of Business Administration. (School of Business Administration, 240 School of Business Administration, 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, 300 University Center Building, 725-5021.)

Christie School Scholarship. One award of $3,000 is made to a first- or second-year PSU student in the MSW program. The recipient must agree to fulfill a three-term, two-day-per-week field instruction assignment at the Christie School. Applications must be submitted before

† Also for graduate students.

March 1; the award is announced approximately mid-August for each academic year. (Janet Putnam, Graduate School of Social Work, 300 University Center Building, 725-5021.)

Maurie Clark Fellowship. Annual award to an outstanding full-time graduate student enrolled in the Ph.D. program in urban studies. Recipient must be a doctoral candidate with approved dissertation outline who intends to use the fellowship to support research activities. (College of Urban and Public Affairs, 101 UPA, 725-4043.)

Clinical Social Work Council Scholarship. The Clinical Social Work Council of the Oregon Chapter of the National Association of Social Workers awards a $1,000 scholarship to a student enrolled in the M.S.W. program. This scholarship is provided to encourage the development of clinical social work skills. The student selected must have completed one full year of study including field instruction, be preparing for clinical practice, and demonstrate financial need. (Janet Putnam, Graduate School of Social Work, 300 University Center Building, 725-5021.)

Dale and Coral Courtney Scholarship. Annual awards to admitted graduate students in the Department of Geography at Portland State University. (Department of Geography, 424 Cramer Hall, 725-3916.)

Paul Emmett Graduate Fellowship. This city-wide fellowship from the American Chemistry Society is awarded to a graduate student in the Department of Chemistry and includes a stipend to augment the student's other support. All admitted graduate students are automatically nominated for this fellowship, as long as they have at least one year left in the program. The designee will be selected by the department faculty; among the criteria are academic excellence, research performance, and dedication. (Chemistry Department, 262 Science Building II, 725-3811.)

Philip H. Ford Memorial Fund. Annual award given for the best submitted piece of original scholarship or criticism written for graduate credit in an English course at PSU. (Department of English, 405 Neuberger Hall, 725-3521.)

Foreign Language and Area Studies Fellowship. A total of four graduate fellowships each year (two for the academic year and two for the summer term) are awarded to students undertaking training in modern foreign language in combination with either area studies, international studies, or international aspects of professional fields. Award amounts are $8,000 plus tuition and fees for academic year awards and $1,500 plus tuition and fees for summer term awards. Application should be made in the spring term of each year for support in the subsequent academic year and the summer following that academic year. (Middle East Studies Center, Sixth Avenue Building, 725-4074.)

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, 138 Science Building II, 725-4282.)

Tane Hunter Award. The Oregon Chapter of the National Association of Social Workers provides a $1,000 stipend to a graduate student enrolled in the M.S.W. program. Applicants may be in their first or second year of field instruction, must be U.S. citizens and come from one of the following minority group backgrounds: African American, American Indian, Asian American, or Hispanic. Criteria include potential for success in graduate studies, promise for future contributions to the profession, and financial need. (Janet Putnam, Graduate School of Social Work, 300 University Center Building, 725-5021.)

Elsa Jorgenson Awards. For full-time PSU graduate students majoring in English, foreign languages, and science (including engineering); applicants must also receive full tuition remission from another source and demonstrate financial need. Two awards are given in each year that funds are available. Deadline for applications is April 15 for the following academic year; information is available after March 1. (Office of Graduate Studies, 111 Cramer Hall, 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. Deadline for application is April 15 for the following academic year; information is available after March 1. (Office of Graduate Studies, 111 Cramer Hall, 725-8410.)

Minority Graduate Student Pipeline Support Fellowships. Annual awards of $10,000 for master's students and $11,000 for doctoral students, plus tuition remission, 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, 111 Cramer Hall, 725-8410.)

Oregon Laurels Graduate Tuition Remission Program. Annual awards of tuition credit equivalent to the instructional portion of graduate fees for full- and part-time PSU graduate students. Awards are merit-based. Financial need is a consideration for some of these awards. Deadline is April 15 for the following academic year; information is available after March 1. (Office of Graduate Studies, 111 Cramer Hall, 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, with a deadline of April 15 for the following academic year; information is available after March 1. (Office of Graduate Studies, 111 Cramer Hall, 725-8410.)

PSU Department of Special Education and Counselor Education Scholarship. To be awarded to a graduate student(s) in Special Education. Tuition waiver (with the exception of incidental fee charges). Total scholarships available depending upon funding. (Department of Special Education and Counselor Education, 204 School of Education Building, 725-4632.)

Frank Roberts Community Service Scholarship. A one-year renewable grant of $1,500 awarded to a PSU graduate student who exemplifies a spirit of public service and commitment to education. 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, 111 Cramer Hall, 725-8410.)

HOUSING

College Housing Northwest, 1802 SW 10th Avenue, 725-4333

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 four buildings off campus are available to PSU students, offering more than 1,100 units in all. The central location of College Housing Northwest housing 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 plans, house approximately 1,600 students, domestic partners, and dependents.

The campus apartments consist of eight refurbished buildings which offer a unique charm within the urban setting of the campus. Several of the buildings are located on the picturesque South Park Blocks. Monthly rents for unfurnished accommodations in the campus buildings range from $200 to $273 for a sleeping room (shared bath facilities), $315 to $399 for a studio apartment, $405 to $515 for a one-bedroom unit, and $594 to $619 for a two-bedroom unit. Rental rates include heat and utilities.

West Hall, a new nine-story apartment building, features 189 one-bedroom units. Located on campus, these well-insulated, carpeted apartments rent for $513 to $522. Although some utilities are included, students must pay for their own electricity.

The modern Goose Hollow building offers carpeted studio, one-, and two-bedroom apartments. Monthly rental rates are $396 for a studio apartment, $542 for a one-bedroom apartment, and $697 for a two-bedroom unit, exclusive of electricity charges. The Goose Hollow is located just eight blocks off campus via a bike path that connects the apartment building to campus. Off-street parking facilities and a recreation area for children are available for residents.

Montgomery Hall, which consists of 138 single- and six double-occupancy units, is popular with traditional as well as international students. The historic hall offers many educational and social programs geared toward introducing new students to life at PSU. Rooms are furnished with a standard or loft bed, dresser, desk, and sink. Single occupancy units rent for $254 per month and double-occupancy units rent for $300 per month.

The Ondine, across the street from the Portland State Bookstore, features furnished sleepers and bachelors. In this community-oriented building, sleepers include a private bath—but no kitchen facilities—and rent for $292 per month, including utilities. Bachelors share bathroom and kitchen facilities with an adjoining apartment and rent for $317 per month, including utilities.

These rental rates are projected for spring 1997, but rates usually increase each year in July to keep up with rising costs. Tenants are given a 30-day notice of rental increases. In addition to rent, College Housing Northwest requires a refundable security deposit and a nonrefundable cleaning fee on all apartments.

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 six to 12 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.

CAMPUS LIFE

STUDENTS

The nearly 15,000 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 more than 70 foreign countries are also represented. Approximately 29 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; more than half are 25 years and older; and 25 percent are 35 or older. The average age of students at PSU is about 29 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. In fall term 1995, more than half of the students enrolled were women.

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 Brown Bag 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
126 SMITH MEMORIAL CENTER, 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 presents programs and 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 Series, the Florestan Trio (artists-in-residence at PSU), and Trio Viento (faculty woodwind trio); the PSU Orchestra, Symphonic Band, Pep, and Jazz lab bands; University Chorus and Chamber Choir; Opera Workshop; and several chamber groups. Each year they provide a rich experience of music in performance during free noon concerts as well as occasional evening programs for the benefit of music scholarships at the University.

The Music Committee works closely with the Department of Music to present weekly Brown Bag concerts. These Tuesday and Thursday noon 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 noon the Popular Music Board sponsors 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 Committee, 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

PSU sponsors 16 intercollegiate varsity sports, eight for men and nine for women. Men's sports are football, basketball, cross country, golf, outdoor track, indoor track,

and wrestling. Women's sports are cross country, basketball, golf, softball, soccer, tennis, outdoor track, indoor track, and volleyball.

Portland State is a member of the National Collegiate Athletic Association (NCAA) Division I. PSU competes in the Big Sky Conference in all sports except wrestling, which is a member of the PAC-10, and softball, which plays an independent schedule.

Football games are played at Portland Civic Stadium, indoor sports are played in the Rose Garden arena off campus and in the Health and Physical Education building on campus, and track and field events take place at Duniway Park.

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

A wide range of intramural and club sports for men and women are also offered. Recreational hours for gymnasium, handball court, swimming pool, and weight rooms are scheduled each term.

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 Student-to-Student Book sale, 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 University Players. 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.

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 focal 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.

OFFICE OF STUDENT AFFAIRS

433 Smith Memorial Center, 725-4422

The personnel in the Office of Student Affairs provide support and assistance to students in dealing with the administration, faculty, staff, and other students. They are the primary route of appeal in questions of unfair treatment or disciplinary action. The staff is sensitive to the cultural diversity among PSU's population and considers this diversity when advocating for and providing assistance to students.

New Student Orientation programs are located in the Office of Student Affairs. All newly admitted PSU students, whether freshman or transfers, are invited to attend the New Student Orientation programs. All newly admitted students will receive a special mailing describing the programs the term prior to their first enrollment. At these sessions students will learn how to use the *PSU Bulletin*, be advised about the general education requirements, will learn how to find an adviser, and how to register for classes. Another important orientation component is the campus life session which describes programs and resources available to students. Fall New Student Week is an expanded program including both the advising and student life components.

INFORMATION AND ACADEMIC SUPPORT CENTER

118 Smith Memorial Center, 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.

DISABILITY SERVICES FOR STUDENTS, 118 SMITH MEMORIAL CENTER, 725-4150, TDD 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 118 SMITH MEMORIAL CENTER, 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, 118 SMITH MEMORIAL CENTER, 725-4005

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 118 SMITH MEMORIAL CENTER, 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, 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 (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,

120 Smith Memorial Center, 724-4457

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 postsecondary 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, 120 SMITH MEMORIAL CENTER, 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), M107 SMITH MEMORIAL CENTER, 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 SHATTUCK HALL, 725-4458

The PSU Project PLUS program is the latest of the TRIO programs at the University. The program serves a total of 600 students at Cleveland, Franklin, and Marshall high schools and Sellwood, Hosford, Lane, and Binnsmead middle schools in Southeast Portland, and Glencoe 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, mentoring, and tutoring as needed. Students are assisted with admissions and financial aid preparation for post-secondary study.

UPWARD BOUND PROGRAM, 239 SHATTUCK HALL, 725-4010

The PSU Upward Bound Program attempts to generate skills and motivation necessary for success in education beyond high school 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 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
- 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, 725-4452

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 programs are administered through this office.
- 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 / 725-5656. 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 / 725-5659. 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 / 459 SMC / 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 / 444 SMC / 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 / 441 SMC / 725-5663. Administered by students, the Club Sports program is designed to provide students with the opportunity to compete in sports including water polo, korfball, tennis, table tennis, tae kwon do, bowling, fencing, volleyball and soccer. Clubs travel regionally and provide an excellent basis for improving one's knowledge of a sport.

Dance / 450 SMC / 725-5670. The World Dance Committee sponsors a wide variety of local, international, and national guest artists. Featured artists perform in concerts and lecture-demonstrations. Events are free or offered at a nominal cost to students.

Students with Disabilities Union / 440 SMC / 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. The SDU sponsors the annual Ability Olympics held during the Party in the Park. The SDU publishes the *PSU Students with Disabilities Union Access Guide*, containing information about accessible and inaccessible facilities in and around the campus and the *SDU Update* newsletter.

Film / 510 SW Hall / 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/518E SMC/725-5669. KPSU 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.

La Raza / 448 SMC / 725-5665. La Raza in 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.

Lesbian, Gay, Bisexual Alliance / 441A SMC / 725-5681. The LGBA 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.

Literary Arts Committee / 438 SMC / 725-5666. The Literary Arts Committee brings poets and fiction writers of national and international stature to campus for readings and hosts writing workshops.

Music Committee / 445 SMC / 725-5666. The Music Committee works closely with the Department of Music to present weekly Brown Bag concerts. These Tuesday and Thursday noon programs are free and open to all. They feature exceptional student and professional performers in a variety of solo and ensemble literature.

Organization of International Students / 451 SMC / 725-5667. The OIS provides a supportive meeting place where international and other interested students network. OIS serves as a resource and referral service for campus and community organizations that address the issues and needs of international students. It acts as an umbrella organization for the many international clubs on campus, providing support for those groups and sponsoring many events that promote cultural awareness throughout the Portland community.

Outdoor Program / 423 SMC / 725-5668. This program provides students 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 / 725-5661. The 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. The PMB strives to present excellent musicians and a wide spectrum of popular music, including rock, new wave, blues, reggae, Latin, funk, and jazz.

Speakers Board / 446 SMC / 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. Lecturers have included nationally known politicians, economists, journalists, poets, and others. Persons who would like more information about the board may call 725-5653 or drop by 446 Smith Memorial Center.

Students Building Better Communities / 725-LEAD. This organization assists students in finding volunteer opportunities and placements in the Portland metropolitan area.

Student Organization Committee / 451 SMC / 725-5657. The Student Organization Committee assists student organizations with all aspects of operation and registration with the University. Resources the SOC can provide to registered groups include up to $400 of financial support, desk space, and assistance in any matter regarding the operation of a student group or the formation of a new group.

Student Resource Center / 115 SMC / 725-4402. Operated by students, the Student Resource Center is a bureau of resources and information that provides answers and help on virtually all phases of life at Portland State. In those instances where the staff cannot provide the needed help, referral will be made, directing the student to the specific person or group who can give assistance.

United Indian Students in Higher Education / 439 SMC / 725-5671. UISHE 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 Escort Service / 401 SMC / 725-5682. The Women's Union Escort Service will escort anyone to or from a campus-related activity anywhere within a 15-minute walking radius of PSU. The service uses trained volunteers who work in gender-sensitive (one male, one female) teams. Participants call or stop by to arrange for the service.

Women's Union Resource Center / 460 SMC / 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, Alpha Kappa Alpha, Delta Chi Sigma, and Phi Sigma Sigma.

Fraternities include Kappa Alpha Psi, Kappa Sigma, Phi Delta Theta, Lambda Chi Alpha, and Tau Kappa Epsilon. For further information, contact the Office of Student Development.

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 Law
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 disciplines, 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: Carole 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: Loyde 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 be juniors or seniors with 45 credits at PSU; have 18 credits in history, with a 3.00 GPA overall with no more than three incompletes on their transcripts. Graduate students must have 15 credits in history, with a 3.50 history GPA, with no more than two incompletes on their transcripts.

Phi Kappa Phi
Overall disciplines-general honorary
Contact: Kathy Greey, Education Floor, Millar Library
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. Graduate students must have a 4.00 GPA.

Phi Sigma Iota
Foreign Languages
Contact: Suwako Watanabe, Department of Foreign Languages and Literatures
Students must be juniors and foreign language majors, 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, Scott Burns, Department of Geology
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
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, 725-4556

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.

HELEN GORDON CHILD DEVELOPMENT CENTER

1609 SW 12th Avenue, 725-3092

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.

STUDENT PARENT SERVICES
401D SMITH MEMORIAL CENTER, 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 725-5655 or dropping by the SPS office in room 401D, SMC.

COUNSELING AND PSYCHOLOGICAL SERVICES

M343 Smith Memorial Center, 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. In conjunction with Student Health Services and Public Health Education, CAPS offers a peer education program (PEP), which trains students to educate other students on issues of lifestyle and diversity.

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

STUDENT HEALTH SERVICE

D4 Neuberger Hall, 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 5 p.m. Monday through 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 as part of the Health Service fee. This provides a basic insurance plan and access to the Health Services and CAPS. 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 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, 725-4613

The Career Center offers assistance to Portland State University students and alumni including:

- Individual career and job search counseling.
- Workshops and individual assistance on career decisions, resume writing, interviewing, and job search strategies.
- An extensive career library 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.
- Career job listings.
- Computer programs for career guidance and information (SIGI PLUS, Oregon Career Information System)
- Placement file/dossier service for educators and other majors.
- Off-campus part-time or temporary employment for currently enrolled students (see listing for Student Employment).
- Off-campus Federal Work Study Community Service and America Reads programs.
- Annual Career Information Day in February and Part-time/Summer/ Temporary Job Fair in April.
- Portland-area Peace Corps office.

To assist students and alumni in finding employment, the Career Center is implementing a new Web-based program of services to enable students to access part- and full-time jobs on-line, schedule on-campus interviews, and submit resumes electronically to employers in response to job postings.

Drop-in 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-tape feedback may be scheduled.

SIGI-PLUS and CIS are computerized career guidance and information systems, that help students assess themselves and explore occupations. 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 the World Wide 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, 725-4958

Student Employment provides referrals to internships, part-time, temporary, and summer jobs off campus, including Federal Work Study Community Service positions. Opportunities are diverse, including entry-level and para-professional positions. Most offer flexible hours, and many are walking distance from campus. Some employers arrange employment interviews with students in the Career Center. Check with the office regularly, as job postings and employer interview schedules change frequently, or register to be contacted by phone about work in your interest area. Information is available on World Wide Web at www.career.pdx.edu. Individual appointments for job counseling are also available. Employment is not guaranteed, but listings are usually plentiful, and every effort is made to assist the student. This service is open to all students.

UNIVERSITY SERVICES

Nearly 15,000 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 the Transportation and Parking Services' or Cashier's offices 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, 725-3442.

BOX OFFICE/ TICKETMASTER

725-3307

The Box Office is located at the corner of 5th Avenue and Mill Street in the Mill Street Building. 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 per-

formances occurring in the metropolitan area may be purchased.

CAMPUS SAFETY AND SECURITY OFFICE
725-4404

The Campus Safety and Security 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 preventions, escort services, and limited vehicle services, and to provide general University information. Security officers patrol the campus continually to assure a safe and comfortable environment.

INFORMATION TECHNOLOGIES
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:

The Computer Center (Shattuck Hall Annex) operates and maintains all centralized computer systems, providing support for the academic and administrative functions of the University and specialized applications such as Portals (Portland Area Library System), the campus library system, and the World Wide Web.

Information Systems (120 Shattuck Hall) supports the University's microcomputer and local area network and maintains the University's Home Page (http://www.pdx.edu). IS operates the Help Desk which provides assistance in the use of hardware and software and issues accounts to students for Internet access and electronic mail. Computer accounts are available to all currently enrolled students upon request.

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 Harrison 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 Services* maintains the campus' collection of films, film-strips, slides, and media kits. 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 high technology classrooms and delivery of distance learning presentations. *Multimedia Development* provides advice and technical assistance in the development and use of multimedia presentations and material.

Harrison 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 an almost 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. Additional information can be obtained from the Harrison Hall home page (http://www.icc.pdx.edu/hhall).

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

LIBRARY RESOURCES
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 until 11 p.m. Sundays through Thursdays and until 7 p.m. on Fridays and Saturdays. The library opens at 8 a.m. Mondays through Fridays, 10 a.m. on Saturdays, and 11 a.m. on Sundays. These hours are subject to change; up-to-date information on library hours can be obtained by calling 725-3065.

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. 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, education, 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
725-5901

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 is 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, 9 a.m. to 5 p.m.

PSU FOUNDATION
725-4911

The Foundation is committed to creating greater financial strength and stability for the University by engaging in development activities in a manner designed to facilitate or enhance the mission of Portland State University. The Foundation administers funds raised and earned and provides them to PSU to support a range of activities, including scholarships, endowments, faculty development and travel, educational and research equipment, and special programs and speakers. The Foundation is guided by a volunteer Board of Directors, representative of civic, business, and cultural leadership in the metropolitan area. The board oversees the Foundation's activities, recruits financial and other support on the University's behalf, and serves as a vital link between Portland State and the community.

SMITH MEMORIAL CENTER
725-4522

Smith Center, 1825 SW Broadway, serves as the campus focal 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 and television lounge), 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 the Browsing Lounge, a quiet area for students to study or simply relax and admire the Park Blocks.

Smith Center East is the location of the Information and Academic Support Center (IASC) Telecommunications, Equal Opportunity Program and Counseling and Psychological Services (CAPS).

TRANSPORTATION AND PARKING SERVICES
725-3442

The Transportation and Parking Services Office sells faculty, staff, and student parking permits and is responsible for coordination of campus transportation programs. Parking permits, good in any of the University parking structures designated as "permit" parking, cost $171 for full term, $57 per month for faculty/staff, and $6.50 daily (with limited space available). Various other types of permits are available. For full information on types of permits, times to purchase permits, and where to park, please refer to the Transportation and Parking Information Brochure, available at the Transportation and Parking Services Office.

Tri-Met bus passes and tickets may be purchased from either the Transportation Office or the Cashiers Office, located in the Lobby of Neuberger Hall. Currently enrolled students, faculty, and staff may purchase an "all zone" bus pass for a discounted price upon presentation of current PSU ID.

UNIVERSITY RELATIONS

341 Cramer Hall,
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 75,000 alumni to maintain a strong and continuing relationship with the University. The office is responsible for promoting communication between alumni and the University, for keeping accurate alumni records, and for providing services to alumni, such as the Alumni VISA Card, the Alumni Benefit Card (ABC), and a variety of insurance programs. The ABC card provides graduates 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 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, opportunities, 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 the initiation, coordination, and management of all fund development programs for Portland State University. The office provides the impetus for a strong, cohesive, and ever-accelerating University-wide, fund-raising program.

VISITOR INFORMATION CENTER

1939 SW Broadway,
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 Safety and Security Office, and CSSO 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. Parking spaces are available for visitors to park their cars briefly while visiting the center.

GRADUATE STUDIES

WILLIAM H. FEYERHERM, VICE PROVOST FOR RESEARCH AND DEAN OF GRADUATE STUDIES
111 CRAMER HALL, 725-3423

GENERAL INFORMATION
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 4,000 graduate students are enrolled in the University's colleges and schools, and nearly 1,000 graduate degrees are awarded annually in the more than 50 master's and the eight doctoral programs.

The Office of Graduate Studies and Research 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 111 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 Research 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 and Research. 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 and Research.

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.)
Electrical and computer engineering; environmental sciences and resources (with options in biology, chemistry, civil engineering, economics, geography, geology, and physics); mathematics education; public administration and policy; social work and social research; systems science (with options in anthropology, business administration, civil engineering, economics, engineering management, mathematics, mechanical engineering, psychology, and sociology); urban studies.

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

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

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

Professional Degrees:
Master of Business Administration (M.B.A.); Master of Education (M.Ed); Master of Engineering in Manufacturing Engineering (M.E.), a joint program with Oregon State University; Master of Environmental Management (M.E.M.); Master of Fine Arts (M.F.A.): Art, with options in painting, sculpture, and painting/sculpture; 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; 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.

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, School of Engineering and Applied Science, Electrical and Computer Engineering Doctoral Program; Director, Environmental Sciences and Resources Doctoral Program; Director, Mathematics Education Doctoral Program; Director, Social Work and Social Research Doctoral Program; Director, Systems Science Doctoral Program; and Dean, College of Urban and Public Affairs, Urban Studies Doctoral Program and Public Administration and Policy Doctoral
Program.

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.

Candidates for the Ed.D. degree may fulfill the residency requirement after admission to the doctoral program in one of three ways. All require three consecutive terms of full-time approved graduate study at PSU (at least 9 credits per term). The options for fulfilling the residency requirement are: coursework, the study of practice (i.e., field-based work) or dissertation. 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 preparation and include a major discipline; if a thesis is included in the program of study, the discipline and thesis represent the major portion of the program of study.

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. 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 professional courses in education are 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.

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

OPTIONS FOR MEETING THE GRADUATE FOREIGN LANGUAGE REQUIREMENT FOR M.A. AND M.A.T. STUDENTS

The Department of Foreign Languages and Literatures will accept the following ways of satisfying the graduate foreign language competency requirement:

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. *Note: This option is not available to students in the M.A. TESOL program.*
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:
   a. Oral proficiency interview (mandatory for M.A. TESOL students)
   b. A written test (mandatory for M.A. TESOL students), such as
      i. The Graduate Student Foreign Language Test
      ii. The CLEP exam
      iii. A special exam, administered by the Department of Foreign Languages and Literatures
   c. Coursework after admission: taking a course at level 203 or above (for M.A. TESOL students using Chinese or Japanese, the level must be at third year)
   d. Overseas intensive courses or other intensive courses
   e. 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.

ADMISSION TO GRADUATE STUDIES OFFICE OF ADMISSIONS
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, certif-

icate) 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.

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.

Postbaccalaureate Status. Students not currently working for a degree but who wish to register for more than 7 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 recommended by the department and is considered nonresident credit for which all transfer limits and requirements apply.

University Requirements 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 a minimum cumulative GPA of 2.75 in all undergraduate courses, or must have 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 certificate student, the applicant must present a baccalaureate degree from an accredited institution with a cumulative GPA of 2.75 in all undergraduate courses, or must have 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.

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 she/he 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.

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 and Research. 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 admissable 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 nongraduate assistant. Further details on graduate fees are available by contacting the Office of the Registrar, 132 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.

Admission application fee (nonrefundable)	$50.00
Tests	
Graduate Record Examination (GRE) General	96.00
Graduate Management Admission Test (GMAT)	125.00
Miller Analogy Test	45.00
Tuition (1997-98)	
Oregon residents	
8 credits	1,653.00
Full time (9 to 16 credits)	1,956.00
Each additional credit	192.00
Nonresidents	
8 credits	1,653.00
Full time (9 to 16 credits)	3,362.00
Each additional credit	349.00
Microfilming	
Dissertation (required)	50.00
Thesis (optional)	40.00
Copyrighting (optional)	35.00
Transcript	
Official	5.00
Each additional copy ordered at same time	1.00
Unofficial/advising	1.50
Catalog	5.00

Note: All tuition and fee costs listed above are accurate as of January 1, 1998, and are subject to change by the Oregon State Board of Higher Education or the independent institutions involved.

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 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 and Research does not award graduate assistantships.

Oregon Laurels. The Oregon Laurels Graduate Tuition Remission Program provides tuition remission 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 and Research in 111 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:

A = 4.00	B- = 2.67	D+ = 1.33
A- = 3.67	C+ = 2.33	D = 1.00
B+ = 3.33	C = 2.00	D- = 0.67
B = 3.00	C- = 1.67	F = 0.00

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 must 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 and Research.

Incompletes. 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 be 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, a 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 and Research.

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 and Research.

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 taken fall 1990 and later must be 500 or 600 level. For courses taken prior to fall 1990, a maximum of 15 credits of 400-grad omnibus credits (405G, 407G, 409G, and 410G) may be accepted in a 45-credit program. 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 15 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. 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 and Research 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 and Research 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 and Research. 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 admissibility 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 and Research 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 on file in the Office of Graduate Studies before graduation with the first degree. These forms are available in the Office of Graduate Studies and Research, 111 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 and Research 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 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

Academic Probation. 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 PSU. 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), or to receive or continue to hold a graduate assistantship. It is recommended that students on probation not 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 of 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. Readmission after 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 and Research. 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 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 is 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 or artist 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.

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. If the Dean concludes there are grounds to believe that the allegations are well founded, the Dean shall refer the matter to the Graduate Council.

Following procedures established by the Graduate Council, the allegations and the student's response shall be considered. If the violation of the graduate policy on academic honesty and integrity is established, academic actions shall be taken. The Graduate Council shall consider such information as it deems relevant to the consideration of the allegations. The academic decisions of the Graduate Council on violations of the Graduate Policy on Academic Honesty and Integrity are final.

The following constitute academic actions which the Graduate Council may take as a result of violation of the Graduate Policy on Academic Honesty and Integrity:

1. Denial or rescinding of credit for the course in which the violation occurred.
2. Academic probation for a period of one calendar year. While on academic probation the student will not be permitted to apply for advancement to candidacy, to receive or continue to hold a graduate assistantship, or to register for more than 9 graduate credits per term.
3. Academic disqualification for a period of one to three calendar years. While on academic disqualification the student cannot register for any graduate courses at PSU, and no coursework completed at PSU or other institutions during the academic disqualification can be applied to any graduate degree or certificate program. The student's admission to any graduate degree or certificate program will be canceled. The student must petition for readmission after the completion of the period of academic disqualification.
4. Denial or rescinding of the award of the graduate degree. In cases involved with a thesis, dissertation, or other research submitted in partial fulfillment for the requirements for an advanced degree, the graduate degree may be denied or rescinded. If a student is found to have committed academic fraud, the graduate degree may be denied or rescinded.

After action by the Graduate Council the material is forwarded to the Office of Student Affairs to determine if violations of the Student Conduct Code have occurred.

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 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 student's program, department, or school. 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 substan-

tially 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 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 Thesis and Dissertation Approval*, available in the Office of Graduate Studies and Research.

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 and Research with the microfilm agreement form. The charge for this service is $50, payable at the Cashier's office, after picking up the necessary forms in the Office of Graduate Studies and Research. Doctoral students may wish to copyright their dissertations. The charge for this optional service is $35.

Final Oral Examination. After tentative approval of the dissertation, the candidate's dissertation committee, including the representative of the Office of Graduate Studies and Research, 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 and Research (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 exami-

nations 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 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 and Research for appointment of the representative of the Office of Graduate Studies and Research 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 and Research. 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 and Research no later than the first week of 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 four copies of the dissertation and five copies of the abstract) must be submitted to the Office of Graduate Studies and Research 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 and Research.
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 and Research with the University Microfilms International agreement form. The charge for this service is $50, payable at the Cashier's Office, after picking up the necessary forms in the Office of Graduate Studies and Research. Copyrighting of the dissertation is optional, at an additional charge of $35, 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 and Research. 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 and Research no later than the last week of the term of graduation. In-progress grades for required 503/603 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.
12. Graduation.

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 not 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 45.)

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 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, 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 committee. HSRRC applications may be obtained from the Office of Graduate Studies and Research in 111 Cramer Hall. The student should allow a minimum of six weeks for the approval process.

Thesis. The presentation of a thesis as partial fulfillment of the requirements for the master's degree is required in certain departments. If a thesis is presented, the student must register for 6 to 9 thesis credits in the appropriate department. Final grades for thesis credits are not recorded until the thesis has been approved. IP is the interim grade reported. When the thesis is required, it becomes a major factor in determining the eligibility of the candidate for the degree. Each school, college, and department defines the nature of research and scholarship accepted for a thesis, but in all cases a high level of resourcefulness, productivity, and mature perception of the discipline is expected. The quality of the culminating work must meet University standards and reflect those of other leading universities.

The subject of the thesis must be within the major field of the candidate. Although the thesis is not required to show original results, it must reveal independent investigation, including the knowledge and application of the accepted methods of scholarship and research methodology. The thesis represents the independent work of the candidate for the degree and must be developed under the direction of a faculty member approved for graduate instruction. The 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 and Research.

Three copies of the thesis (unbound), prepared in accordance with the University's *Information Regarding Thesis and Dissertation Approval*, and four copies of an abstract of not more than 350 words must be filed with the Office of Graduate Studies and Research not later than three weeks prior to the close of the term in which the degree will be granted. Deadlines for each term are available in the Office of Graduate Studies and Research. Two copies of the thesis will be bound by the Library. The third copy will be forwarded to the major department. It is wise to clear with the Office of Graduate Studies and Research before undertaking the final preparation of the thesis.

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 and Research. 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 and Research with the microfilm agreement form. The charge for this service is $40, payable at the Cashier's office after picking up the necessary forms in the Office of Graduate Studies and Research.

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 1991 will be beyond the seven-year limitation at the close of fall term 1998). The formal application for the degree must be filed with the Office of Graduate Studies and Research no later than the first week of the anticipated term of graduation. Deadlines for each term are available in the Office of Graduate Studies and Research.

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 and Research 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 and Research 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 45.)

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 and Research no later than the first week of the term of graduation.

9. File Application for Degree form in the Office of Graduate Studies and Research no later than the first week of the term of graduation. Deadlines for each term are available in the Office of Graduate Studies and Research.

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 and Research.

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 and Research 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 degrees;

   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 and Research 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 and Research. 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 and Research.

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 and Research 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.

SYSTEMS SCIENCE

Systems Science Building,
1633 SW 11th
725-4960

Ph.D.

Systems science is the study and application of general methods of problem solving and general principles governing systems of widely differing types. Systems concepts and techniques are used extensively for both applied and research purposes. In industry and government, considerable demand exists for professionals who are skilled in modern methods of decision making and systems design and who are capable of managing complex social and technical systems. In mathematics, engineering, business administration, and the natural and social sciences, systems theorists continue to make important contributions to the growth of knowledge within academic disciplines and to the application of knowledge across disciplinary boundaries.

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 School of Engineering and Applied Science (Departments of Civil Engineering, 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 study in the Systems Science Program.

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 School of Engineering and Applied Science and the School of Business Administration.

Both of the options facilitate the design of curricula which are individually tailored to the needs and interests of the students.

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 rank in the top 25 percent of graduate students nationally as determined by the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT). 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) two copies each 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) GRE aptitude or GMAT scores, (2) three letters of recommendation from faculty and/or professionals acquainted with the applicant's abilities and record, (3) TOEFL score of 575 or other evidence of English competency if a foreign student, and (4) statement of the student's expectations of the program.

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.

PROGRAM REQUIREMENTS

A discussion of general requirements for doctoral degrees is on page 51. 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)

Unit	Entering Degree	Additional Credits
Core Option	BA/BS	12 SySc + 44
SBA	BA/BS	48
	BA/BS	72 for concurrent MBA
	MBA	18
CLAS	BA/BS	45
EAS	MS or equivalent coursework	9

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.

COURSES

Courses marked 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)
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)
lntroduces 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 525/625
Continuous System Simulation (3)
An introduction to modeling and simulation, with emphasis on general modeling concepts and continuous system simulation. The modeling process is studied in detail, including problem analysis, model conceptualization, model validation, and model implementation. The STELLA simulation language is covered in some detail. Applications include closed-loop feedback and the use of numerical integration to solve differential equations in order to simulate behavior over time in biological, ecological, business, and engineering systems. Prerequisite: graduate standing or consent of instructor.

SySc 527/627
Discrete System Simulation (3)
The primary focus is on the application of discrete system simulation to real world problems using the Arena/SIMAN 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
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 (3,3)
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, 552/652
General Systems and Cybernetics I, II (3,3)
SySc 551/651: 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: 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 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 nonprofit 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.)

COLLEGE OF LIBERAL ARTS AND SCIENCES

MARVIN A. KAISER, DEAN
SCOTT F. BURNS, ASSOCIATE DEAN
CHARLES WHITE, ASSOCIATE DEAN FOR UNIVERSITY STUDIES
491 NEUBERGER HALL, 725-3514

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—must 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, Economics, English, Environmental Programs, Foreign Languages and Literatures, Geography, Geology, History, International Studies, Mathematical Sciences, Philosophy, Physics, Psychology, Science Education, Sociology, Speech Communication, University Honors, University Studies, and Women's Studies. Undergraduate and graduate degree programs and certificates available through the College are listed on pages 4-6.

UNDERGRADUATE PROGRAMS

The College of Liberal Arts and Sciences is a large and diversified unit offering more than 20 majors (some with additional choices of sub-specialization), several academic certificates and teaching endorsements, and numerous departmental minors, as well as minors in computer applications and professional writing.

The College also offers a selection of alternative programs for students who are highly motivated and who have a record of high scholarly achievement. Students may obtain information concerning any one of several departmental honors programs from the participating department, or they may apply to the University Honors Program. These programs generally allow an accelerated exposure to higher education, thereby broadening the experience of the student.

The College's Dean's List recognizes high scholastic achievement on a quarterly basis. The students who qualify for the Dean's List are those who meet or exceed the following criteria within a given term of study:

- Undergraduate standing with a major in one of the College's programs.
- Completion of at least 12 graded credits within the grading period.
- A 3.50 cumulative GPA and a 3.75 GPA for the term.

LIBERAL ARTS AND SCIENCES MINORS

The following departments and programs in the College of Liberal Arts and Sciences offer academic minors: Anthropology, Applied Linguistics, Biology, Black Studies, Chemistry, Economics, English, Environmental Studies, Foreign Languages and Literatures, Geography, Geology, History, International Studies, Mathematical Sci-

ences, Philosophy, Physics, Psychology, Sociology, Speech Communication, 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	Credits
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 207, CS 208, CS 250	10-12
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	12
A one-term, adviser-approved senior practicum or seminar	3
Adviser-approved, upper-division research project	3
Total	28-30

CERTIFICATE OPTIONS

Specialized academic certificates are offered by several units in the College of Liberal Arts and Sciences: Applied Linguistics/ESL, Black Studies, Chicano/Latino Studies, Foreign Languages/Teaching Japanese, International Studies, and 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 General Studies. For these options see page 109.)

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.

MASTER OF ARTS AND MASTER OF SCIENCE DEGREES

Master of Arts and Master of Science degrees are designed for the student who wishes to conduct advanced studies in a particular discipline. Generally the programs are flexible enough for students, with the aid of an adviser, to design a program of study that allows them to pursue their particular interest. The requirements of each discipline are listed under the departments that have the M.A./M.S. option available.

MASTER OF ARTS IN TEACHING AND MASTER OF SCIENCE IN TEACHING DEGREES

The Master of Arts in Teaching and the Master of Science in Teaching are degrees available to students who wish to obtain a continuing teaching license in secondary education as well as continue advanced studies in the area of their choice. The program of study for these degrees should be carefully designed and must be approved by an adviser. The specific requirements of each discipline are listed under the departments for which the M.A.T./M.S.T. option is available. (For the General Studies option see page 110.)

DOCTORAL PROGRAMS

Several departments in the College of Liberal Arts and Sciences participate in one or more multi-disciplinary doctoral programs: Environmental Sciences and Resources, Systems Science, and Urban Studies. The doctoral degree is for the person who wants the most advanced academic degree, generally with a life-long objective of expanding the scope of knowledge of a specialized field of study. The specific requirements of each available option are listed under the participating departments and programs.

UNIVERSITY STUDIES

245 Cramer Hall
725-5890

Please see page 15 for University Studies (general education) baccalaureate requirements.

The purpose of the University Studies program at Portland State University is to facilitate the acquisition of the knowledge, abilities, and attitudes which 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 to their communities.

To achieve this purpose the faculty have designed a four-year program of study required of all students 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.

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" experience which consists of teams of students from different majors working together to complete a project addressing a real problem in the Portland metropolitan community.

FRESHMAN INQUIRY
(UNST 101, 102, 103)

See current *Schedule of Classes* 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 lead 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 upon 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 have learned a great deal about the content of the course and how the knowledge of different fields of study contributes to the content. They will also 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, provide the foundation of necessary academic skills, and prepare students to move on to increasingly rigorous and sophisticated levels of inquiry.

SOPHOMORE INQUIRY

See current *Schedule of Classes* for course descriptions.

After the freshman year, students and faculty continue to emphasize the interdisciplinary approaches integral to University Studies, further developing the four goals of communication, human experience, inquiry, and critical thinking, while continuing to affirm the ideas of ethics and social responsibility. At the sophomore level, students select 12 credits of coursework in Sophomore Inquiry from a variety of interdisciplinary courses. Sophomore Inquiry provides the student with a sampling of the upper-division course clusters in Environmental Studies, American Studies, Culture of the Professions, Science in the Liberal Arts, and other additional areas of contemporary relevance.

UPPER-DIVISION CLUSTER

See current *Schedule of Classes* for course descriptions.

Upper division students pursue a program of 12 credits within one cluster area of interest they began in Sophomore Inquiry. This focus on a specific cluster area is intended to complement the undergraduate's major area of study. Upper-division cluster courses may not be used to fulfill a student's major or program requirements.

CAPSTONE REQUIREMENT

The culmination of the University Studies program is the capstone requirement. This 6-credit community-based learning experience is designed to provide students with the opportunity to apply, in a work-team context, what they have learned in their major, while addressing a real challenge emanating from the metropolitan community. Its purpose is to further enhance student learning through the application of what has been learned, at the same time establishing connections within the Portland metropolitan community.

PSU has learned from its public and private partners that it is very important that students have the opportunity to experience working with others trained in fields different from their own, in order to analyze and develop strategies for addressing problems. The capstone requirement offers students that experience. It also serves as an important opportunity for students to serve this community.

TRANSITION: UNIVERSITY INQUIRY (UNST 210 OR 310)

University Inquiry 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.

ANTHROPOLOGY

141 Cramer Hall
725-3914

B.A., B.S.
Minor in Anthropology
Secondary Education Program—Social Science
M.A.
Ph.D. in Systems Science—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:

	Credits
Anth 101 Introduction to Physical Anthropology	4
Anth 102 Introduction to Archaeology	4
Anth 103 Introduction to Social/Cultural Anthropology	4
Anth 304 Social Anthropology	4
Anth 305 Cultural Anthropology	4
Anth 350 Archaeological Method and Theory	4
Anth 372 Human Variability (4) or Anth 370 Paleoanthropology (5)	4-5
Ling 290 or Stat 244	4
Upper-division anthropology electives (5 courses, see below)	20
Total anthropology coursework	52-53

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:

	Credits
Anth 101 Introduction to Physical Anthropology	4
Anth 102 Introduction to Archaeology	4
Anth 103 Introduction to Social/Cultural Anthropology	4
One of the following courses:	4-5
Anth 304 Social Anthropology (4)	
Anth 305 Cultural Anthropology (4)	
Anth 350 Archaeological Method and Theory (4)	
Anth 372 Human Variability (4) or Anth 370 Paleoanthropology (5)	
Upper-division anthropology electives—three courses. (Upper-division electives must include at least one 400-level course, excluding courses numbered 401, 404, 405, 407)	12
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 109.)

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 social-cultural 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:

	Credits
Anth 511, 550, 570 Core Seminars in Anthropology	12
Graduate-level Anthropology Electives 3 courses)†	12
Approved graduate-level electives (Anth, non-Anth)†	8
An adviser-approved, graduate-level course in research methods‡	4
Anth 501 (thesis research)	4
Anth 503 (thesis)	8
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.
5. Passing of an oral defense 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 marked 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.

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 304
Social Anthropology (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.

† 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 305
Cultural Anthropology (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 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 the 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 364__
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 Australia 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 (5)
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 399
Special Studies (Credit to be arranged.)

Anth 401/501
Research (Credit to be arranged.)
Consent of instructor.

Anth 404/504
Cooperative Education/internship (Credit to be arranged.)

Anth 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

Anth 407/507
Seminar (Credit to be arranged.)
Consent of instructor.

Anth 410/510
Selected Topics (Credit to be arranged.)
Consent of instructor.

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 basic 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 425/525**
Medical Anthropology (4)
An examination of how health-related beliefs and practices relate 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 of sociocultural anthropology (Anth 304, 305 strongly recommended. Anth 101 helpful).

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**
Women, Culture, and Society (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, or 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 451/551**
History of Archaeology (4)
A chronological survey of developments in the field of archaeological inquiry: major schools of thoughts, innovations in method and theory, key personalities and their contributions. Prerequisites: Anth 350 plus at least one additional upper-division archaeology course.

Anth 452/552
Lab Methods in Archaeology (4)
Techniques and their applications in the analysis of materials recovered from archaeological sites. Course content will vary, emphasizing the study of various artifact types-lithics, ceramics, textiles, botanical remains, etc. (May be repeated with departmental consent. Maximum 8 credits) Prerequisites: Anth 350 plus at least one additional upper-division archaeology course.

Anth 453/553
Archaeological Field Methods (4)
The theory and practice of contemporary archaeological field investigation-research design, survey and reconnaissance, site excavation, sampling and recording techniques, cultural resource management. Prerequisite: Anth 350.

Anth 454/554
Archaeological Field School (6)
Archaeological excavation of prehistoric or historic archaeological sites; or reconnaissance, survey and mapping of sites during a summer field project. Approximately 40 hours of field work per week for 6 weeks, with a week of laboratory work. Prerequisite: Anth 350.

Anth 455/555
Analysis of Faunal Remains (5)
Reviews issues of recovery, identification, quantification, and interpretation of archaeological faunal remains. Seminar component involves discussion and critical review of recent faunal studies. Laboratory component introduces student to skeletal anatomy of vertebrates (with focus on fishes and mammals) and basic procedures used in faunal analysis. Prerequisite: Anth 350.

Anth 456/556
Issues in Cultural Resource Management (4)
Examines the current cultural, legal and regulatory issues, problems, and frameworks affecting the management of cultural resources in North America and elsewhere in the world. Course coverage will include such topics as the laws affecting antiquities trafficking, and the relationships between indigenous peoples and archaeologists. Prerequisite: Anth 350.

***Anth 461/561**
Advanced Topics in Archaeology (4)
In-depth exploration and analysis of a major current problem in archaeology. Problems may be substantive or theoretical. Prerequisite: Anth 350.

***Anth 464/564**
Topics in Northwest Prehistory (4)
In-depth exploration of current problems in the study of Northwest Prehistory, particularly as it articulates with general theories of hunter-gatherer adaptations and cultural evolution. Prerequisite: Anth 364.

***Anth 471/571**
Advanced Topics in Paleoanthropology (4)
In-depth exploration and analysis of current problems in the study of Paleoanthropology. Emphasis on articulation of evolutionary theory with fossils and other relevant evidence. Prerequisites: Anth 370.

***Anth 472/572**
Population Dynamics (4)
The study of the principles of Mendelian and population genetics as they apply to the evolution of human populations and the maintenance of diversity in modern populations. Emphasis also is placed on the articulation of genetic methods with evolutionary theory. Prerequisites: Anth 372; 2 years of high school algebra or equivalent; Bi 341 as a pre- or co-requisite.

***Anth 478/578**
Human Osteology (4)
The identification and interpretation of human skeletal material from archaeological sites: the determination of age, gender, and population affinity; an introduction to paleopathology and the recognition of genetic and cultural variation. Prerequisites: Anth 350 and Anth 370.

***Anth 479/579**
Forensic Anthropology (2)
Advanced techniques of human skeletal identification and their application to the solution of medico-legal (forensic) problems. Prerequisites: Anth 478/578 or consent of instructor.

Anth 503 Thesis (Credit to be arranged.)

***Anth 511**
Core Seminar in Social and Cultural Anthropology (4)
A seminar that provides a methodological, theoretical, and substantive review and integration of anthropological materials in social and cultural anthropology. Prerequisites: graduate standing in anthropology and consent of instructor.

***Anth 550**
Core Seminar in Archaeology (4)
A seminar that provides a methodological, theoretical, and substantive review and integration of anthropological materials in archaeology. Prerequisites: graduate standing in anthropology and consent of instructor.

Anth 570
Core Seminar in Physical Anthropology (4)
A seminar that provides a methodological, theoretical, and substantive review and integration of anthropological materials in physical anthropology. Prerequisites: graduate standing in anthropology and consent of instructor.

APPLIED LINGUISTICS

467 Neuberger Hall
725-4088

B.A.
Minor in Linguistics
Intensive Program in English as a Second Language
Program in English for Non-Native Residents
Certificate in Teaching English as a Second Language
M.A.—Teaching English to Speakers of Other Languages
M.A.T and M.S.T. (General Arts and Letters)

UNDERGRADUATE PROGRAMS

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 Department of Applied Linguistics offers a B.A. in applied linguistics, a minor in applied linguistics, a TESL certificate, and an M.A. in TESOL (Teaching English to Speakers of Other Languages). It also administers the English as a Second Language Program and the English for Non-Native Residents Program.

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:

	Credits
Ling 390 Introduction to Linguistics	4
Ling 407 Senior Seminar	4
Ling 411 Syntax	4
Ling 435 Applied Linguistics	4
Ling 490 History of the English Language	4
Linguistics electives (upper-division level)	20
Two terms of a non-Indo-European language (If the language used to fulfill the *University* language requirement is non-Indo-European, the student may choose any other language for this requirement.)	10
Total	50

All courses used to satisfy the department major requirements, whether taken in the department or elsewhere, must be graded C- or above, and the overall GPA for such courses must be 2.00 or above.

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:

	Credits
Ling 390 Introduction to Linguistics	4
Ling 411 Syntax *or* Ling 492 Structure of the English Language	4
Ling 490 History of the English Language	4
Linguistics electives (upper-division level)	16
Total	28

All courses used to satisfy the department minor requirements must be graded C- or above, and the overall GPA for such courses must be 2.00 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-ESL 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 educa-

tional 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 120

As a semi-intensive course, Ling 120 is designed to develop the student's competence in writing, reading, and grammar. It is available to any non-native resident.

Students earn 4-6 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:

	Credits
Ling 390 Introduction to Linguistics	4
Ling 438 Second Language Acquisition	4
Ling 492 Structure of the English Language	4
Ling 477, 478 TESOL Methods	8
Linguistics electives (upper-division)	12
Literature and cultural studies (at least one course in each area)	8
Total	40

All courses used to satisfy certificate course requirements must be upper division and graded C- or above, and the overall GPA for such courses must be 2.00 or above.

The TESL certificate can also be used in 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 507 Seminar	
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 510 Selected Topics	
Ling 532 Sociolinguistics	
Ling 533 Psycholinguistics	
Ling 537 First Language Acquisition	
Ling 570 Grammar for TESOL	
Group C:	
4 credits from the following	4
Ling 539 Language Testing	
Ling 547 ESL in the Workplace	
Ling 565 Administration of ESL/EFL Programs	
Ling 575 Curriculum Design and Materials Development	
Ling 581 World Englishes	
Ling 594 Linguistics and Literature	
Total credits for groups A, B, and C	20
Literature and Cultural Studies (at least one course in each area)	8
Literature requirement is adviser-approved class in contemporary American or British literature, or other literature originally written in English.	
Cultural Studies requirement is SP 515 Problems in Intercultural Communication, Ling 571 Culture Learning in the Classroom, or other adviser-approved elective.	
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	4
Thesis	6
Total	46

The student must consult with the TESOL adviser to select the appropriate courses and areas of concentration for research. 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 110.

COURSES

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

Ling 110
English as a Second Language (4-12 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 120
English for Non-native Residents (6)
A three-level course in English for non-native residents to develop their competence in writing, reading, grammar, listening comprehension, and note-taking. Placement in a given level, lower-intermediate or upper-intermediate or advanced, depends on English Placement Test scores. For non-native residents only.

Ling 199
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.

†Ling 422/522
How Do People Learn a Second Language (3)
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.

†Ling 423/523
Taking Stock: Assessment and Evaluation in Programs With Language Minority Students (2)
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.

Ling 432/532
Sociolinguistics (4)
An examination of language in relation to social and interpersonal interaction. Prerequisite: Ling 390.

Ling 433/533
Psycholinguistics (4)
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.

Ling 435/535
Applied Linguistics (4)
An examination of current areas of applied linguistic research. Prerequisite: Ling 390.

***Ling 437/537, 438/538**
Language Acquisition (4, 4)
Introduction to main aspects of first and 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 acquisition. Research projects based on collection and analysis of language-learner language. Ling 437/537: study of first language acquisition; Ling 438/538: study of second language acquisition. Prerequisite: Ling 390.

***Ling 439/539**
Language Testing (4)
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.

***Ling 445/545**
Linguistics and Cognitive Science (4)
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.

Ling 470/570 Grammar for TESOL (4)
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.

Ling 471/571
Culture Learning in the Language Classroom (4)
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.

***Ling 474/574**
ESL in the Workplace (4)
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 nonnative speakers. Prerequisite: Ling 477 or teaching experience.

***Ling 475/575**
Curriculum Design and Materials Development in TESOL (4)
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.

Ling 477/577, 478/578
TESOL Methods (4, 4)
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. 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.

Ling 481/581
World Englishes (4)
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 390.

Ling 490/590
History of the English Language (4)
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.

Ling 492
Structure of the English Language (4)
A study of English structure and modern approaches to grammar. This course satisfies state standards for teaching English. Prerequisite: Ling 390.

***Ling 494/594**
Linguistics and Literature (4)
Studies in the linguistic analysis of literature, both poetry and prose, from the perspectives of syntax, phonology, morphology, speech acts, discourse analysis, and dialectal variation. Prerequisite: Ling 390.

Ling 503
Thesis (Credit to be arranged.)

Ling 560
Research Design for Applied Linguistics (4)
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.

***Ling 565**
Administration of ESL/EFL Programs (4)
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.

***Ling 585**
Semiotics (4)
Study of modern critical theories based on linguistics, especially structuralism. Prerequisite: 3 credits of linguistics.

† Ling 422/522 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.

BIOLOGY

246 Science Building II
725-3851

B.A., B.S.
Minor
Secondary Education Program
M.A., M.S.
M.A.T. and M.S.T. (Science/Biology)
Ph.D.—Environmental Sciences and Resources: Biology

UNDERGRADUATE PROGRAMS

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 Sciences 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 departmental major requirements and specific requirements in one of the biology major options. General requirements are completion of two terms of statistics or calculus; three terms of science majors' introductory chemistry with laboratory; two terms of organic chemistry with laboratory; and three terms of college-level physics with laboratory. All biology majors must complete at least 50 credits in biology, including three terms of science majors' introductory biology with laboratory. Of the 50 credits in biology, at least 35 must be upper division, including one term of genetics (Bi 341, Introduction to Genetics, or equivalent) and fulfillment of requirements in one of the options listed below.

Biology courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling departmental major requirements, with the exception of Bi 401, 404, 405, 406, and 407. Of the 50 credits required in biology, at least 36 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 program in the Science Support Office.

Option I: General Biology
Students selecting Option I are required to take the following courses:

	Credits
Bi 335 Principles of Physiology	4
Bi 357 General Ecology	4

In addition, students must take at least one other upper-division course in any two of the three following areas: botany, zoology, microbiology.

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.

Option II: Zoology/Physiology
Students selecting Option II are required to take Bi 335 Principles of Physiology or Bi 336 Cell Biology and at least one 300- or 400-level course in each of the following sub-areas:

Systems/cell physiology sub-area:	Credits
Bi 301 Human Anatomy and Physiology	4
Bi 302 Human Anatomy and Physiology	4
Bi 303 Human Anatomy and Physiology	4
Bi 411 Neurophysiology	3
Bi 418 Comparative Animal Physiology	3
Bi 419 Animal Physiology Laboratory	3
Bi 422 Comparative Vertebrate Endocrinology	4
Bi 437 Cell Physiology	3
Bi 445 Algal Physiology	4
Bi 487 Immunology and Serology	4

Structure/systematics/development sub-area:	Credits
Bi 326 Comparative Vertebrate Embryology	5
Bi 328 Comparative Vertebrate Anatomy	5
Bi 387 Vertebrate Zoology	6
Bi 413 Herpetology	6
Bi 414 Ornithology	6
Bi 415 Mammalogy	6
Bi 416 Marine Mammals	6
Bi 451 Parasitology	4
Bi 452 Parasitology	4
Bi 455 Histology	5
Bi 461 Invertebrate Zoology	5

Genetics sub-area:	Credits
Bi 341 Introduction to Genetics	4
Bi 428 Human Genetics (requires Bi 341)	4
Bi 427 Evolutionary Genetics (requires Bi 341, Bi 426 recommended)	4

Ecology/evolution/behavior sub-area:	Credits
Bi 357 General Ecology	4
Bi 360, 361 Introduction to Marine Biology, Marine Biology Laboratory	3, 1
Bi 426 Evolution	4
Bi 475 Limnology and Aquatic Ecology	4
Bi 476 Population Biology	4
Bi 412 Animal Behavior	3

Option III: Microbiology and Molecular Biology/Biotechnology
There are two possible routes of study to complete this option: i) Completion of a two-year Associate of Applied Science degree in biotechnology at Portland Community College, followed by a transfer into the third (junior) year of this option, ii) Completion of all four years at Portland State University.

Students selecting Option III are required to take Biochemistry (Ch 350 or Ch 490, 491, and 492) and the following upper-division biology courses: Bi 338 Introduction to Molecular Biology, Bi 487 Immunology, Bi 430 and Bi 431 Theory of Recombinant DNA and lab, and 6 credits of Bi 401 Research in Biotechnology. In addition, they are required to take at least 7 credits from the following list:

	Credits
Bi 420 Microbiology	6
Bi 421 Virology	4
Bi 423 Microbial Ecology	4
Bi 424 Molecular Genetics	4
Bi 336, 337 Introduction to Cell Biology, Cell Biology Laboratory	4, 1

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:

	Credits
Bi 251, 252, 253 Principles of Biology	15
Upper-division credits to include at least one course from each of the following three areas	15

Area I: Cellular Biology
Bi 335 Principles of Physiology
Bi 336 Introduction to Cell Biology
Bi 341 Introduction to Genetics
Bi 420 Microbiology
Area II: Organismal Biology
Bi 301, 302, 303 Human Anatomy and Physiology
Bi 326 Comparative Vertebrate Embryology
Bi 328 Comparative Vertebrate Anatomy
Bi 334 Systematic Botany
Bi 370 Mushrooms
Bi 387 Vertebrate Zoology
Bi 432 Morphology of Nonvascular Plants and Fungi
Bi 433 Morphology of Vascular Plants
Bi 434 Plant Anatomy
Bi 455 Histology
Bi 461 Invertebrate Zoology
Area III: Ecological and Evolutionary Biology
Bi 357 General Ecology
Bi 360, 361 Introduction to Marine Biology and Laboratory
Bi 423 Microbial Ecology
Bi 426 Evolution

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, R. Petersen**

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 program 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.)

	Credits
Biology (see above)	50
Mathematics (see above)	12
Chemistry (see above)	23
Physics (see above)	15
Geology (see adviser)	3
Total	103

Nonbiology Majors

One year-long sequence in introductory biology	9
Bi 234, 235 Elementary Microbiology	6
One course each in both anatomy and physiology	8
Bi 341 Introduction to Genetics	4
Bi 357 General Ecology	4
Bi 426 Evolution	4
Biology elective in botany or field-oriented course	4
Biology total	39
Physical science electives as approved by adviser	18
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 95.

Admission Requirements. In addition to the instructions for admission to the graduate program as they appear on page 45, 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 54. 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 183 for the required education courses.

COURSES

Courses marked 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.

Bi 104, 105, 106
General Biology Labs (1, 1, 1)
Laboratory to accompany General Biology (Bi 101, 102, 103). Previous or concurrent enrollment in 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. Topics will include culture techniques, use of the microscope for observation of microorganisms, and procedures for study of microorganisms in the laboratory and field. Two 2-hour laboratory periods. Prerequisite: Bi 234 or concurrent enrollment in Bi 234.

Bi 251, 252, 253
Principles of Biology (5,5,5)
Study of the basic principles of living organisms. The course will study both plants and animals and topics will include cell structure, energy production synthesis, nutrition, genetics, evolution, classification, excretion mechanisms of response, reproduction and development, and ecology. Lab investigations will use laboratory, field study, and special readings. Four hours lecture and one 3-hour laboratory. Prerequisite: Ch 221, 227 or concurrent enrollment in Ch 221, 227.

Bi 301, 302, 303
Human Anatomy and Physiology (4, 4, 4)
Fundamental principles of microanatomy, macroanatomy, genetics, embryology, and physiology, as applied to the human organism will be presented and correlated to provide a comprehensive understanding of man as a functionally integrated biological entity. One 3-hour laboratory period. A previous course in chemistry is recommended. Prerequisite: one year of college biological science.

***Bi 326**
Comparative Vertebrate 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 328**
Comparative Vertebrate Anatomy (5)
Gross dissection and comparison of organ systems in representative vertebrate forms. Two 4-hour laboratory periods. Prerequisite: Bi 252.

***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 334 Systematic Botany (4)**
Identification and classification of the vascular plants represented in the local flora. Two 3-hour laboratory periods.

Bi 335
Principles of Physiology (4)
An introduction to the physiology of plant and animal cells with emphasis on basic chemical and physical characteristics. Prerequisites: Bi 253, Ch 331 or Ch 334.

Bi 336
Introduction to Cell Biology (4)
An introduction to structural, physiological, biochemical, and molecular biology of cells. One hour recitation; and three lecture hours. Prerequisites: one year of introductory biology and chemistry.

Bi 337
Cell Biology Laboratory (1)
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.)
Selected topics in biology.

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. Prerequisite: 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 pathophysiological 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 3.5-hour laboratory periods. Prerequisite: Bi 335, 417 or 418. May be concurrent.

Bi 420/520
Microbiology (6)
Fundamental concepts and techniques of microbiology. The general principles of cell structure and function, classification and diversity of microorganisms, biochemical processes in cells with the various regulatory patterns and the genetic basis of microbial growth and evolution are emphasized. Two 2-hour laboratory periods. Principles of Physiology or Introductory Biochemistry is recommended. Prerequisites: one year each of majors level general biology and general chemistry; two terms of organic chemistry. Bi 335 or one term of biochemistry is recommended.

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 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 437/537, 438/538**
Cell Physiology (3, 3)
A study of the basic functions in biological systems at the cellular and subcellular levels of organization. Prerequisite: Bi 335 or one term of biochemistry.

***Bi 439/539, 440/540**
Cell Physiology Laboratory (2, 2)
Studies on cells, subcellular organelles, and enzymes. Two 3-hour laboratory periods. Prerequisite: concurrent enrollment in Bi 437, 438 respectively.

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 445/545
Algal Physiology (4)
Physiological basis for phytoplankton ecology. Examination of photosynthesis, nutrient transport, regulation and cell division processes. Three lectures and one recitation. Prerequisites: Bi 335, 357.

***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**
Biology of 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 (5)
Systemic study, description, and identification of histological structures. Two 3-hour laboratory periods. Prerequisite: two years of biology.

***Bi 461/561**
Invertebrate Zoology (5)
A survey of the invertebrates, protozoa to invertebrate chordates with an emphasis on the major groups. 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 470/570**
General Ecology II (3)
The study of the principles which characterize ecology, such as populations dynamics, competition, predator-prey dynamics, and dynamics of isolated systems such as islands. Prerequisite: Bi 357 or equivalent.

***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 475/575**
Limnology and Aquatic Ecology (4)
Kinds, origins, and ecological features and dynamics of freshwater environments. Prerequisite: Ch 223.

***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 477/577
Limnology Laboratory (2)
Techniques in field and laboratory analysis of freshwater systems. Pre- or corequisite: Bi 475/575.

***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 420 and either Bi 335 or one term of biochemistry.

Bi 483/583, 484/584
Microbiology Laboratory (1, 1)
Application of the principles of microbiology in the laboratory. One 3-hour laboratory period. Prerequisite: concurrent with Bi 481, 482.

***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 antisera formed within an animal in response to foreign antigenic substances. Prerequisite: Bi 420.

Bi 503
Thesis (Credit to be arranged.)

***Bi 543**
Advances in Plant Physiology (3)
Lectures and discussions on selected topics in plant physiology; evaluation of current trends in this field. Prerequisite: Bi 442 (or concurrently). May be repeated once for credit.

***Bi 585**
Advances in Microbiology (3)
Analysis of new developments in microbiology including metabolic pathways, anaerobic systems, mechanisms of pathogenicity, and the exploitation of microorganisms to generate products for mankind. Prerequisite: Bi 420.

***Bi 590**
Advanced Comparative Physiology (4)
Advanced topics and current research on various aspects of comparative physiology. Prerequisites: Bi 417 or Bi 418 and Bi 419.

Bi 591
Advances in Phycology (2)
Lectures, seminars, discussions. Recent advances in phycology with an emphasis on cultivation, morphology, physiology, genetics, and sexuality of algae. Prerequisite: Bi 445.

Bi 592
Advanced Topics in Marine Mammals (2)
A study of one or more advanced topics in marine mammals; covering new developments in regard to their evolution, physiological and anatomical adaptations, echolocation, population structure and dynamics, and behavior. Prerequisite: Bi 416.

***Bi 593**
Cytogenetics (3)
Structure and function of chromosomes, mitosis and meiosis, the major chromosomal changes of plant and animal evolution. Prerequisite: Bi 341 or equivalent.

***Bi 594**
Cytogenetics Laboratory (1)
Normal and aberrant forms of nuclear division; major techniques in preparation of chromosomes for microscopic examination. One 2-hour laboratory. Prerequisite: current enrollment in Bi 593.

***Bi 595**
Advanced Topics in Genetics (2)
New developments in genetics. Topics to include current research in the areas of genetics, human genetics, evolutionary genetics, and molecular genetics. Prerequisite: Bi 341.

***Bi 596**
Advanced Topics in Evolution (2)
New developments in evolution. A study of one or more advanced topics relating to the patterns and processes of microevolution and macroevolution. Prerequisite: Bi 426.

***Bi 597**
Advanced Topics in Mammalogy (3)
Study of one or more advanced topics in mammalogy.

Bi 601
Research (Credit to be arranged.)

Bi 603
Thesis (Credit to be arranged.)

Bi 604
Cooperative Education/Internship (Credit to be arranged.)

Bi 605
Reading and Conference (Credit to be arranged.)
Pass/no pass only.

Bi 607
Seminar (Credit to be arranged.)

Bi 610
Selected Topics (Credit to be arranged.)

BLACK STUDIES

308 Neuberger Hall
725-3472

Certificate in Black Studies
Minor in Black Studies

The Department of Black Studies is an academic interdisciplinary unit within the College of Liberal Arts and Sciences. The primary focus is on the social sciences and liberal arts. The Department of Black Studies is devoted to the exploration and analysis of the history and culture of African people in the United States, the Caribbean, and Africa. It seeks to explore the black experience from an Afro-centric rather than a Euro-centric perspective, to illuminate the contributions of African people to world culture, and to provide an alternative to traditional approaches to the study of world history that have bypassed the African experience.

The objectives of the Department of Black Studies are to provide comprehensive learning programs aimed at greater understanding by all people of the African experience, past, present, and future.

The Department of Black Studies seeks to expose students from all racial, religious, and ethnic backgrounds to academic experiences beyond those usually found in traditional college curricula.

In addition to providing a heightened sense of awareness about persons of African descent and their contributions to world civilization, a Black Studies Certificate has practical applications.

- 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.
- It provides background for students interested in the field of social welfare as a vocation.
- 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:

- Black culture and civilization (history, art, music, literature, etc.)
- 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 adviser-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 marked 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 221**
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 348; course may be taken only once for credit. Prerequisite: BSt 205 or Hst 105.

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 349; course may be taken only once for credit. Prerequisite: BSt 205 or Hst 105.

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 Sophomore Inquiry.

***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
Preparation for International Experience (4)
Examination of communication-based, cultural, economic, emotional, physical, political, religious, and social aspects of an overseas or community-based international/intercultural experience. Presentation of strategies for development of an appropriate level of preparation to meet challenges of working and traveling in an international/intercultural setting. Emphasis on general methodology and process required to develop personal awareness and resources for successful international field experience. Also offered as Intl 397; may be taken only 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 will 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; Hst 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 Hst 201, 202.

***BSt 413/513**
Slavery (4)
An examination of the institution which has played a central role in establishing the status and position of the modern black population in American society, both in physical and psychological terms. The course will attempt to put information and understandings of slavery in the proper and accurate context of an institution which has been a part of the human experience since the ancient world and which has a legacy and implications far beyond the racially associated perceptions usually attached to it. The approach will be through the comparative analysis of the numerous forms the institution of slavery has assumed in human history. Prerequisites: Hst 101, 102

***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 paid 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 inherited 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 preslavery 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.

CENTER FOR BLACK STUDIES

308 Neuberger Hall
725-4003

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 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 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.

CHEMISTRY

262 Science Building II
725-3811

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.

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 73 credits in the subject and will take courses in the basic areas of general chemistry, analytical chemistry, organic chemistry, and physical chemistry. As a junior or senior, the student will be introduced to some of the more specialized aspects of the field-such as biochemistry, quantum chemistry, or inorganic chemistry. 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	Credits
Ch 221, 222, 223 General Chemistry	12
Ch 227, 228 General Chemistry Laboratory	2
Ch 229 Introductory Chemical Analysis	2
Ch 320, 321 Quantitative Analysis.	5
Ch 334, 335, 336, 337, 339 Organic Chemistry	17
Ch 424, 425 Electronics and Instrumentation for Chemists *or* Ch 426, 427 Instrumental Analysis.	5-6
Ch 436, 437 Spectrometric Analysis	4
Ch 440, 441, 442, 443, 444, 445 Physical Chemistry	16
Approved 400-level chemistry courses	10
Total in chemistry	73-74
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	Credits
Ch 221, 222, 223 General Chemistry	12
Ch 227, 228 General Chemistry Laboratory	2
Ch 229 Introductory Chemical Analysis	2
Ch 320, 321 Quantitative Analysis	5
Ch 334, 335, 336, 337, 339 Organic Chemistry	17
Ch 416, 417 Physical Chemistry for the Biosciences	8
Ch 424, 425 Electronics and Instrumentation for Chemistry or Ch 426, 427 Instrumental Analysis	5-6
Ch 490, 491, 492, 493 General Biochemistry	12
Approved 400-level science electives	10
Total in chemistry	73-74
One year of Physics, with laboratory	12-15
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 upper-division chemistry electives include the following:

1. Ch 426, 427 Instrumental Analysis and Laboratory, Ch 418 Advanced Chemistry Laboratory, Ch 411 Chemical Bonding, and Ch 412 Advanced Inorganic Chemistry.

2. An additional 5-6 credits in upper-division chemistry courses chosen with an adviser.

3. Additional upper-division laboratory experience to make a total of 500 clock hours in the laboratory. The courses Ch 227, 228, 229, 321, 337, 339, 418, 427, 437, 444, and 445 provide 444 clock hours. The following courses may be used to satisfy the additional requirement (clock hours of laboratory in parentheses): Ch 425 (60), 493 (40), 494 (60), 495 (60), 401, and 406. No more than 75 clock hours of Ch 401 and 406 can be accepted.

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	Credits
Ch 320, 321 Quantitative Analysis	5
Ch 334, 335, 336, 337, 338 Organic Chemistry or Ch 331, 332, 337, 338 Elements of Organic Chemistry	12-16
Ch 416, 417 or 440, 441, 442 Physical Chemistry	8-9
Approved 400-level chemistry electives	9
Total	34-39

Option II: Biochemistry	Credits
Ch 320, 321 Quantitative Analysis	5
Ch 334, 335, 336, 337, 338 Organic Chemistry, or Ch 331, 332, 337, 338 Elements of Organic Chemistry	12-16
Ch 416, 417, or Ch 440, 441, 442 Physical Chemistry	8-9
Ch 490, 491, 492, 493 General Biochemistry	12
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: **R.P. Lutz**

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:

	Credits
Ch 221, 222, 223 General Chemistry	12
Ch 227, 228 General Chemistry Laboratory	2
Ch 229 Introductory Chemical Analysis	2
Ch 320, 321 Quantitative Analysis	5
Ch 334, 335, 336, 337 or 331, 332, 337, 338 Organic Chemistry	12 or 14
Ch 416 or 440 Physical Chemistry	4 or 3
Subtotal	36-39
Ph 201, 202, 203 *or* 211, 212, 213 General Physics	12 or 9
Ph 204, 205, 206, or 214, 215, 216 Physics Laboratory	3
Subtotal	12 or 15
Chemistry or Physics elective	3 or 4
Total	51-58

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 95.

Degree Requirements. University master's degree requirements are listed on page 54; requirements related to the Environmental Sciences and Resources Doctoral Program are given on page 95. Specific departmental requirements are listed below.

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. 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 95, the candidate must pass entrance examinations as in the M.A./M.S. program and cumulative examinations which serve as the departmental comprehensive examination. The cumulative examinations are administered on a regular basis, and the candidate must pass at least one of the first six, three of the first 12, and a total of six out of 18. 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.

COURSES

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

Students registering for laboratory courses should purchase a breakage ticket to apply toward the cost of any breakage or loss of laboratory equipment; the unused portion of this breakage ticket is refundable upon satisfactory check out from the laboratory at the end of the term. Students registering for Ch 107, 108, 109, 227 or 228 must purchase a $3 breakage ticket (non-refundable) in order to purchase insurance ($1 deductible for each item lost or broken). Students registering for all labs must attend the first lab meeting.

†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; one 2-hour laboratory period. Pass/no pass only. Ch 109: one 3-hour laboratory period, graded.

***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 predental, 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
General Chemistry Laboratory (1, 1)
Laboratory work to accompany Chemistry for Engineering Majors (Ch 201, 202) or General Chemistry (Ch 221, 222). Concurrent enrollment in the appropriate lecture course is recommended. One 3-hour laboratory. Pass/no pass only.

†Ch 229
Introductory Chemical Analysis (2)
Laboratory work to accompany Ch 223. Introduction to quantitative analytical techniques for the determination of selected species. Two 3-hour laboratory periods. Prerequisite: Ch 223 or concurrent enrollment. (Ch 229 is not offered in the Summer Session; therefore, a Summer Session student should enroll in Ch 229 in the following fall or spring term.)

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 (3)
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. Three lectures and one recitation. 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. Three lectures, one recitation. Concurrent enrollment in Ch 337 laboratory is recommended for Ch 335; 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)
Structure, synthesis, mode of action, and effects of female sex hormones. Relationships between developmental, mature functional, and menopausal phases of woman's life and hormonal balance. Effect of female hormones upon glucose utilization, fat metabolism, bone metabolism, energy balance, and mental function. Biochemistry of pregnancy and lactation. Prerequisite: one year of college chemistry or biology.

***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.)

Ch 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor and department chair. Ch 505 pass/no pass only.

† 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 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 (2)
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 (3)
Theory and application of modern instrumental methods, including visible spectroscopy, atomic absorption, fluorometry, polarography, conductimetry, and gas-liquid chromatography. Prerequisites: Ch 321 and either Ch 416 or Ch 442/542. (Ch 416 or Ch 442/542 may be taken concurrently with Ch 426/526.) Requires concurrent enrollment in Ch 427/527.

Ch 427/527
Instrumental Analysis Laboratory (3)
Laboratory work to accompany Ch 426/526. Two 3-hour laboratory periods. Requires concurrent enrollment in Ch 426/526.

***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 fluorine 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. Prerequisites: 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.

***Ch 623**
Advanced Instrumental Analysis (3)
Application of instruments to chemical research and analysis with emphasis on modern spectrometric techniques. One lecture; two 3-hour laboratories. Prerequisite: Ch 426/526.

***Ch 633**
Organic Synthesis (3)
Organic reactions, mechanisms and stereochemistry with application to multi-step synthesis. Prerequisite: Ch 431/531.

***Ch 634**
Advanced Topics in Organic Chemistry (3)
Current topics such as stereochemistry, natural products, pericyclic reactions, carbonium ions, heterocyclic and polycyclic compounds, organic photochemistry. As subject matter varies, course may be repeated with consent of instructor. Prerequisite: Ch 431/531.

***Ch 635**
Physical Organic Chemistry (3)
Modern concepts of physical-organic chemistry and their use in the study of mechanisms of organic reactions and reactivities of organic compounds. Prerequisites: Ch 431/531.

***Ch 660**
Selected Topics in Physical Chemistry (3)
Current topics in physical chemistry such as irreversible thermodynamics, advanced topics in spectroscopy, group theory, and kinetics. As subject matter varies, course may be repeated with consent of instructor. Prerequisite: consent of instructor.

***Ch 661**
Photochemistry (3)
An introduction to the chemistry of the interaction of light with matter. Absorption and emission of light, photochemical and photophysical processes, photochemical kinetics and mechanisms. Reactivity of excited states of molecules and atoms. Prerequisite: Ch 441/541.

***Ch 662**
Chemical Kinetics (3)
Chemical kinetics in the gas phase and in solution, catalysis, and absolute rate theory. Prerequisite: Ch 442/542.

***Ch 663**
Chemical Thermodynamics (3)
The laws of thermodynamics and their applications. Prerequisite: Ch 442/542.

***Ch 664**
Quantum Chemistry (3)
Principles of quantum mechanics with applications to chemical systems. Prerequisite: Ch 442/542.

***Ch 665**
Statistical Thermodynamics (3)
Foundations of the subject with application to the equilibrium thermodynamics of gases, liquids, and solids. Prerequisite: Ch 664.

***Ch 666**
Solution Thermodynamics (3)
Partial molar quantities, activities, stability theorems, thermodynamics of surfaces. Prerequisite: Ch 663.

***Ch 670**
Atmospheric Chemistry (3)
Physical chemistry of the earth's atmosphere, including global chemical budgets, atmospheric thermodynamics, photo-chemical reactions in the lower and upper atmosphere, chemical properties of aerosols, and global climate change. Prerequisite: Ch 442/542.

***Ch 693**
Enzyme Structure and Function (3)
Chemical and physical properties of enzymes; energetics, kinetics, and mechanism of enzymatic reactions. Prerequisite: Ch 492/592.

***Ch 695**
Advances in Biochemistry (3)
Current topics in biochemistry such as neurobiochemistry, membrane structure, differentiation, metabolic regulation, bioenergetics, nucleic acids. As subject matter varies, course may be repeated with consent of instructor. Prerequisite: Ch 492/592.

***Ch 696**
Molecular Structure and Spectra (3)
Quantum theory applied to molecular structure and to the interpretation of rotational, vibrational, electronic and magnetic-resonance spectra. Prerequisite: Ch 442/542.

CHICANO/LATINO STUDIES

188 Cramer Hall
725-8442 or 725-4447

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 from 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:

	Credits
ChLa 201 Introduction to Chicano/Latino I	4
ChLa 202 Introduction to Chicano/Latino II	4
ChLa 203 Introduction to Chicano/Latino III	4
ChLa 301 Chicano/Latino Communities	4
ChLa 302 Survey of Chicano/Latino Literature	4
ChLa 303 Chicana/Latina Experience	4
Span 301, 302 Third-Year Spanish	8
Upper-division approved electives	8
Total	40

Electives will consist of Chicano/Latino Studies courses or closely related courses in arts and letters and social sciences approved by Chicano/Latino Studies advisers. 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:

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. 4
ChLa 412 Chicano/Latino Theater. 4
ChLa 413 Chicano/Latino Cinema 4
ChLa 414 Chicano/Latino Literature. 4

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

317U Cramer Hall
725-3976

B.A., B.S.

UNDERGRADUATE PROGRAM

Child and family studies is an academic major for a baccalaureate degree. The primary focus is on young children and their families. The program was 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, caregivers, program assistants, preschool and child care administrators, parent educators, early intervention specialists, and program directors for community agencies providing services to young 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 inter-

view with members of the Consortium for Children and Families. Applicants may be admitted during spring for the following fall quarter. Deadline for submission of application materials is February 27. Information and application forms can be obtained by calling 725-8241.

Requirements for a Major in Child and Family Studies. In addition to meeting the general University requirements, majors must complete an adviser-approved program to include:

Child and Family Studies Core—31 Credits

Psy 311 Human Development 4
PHE 365 Health Promotion Programs for Children and Youth 4
Psy 460 Child Psychology 4
SpEd 418 Survey of Exceptional Learners . . . 3
Hst 343 American Family History 4
Soc 461 Sociology of Family 4
Soc 337 Minorities 4
Ed 420 Introduction to Education and Society. 4

Child and Family Studies Specialization—15-20 credits

Majors may meet with a program adviser for guidance in the selection of an area of specialization and are required to complete a minimum of five courses within the area. Majors may study more than one specialization area. The lists of courses recommended for each specialization area do not limit course selection for the major. The specialization adviser will assist the student in tailoring a program of courses to meet career goals and to accommodate previous professional experience.

Human Development

Adviser: **Cathleen Smith**, Psychology

The specialization is designed to focus on development in the social, cognitive, physical, and emotional domains. Theory and research related to development will extend to current issues of diversity and to implications for professionals working with children and families.

Family in Society

Advisers: **Kathryn Farr**, Sociology; **Carol Morgaine**, Child and Family Studies

The specialization is designed to examine societal contexts within which families live. Families will be studied from the perspectives of culture, gender, health, and socioeconomics. Approaches to working with families will be developed with sensitivity to the diversity of family structures, traditions, and dynamics.

Child in Society

Advisers: **Ann Weikel,** History, **Candice Goucher,** Black Studies

This specialization is designed to examine societal contexts within which children live and which influence the treatment of children. Children will be studied in the context of economics, politics, culture, work issues, anthropology, and history. The effects of gender and racial bias on childhood will be explored.

Administration of Programs for Children and Families

Advisers: **Sorca O'Connor,** Educational Policy, Foundations, and Administration; **Ellen Nolan,** Helen Gordon Child Development Center

This specialization is designed to develop understandings and strategies for program administration, specifically for young children and their families. There is a focus on communication, with sensitivity to issues of culture, race, and economics.

Preparation for Early Childhood Education

Advisers: **Amy Driscoll,** Curriculum and Instruction, **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: **Rhea Paul,** Speech and Hearing Sciences, **Ruth Falco,** 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.

Practica—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 program advisers 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 497
Interdisciplinary Perspectives on Children and Families (4)

Designed 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.

ECONOMICS

241 Cramer Hall
725-3915

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:

	Credits
Ec 201, 202 Principles of Economics	8
Ec 375 Macroeconomic Theory	4
Ec 376 Microeconomic Theory	4
Ec 370, 456, 457, 460 (any one course)	4
	20
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
BA 222 Fundamentals of Financial Accounting	4
Mth 241 Calculus for Management and Social Sciences; Stat 243, 244 Introduction to Probability and Statistics; Stat 366 Introduction to Experimental Design, or CS 106 Computing Fundamentals	16
Total in other fields	20

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:

	Credits
Ec 201, 202 Principles of Economics	8
†Upper-division economics electives	18
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.

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:

	Credits
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 the Western Pacific Rim	
Ec 447 Transitional Economies	
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 109.)

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 56 and 270.

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

† Additional prerequisites may be required.

Portland State University, including theory and statistics, 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 (13 courses in which a maximum of six 400/500 level courses are allowed). Each student completes a three-course core requirement, three-course field requirement, research methods and project, and major elective courses. Upon completion of the program, each student must take the comprehensive exam on core theory courses and write a field project.

The core courses requirement includes the following (*) indicates courses offered only at the 500-level or above:

Ec 570 Econometrics*
Ec 575 Advanced Microeconomics*
Ec 576 Advanced Macroeconomics*

Courses for the field requirement consist of a minimum of 12 graduate credits (three courses) with at least one course in a graduate seminar. Fields must be chosen from the following:

1.Labor and Welfare Economics:
Ec 517 Women in the Economy
Ec 519 Economics of Race and Ethnicity
Ec 565 Economics of Labor Markets
Ec 566 Labor Institutions and Policy
Ec 567 Seminar in Labor Economics*
Ec 582 Poverty, Welfare, and Income Distribution*

2.Industry Economics and Regulation:
Ec 510 Energy Economics
Ec 525 Economics of Industrial Organization
Ec 526 Economics of Regulation
Ec 527 Seminar in Industrial Organization*
Ec 532 Environmental Economics
Ec 585 Cost-Benefit Analysis*
Ec 586 Project Evaluation*

3.Monetary Economics:
Ec 520 Money and Banking
Ec 521 Monetary Theory and Policy
Ec 524 Seminar in Monetary Theory and Policy*
Ec 541 International Monetary Theory and Policy

4.Global Economics
Ec 540 International Trade Theory and Policy
Ec 541 International Monetary Theory and Policy
Ec 542 Multinational Enterprise and Economic Integration
Ec 544 Seminar in International Economics*
Ec 545 Comparative Economic Systems
Ec 546 Economic Systems of the Western Pacific Rim
Ec 547 Transitional Economies
Ec 550 Third World Development
Ec 553 Theory of Economic Growth
Ec 587 Economic Planning*

5.Urban-Regional Economics and Public Finance
Ec 530 Regional Economics
Ec 531 Urban Economics
Ec 534 Regional Economic Structure*
Ec 535 Public Spending and Debt Policy
Ec 536 Taxation and Income Policies
Ec 537 Seminar in Public Finance*
Ec 582 Poverty, Welfare, and Income Distribution*
Ec 583 Impact Assessment*
Ec 585 Cost-Benefit Analysis*
Ec 586 Project Evaluation*

6.Quantitative Economics
Ec 571 Advanced Econometrics*
Ec 572 Econometric Forecasting and Simulation
Ec 573 Seminar in Quantitative Economics*
Ec 580 Mathematical Economics
Ec 583 Impact Assessment*
Ec 585 Cost-Benefit Analysis*
Ec 586 Project Evaluation*

In order to complete the field requirement, each student must submit a written research project on the field subject, supervised by the faculty members specialized in the field and methodology. The following courses are required:

Ec 595 Research Methods*
Ec 597 Research Project*

In addition to the core and field requirements in economics as defined above, the remaining 20 graduate credits (five courses) are electives. These elective courses must include at least one additional graduate seminar in economics. 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 marked 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 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 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 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 375
Macroeconomic Theory (4)
Social accounting practices and problems. Factors influencing the levels of output, employment, and prices. Comparison of Keynesian and pre-Keynesian thought. Fundamentals of the theory of business cycles, economic growth, inflation. The role of government in dealing with these and related problems. Prerequisites: Ec 201, 202.

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.)

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 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 420/520
Money And Monetary Systems (4)
Functional and empirical definitions of money and near moneys. Role of bank and nonbank financial institutions in the economy. History and organization of commercial banks and the Federal Reserve System. Instruments of monetary control by the Federal Reserve. Alternative arrangements for international payments and their implications for domestic monetary control. Prerequisites: Ec 201, 202.

Ec 421/521
Monetary Theory and Policy (4)
Theories of the relationship between changes in the supply and demand for money and changes in income, employment, and price levels. Problems of choosing objectives, targets and tools in monetary policy. Domestic and international monetary reforms. 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. Prerequisite: 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 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 445/545
Comparative Economic Systems (4)
Analysis and appraisal of contemporary economic systems: capitalist, socialist, fascist, communist. Prerequisites: Ec 201, 202.

Ec 446/546
Economic Systems of the Western Pacific Rim (4)
A comparative systems approach to the economies of Japan, China, South Korea, Taiwan, Hong Kong, and Singapore. Will include such topics as Japanese management, economic reform and modernization in China, and the dynamic development programs of the newly industrializing countries. Prerequisites: Ec 201, 202, Ec 445 is recommended.

Ec 447/547
Transitional Economies (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)
Characteristics of less developed countries. Population problems and other obstacles to economic development. Roles of agriculture, industry, and foreign trade. Foreign investment and economic aid. Theories of economic development and underdevelopment. Prerequisites: Ec 201, 202.

Ec 453/553
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.

† Also offered as Hst 438/538, 439/539.

†Ec 457/557
American Economic History: the 20th Century (4)
Economic impact of U.S. involvement in World War I. Postwar structural changes. Waning of laissez faire. Causes of the Great Depression. Economic policies of Hoover and Roosevelt administrations. The New Deal reforms. World War II and emergence of the administered system. Evolution of the mixed economy and growing role of the government. The industrial-military complex. Social imbalance. Prerequisites: Ec 201, 202.

***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 465/565
Economics of Labor Markets (4)
Investigates questions in labor economic theory from the perspectives of the major schools of economic thought. Issues emphasized: sources of unemployment, the way wages are determined, and the reasons demographic groups fare differently in the labor market. Prerequisites: Ec 201, 202.

Ec 466/566
Labor Institutions and Policy (4)
An overview of the history and contemporary organization of work and industrial relations in the United States. Paid and unpaid work, the development of trade unions and collective bargaining, and new directions in the organization of work and the labor market such as employee participation and automation. Prerequisites: Ec 201, 202.

Ec 472/572
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 370.

Ec 480/580
Mathematical Economics (4)
Mathematical characteristics of linear economic models including input-output analysis and linear programming. Prerequisites: Ec 201, 202, 370.

Ec 503 Thesis (Credit to be arranged.)

Ec 512
Public Finance (4)
Economic issues in public finance. Federal, state, and local tax policy, efficiency and equity in government, fiscal policy and debt management, and intergovernmental taxation and finance. Integrates the theory of public finance with policy applications. Limited to graduate students in public administration.

Ec 514
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.

***Ec 524**
Seminar in Monetary Theory and Policy (4)
Theories of demand and supply for money and of inflation. Integration of monetary and value theories and empirical work in monetary economics. Major policy issues. Prerequisites: Ec 375, 420, 421.

***Ec 527**
Seminar in Industrial Organization (4)
Analysis of organization and operation of a market economy. Focus on debates between major "schools" of economic thought, their research programs, and their analysis of policy toward matters involving antitrust and public-utility-type regulation. Prerequisites: Ec 425, 426.

Ec 534
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.

***Ec 537**
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 376.

***Ec 544**
Seminar in International Economics (4)
Discussions of recent theoretical and quantitative international economic analysis will provide a context for student research. Research areas will include international trade theory and policy, international monetary theory and international economic integration and development. Prerequisites: Ec 440, 441.

***Ec 554**
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.

Ec 567
Seminar in Labor Economics (4)
Discussion of recent theoretical research on advanced topics in labor economics will serve as the context for student research. Topics vary. Prerequisites: Ec 375, 376; Ec 465/565 or 466/566 recommended.

Ec 570
Econometrics (4)
The theory and application of statistical regression, hypothesis testing, and simulation of econometric models. Emphasizes model construction and efficient use of economic data. Problems of multicolinearity, heteroscedasticity, autocorrelation, and distributed lags are discussed. Some familiarity with calculus, matrix algebra, and computer applications are assumed. Prerequisite: Ec 370.

Ec 571
Advanced Econometrics (4)
Topics on econometric applications in consumption and production models, Baysian econometrics, nonparametric estimation and prediction. Prerequisite: Ec 570.

***Ec 573**
Seminar in Quantitative Economics (4)
Explores techniques of advanced mathematical and statistical analysis as applied to economic problem solving. Examples from recent literature on mathematical economics and econometrics will be used. Prerequisites: Ec 570, 580.

Ec 575
Advanced Macroeconomics (4)
Theories of national income, employment and price levels with special emphasis on recent developments in analytical techniques and empirical findings. Prerequisite: Ec 375.

Ec 576
Advanced Microeconomics (4)
Theory of consumer behavior and of the firm. Market and multimarket equilibrium and stability. Varieties of imperfect competition. Prerequisite: Ec 376.

***Ec 582**
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.

Ec 583
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

† Also offered as Hst 438/538, 439/539.

transport demand estimation; economic base analysis for employment and population impact assessment; and estimating air and noise pollution associated with land development. Prerequisite: Ec 376.

***Ec 585**
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 376.

***Ec 586**
Project Evaluation (4)
Cost and benefit evaluation. Choice of projects. Case studies related to water resources, transportation, and industrial projects. Prerequisite: Ec 376.

***Ec 587**
Economic Planning (4)
Aspects of the economic planning process including target setting, tests of feasibility, consistency, and optimality, and plan implementation. Prerequisite: Ec 376.

Ec 595
Research Methods (4)
Application of economic analysis and economic methodology to field research problems. Analytic and quantitative methods used by economists, including the estimation and testing of econometric models; the use of other statistical procedures for model description and inference; nonlinear specification and estimation; linear and nonlinear system models. Data resources available to the practicing economists will be covered. Prerequisite: Ec 570.

Ec 596
Research Project (4)
Intended for graduate students to complete the field project requirement. Course activities include: independent reading on researchable field-related topics; individual development of a research project, i.e., selection of a subject and plan of study; and periodic reporting of individual research progress projects. Prerequisite: Ec 595.

***Ec 675**
Advanced Macroeconomics II (4)
Extended analysis of macroeconomic theory covering static, deterministic models through recent dynamic and stochastic macro modeling. Analytic tools in both theoretic and empirical models are illustrated in the study of inflation, unemployment, growth and government policy. Prerequisite: Ec 575.

***Ec 676**
Advanced Microeconomics II (4)
Extended analysis of microeconomic theory covering individual and social choice issues. Selected topics of interest and significance include but are not limited to: rational choice behavior of consumers and producers, theory of the market, partial and general equilibrium analysis, welfare economics, and economics of inflation. Prerequisite: Ec 576.

ENGLISH

405 Neuberger Hall
725-3521

B.A.—English
B.A., B.S.—General Studies: Arts and Letters
Minor in English
Minor in Professional Writing
Secondary Education Program
M.A.
M.A.T.

UNDERGRADUATE PROGRAMS

The study of English has long been considered one of the best ways to obtain a liberal education. Courses are designed to improve students' abilities to analyze and produce complex texts, to develop critical capabilities, and to understand diverse cultures. 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. 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.

Requirements for Major. In addition to meeting the general University degree requirements, the English major will meet the following requirements for the B. A. degree:

Lower-division Courses:

Two courses selected from the following: 8
- Eng 201 Shakespeare
- Eng 202 Shakespeare
- Eng 204 Survey of English Literature
- Eng 205 Survey of English Literature
- Eng 253 Survey of American Literature
- Eng 254 Survey of American Literature
- Wr 200 Writing about Literature

Total lower-division credits 8†

Upper-division Courses:

Group A—Theory
Eng 300 4
Elective in advanced criticism and practice (see list for Group A) 4

Group B—Literatures of Ethnicity, Gender, Class, and Culture
Elective (see list for Group B) 4

Group C—Period Studies in British and American Literature (to include at least 8 credits at the 400 level)
Pre-1800 literature (see list of acceptable courses) 4
Electives (see list for Group C) 8

Group D—Writing, Rhetoric, Composition, and Linguistics
One upper-division writing course 4
Elective (see list for Group D) 4

Group E—Electives
Electives in theory, literature, writing, and rhetoric.‡ May include up to four adviser-approved, lower-division credits) . 12

Group F—Senior Capstone
A list of acceptable capstone courses is available in the English Department Office.. 6

Total upper-division credits 50

Total credits in major 58

English majors will be expected to choose their courses in consultation with their advisers. For upper-division course-

† Adviser-approved lower- and upper-division credits may be substituted for some or all of these lower division credits.

‡ Courses to be selected from any upper-division Eng course (with the exception of Eng 474) or from any Wr course listed under Group D.

work in the several groups, consult the following lists of acceptable courses (each group is assumed to contain appropriate omnibus-numbered courses, available for selection by students with adviser approval):

Group A:
Eng 491, 492 Literary Criticism
Eng 494 Topics in Critical Theory and Methods

Group B:
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 467, 468 American Literature and Culture

Group C:
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 458, 459 Literature of the Romantic Period
Eng 460, 461 American Literature: Beginnings to 1865
Eng 463, 464 American Literature: 1865-1955
Eng 475, 476 Literature of the Victorian Period
Eng 477, 478 American Poetry
Eng 480 Modern British Literature
Eng 482 Contemporary British Literature
Eng 484 Modern Drama
Eng 485 Contemporary Drama
Eng 486 Contemporary American Novel
Eng 487 Contemporary American Short Story
Eng 488 Contemporary American Poetry

Group D:
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 offered under omnibus number)
Ling (adviser-approved, upper-division course)
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)

Pre-1800 Courses:
For upper-division courses with content primarily concerned with materials before 1800, consult the following list of acceptable courses:

Eng 311 Tragedy
Eng 312 Comedy and Satire
Eng 314 The Epic
Eng 317 Greek Mythology
Eng 318 The Bible as Literature
Eng 319 Northern European Mythology
Eng 320 English Novel (first term of sequence)
Eng 401 Research (as appropriate)
Eng 405 Reading and Conference (as appropriate)
Eng 407 Seminar (as appropriate)
Eng 410 Selected Topics (as appropriate)
Eng 411, 412 English Drama
Eng 426, 427 Medieval Literature
Eng 430, 431 Renaissance Literature
Eng 440, 441 Seventeenth-Century Literature
Eng 447 Major Forces in Literature (as appropriate)
Eng 448 Major Figures in Literature (as appropriate)
Eng 450, 451 Eighteenth-Century Literature
Eng 458 Literature of the Romantic Period (first term of sequence)
Eng 460, 461 American Literature: Beginnings to 1865

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	Credits
Eng 204, 205 Survey of English Literature	8
Sequence in foreign language	15
Electives in English and academic distribution areas (arts and letters, science, social science)	12
Freshman Inquiry	15

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).
- Twelve credits must be literature courses.
- Sixteen credits must be at the upper-division level.
- No more than 8 credits total and no more than 4 credits in each of the following may be applied to the English minor: Eng 199, 399, 401, 405, 408, 409, Wr 199, 399, and/or 405.
- With the exception of upper-division creative writing courses, any course used to satisfy departmental minor requirements must be taken under the differentiated grading option and must have been assigned a grade of C or above. Upper-division creative writing courses assigned a grade of pass may apply to the minor.

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	Credits
Three courses chosen from the following:	12
Wr 227 Introduction to Technical Writing	
Wr 228 News Writing	
Wr 327 Technical Report Writing	
Wr 328 News Editing	
Wr 427 Technical Editing	
Wr 428 Advanced News Writing	

Students interested in news writing are encouraged to take Wr 228, Wr 328, and Wr 428. Students interested in technical writing in science and industry are encouraged to take Wr 227, Wr 327, and Wr 410, Technical Editing.

Group II: Electives
Four adviser-approved courses chosen from the following. 16
Eng 425 Practical Grammar
Wr 330 Desktop Publishing I
Wr 404 Internship and Cooperative Education
Wr 410 Special Topics in Writing. Topics vary, including: Legal Writing, Writing for Presentations, Publications Project Management, Information Technology for Writers, Multimedia Production
Wr 425 Advanced Technical Writing
Wr 429 Writing Computer Documentation
Wr 430 Desktop Publishing II
One writing intensive course
Any adviser-approved, upper-division expository writing, creative writing, or professional writing course.
One course from another department approved for inclusion in the professional writing minor (see list in English Department)

Any course used to satisfy requirements for the professional writing minor must be taken under the differentiated grading option and must have been assigned a grade of C or above.

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 Education 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

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 54. 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.

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 depart-mental adviser and the coordinator of graduate studies. The student will have a choice of three tracks: I, the three-areas, non-thesis option, emphasizing general coverage of literary material; II, the critical thesis option, permitting more specialized scholarly research; or III, the creative thesis option, offering an opportunity to focus upon creative writing skills. 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 183.

COURSES

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

***Eng 100**
Introduction to Literature (4)
Introduction to the study of short stories, plays, poems, and essays. Includes representative approaches for studying literature and writing about it. Recommended especially for students with no previous college-level coursework in literature. Credit for Eng 100 will not be allowed if student has previously taken more than one literature course. No prerequisites.

Eng 104
Introduction to Fiction (4)
Reading, analysis, and appreciation of significant works of fiction, especially short stories, with emphasis on the fiction writer's craft.

Eng 105
Introduction to Drama (4)
Reading, analysis, and appreciation of significant works of drama, from classical times to the present.

Eng 106
Introduction to Poetry (4)
Reading, analysis, and appreciation of significant poems, how they are written and how they speak to human concerns.

***Eng 107, 108**
World Literature (4, 4)
Narrative prose, drama, and poetry. Complete books are included so that the student may become familiar with some of the masterpieces in Western world literature.

Eng 199
Special Studies (Credit to be arranged.)

Eng 201, 202
Shakespeare (4, 4)
Study of the important plays: Eng 201, the early plays: Eng 202, the later plays.

Eng 204, 205
Survey of English Literature (4, 4)
From Beowulf to 1900: Eng 204, Beowulf to Milton; Eng 205, Enlightenment through Victorian period.

Eng 253, 254
Survey of American Literature (4, 4)
American literature from its beginnings to 1900.

*__Eng 256__
Introduction to African-American Literature (4)
An overview of African-American fiction, poetry, drama and expository prose.

*__Eng 260__
Introduction to Women's Literature (4)
Introduction to the texts and contexts of women's literature.

Eng 300
Critical Approaches to Literature (4)
Study of analytical and evaluative methods through application of critical theories to literary works. Recommended for, but not restricted to, English majors. Prerequisite: upper-division standing and 8 credits in literature.

Eng 306
Topics in Literature and Popular Culture (4)
Study of a variety of expressive forms in relation to popular culture. Such topics as Detective Fiction, Film, American Humor, and Frontier Literature.

*__Eng 307__
Science Fiction (4)
Study of recent science fiction, both novels and shorter fiction by American, European and other writers.

Eng 308
Cultural Studies in Literature (4)
Study of a variety of cultural and historical issues as they appear in literary texts. Such topics as Literature of the Holocaust, the Literature of Aging, and the Immigrant Experiences in American Literature.

Eng 309
American Indian Literature (4)
An introductory survey of traditional and recent literature by American Indian people. Poetry, legends, myths, oratory, short stories, and novels, as well as background (historical and political) materials.

Eng 311
Tragedy (4)
A study of the nature of tragedy in world literature.

Eng 312
Comedy and Satire (4)
Study of drama and other literature that expresses comic social judgment, either to satirize or to celebrate.

*__Eng 314__
The Epic (4)
Reading in epic literature in the Western tradition and world literature, beginning with the Iliad and Odyssey.

Eng 315
The Shorter Poem (4)
Shorter poems in world literature. Primary attention will be given to poems in the English language, but the classics of other languages will be read in translation as appropriate to tracing of forms and themes.

Eng 316
The Short Story (4)
A survey of the short story as it developed from the tale, the legend, and the anecdote to its modern form. Although fiction from many literatures will be studied, all works will be read in English.

Eng 317
Greek Mythology (4)
Greek mythology as recorded by Homer, Hesiod, Ovid, and various of the Greek playwrights and philosophers. Special attention is given to the Greek legacy of ideas, themes, figures, and images.

Eng 318
The Bible As Literature (4)
A study of the various kinds of literature contained in the Bible. An analysis of the ways in which the Biblical expression reflects the cultural and historical milieu of the Hebraic-Christian experience.

*__Eng 319__
Northern European Mythology (4)
A study of Nordic (Germanic) and Celtic myths, their literary development, and fusion with Christian themes in Arthurian romance and Beowulf.

Eng 320, 321
English Novel (4, 4)
The English novel, from its beginnings to the present.

*__Eng 351, 352__
African-American Literature (4, 4)
A study of African-American literature from its oral and folk beginnings to the present. Prerequisites: Eng 256 or BSt 221 and upper-division standing.

Eng 364, 365
American Fiction (4, 4)
American narrative, short story, and novel, with emphasis upon the major novelists of the 19th and early 20th centuries.

Eng 371
The Novel (4)
The novel as a literary form, exemplified by works written in languages other than English.

Eng 384, 385
Contemporary Literature (4, 4)
Prose, poetry, and drama from contemporary world literatures.

Eng 399
Special Studies (Credit to be arranged.)

Eng 401/501
Research (Credit to be arranged.)

Eng 404/504
Cooperative Education/Internship (Credit to be arranged.)

Eng 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

Eng 407/507
Seminar (Credit to be arranged.)
Consent of instructor.

Eng 408/508
Workshop (Credit to be arranged.)

Eng 409/509
Practicum (Credit to be arranged.)

Eng 410/510
Selected Topics (Credit to be arranged.)

*__Eng 411/511, 412/512__
English Drama (4, 4)
Development of English drama from the beginnings to Shaw. Eng 411/511, from liturgical drama through the Renaissance; Eng 412/512, from the Restoration to Shaw. Prerequisite: 12 credits in literature.

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 Forces 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 Brontes, James Joyce, Hemingway, and Fitzgerald. Prerequisite: 12 credits in literature.

Eng 450/550, 451/551
Eighteenth Century Literature (4, 4)
English prose and poetry from 1660-1800. Prerequisite: 12 credits in literature.

Eng 458/558, 459/559
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-from the 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 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 upon 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 from Plato into the 20th century. 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 517**
Middle English (4)
Introduction to Middle English language through study of (largely nonChaucerian) 12th to 15th century literature in the original.

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**
Old English (4, 4, 4)
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.

Eng 595
Contemporary Critical Theory (4)
Literary criticism in theory and practice in the 20th century.

Eng 596
Problems and Methods of Literary Study (5)
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 writ-

ing 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 fiction writer 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 222
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.

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.

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)
Managing the publishing needs of businesses, governmental agencies, and nonprofit institutions. 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.

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 424/525
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)
Develop 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 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 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 place ranging from 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 strategies for relating current events through various forms of journalism. This course focuses on writing to foster inquiry into topical issues in nonfiction. 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.

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.

ENVIRONMENTAL PROGRAMS

218 Science Building II
725-4980

B.A., B.S.
Ph.D.

UNDERGRADUATE PROGRAM IN ENVIRONMENTAL STUDIES

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. 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 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 Schools of Business Administration and Urban Studies and Planning.

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.

	Credits
ESR 150 Environmental Studies Orientation	1
ESR 160 Introduction to Environmental Systems	4
ESR 201 Applied Environmental Studies: Policy Considerations	4
ESR 202 Applied Environmental Studies: Problem Solving	4
ESR 320, 321 Analysis of Environmental Systems I, II	8
ESR 322 Environmental Risk Assessment	4
ESR 407 Environmental Seminar	3
ESR 425 Advanced Environmental Topics	4
Internship or capstone course	4-6
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	Credit
Bi 251, 252, 253 Principles of Biology	15
Ch 221, 222, 223, 227, 228 General Chemistry	12
Ec 201 Microeconomics	4
G 201, 204 Geology	4
Mth 251, 252 Calculus I, II	8
Stat 243, 244 Introduction to Probability and Statistics or Stat 460 Statistics for Scientists and Engineers	4-8
Ph 201, 204 or Ph 211, 214 General Physics	5
Total	56

Science and Policy 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 Courses
Anth 103, 304, 305
Ec 202, 432
Geog 345, 347, 348
Hst 339, 441
Phl 202, 310
PS 215, 221
Soc 200, 341, 420, 465
USP 311, 312, 313

Science courses
Anth 102, 350
Bi 357, 423, 470, 472, 475, 477
Ch 229, 320, 331-332, 334-336, 371, 375
Geog 270, 415 482, 488
G 443, 460, 461
Ph 202, 205, 203, 206, 471, 492
Stat 366

Minor Course of Study. Each student in the Environmental Studies program must complete a minor in one of the participating programs. Policy-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.

	Credits
ESR 201 Applied Environmental Studies: Science and Policy	4
ESR 320, 321 Analysis of Environmental Systems I, II	8
ESR 322 Environmental Risk Assessment	4
Upper-division environmental policy courses	4
Upper-division environmental sciences courses	8

Environmental policy 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, geography, geology, 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 401, 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 the other participating campuses.

MASTER'S PROGRAMS

Admission requirements. In addition to the instructions for admission to the graduate program as they appear on page 45, 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).

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 54. 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 four members including the major adviser, two graduate faculty members, and a representative of the Office of Graduate Studies and Research. The major adviser and at least one of the other two graduate faculty members of the graduate committee must be members of the graduate faculty affiliated with ESR master's programs. At least two members of the graduate committee, excluding the representative of OGSR, must be from different departments. The intent of these requirements is to provide disciplinary breadth on the committee. 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.

	Credits
ESR 620, 621, 622 Environmental Science	9
ESR 607 Seminar (three terms)	3
Advanced statistical analysis (selected from program list)	3
Area of concentration	15
Elective and supporting courses	6-9
Thesis/project	6-9

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 which 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 biology.
- 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:	Credits
ESR 620, 621, 622 Environmental Science	9
ESR 607 Seminar (three terms)	3
ESR 570 Environmental Education	3
Advanced statistical analysis (selected from program list)	3
Graduate level science courses selected from biology, chemistry, geology, and physics (Selected courses in geography and public health may be substituted with the approval of the adviser and program director.)	12
Select one of the following options:	
Environmental Education Research Option	
EPFA 511 Principles of Educational Research and Data Analysis I	3
Select at least 6 credits from:	6
EPFA 512, 513 Principles of Educational Research and Data Analysis II, III EPFA 515 Educational Measurement CI 641 Research and Practice in Teaching and Learning	
ESR 503 Thesis	6
or	
Environmental Education Curriculum Development Option	
CI 566 Curriculum Construction	3
Select at least 6 credits from:	6
CI 512 Teaching and Learning CI 514 Multicultural and Urban Education CI 567 Curriculum and Culture CI 640 Principles of Teaching and Learning	
ESR 504 Cooperative education/internship	6
Total	45

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 the environmental sciences and resources to engage in relevant research while acquiring advanced academic training in one of the cooperating departments—biology, chemistry, civil engineering, 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, geology, or physics. The ESR Program director will therefore require an evaluation of the applicant's academic record by the department in which the applicant intends to obtain advanced academic training. Admission to the program requires that the department find the applicant prepared to undertake study at the doctoral level. Questions about specific procedures of evaluation should be directed to the department 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 51, each student must complete the following:

Course Requirements	Credits
ESR Program	
ESR 620, 621, 622	9
ESR 607 (six terms)	6
	15
Departmental Dissertation (minimum)	27
Total (minimum)	42

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 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. 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, language, 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 Vice Provost for Graduate Studies.

Financial Support. There are a limited number of teaching assistantships and research assistantships available. The student should contact the appropriate department 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 marked 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 160
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 199
Special Studies (Credit to be arranged.)

ESR 201
Applied Environmental Studies: Science and 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. Prerequisite: ESR 160.

ESR 202
Applied Environmental Studies: Preparation for Problem Solving (4)
Environmental sampling, sampling design, and measurement in relation to the sophomore field experience (ESR 203). Prerequisites: ESR 160, ESR 201; Stat 243 recommended.

***ESR 203**
Applied Environmental Studies: Project (4)
Project work involving work with an environmental agency, industry, service, or research organization. Prerequisite: ESR 202.

ESR 320
Analysis of Environmental Systems I (4)
Structure and function of environmental systems, with an emphasis on physical processes 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 355
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 356**
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.)

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.)
Pass/no pass only.

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 425
Advanced Environmental Topics (4)
Analysis of technical and social aspects of special environmental problems. Topics will vary each time the course is taught (e.g., environmental restoration, ecotoxicology, global climate change, human environmental health, environmental auditing). Analysis of each topic will consider the scientific, technical, and social implications of environmental management activities. Prerequisite: ESR 320, 321, 322.

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 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.)
Pass/no pass only.

ESR 507
Seminar (1)
Weekly seminar series on topical environmental issues. May be repeated for up to 3 credits.

ESR 510
Selected Topics (Credit to be arranged.)
Consent of instructor.

ESR 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 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 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 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 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 LANGUAGES AND LITERATURES

393 Neuberger Hall
725-3522

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 complete first and second year in the language of their choice (through course 203).
2. Students who already possess the necessary ability may demonstrate proficiency by:
   a. 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 20 of this *Bulletin*) with a score of 64 or higher. This will earn a maximum of 15 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 20.

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 examiner'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 third-year 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 for lower-division or third-year courses. 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 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 284 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 integrating 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. See page 282 for details.

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 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:

Credits in language, literature and culture	20
Linguistics requirement	4
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 twelve credits in related, advisor-approved courses outside the major, including: one course in linguistics (such as Ling 390 or a phonetics/linguistics course taught in the department); literature courses outside the major (chosen from English or American literature or the literature of a language other than that of the major); or related coursework in other departments (e.g. Art History, Geography, History, 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:

Credits in language, literature, culture	40
Adviser-approved courses outside the major (to include linguistics)	12
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 post-baccalaureate 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**, J.E. Swenson; **German**, T.R. Menke; **Japanese,** P. Wetzel; **Russian,** S. Rosengrant; **Spanish,** E.L. Rees

Students who wish to teach a foreign language in Oregon secondary schools must be admitted into the Graduate Teacher Education Program (GTEP) in 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 183).

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 Plus or higher on the ACTFL scale in French, German, or Spanish, or a rating of Intermediate High or better in 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, Practicum, 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 45) 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 Plus on the ACTFL/ETS scale or 2+ on the FSI 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) 23-25

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) 23-25

Total 45

Note: The student's program may include, with adviser's approval, a maximum of 9 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 49.

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. **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 and a secondary language, and linguistics. The primary language may be French, German, or Spanish; the secondary language French, German, Japanese, Russian, or Spanish.

Admission to the Program. Applicants for admission must meet the University admissions requirements (page 45), 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 8

Nine 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 598 Methods of Teaching Foreign Languages
Ling 597 Applied Linguistics
Fr 594, 595 Romance Linguistics
Ger 594, 595 Germanic Linguistics
FL 593 Language Proficiency Testing and Teaching
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.

b. Be rated in oral and written proficiency in the secondary language only. Minimum proficiency level for French, German, and Spanish: Advanced. For Japanese and Russian: Intermediate High.

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 45), 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 Plus 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.

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 (see page 282) 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 Language. 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 45). 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 marked 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

FL 199
Special Studies (Credit to be arranged.)

FL 299
Special Studies (Credit to be arranged.)

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 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 Literary Arabic (5, 5, 5)
Introduction to modern literary Arabic. Emphasis on basic grammar, syntax, writing, translation, listening comprehension, and oral communication. Language laboratory required: one hour per week. For non-native speakers only.

Ar 199
Special Studies (Credit to be arranged.)

Ar 201, 202, 203
Second-year Literary Arabic (5, 5, 5)
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 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 Fusha (classical eloquent literary Arabic of the intellectuals), understandable by any Arab, and usable anywhere in the Arab world. Prerequisite: Ar 101. For non-native speakers only.

Ar 299
Special Studies (Credit to be arranged.)

Ar 301, 302
Third-year Literary Arabic (4, 4)
Ar 301 emphasizes Arabic texts in modern prose; complex syntax and writing; Ar 302 emphasizes media and business materials, trans-

lation, viewing videos, and proficiency-based conversation. Prerequisite: Ar 203. For non-native speakers only.

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 such as Mahfouz, and various genres of Arabic literature. Analysis and critique writing. 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, such as al-Mutanabbi, Jubran, and Qabbani. Prerequisite: Ar 301.

***Ar 417**
Folk Literature of the Arabs (4)
Topics include selected epics, 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, and folk literature. 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, 313**
Introductory Classical Chinese (4, 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.

***Chn 342, 343**
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.

Chn 399
Special Studies (Credit to be arranged.)

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

Chn 405
Reading and Conference (Credit to be arranged.)

Chn 408
Workshop (Credit to be arranged.)

Chn 409
Practicum (Credit to be arranged.)

Chn 410
Selected Topics (Credit to be arranged.)

***Chn 411, 412**
Advanced Chinese (4, 4)
Development of facility with complex patterns in conversation, reading and writing. Topics such as "Current Chinese News and Opinion," "Twentieth-Century Chinese Thought," "Documentary Chinese," "The Structure of Chinese." Prerequisite: Chn 303; Chn 304, 311, 312 also recommended.

***Chn 420, 421**
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." Conducted in Chinese. Prerequisite: Chn 303. Chn 304, 311, 312 also recommended.

***Chn 490**
History of the Chinese Language (4)
History of the Chinese language and language family, with emphasis on the development of the current standard language. Evolution of phonology, morphology, and syntax in spoken Chinese, development of the Chinese writing system, history of Chinese lexicography, and current language policy. Conducted in English. Prerequisite: at least one course in linguistics (Ling 290 or above), or proficiency in Chinese equivalent to Chn 203.

DANISH

Dane 101, 102, 103
First-year Danish (5, 5, 5)
Beginning Danish. Emphasis on communication skills: listening, speaking, reading, writing.

Dane 199
Special Studies (Credit to be arranged.)

Dane 201, 202, 203
Second-year Danish (5, 5, 5)
Intensive review of basics introduced in first-year courses and further development of communication skills. Prerequisite: one year of college Danish.

Dane 299
Special Studies (Credit to be arranged.)

FINNISH

Finn 101, 102, 103
First-year Finnish (5, 5, 5)
Beginning Finnish. Emphasis on communication skills: listening, speaking, reading, writing.

Finn 199
Special Studies (Credit to be arranged.)

Finn 201, 202, 203
Second-year Finnish (5, 5, 5)
Intensive review of basics introduced in first-year courses and further development of communication skills. Prerequisite: one year of college Finnish.

Finn 299
Special Studies (Credit to be arranged.)

FRENCH

Fr 101, 102, 103
First-year French (5, 5, 5)
An introduction to elementary French. Emphasis on listening comprehension and oral practice, including the elements of grammar, vocabulary building, and elementary readings.

***Fr 150, 151**
First-year French (Intensive) (7, 8)
A two-term course covering the content of Fr 101, 102, 103.

Fr 199
Special Studies (Credit to be arranged.)

Fr 201, 202, 203
Second-year French (5, 5, 5)
Intensive review of basic materials introduced in First-Year French and further development of communication skills.

Fr 299
Special Studies (Credit to be arranged.)

Fr 301, 302
Third-year French (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.

Fr 325
French Phonetics and Phonology (4)
Introduction to the sounds of French: 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: Fr 203.

Fr 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.

Fr 340
Fundamentals of French Literary Studies (2)
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.

Fr 341, 342, 343
Introduction to French Literature (4, 4, 4)
French 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.

Fr 399
Special Studies (Credit to be arranged.)

Fr 401/501
Research (Credit to be arranged.)

Fr 404/504
Cooperative Education/Internship (Credit to be arranged.)

Fr 405/505
Reading and Conference (Credit to be arranged.) Consent of instructor.

Fr 407/507
Seminar (Credit to be arranged.)—Consent of instructor.

Fr 408/508
Workshop (Credit to be arranged.)—Consent of instructor.

Fr 409/509
Practicum (Credit to be arranged.)

Fr 410/510
Selected Topics (Credit to be arranged.)

Fr 411/511, 412/512
Advanced French (4, 4)
Special problems of French grammar; selected writing and reading assignments and discussion. Prerequisite: Fr 302.

Fr 414/514
Advanced French Grammar (4)
A systematic approach to the study of French grammar and syntax for majors and prospective teachers. Prerequisite: Fr 302.

***Fr 415/515**
Business French (4)
Advanced work in the language of business and economics. Prerequisite: Fr 302.

Fr 417/517
Translation (4)
Special problems of translating between French and English based on a variety of texts, both literary and non-literary.

***Fr 421/521**
Seventeenth-century French Literature (4)
Readings from major classical writers from the era of Louis XIV. Prerequisites: at least 8 credits from Fr 341, 342, or 343.

***Fr 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.

***Fr 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.

***Fr 433/533, 434/534**
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 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 490/590**
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, phonemics, 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 (5, 5, 5)
Beginning German. Emphasis on communications skills: listening, speaking, reading, writing.

***Ger 150, 151**
First-year German (Intensive) (7, 8)
A two-term course covering the content of Ger 102, 102, 103.

Ger 199
Special Studies (Credit to be arranged.)

Ger 201, 202, 203
Second-year German (5, 5, 5)
Intensive review of basics introduced in first year courses and further development of communications 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 prosody, 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 features of German; selected writing and reading 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 551**
German Poetry (4)
Study of German lyric poetry. Analysis of form and content.

***Ger 552 German Drama (4)**
Critical study of representative works of German drama.

***Ger 553**
German Prose (4)
Study of representative works of German prose fiction.

***Ger 554**
Middle High German (4)
Linguistic and literary study of representative Middle High German texts. Conducted in English.

Ger 560
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 (5, 5, 5)
Introduction to modern Hebrew; emphasis on basic grammar, syntax, noun and verb formation, listening and reading comprehension, translation, writing, and speaking. Language laboratory required one hour per week. For non-native speakers only.

Heb 199
Special Studies (Credit to be arranged.)

***Heb 201, 202, 203**
Second-year Modern Hebrew (5, 5, 5)
Continued study of grammar and syntax, reading intermediate literary texts, translation, conversation, writing, and speaking. Prerequisite: Heb 103. Language laboratory required one hour per week. For non-native speakers only.

Heb 299
Special Studies (Credit to be arranged.)

***Heb 301, 302**
Modern Hebrew Readings (4, 4)
301 emphasizes essays, short stories, and poems. 302 emphasizes modern media Hebrew and business materials. Translation and writing. Prerequisite: Heb 203. For non-native speakers 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 (5, 5, 5)
Introduction to Hungarian. Emphasis on grammar, vocabulary building, and conversation. Elementary reading.

Hun 199
Special Studies (Credit to be arranged.)

***Hun 201, 202, 203**
Second-year Hungarian (5, 5, 5)
Intense 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 (5, 5, 5)
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 (5, 5, 5)
Intensive review of basic materials introduced in first-year program and further development of communication 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-term 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 342 focuses on Tokugawa and modern literature. Conducted in English. Prerequisite: 8 credits of literature.

Jpn 361
Japanese Literature Through Film (4)
Readings of masterpieces of Japanese literature and viewing of feature films based on them. Viewings are followed by discussion of the social, historical, and artistic significance of the works. Readings and discussions are in English, and films have English subtitles.

Jpn 399
Special Studies (Credit to be arranged.)

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

Jpn 405/505
Reading and Conference (Credit to be arranged.)

Jpn 407/507
Seminar (Credit to be arranged.)

Jpn 408/508
Workshop (Credit to be arranged.)

Jpn 409
Practicum (Credit to be arranged.)

Jpn 410/510
Selected Topics (Credit to be arranged.)

Jpn 411/511, 412/512
Advanced Japanese (4, 4)
Development of facility with complex patterns in conversation and reading. Prerequisites: Jpn 302, 305.

Jpn 420/520, 421/521
Readings in Japanese Literature (4, 4)
Reading, analysis, translation, and discussion of representative literary texts. Jpn 420/520 will focus on pre-modern literature, Jpn 421/521 on literature from the Meiji Period to the present. Conducted primarily in Japanese. Prerequisites: Jpn 302, 305.

Jpn 452/552
Traditional Japanese Drama (4)
An introduction to the classical forms of nô kyôgen, bunraku and kabuki. Students read plays and view videos of plays in performance, analyzing them in their historical, social, and performance contexts. Students have the option of performing short dances of plays in a class recital. Conducted in English.

Jpn 477/577, 478/578
Teaching Japanese As a Foreign Language (4, 4)
Principles of instructional methods in teaching Japanese to speakers of languages whose orthography is not Kanji-based. Readings in language pedagogy, particularly the pedagogy of non-Indo-European languages. Students are required to teach and observe classes in an approved Japanese program. Prerequisites: Ling 390, Jpn 303.

KOREAN

Kor 101, 102, 103
First-year Korean (5, 5, 5)
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 (5, 5, 5)
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 (4, 4)
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 (5, 5, 5)
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 (5, 5, 5)
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 (5, 5, 5)
Beginning Norwegian. Emphasis on communication skills: listening, speaking, reading, writing.

Norw 199
Special Studies (Credit to be arranged.)

Norw 201, 202, 203
Second-year Norwegian (5, 5, 5)
Intensive review of basics introduced in first-year courses and further development of communication skills. Prerequisite: one year of college Norwegian.

Norw 299
Special Studies (Credit to be arranged.)

*PERSIAN

***Per 101, 102, 103**
First-year Persian (5, 5, 5)
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 (5, 5, 5)
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 (5, 5, 5)
An introduction to elementary Portuguese. Emphasis on listening comprehension and oral practice, the elements of grammar, vocabulary building, elementary readings.

Port 199
Special Studies (Credit to be arranged.)

***Port 201, 202, 203**
Second-year Portuguese (5, 5, 5)
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 (5, 5, 5)
An introduction to elementary Russian. Emphasis on listening comprehension and oral practice, the elements of grammar, vocabulary building, and elementary readings.

Rus 150, 151
First-year Russian (Intensive) (7, 8)
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 (5, 5, 5)
Intensive review of basic materials introduced in first-year program and further development of communication skills.

Rus 299
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 listening, reading and writing. Prerequisite: Rus 203.

***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 from 988 to the present day. 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 century. 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 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 corequisite course will do part of the required reading for that course in Russian. Prerequisite: Rus 342.

***Rus 427/527**
Topics in Russian Literature of the 19th Century (4)
Representative literature of the major Russian writers of the nineteenth century. Such topics as Golden Age, or the 19th Century Short Story. Prerequisite: Rus 303.

Rus 433/533
Topics in Russian Literature of the 20th Century (4)
Representative literature of major Russian writers of the twentieth century. Such topics as Soviet Satire, The Thaw, Glasnost. Prerequisite: Rus 303.

***Rus 441, 541**
Russian Literature in Translation: Nineteenth Century (4)
Major works of nineteenth-century Russian literature. Readings, lectures, and discussions in English. Prerequisite: 4 credits of upper division literature.

***Rus 442/542**
Russian Literature in Translation: Twentieth Century (4)
Major works of twentieth-century Russian literature. Readings, lectures, and discussions in English. Prerequisite: 4 credits of upper division literature.

***Rus 494/594**
Russian Linguistics (4)
Introduction to the basic concepts of linguistics and their application to Russian. Analysis of the phonetics, phonemics, syntax and morphology of modern Russian. Prerequisite: Rus 303.

***Rus 497/597**
Applied Russian Linguistics (4)
A practical application of linguistics to modern Russian. Emphasis on a contrastive analysis of the structures of Russian and English. Prerequisite: Rus 303.

SPANISH

Span 101, 102, 103
First-year Spanish (5, 5, 5)
An introduction to elementary Spanish. Emphasis on listening comprehension and oral practice, the elements of grammar, vocabulary building, and elementary readings.

Span 150, 151
First-year Spanish (Intensive) (7, 8)
A two-term course covering the content of Span 101, 102, 103.

Span 199
Special Studies (Credit to be arranged.)

Span 201, 202, 203
Second-year Spanish (5, 5, 5)
Intensive review of basic materials introduced in first-year program and further development of communication skills.

Span 299
Special Studies (Credit to be arranged.)

Span 301, 302
Third-year Spanish (4, 4)
Continued work on the Spanish language. Span 301 emphasizes listening comprehension and speaking, 302 grammatical patterns, reading, and writing. May be taken concurrently. Prerequisite: Span 203.

***Span 325**
Spanish Phonetics And Phonology (4)
Introduction to the sounds of Spanish: 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: Span 203.

Span 330
Peninsular Culture and Civilization (4)
Historical development of life, thought, and the arts in Spain. Prerequisite: Span 203.

Span 331
Latin American Culture and Civilization (4)
Historical development of life, thought, and the arts in Latin America. Prerequisite: Span 203.

Span 341, 342, 343
Introduction to Hispanic Literature (4, 4, 4)
341: Spanish literature from the Middle Ages to the Golden Age. 342: Spanish literature from the 18th century to the present. 343: Latin American literature from the end of the 19th century to the present. Readings from representative texts. Prerequisite: Span 203.

Span 399
Special Studies (Credit to be arranged.)

Span 401/501
Research (Credit to be arranged.)

Span 404/504 Cooperative Education/ internship (Credit to be arranged.)

Span 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

Span 407/507
Seminar (Credit to be arranged.)
Consent of instructor.

Span 408/508
Workshop (Credit to be arranged.)
Consent of instructor.

Span 409/509
Practicum (Credit to be arranged.)

Span 410/510
Selected Topics (Credit to be arranged.)

Span 411/511
Advanced Spanish (4)
Intensive training in composition, translation, and conversation. May be taken concurrently with Span 414/514. Prerequisite: Span 301 and 302.

Span 414/514
Advanced Spanish Grammar (4)
A thorough study of grammar and syntax for major and prospective teachers. May be taken concurrently with Span 411/511. Prerequisites: Span 301 and 302.

Span 421/521
Major Topics: Peninsular Prose (4)
Study, analysis, and critique of major prose works of Spain by authors such as Fernando de Rojas, Cervantes, Galdós, Unamuno, and Goytisolo. Prerequisites: At least 8 credits of Span 341, 342, or 343.

Span 422/522
Major Topics: Peninsular Drama (4)
Study, analysis, and critique of major dramatic works of Spain by authors such as Lope de Vega, Tirso de Molina, Calderón de la Baraca, Zorrilla, García Lorca, and Buero Vallejo. Prerequisites: At least 8 credits of Span 341, 342, or 343.

Span 423/523
Major Topics: Peninsular Poetry (4)
Study, analysis, and critique of the poetry of Spain by authors such as Berceo, Góngora, Quevedo, Machado, Jiménez, and Cernuda. Prerequisites: 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 Gambaro, 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 prose 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, Lispector, 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 494/594**
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 203.

***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 (5, 5, 5)
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 (5, 5, 5)
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 (5, 5, 5)
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 (5, 5, 5)
Intense 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

491A Neuberger Hall
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

GENERAL STUDIES (OPTION I) AND GENERAL STUDIES (OPTION II) PROGRAMS

Advisers: **R.C. Mercer, K. Hanson, F. McClurken-Talley**

Students majoring in general studies (Option I) take 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, art, black studies (BSt 221, 351, 352, 353, 421, 424, 425, 426 only), English (except for Wr 115, 120, 121, 222, 227, 323), foreign languages and literatures, music, philosophy, speech communication, and theater arts and courses having the AL or Hum prefix.

The science academic distribution area consists of courses taken in biology, chemistry, computer science, environmental science, geology, mathematical sciences (except Mth 95, 100), physics, and public health studies and courses having the ASc or Sc prefix.

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), economics, geography, history, international studies, political science, psychology, sociology, urban studies and planning, and women's studies and courses having the SSc prefix.

Requirements for Major in General Studies in Arts and Letters (Option I)/ Requirements for Major in General Studies in Science (Option I)/Requirements for Major in General Studies in Social Science (Option I). In addition to meeting all of the nonmajor baccalaureate degree requirements, a major in General Studies (Option I) must complete 52 credits in one of three academic distribution areas (arts and letters or science or social science) in addition to the credits in the major area needed for the general education requirement. 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 of the majors being General Studies (Option I) or earning a second baccalaureate degree with a General Studies (Option I) major, the major in General Studies (Option I) is 52 credits in one academic distribution area.

Requirements for Major in General Studies (Option II). A student majoring in General Studies (Option II) 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 General Studies (Option II) 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 General Studies (Option II) 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.

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 major in general studies in arts and letters, science, or social science. A major in a department is recommended. 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
CS 105 or ISQA 111 or other course on fundamental computer concepts
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, 372, 430, 433
Hst 201, 202 (Hst 340, 341 *or* 430, 431, 432 *or* 433, 434 *or* 435, 436, 437 can be substituted for Hst 201, 202)
Literature—6 credits
†Children's Literature - Lib 428

† 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.

†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 '96 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 multiethnic content or approach should be included in the preprofessional program.

Integrated Science

Advisers: **R.P. Lutz, R.E. Thoms, R. Tinnin**

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.

	Credits
Geog 311 Climatology	4
G 201, 202, 203 Geology	9
G 204, 205 Geology Lab	2
G 351 Introduction to Oceanography	3
Ph 121 or 122 Astronomy	4
Approved electives	7
Bi 251, 252, 253	15
Ch 221, 222, 223, 227, 228, 229 or Ph 201, 202, 203, 204, 205, 206	16/15
Psy 200 or 204, Psy 311	8
Ed 420 Intro to Education and Society	4

Electives are to be chosen from Bi 360, 361, G 312, 430, 450, 452, or other approved courses in astronomy, geology, meteorology, and/or oceanography.

Courses are to be taken for differentiated grades. Students must have at least a 2.75 GPA in the recommended courses and must earn at least a C- in each course.

Basic Social Studies

Adviser: **R.C. Mercer**

Students who major in general studies 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:

Social Studies Endorsement	Credits
Ec 201, 202 Principles of Economics	8
Geog 210 Physical Geography	4
Hst 101, 102 Western Civilization	8
Hst 201, 202 History of the United States	8
PS 101, 102 United States Government	8
PS 204 Comparative Politics	4
Psy 200 *or* 204, Psy 311 Human Development	8
Anth 101, 102, 103 Introductory Anthropology; *or* BSt 302 African-American Experience in the 20th Century, BSt 424 African-American/ African Culture in Cinema; *or* Soc 200 General Sociology; *or* WS 101 Introduction to Women's Studies, WS 215, History of Feminism	8
BSt 412 Oregon African-American History, *or* Soc 337 Minorities, *or* Sp 115 Introduction to Intercultural Communication	4
Sp 100, 220, 324, 329, *or* SpHr 262	4
Ed 420 Introduction to Education and Society	4
Concentration in Economics, Geography, History, or Political Science	12

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 45; 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 183 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), general arts and letters, general social science, mathematics, science, science/biology, science/chemistry, and science/geology.

Degree Requirements. University master's degree requirements are listed on page 54. Major requirements are:

General Arts and Letters. The student's program must include a minimum of 45 credits in approved graduate courses, to include a minimum of 30 credits in the arts and letters area (applied linguistics, English, foreign languages and literatures, music, and speech communication), including a general seminar, with at least 9 credits earned in each of two areas of concentration, and from 9 to 15 credits of education courses. Students must submit two substantial essays, term papers, or projects, preferably representing two different subject matter fields, accomplished either in regular coursework or in special research. These papers must be approved by the candidate's graduate committee. The student's written examination will cover education and two subject fields in arts and letters. A final oral examination is required of all candidates.

General Social Science. The student's program must include a minimum of 45

† 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.

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

424 Cramer Hall
725-3916

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 department in Urban Studies Doctoral Program

UNDERGRADUATE PROGRAMS

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 cities, villages, and roads.

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—or simply the basis for a richer and more satisfying personal life. Geography majors are involved with activities such as urban planning and problem solving, map design, graphic reproduction and display, statistical analysis, field study in Pacific Northwest mountains and deserts, analyses of the tourism industry, and regional studies.

Through sharing of staff, the Department of Geography is affiliated with the School of Urban and Public Affairs, International Studies, and the PSU Center for Population Research and Census.

The geography major requires a minimum of 48 credits in geography courses, including 12 credits in each of the following areas: research 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, tourism, 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 48 credits of coursework as detailed in the four areas listed below. Of the courses presented for the major, at least 16 credits must be at the 400 level.

Physical Geography: Credits
Geog 210 Physical Geography 4
Plus two courses from the following: 8
- Geog 311 Climatology (4)
- Geog 313 Biogeography (4)
- Geog 322 Mountains (4)
- Geog 407 Seminar in Physical Geography (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 416 Extreme Environments (4)
- Geog 417 Periglacial Geomorphology (4)

Research Skills: Credits
Geog 270 Using Maps 4
Plus two courses from among the following: . 8
- Geog 407 Seminar in Research Skills (4)
- Geog 482 Environmental Remote Sensing (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)

Regional Geography: Credits
Three courses from among the following: . . 12
- Geog 250 Pacific Northwest (4)
- Geog 350 Geography of World Affairs (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: Credits
Geog 230 World Regions and Landscapes . . . 4
Plus two courses from among the following: . 8
- 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 Nature and Society (4)
- Geog 349 Mountains—Cultural Landscapes (4)
- Geog 407 Seminar in Human Geography (3)
- Geog 432 Urban Landscapes (4)
- Geog 434 Metropolitan Economic Geography (4)
- Geog 445 Resource Management Topics (4)
- Geog 446 Water Resource Management (4)

Total credits in geography (minimum) 48

B.S. Requirement: 12
Stat 243, Stat 244, CS 105 (or equivalent)

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. 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:

	Credits
Geog 210 Physical Geography	4
Geog 230 World Regions and Landscapes	4
Geog 270 Using Maps	4
Geography electives (upper division)	16
Total (minimum)	28

All courses used to satisfy the departmental minor requirements, whether taken in the department or elsewhere, must be graded C- or above.

SECONDARY EDUCATION PROGRAM

Adviser: **D. Johnson**

(See General Studies: Social Science page 109.)

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 Urban Studies Doctoral Program. For information relating to the Ph.D. program in urban studies, see page 270.

Areas of primary concentration are economic geography, urban geography, physical geography, resource management, 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, if they can demonstrate ability, to pursue graduate work in geography. Normally such students are admitted on a conditional basis, with the student's graduate committee recommending a program 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 54. 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 seminar: Proseminar in Geography. All graduate students are encouraged to attend the department's noncredit colloquia.

After a student has completed at least 27 graduate credits, the student is required to take the comprehensive examination, 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 110.

COURSES

Courses marked 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
World Regions and Landscapes (4)
Spatial patterns produced by human activities—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 both developed and developing world regions illustrate the processes by which humans modify their world to create distinctive cultural landscapes.

Geog 250
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 contemporary regional geography issues.

Geog 270
Using Maps (4)
Presents a basic entry into methods of understanding, interpreting, and analyzing maps, spatial data, and aerial imagery. Fundamental concepts such as map scale, projections, coordinate systems, and types of thematic and general maps are presented. Students complete a series of exercises using maps and aerial imagery intended to familiarize them with spatial, map-

based techniques useful in research and advanced coursework where geographic information processing is an important tool.

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 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 322
Mountains (4)
The mountain environments of the world with emphasis on the Pacific Northwest. The primary focus is on an understanding of the processes and features of the alpine environment. This includes landforms, weather and climate, vegetation, animal life, soils, and the human occupation of mountains. 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 345
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 346
World Population and Food Supply (4)
An introduction to the dynamics of the current national and international problems associated with rapid 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 347
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
Nature And Society (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 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)
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. Topic 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 contemporary regional geography of the United States and Canada including physical environments, cultural landscapes, and economic activities. Topics will include the development of distinctive regions; the changing spatial relationships between the location of resources and population; urban/rural disparities; and national and regional roles in the global economy. Prerequisite: Geog 230 or 250.

Geog 399
Special 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 412/512
Geomorphology (4)
Study of landform processes with focus on the dynamics and significance of the creation of initial relief, as well as the operation of mass wasting, fluvial, glacial and aeolian systems. The significance of geomorphic processes and resultant landforms to human activities is stressed. Emphasis is on landscapes of the Pacific Northwest. There is a three-day field trip to the Channeled Scablands of Washington. Prerequisite: Geog 210.

***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 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 patterns, 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 445/545
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 353.

Geog 482/582
Environmental Remote Sensing (4)
Visual interpretation of photographic and digitally based images of the earth derived from sensors such as aerial cameras, multispectral scanners, thermal scanners, and radar. Emphasis is on applications, especially in environmental monitoring, resource management, and planning. Prerequisite: Geog 270.

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 270.

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 270 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 270 and 482, 485, 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 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 Mth 243 and 244.

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 530
Cultural Geography (4)
The course will focus on topics in cultural geography as they relate to trends in contemporary geographic thought. Overview of the history of the discipline will be followed by reading and discussion of theories of agricultural development, the impact of religion on landscape, case studies of migration and refugee movements, the future of ethnic diversity and landscape analysis. Prerequisite: Geog 230.

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

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, 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 planners; 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, in prospecting for copper deposits in the Northern Rockies, coal in Texas, and oil in the North Sea; 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; 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:

	Credits
G 201, 202, 203 Geology	9
G 204, 205, 206 Geology Laboratory	3
G 207 Bibliographic Resources	1
G 211 Microcomputer Use in Geology	1
G 312 Mineralogy	5
G 313, 315 Igneous Petrology and Metamorphic Petrology	5
G 316 Sedimentary Mineralogy and Petrology	5
G 331 Paleontology	4
G 391 Structural Geology	4
G 392 Stratigraphy	4
G 393 Field Methods	4
G 423 Computer Applications in Geology	4
At least 15 credits of electives must be chosen from upper-division geology courses (excluding G 351, G 430, G 452, G 454, G 455). 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.	15
Subtotal	64

Supporting Courses

Mathematics through calculus to include Mth 251, 252, 253, 254	16
One year of 200-level chemistry or equivalent with labs	13-16
Ph 201, 202, 203 plus labs; or Ph 211, 212, 213 plus labs; or Ph 211, Ph 212 plus labs and EAS 211 (statics)	14-15
Subtotal	43-47
Total	107-111

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling departmental major requirements, with the exception of G 211.

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:

G 201, 202, 203 Geology	9
G 204, 205, 206 Geology Laboratory–may substitute one credit of G 200	3
G 312 Mineralogy	5
G 313, 315 Igneous Petrology and Metamorphic Petrology	5
G 316 Sedimentary Mineralogy and Petrology	5

12 credits selected from the following courses. 12
- G 331 Paleontology (4)
- G 391 Structural Geology (4)
- G 392 Stratigraphy (4)
- G 393 Field Methods (4)
- G 420 Applied Geophysics (4)
- G 427 Tectonics (4)
- G 432 Stratigraphic Paleontology (4)
- G 443 Ground Water Geology (4)
- G 445 Geochemistry (4)
- G 446 Economic Geology (4)
- G 447 Environmental Sediment Transport (4)
- G 448 Chemical Hydrogeology (4)
- G 453 Regional Geology (4)
- G 460 Morphology and Genesis of Soils (4)
- G 470 Engineering Geology (4)
- G 474 Geomorphic Processes (4)
- G 475 Introduction to Seismology and Site Evaluation (4)
- G 484 Field Geophysics (4)

8 credits from the following courses:. 8
- G 351 Introduction to Oceanography (4)
- G 451 Geology of the Portland Area (2)
- G 452 Geology of the Oregon Country (4)
- G 454 Cascade Volcanoes (3 credits maximum) (1)
- G 455 Minerals in World Affairs (4)
- G 461 Environmental Geology (4)

Subtotal (minimum) 47

Supporting Courses:

Twelve upper-division credits selected from geography, urban studies and planning, and economics preapproved by the undergraduate adviser 12
Mathematics to include Mth 251 4
Statistics to include Stat 243; Stat 244 recommended 4
One year of college chemistry plus labs . . 13-16
One year of 100- or 200-level biology with labs *or* Ph 121 and 122, *or* Ec 201, 202. 8-15

Subtotal 41-51

Total 88-98

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling departmental major requirements.

Requirements for a Minor. To earn a minor in *geology,* a student must complete 28 credits (at least 14 credits of which must be taken in residence at PSU), to include the following:

	Credits
G 200 Field Studies	1
G 201, 202, 203 Geology	9
G 204, 205, 206 Geology Laboratory	3
Fifteen upper-division credits chosen from:	15
G 312 Mineralogy (5)	
G 313 Igneous Petrology (3)	
G 315 Metamorphic Petrology (2)	
G 316 Sedimentary Mineralogy and Petrology (5)	
G 331 Paleontology (4)	
G 351 Oceanography (3)	
G 391 Structural Geology (4)	
G 392 Stratigraphy (4)	
G 420 Applied Geophysics (4)	
G 443 Groundwater Geology (4)	
G 448 Chemical Hydrogeology (3)	
G 451 Geology of Portland (2)	
G 452 Geology of the Oregon Country (4)	
G 455 Minerals in World Affairs (3)	
G 460 Morphology and Genesis of Soils (4)	
G 461 Environmental Geology (4)	
G 470 Engineering Geology (4)	
G 474 Geomorphic Processes (4)	
Total	28

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:

	Credits
G 200 Field Studies	1
G 201, 202, 203 Geology	9
G 204, 205, 206 Geology Laboratory	3
G 460 Morphology and Genesis of Soils *or* G 461 Environmental Geology	4
Twelve upper-division credits chosen from:	12
G 312 Mineralogy (5)	
G 392 Stratigraphy (4)	
G 443 Groundwater Geology (4)	
G 447 Environmental Sediment Transport (4)	
G 448 Chemical Hydrogeology (4)	
G 452 Geology of the Oregon Country (4)	
G 460 Morphology and Genesis of Soils (4)	
G 461 Environmental Geology (4)	
G 474 Geomorphic Processes (4)	
Total	29

Students are encouraged to contact Michael L. Cummings, undergraduate adviser, for help in designing a program leading to a minor in environmental geology.

Upper-division courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling department minor requirements.

SECONDARY EDUCATION PROGRAM

Adviser: **R.E. Thoms**

Students may qualify to teach geology in junior high and senior high schools by completing the education requirements listed on page 110 for the integrated science endorsement.

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 endorsement 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 5-9 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 110.

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.T./M.S.T. 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, 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 95.

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 54. 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.

† The Graduate Record Examination in Geology must be taken before the second term of regular admission to graduate work (see Degree Requirements, see above).

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 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 (thesis defense) taken before the end of the sixth week of the final term in residence.

Specific departmental requirements for the M.A./M.S. geology-geohydrology option are the same as above, or with a nonthesis option, are:

1. Completion of a minimum of 45 credits in approved graduate courses of which 36 must be for differentiated grades (A-F).

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 or CE 507 Graduate Seminar (P/NP only).

d. Students must take at least 8 credits in geology courses numbered G 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. Student must complete 3 credits in G 501 Research

g. A maximum of 3 additional credits will be allowed for courses numbered G 501 Research, G 504 Cooperative Education/Internship, G 505 Reading and Conference, and G 506 Special Problems or similarly numbered courses in other departments. These courses are offered for P/NP credit only.

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 research project.

5. Completion of a final oral examination on the subject area and the research project.

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

***G 111**
Volcanoes (3)
A study of volcanoes, their activity, products, origins, and hazards.

***G 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, geology, and anthropology. It is a combined lecture and discussion class and will include occasional guest lecturers presenting their research and views on various topics in evolution.

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.

G 201, 202, 203
Geology (3, 3, 3)
G 201, 202 Physical Geology: Study of the 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. G 203 Historical Geology: Introduction to the history of the earth and life on it. Concurrent enrollment in G 204, 205, and 206 is recommended.

G 204, 205, 206
Geology Laboratory (1, 1, 1)
Laboratory work to accompany G 201, 202, 203 involving basic geologic principles and processes emphasizing rocks, minerals, fossils, topographic and geologic maps. One 2-hour laboratory period. Prerequisite: concurrent enrollment in G 201, 202, 203.

G 207
Bibliographic Resources (1)
Methods of geological literature search. Geology majors only. May not be taken pass/no pass.

G 211
Microcomputer Use in Geology (1)
Introduction to the use of microcomputers in geology, including word processing, file preparation, graphics, data management, and use of special geological programs. Two 1-hour laboratories. For geology majors only. (Pass/no pass only).

G 300
Field Studies (1)
Participation in field trip to enhance the understanding of materials and processes taught in corresponding geology course. Lecture, field trip and completion of field workbook and/or report required. Prerequisite: Previous or concurrent enrollment in the corresponding upper-division geology course.

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 312
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 313
Igneous Petrology (3)
Description, classification, and genesis of igneous rocks. Two lectures; one 2-hour laboratory period. Prerequisite: G 312.

G 315
Metamorphic Petrology (2)
Description, classification, and genesis of metamorphic rocks. One lecture, one 2-hour laboratory. Prerequisite: G 312.

G 316
Sedimentary Mineralogy and Petrology (5)
Study of terrigenous, biogenic and evaporite sedimentary rocks and minerals, including genesis by weathering, transport, diagenesis, and other. Emphasis on the petrographic character of sedimentary rocks. Three lectures; two 2-hour laboratory periods. Prerequisites: G 313, 315.

G 331
Paleontology (4)
The principles of paleontology, emphasizing the morphology and evolution of the major fossil groups of invertebrates; recognition and description of diagnostic fossils. Three lectures; one 2-hour laboratory period. Prerequisite: G 203 (G 206 recommended).

G 351
Introduction to Oceanography (4)
A survey course designed to give students a broad general background. Emphasis on interrelationships of oceanography and other sciences. Useful for general or geology teachers and geology majors. Prerequisite: upper-division standing.

G 391
Structural Geology (4)
Study of origin, interpretation, and mapping of major and minor geologic structures. Two lectures; two 2-hour laboratory periods. Prerequisites: G 201, 202, 316, Mth 112, Ph 201, or concurrent enrollment.

G 392
Stratigraphy (4)
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, and subsurface aquifer and reservoir characteristics. Two lectures; two 2-hour laboratory periods. Prerequisite: G 316.

G 393
Field Methods (4)
Principles of geologic mapping, use of geological surveying instruments and aerial photographs, preparation of reports and maps. Two lectures; two 3-hour laboratory periods. Prerequisites:
G 391, 392.

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 413/513**
Metamorphic Petrology (4)
Study of mineralogical and chemical changes in rocks during metamorphism; relation of metamorphism and tectonics; description and classification of metamorphic rocks. Prerequisite:
G 437.

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. Applications 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 427/527**
Tectonics (4)
Study of processes of global plate tectonics, driving mechanisms, plate reconstructions, seismicity, tectonic settings of continental margins and cratons, and tectonic evolution of orogens and basins. Prerequisite: G 391.

G 430
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. (No credit after taking G 203.) Not for geology majors.

***G 432/532**
Stratigraphic Paleontology (4)
The stratigraphic and paleo-ecologic relationships of the major groups of fossil invertebrates, vertebrates, and plants. Two lectures; one 2-hour laboratory period. Prerequisites: G 331, 392.

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 laboratory periods. Prerequisites: G 316, one year of general physics, radiation safety certification. Radiation safety is acceptable as a corequisite.

G 442/542
Igneous Petrography (4)
Petrographic methods in description and classification of igneous rocks. Two lectures; two 2-hour laboratory periods. Prerequisites: G 312, 313, 315, 437.

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. Prerequisites: one year of general chemistry, G 393.

G 446/546
Economic Geology (4)
Economics of mineral deposits; geology of metallic and nonmetallic mineral deposits. Three lectures; one 3-hour laboratory. Prerequisites: G 316, 393.

G 447/547
Environmental Sediment Transport (4)
Study of sediment transport, bedforms, and depositional environment, with focus on quantitative methods of predicting rates of sediment yield, transport, and deposition in terrestrial and marine environments. Prerequisites: ESR 202 or G 202 and Mth 251.

G 448/548
Chemical Hydrogeology (4)
The study of low temperature aqueous groundwater geochemistry with emphasis on factors which change chemical composition of groundwater 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, 202, 203 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 111, 202, 351, 430, 455.

G 453/553
Regional Geology (4)
Tectonics, metamorphic, igneous, sedimentary, hydrology, geophysics, and/or resource geology of selected regions. Three lectures; one hour recitation. Prerequisite: G 392. May be repeated for credit when offered under different title and region.

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 111, 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 460/560**
Morphology and Genesis of Soils (4)
Effects of climate, vegetation, parent material, topography, and time on the development, weathering, classification, and chemistry of soils. Prerequisites: G 201, 202, Ch 200-level (1 year).

***G 461/561**
Environmental Geology (4)
Study of natural hazards and related land use planning (flooding, 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. Prerequisites: general chemistry (1 year), G 201, 202.

***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 analysis. One day field trip explores landslides of the Portland area. Prerequisites: G 202, Ph 203.

***G 474/574**
Geomorphic Processes (4)
A study of exogenetic earth processes; formation and modification of earth's surface including the work of water, wind, and ice in erosion, transportation, and deposition on land and sea. Three lectures; one 3-hour lab. Prerequisite: G 202.

G 475/575
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 316, 391, 392, 393.

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 1-1/2 to 2 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 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 391.

G 503
Thesis (Credit to be arranged.)
Pass/no pass only.

G 506
Special Problems (Credit to be arranged.)

***G 512/612**
Advanced Igneous and Metamorphic Petrology (4)
Topics in the origin and formation of igneous and metamorphic rock masses; their derivation, evolution, chemistry, structure, and modes of emplacement. Advanced techniques in examination and analysis, closely tied to field studies; emphasis on occurrences in the Pacific Northwest. Prerequisite: G 442/542.

G 518/618
Clay Mineralogy (4)
Clay structure and classification, clay mineral analyses including X-ray identification and differential thermal analyses, mixed-layer clays, clay-water systems, clay mineral-organic reactions, engineering properties related to clay materials, geological occurrence of clays. Major emphasis on engineering problems related to clays and the field occurrence of clays. Prerequisite: radiation safety certification.

G 519/619
Advanced Geochemistry (4)
Modern methods of geo-chemical analysis with emphasis on neutron activation analysis and atomic absorption spectroscopy; applications of geochemical data to solution of geologic problems. Two lectures; one 2-hour laboratory period. Prerequisite: G 437/537 or G 445/545.

***G 521/621**
Fluid/Rock Interactions (4)
Petrology and geochemistry of fluid/rock interactions at temperatures below 450 degrees C., conditions of alteration in hydrothermal systems, diagenesis, and weathering. Two lectures; two 2-hour laboratories. Prerequisite: G 437/537.

G 541/641
Ground Water Modeling (4)
The study of ground water modeling using finite difference method. Prerequisites: G 443/543 and one year of calculus.

***G 571/671**
Advanced Engineering Geology (4)
Strength and stability of earth materials, resources, and land use, exploration and instrumentation, professional practices. Prerequisite: G 470.

***G 592/692**
Advanced Stratigraphy (4)
Studies of physical stratigraphy including seismic stratigraphy, sequence stratigraphy, geochemical stratigraphy, paleomagnetic stratigraphy, well log stratigraphy, and topics in Quaternary process stratigraphy. Prerequisite: G 392.

***G 593/693**
Volcanic Stratigraphy (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. Prerequisites: G 442/542, 445/545.

***G 594/694**
Advanced Structural Geology (4)
Mechanics of rock deformation, structural petrology, structural analysis, and tectonics. Prerequisites: G 316, 391.

G 595/695
Topics in Geomechanics (4)
Topics chosen from finite strain, rock fracture, and rock folding. May be repeated if topics are different. Prerequisites: G 491/591, Mth 254, Ph 203.

G 601
Research (Credit to be arranged.)

G 603
Thesis (Credit to be arranged.)

G 604
Cooperative Education/Internship (Credit to be arranged.)

G 605
Reading and Conference (Credit to be arranged.)

G 606
Special Problems/Projects (Credit to be arranged.)

G 607
Seminar (Credit to be arranged.)

G 610
Selected Topics (Credit to be arranged.)

HISTORY

441 Cramer Hall
725-3917

B.A.
Minor
Secondary Education Program—Social Science
M.A.
M.A.T. and M.S.T. (General Social Science)

UNDERGRADUATE PROGRAM

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 and 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 apply formally for admission to the major once they have completed three history courses in residence at Portland State University. Admission and advising forms are available in the Department of History (441 Cramer Hall).

Requirements for the Major. In addition to meeting the general University degree requirements, the major in history must meet the departmental requirements listed below:

	Credits
Lower-division history electives (maximum)	12
Hst 300 Historical Imagination	4
Hst 407 Seminar	8
Hst 495 Comparative World History	4
Upper-division electives in history. Selected in consultation with major adviser; geographic, thematic, or period-based	24-44
Upper-division electives outside of history applied to major requirements. Selected in consultation with major adviser (maximum)	8
Total	60

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 in residence at Portland State University.

With the approval of their major adviser, history majors may apply to their major requirements two upper-division courses (maximum of 8 credits) 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
Hst 407 Seminar	4
Hst 495 Comparative World History	4
History Electives	20
Total	32

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 109).

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 550 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 110.

Degree Requirements. University master's degree requirements are listed on page 54. 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, finally, 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.

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 110.

COURSES

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

Hst 101, 102
History of Western Civilization (4, 4)
Origins and development of Western civilization from ancient times to the present.

Hst 199
Special Studies (Credit to be arranged.)

Hst 201, 202
History of the United States (4, 4)
From colonial times to the present day.

Hst 300
The Historical Imagination (4)
The how and why of the historian's craft: (1) an introduction to the basics of research and writing; (2) an examination of historical writing, its

relationship to the time and place of its origin, and the emergence of the ideas, consciousness, and canons of scholarship which shaped it. This course serves as an introduction to the study of history at the upper division level and is recommended for students beginning their junior year.

Hst 312
African History Before 1800 (4)
An upper division course designed to survey the history of the African continent from earliest times to the period of the Atlantic slave trade. Using a lecture/discussion format, the course will examine the impact of trade, technology, and ecology on the transformation of African societies before 1800. Prerequisites: BSt 205. This course is the same as BSt 305; may be taken only once for credit.

Hst 313
African History Since 1800 (4)
An upper division course designed to survey the history of the African continent from 1800 to the present, with emphasis on the era of the Atlantic slave trade, colonial period, independence, and post independence. Prerequisite: BSt 305 or Hst 312. This course is the same as BSt 306; course may be taken only once for credit.

Hst 315
Greek History (4)
A survey of the social, political, economic, and cultural history of the Greeks and their neighbors. From earliest beginnings until the death of Alexander. Prerequisite: Hst 101 or Sophomore Inquiry (Greek Civilization).

Hst 316
Roman History (4)
A study of the social, political, economic, and cultural history of the Mediterranean region between 753 and the fall of Rome. Prerequisite: Hst 101 or Sophomore Inquiry (Greek Civilization).

Hst 320
East Asian Civilization (4)
Foundations of East Asian civilization from perspective of China as dominant civilization in East Asia. Interaction between Chinese influence and indigenous traditions in Japan, Korea, and Vietnam. Attention to major philosophical and religious traditions, such as Confucianism and Buddhism; origins and structure of political institutions; family life and social organization; and literary traditions. Chronological coverage to about 1800.

Hst 321
Modern East Asia (4)
History of East Asia from around 1800, beginning with the Opium Wars in China and the Meiji Restoration in Japan, through postwar state and society in Japan and the People's Republic of China. Some attention to Korea, Vietnam, and Taiwan. Emphasis on concepts of imperialism, Westernization, modernization, and revolution.

***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 335, 336
The United States in the 20th Century (4, 4)
Hst 335: 1890-1932, Populism and the Crisis of the 1890s; the Purity Crusade; Corporate and Anticorporate Progressivism; Theodore Roosevelt and Woodrow Wilson; the Open Door Policy and World War I; the League of Nations and the Red Scare; the New Era and Insurgents of the 1920s; the Cultural Conflicts of the 1920s; Herbert Hoover, the Great Depression, and the Election of 1932. Hst 336: 1932-Present, Franklin D. Roosevelt and the New Deal Managerial State; Anti-New Dealers and the Nonintervention-ist Movement; World War II and the New Order; the Cold War and the National Security State under Truman and Eisenhower; the Anti-Communist Crusade of the 1950s; John F. Kennedy and the New Frontier; Civil Rights, Lyndon Johnson, and the Great Society; the Vietnam War, the New Left, and the Counterculture; Richard Nixon and Watergate; Jimmy Carter, Ronald Reagan, and the Rise of Populist Conservatism.

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 constitution; 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 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.

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 missionaries 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 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 355**
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 356**
Late Medieval Europe: 1100-1550 (4)
An examination of the second half of the Middle Ages including the transition from medieval to early modern characteristics. Among subjects discussed will be the renaissance of the 12th century and the forging of Gothic civilization; the "calamitous 14th century" with the Black Death and the Hundred Years' War; the special

place of Italian cities and their Renaissance; the triumph of nominalism; and the Protestant Reformation.

***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 Reformation, 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 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 militaries and imperialism in Asia. Modern literature, postwar social change, and status of Japan as leading industrial nation. Prerequisite: upper-division standing, Hst 320 or Hst 321.

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, 1850-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 Nanking, 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 321.

Hst 430/530, 431/531, 432/532
U.S. Cultural History (4, 4, 4)
The relation of cultural attitudes, values, and belief to the American historical experience. Hst 430/530: 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 Ethic 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; Progressive Purity 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; Antiwar, Racial, Counterculture, and Feminist Ferment in the Protest Era; New Age and Postmodernist Thought; Populist Conservatism and Traditional Values, 1980-present. Recommended prerequisite: 430: Hst 201 or 332. 431: Hst 202, 333, 335, or 336; 432: Hst 336.

***Hst 433/533, 434/534**
Colonial American and U.S. Social and Intellectual History (4, 4)
Hst 433/533: 1600-1860. 434/534: 1860-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 201, Sophomore Inquiry (American Studies), or consent of instructor; Hst 434: Hst 201, Sophomore Inquiry (American Studies), or consent of instructor.

***Hst 435/535, 436/536, 437/537**
American Diplomatic History (4, 4, 4)
The history of American involvement in world affairs from colonial times to the present. Hst 435/535: Emphasis on America as the object of European diplomacy; winning and maintaining independence, continental expansion, and civil war. Hst 436/536: American intervention in East Asia and the Caribbean, Imperialism, and World War. Hst 437/537: a second World War, Cold War, containment, Korea, Vietnam, and American globalism. Prerequisites: Hst 201, 202.

†Hst 438/538
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.

†Hst 439/539
American Economic History: the 20th Century (4)
Economic impact of U.S. involvement in World War I. Postwar structural changes. Waning of laissez faire. Causes of the Great Depression. Economic policies of Hoover and Roosevelt administrations. The New Deal reforms. World War II and emergence of the administered system. Evolution of the mixed economy and growing role of the government. The industrial-military complex and the social imbalance. Prerequisites: Ec 201, 202.

Hst 440/540, 441/541
American Environmental History (4, 4)
Hst 440/540: 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. 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 455/555**
The Renaissance (4)
The purpose of this course is to identify and examine those special aspects of Western European civilization that mature 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)
The development of German political and social life in modern times. Hst 457/557: Thirty Years' War to the Revolution of 1848. Hst 458/568: 1848 to the present. Prerequisites: Hst 101, 102.

***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)
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)
Hst 468/568: A study 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 475/575**
History of Russia: Origins to Peter The Great, 800-1700 (4)
Kievan Rus', the "Mongol Yoke," Muscovy, and the beginnings of empire. Analysis of primary sources and historiographical debates. Emphasis on political, social, and cultural aspects.

***Hst 476/576**
History of Russia: Imperial, 1700-1917 (4)
This course traces the Romanov dynasty and its subjects until its fall. Analysis of primary sources and historiographical debates. Emphasis on political, cultural, and social aspects, especially on the successive attempts at reform, and intellectual self-definition of the nation and its classes.

***Hst 477/577**
History of Russia: Soviet Union and its Fall, 1917-Present (4)
Russian Revolution, the Civil War, NEP, Stalinism, Khrushchev, Brezhnev, Gorbachev, and the dissolution of the Soviet Union. Analysis of primary sources and historiographical debates. Emphasis on political, social, and cultural aspects.

***Hst 478/578, 479/579**
Russian Cultural and Intellectual History (4, 4)
Analysis of primary sources. Hst 478/578: 19th century intelligentsia. Hst 479/579: 20th century mass culture—films, novels, sport, and music.

† Also offered as Ec 456/556, 457/557.

Hst 485/585, 486/586
The Ottoman World and Modern Turkey (4, 4)
Study of social, cultural, and governmental patterns in Ottoman and Turkish society, from Hungary to the Red Sea, from the 13th century to the present. Hst 485/585: Ottoman world in the 13th-16th century, rise of world empire in the Balkans and Middle East; 17th and 18th century Age of Doubt, Tulip Period. 486/586: Modern Turkey in the 20th century; revolutionary Westernization in the Middle East. Prerequisite, Hst 485: Hst 101 or 385. Hst 486: Hst 102, 386.

Hst 487/587
Palestine and Israel (4)
A critical review of the 19th and 20th century social, cultural, economic and political factors behind the formation of two modern Middle Eastern nations, Palestine and Israel. Prerequisites: Hst 102, 386, or 485.

Hst 488/588
Modern Arabia (4)
A survey of the history of the Arabian Peninsula in the 19th and 20th centuries. Emphasis will be on socio-economic and governmental institutional change with discussion of changing cultural values. The role of the British and Ottoman empires, Islamic reformism, oil, and the emergence of nation states (Saudi Arabia, Yemen, Oman, and the Gulf States). Prerequisites: Hst 102, 386, or 485.

Hst 495
Comparative World History (4)
Comparative examination of important themes in Asian, African, European, and Western Hemisphere historical experience. Both the themes and regional focus vary each term, and themes may be drawn from any time period. Possible themes include: The Roman and Chinese Empires; Money, Trade, and Empire, 1500-1800; The Thirteenth Century World; Gender and Identity, 1750-Present. (Maximum number of credits is 12; 4 credits each for three courses with different topics).

Hst 496/596
Introduction to Public History (4)
An introduction to the field of public history with special emphasis on the research methods, procedures, and work in the practice of public history, from archival management to historic preservation and museum studies. Taught in cooperation with the professional staff of the Oregon Historical Society. This course is a prerequisite for Hst 404/504, Public History Internships.

***Hst 497/597**
Film and History (4)
The study of selected topics of modern history through the viewing and analysis of important documentaries and feature films. Emphasis is on the application of techniques of historical source criticism to the varied information preserved and transmitted in cinematographic form. The subject matter will vary from term to term. (Maximum number of credits is 12; 4 credits each for three courses with different topics.)

Hst 500
Introduction to the Master's Program in History (4)
An introduction to the professional study of history and to the writing of the master's thesis. Intended for new or recently entering graduate students in history.

Hst 503
Thesis (Credit to be arranged.)

Hst 509
Practicum (Credit to be arranged.)

INTERNATIONAL STUDIES

Sixth Avenue Building
725-3455

B.A.
Minor
Certificate in European Studies
Certificate in Latin American Studies
Certificate in Middle East Studies

INTERNATIONAL STUDIES PROGRAM

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 . 4
Intl 205 Introduction to Regional Studies 4
Intl 395 Colloquium (one credit in each of three terms) 3
†Intl 396 The United States and the World . . . 4
Intl 397 Preparation for International Experience. 4
Intl 407 Seminar 4
Intl 499 Senior International Experience 6

Connected Learning—24 credits required
At least 24 credits from adviser-approved courses appropriate to a student's regional or regional/thematic focus, selected from departments and programs in the College of Liberal Arts and Sciences, the School of Business Administration, the School of Education, the School of Fine and Performing Arts, and the College of Urban and Public Affairs. 24

Regional Focus
At least 24 upper-division credits from adviser-approved, area-specific courses appropriate to the student's regional focus; plus three years‡ of language study (or equivalent) appropriate to the regional focus: Africa, East Asia, Europe, Latin America, or the Middle East.
or

Regional/Thematic Focus
At least 12 upper division credits in adviser-approved interdisciplinary coursework related to a theme of international significance approved by an adviser; plus three years‡of language study (or equivalent) appropriate to area-specific coursework.

Total hours: 77 (plus from 0 to 42 depending on language study) 77-119

All courses used to satisfy the departmental major requirements, whether taken in the department or elsewhere, must be graded C or above.

The approved elective courses which may be used to complete the above curriculum are determined according to the geographic region of study that a student

† Students may substitute Hst 435/436/437 or PS 345/445 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.

‡ 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.

selects. Currently, five regions of concentration are available:

Africa: Candice Goucher, adviser, 725-3052

Europe: Steven Fuller, adviser, 725-3540

East Asia: Linda Walton, adviser, 725-3004

Latin America: Friedrich Schuler, adviser, 725-3988

Middle East: Jon Mandaville, adviser, 725-5467 or 725-3983

Information on recommended courses is available from advisers, with whom majors should meet regularly beginning no later than the first term of their sophomore year.

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 24 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 396 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	16
Total	31

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 foci in the International Studies degree program: Africa, East Asia, Europe, Latin America, the Middle East.

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 globalism, diplomatic, economic, and geopolitical issues.

Intl 397
Preparation for International Experience (4)
Examination of communication-based, cultural, economic, emotional, physical, political, religious, and social aspects of an overseas or community-based international/intercultural experience. Presentation of strategies for development of an appropriate level of preparation to meet challenges of working and traveling in an international/intercultural setting. Emphasis on general methodology and process required to develop personal awareness and resources for successful field experience. Also offered as BSt 397; may be taken only once for credit.

Intl 399
Special Studies (Credit to be arranged.)

Intl 401
Research (Credit to be arranged.)

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

Intl 405
Reading and Conference (Credit to be arranged.)

Intl 407
Seminar (4)
Reading and discussion about an interdisciplinary topic in international affairs. Restricted to seniors with an International Studies major or minor.

Intl 410
Selected Topics (Credit to be arranged.)

Intl 499
Senior International Experience (6)
A service learning and/or community-based learning experience in an international or intercultural setting, in a group-supervised, team-centered format, within either a study-abroad program or a local project (or both) with an appropriate international agency, business, community, or non-profit organization.

MATHEMATICAL SCIENCES

334 Neuberger Hall
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 a good deal of 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.

Requirements for Major. In addition to meeting the general University degree requirements, the major in mathematics must complete the following requirements:

	Credits
Mth 251, 252, 253, 254 Calculus I, II, III, IV	16
Mth 256 *or* Mth 421 Differential Equations	3-4
Mth 311, 312 Advanced Calculus	8
Mth 343 Applied Linear Algebra	4
Mth 344 Group Theory	4
One of the following: Mth 345 Ring and Field Theory; Mth 346 Number Theory; Mth 338 Modern College Geometry; Mth 444 Advanced Linear/Multilinear Algebra	3-4
†One approved two-term 400-level Mth or Stat sequence	6
†Two additional approved 400-level Mth or Stat courses	6
†Additional approved elective courses	6
CS 161 *or* CS 208	3-4
Total	59-62

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.

Option I—Applied Mathematics. Recommended electives: Mth 322, 421, 422, 424, 425, 430, 451, 452, 470

Option II—Graduate School Preparation. Recommended electives: Mth 411, 412, 434, 435, 436, 441, 442.

Option III—Statistics. Recommended electives: Mth 322, 467, 468, 487; Stat 461, 462, 463, 464, 465, 466.

Option IV—High School Teaching. Recommended electives: Mth 338, 346, 481, 482, 486, 487, 488; Psy 311; Ed 420. See Mathematics Education Program below.

Option V—Actuarial Science. Recommended electives: CS 161; Mth 451, 452, 467, 468; Stat 461, 462, 463, 464, 465, 466; SySc 520, 521, 522.

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:

	Credits
Mth 251, 252, 253, 254 Calculus I, II, III, IV	16
Mth 311 Advanced Calculus or Mth 344 Group Theory	4
‡Additional approved elective courses	15
Total	35

† Approved electives are Mth 313, 322, 324, 338, 345, 346, 411, 412, 413, 420, 421, 422, 423, 424, 425, 430, 431, 432, 433, 434, 435, 436, 440, 441, 442, 443, 444, 445, 449, 451, 452, 453, 467, 468, 470, 471, 472, 481, 482, 483, 484, 485, 486, 487, 488; Stat 461, 462, 463, 464, 465, 466. Check with the department for additional courses, including omnibus-numbered courses, which may be approved as electives.

‡ Approved electives are Mth 256, 311, 312, 313, 343, 344, 345, and Stat 460, plus any course approved as an elective for major credit.

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.

MATHEMATICS EDUCATION PROGRAM

Advisers: **L.B. Adajian, M.A. Enneking, L.T. Nelson, J.R. Palmiter, 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 Math 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.

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.T./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 54. 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.

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 183.

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 56.

COURSES

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

Placement exams for Mth 111, 112, 211, 241, 251, 301, and Stat 243 are available through the Mathematics Department (a fee is charged).

Mth 70
Elementary Algebra (3)
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 (3)
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. Prerequisite: Mth 70.

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-, P, or above has already been received for a course which requires either of them as a prerequisite. Courses must be taken in sequence. Prerequisite: Mth 111: grade of C-, P, or above in second year high school algebra or equivalent within last five years. Mth 112: Mth 111 with a grade of C-, P, or above within the last five years.

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: grade of C-, P, or above in 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: grade of C-, P, or above in Mth 111 within the last five years.

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: grade of C-, P, or above in Mth 112 within the last five years.

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: grade of C-, P, or above in Mth 111 within the last five years.

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)
Laplace transforms, power series techniques, linear systems, 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.)

Mth 401/501
Research (Credit to be arranged.)
Consent of instructor.

Mth 404/504
Cooperative Education/Internship (Credit to be arranged.)

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. Courses must be taken in sequence. Prerequisite: Mth 313.

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 421/521, 422/522, 423/523
Theory of Ordinary Differential Equations I, II, III (3, 3, 3)
Vector fields and phase flows in the plane. Geometric and algebraic properties of linear systems. Existence, uniqueness, and continuity theorems for C systems. Additional topics. Courses must be taken in sequence. Prerequisites: Mth 312, 343.

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: Con-

sent 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 434/534, 435/535, 436/536
Set Theory and Topology I, II, III (3, 3, 3)
Cardinal and ordinal numbers. The axiom of choice and equivalent formulations. Introduction to general topology with the notions of interior, closure, topological space, continuity, and homeomorphism. Construction techniques and properties of point-set topology, especially connectedness, compactness, and separation. Additional topics. Courses must be taken in sequence. Prerequisite: Mth 311.

Mth 440/540
Boolean Algebra (4)
Axiomatic treatment of Boolean algebras, finite Boolean algebras, representation theorems. Introduction to partially ordered sets and lattices. Transfinite induction, Zorn's lemma. Applications to logic and switching circuits. Prerequisite: Mth 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 theory. With departmental approval, this course may be repeated for credit. Prerequisite: Mth 346.

Mth 451/551, 452/552, 453/553
Numerical Calculus I, II, III (3, 3, 3)
Computer arithmetic. Solution of nonlinear equations. Interpolation. Numerical integration and differentiation. Solution of linear equation systems. Eigenvalue problem, least square, chebyshev, trigonometric and rational function approximation. Numerical solution of differential equations. Prerequisites: knowledge of FORTRAN or PASCAL, Mth 343 for Mth 451, Mth 451 for Mth 452, Mth 322 for Mth 453.

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)
Introduction to probability as a modeling technique in mathematics and methods of teaching probability. Use of probability in decision making and inference. Simulation of experiments. Methods of enumeration. Laws of probability. Special probability distributions. Computer-assisted analysis. Prerequisite: Mth 344 or 346.

Mth 482/582
Statistics for Mathematics Teachers (3)
Introduction to methods of statistical analysis and methods for teaching statistics. Descriptive statistics, organization of data, sampling techniques, sampling distributions, methods of statistical inference, estimation, hypothesis testing, regression, and correlation. Computer-assisted analysis. Prerequisite: Mth 344 or 346.

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.

Mth 496/596
Concepts of Calculus for Middle School Teachers (3)
An introduction to the limit concept and its role in defining the derivative, the integral and infinite series. Applications to middle school mathematics. Not approved for major credit. Available for graduate credit toward a master's degree in education only. Prerequisites: Mth 111, 212.

Mth 503
Thesis (Credit to be arranged.)

Mth 601
Research (Credit to be arranged.)

Mth 603
Thesis (Credit to be arranged.)

Mth 604
Cooperative Education/Internship (Credit to be arranged.)

Mth 605
Reading and Conference (Credit to be arranged.)

Mth 607
Seminar (Credit to be arranged.)

Mth 610
Selected Topics (Credit to be arranged.)

Mth 611, 612, 613
Theory of Functions of a Real Variable I, II, III (3, 3, 3)
Lebesgue measure and outer measure, measurable functions and the Lebesgue integral, convergence theorems, product measures, and Fubini's theorem. Lp spaces, derivates, derivative, finite variation and absolutely continuous functions. Courses must be taken in sequence. Prerequisite: Mth 412.

***Mth 614, 615, 616**
Modern Analysis I, II, III (3, 3, 3)
Topics from nonlinear analysis, harmonic analysis, analytic functions, ordered vector spaces, analysis on Lie groups, and operator theory. Prerequisite: Mth 412/512.

Mth 617, 618, 619
Functional Analysis I, II, III (3, 3, 3)
Hilbert and Banach spaces, the Hahn-Banach, open mapping, and closed graph theorems. Compact, self-adjoint, normal, and Fredholm operators. Locally convex spaces, weak topologies, duality. Banach- and C* -algebras, spectral theory. Courses must be taken in sequence. Prerequisite: Mth 413.

Mth 621, 622, 623
Advanced Differential Equations I, II, III (3, 3, 3)
Advanced theory of dynamial systems and partial differential equations including the basics of partial differential equations, boundary value problems for elliptic equations, the Cauchy problem, and parabolic equations. Topics selected from Hamiltonian systems, waves and shocks, variational methods, control theory. Prerequisite: Mth 423/523 or 472/572.

Mth 624, 625, 626
Advanced Differential Geometry I, II, III (3, 3, 3)
Topics selected from differentiable manifolds, differential forms, DeRham cohomology, Lie groups, fibre bundles, the Riemannian metric, affine and Riemannian connections, parallel translations, holonomy, geodesics, curvature, isometric embeddings and hypersurfaces, the Second Fundamental Form, complete Riemannian manifolds and the Hopf-Rinow theorem, spaces of constant curvature, variations of arc length, and the Morse Index theorem. Prerequisite: Mth 425/525.

Mth 631, 632, 633
Topology I, II, III (3, 3, 3)
Topics from: uniform structures and topological vector spaces, fundamental group and covering spaces, CW complexes and elements of homotopy theory, manifolds, introduction to differential topology and vector bundles. Courses must be taken in sequence. Prerequisite: Mth 436.

Mth 641, 642, 643
Modern Algebra I, II, III (3, 3, 3)
Topics from groups, semigroups, rings, fields, algebras, and homological algebra.Prerequisite: Mth 443 or both 442 and 445.

Mth 651, 652, 653
Advanced Numerical Analysis I, II, III (3, 3, 3)
An advanced study of numerical methods with emphasis on theory, economy of computation, and the solution of pathological problems. Topics will typically be chosen from: evaluation of functions, roots of equations, quadrature, ordinary and partial differential equations, integral equations, eigenvalues, construction of approximating functions, orthonomalizing codes, and treatment of singularities. Courses must be taken in sequence. Prerequisite: Mth 453.

Mth 667, 668, 669
Stochastic Processes and Probability Theory I, II, III (3, 3, 3)
Sets, spaces, and measures. Probability distributions. Random variables. Dependence. Limit theorems. Birth and death processes and Markov processes. Mathematical statistics, hypothesis testing, and sequential analysis. Selected applications. Courses must be taken in sequence. Prerequisite: Mth 411, Stat 463.

Mth 690
Introduction to Research in Mathematics Education (3)
Topics in the history of mathematics education including an examination of the current research trends in mathematics education.

Mth 691
Curriculum in Mathematics Education (3)
An analysis of curriculum development and assessment efforts in mathematics education both past and present.

Mth 692
Research Methodology and Design (3)
An examination of quantitative and qualitative research methodologies and their applications to the design of research in mathematics education.

Mth 693
Research on the Learning of Mathematics (3)
An analysis of the mathematics education research on the learning of mathematics, including topics from K-16 mathematics.

Mth 694
Research on the Teaching of Mathematics (3)
An analysis of the research on the teaching of mathematics, including issues from levels K-16.

Mth 695
Topics in Research in Mathematics Education (3)
A special topics seminar devoted to exploring particular issues in more depth.

The following in-service courses have limited application toward advanced degrees.

Mth 801
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, 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: grade of C-, P, or above in second year high school algebra or equivalent within the last five years, 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.)

Stat 405/505
Reading And Conference (Credit to be arranged.)
Consent of instructor.

Stat 407/507
Seminar (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.

Stat 461/561, 462/562, 463/563 Introduction to Mathematical Statistics I, II, III (3, 3, 3)
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 464/564.

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)
Theory of estimation; tests of statistical hypotheses. Single and multi-parameter cases. Robustness. Classical notions, including lower bound theory, sufficiency, and maximum likelihood estimation. The Neyman-Pearson construction, likelihood ratio tests, robust analogues. Prerequisites: Mth 511, Stat 563.

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.

PHILOSOPHY

471 Neuberger Hall
725-3524

B.A., B.S.
Minor

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:

	Credits
Phl 201 Introduction to Philosophy	4
Phl 202 Elementary Ethics	4
Phl 204 Introduction to Formal Logic	4
Phl 300 Philosophical Methods and Concepts	4
Phl 301, 302 History of Philosophy	8
Two courses taken from the following (historical figures): Phl 413, 414, 415, 416, 417, 418, 419, 420	8
Two courses taken from Phl 423, 424, 470, 471, 474.	8
Two courses taken from Phl 445, 446, and designated courses in ethics	8
Philosophy electives	8
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:

	Credits
Phl 201 Introduction to Philosophy	4
Phl 202 Elementary Ethics	4
Phl 204 Introduction to Formal Logic	4
Phl 301, 302 History of Philosophy	8
Philosophy electives (to include a minimum of 4 credits in upper-division courses)	8
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 3.5 for all philosophy courses taken. No courses taken under the undifferentiated grading option are acceptable towards fulfilling the requirement for the Honors Degree.

GRADUATE PROGRAM

The Philosophy Department will be the host for a proposed Master of Arts/Sciences degree in conflict resolution. Graduate courses in philosophy are also offered in support of graduate programs in fields other than philosophy.

COURSES

Courses marked 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)
General introduction to philosophy. While different instructors will use different materials—typically classical texts—attention will be given to what makes a question a philosophical question and the nature and methods of philosophical inquiry.

Phl 202
Elementary Ethics (4)
General introduction to ethical theory. Attention will be given to such questions as whether there are objective moral distinctions, what makes right acts right and wrong acts wrong, and how we know (if we do) that actions are right or wrong. Among the theories likely to be considered are relativism, egoism, utilitarianism, and Kantianism.

Phl 203
Critical Thinking (4)
A course designed to improve ability at reasoning and critical assessment. The primary emphasis will be on practical methods, involving study of editorials, essays, propaganda, advertisements, etc.

Phl 204
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 206
Elementary Philosophy of Science (4)
An examination of the reflections of scientists and philosophers on the nature of scientific activity and its institutions; the logical structure of scientific explanations and various conceptions of a scientific world view.

Phl 209
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 210
Philosophy of Religion (4)
Examination of philosophical questions involved in the study of religion, e.g., the meaning of "God," or "gods;" the traditional arguments for the existence of a god; the meaning of faith and the question of its connection to reason; the problem of evil (of reconciling a god's alleged perfection with the existence of evil). *Note*: this is not a class in comparative religion or the history of religion.

Phl 212
Philosophy in Literature (4)
An introduction to traditional philosophical issues as they appear in literature, especially in fiction. The specific philosophical problems and the literary works will vary from term to term and from instructor to instructor.

Phl 213
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 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. Aims 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 304**
Predicate Logic (4)
Continuation of Phl 204 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 204.

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 103, 204, 206.

Phl 315
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 deBeauvoir 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 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 399
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 445/545**
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" description 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 455/555**
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 experimental subjects, and the ethics of genetic manipulation. Prerequisite: upper-division standing or 8 credits in philosophy.

***Phl 470/570**
Philosophy of Science (4)
Review of historically significant theories of nature and scientific method. Analysis of basic patterns of explanation and types of concept and theory formation in the sciences. Prerequisite: 8 credits in logic.

***Phl 474/574**
Philosophy of Logic (4)
Topics: validity, sentence-proposition, connectives, quantifiers, truth, paradoxes, logical necessity and possibility. Optional topics: metalogic, the construction of formal systems of logic and formal proofs of certain of their properties, e.g., consistency and completeness. Prerequisite: Phl 304 or equivalent.

***Phl 485**
Honors Seminar (4)
Selected topics within areas of the instructor's research. Both students and teacher will be expected to produce substantial written material on the topic, to be shared and critiqued. Recommended particularly for students considering graduate work in philosophy. Prerequisites: 24 credits in philosophy with a GPA in philosophy courses of at least 3.5.

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 a variety of 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.

PHYSICS

246 Science Building II
725-3812

B.A., B.S.
Minor
Secondary Education Program
M.A., M.S.
Ph.D.—Environmental Sciences and Resources: Physics

UNDERGRADUATE PROGRAMS

Physics is the branch of knowledge that attempts to explain all of the phenomena we observe or infer on earth and in the universe. Its study has made possible a modern understanding of the origin of the universe as well as the behavior of biological materials and chemical processes. Scientists trained in this field can engage in such diverse areas as solid state devices, particle physics, energy and the environment, biotechnology, and space travel.

The study of physics does not involve the following of a specific recipe or set of rules; rather it entails developing an attitude or way of looking at phenomena and asking questions. Physicists seek to understand how the physical universe works, no matter what the scale of observation—from quarks to quasars, from the time it takes the proton to spin, to the age of the cosmos. The answers to these questions are summarized into statements called laws. We live in the age of physical law. Awareness of the beauty, harmony, and interplay of the laws of physics greatly enhances our view and appreciation of our environment.

As an undergraduate, you will take a group of core courses that will give you a general background in the subject. You will study force and motion, heat, optics, electricity, magnetism, atomic and nuclear physics, quantum mechanics, and the physical properties of materials, learning both the theoretical and the experimental aspects.

Physicists are employed by almost all industries, particularly by the technical industries and by government laboratories. Roughly half of all students with a bachelor's degree in physics go on to graduate work. In addition to a traditional graduate curriculum in physics or astronomy, they can enter 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 and law 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:

	Credits
Ph 201, 202, 203 General Physics, Ph 211, 212, 213, *or* Ph 221, 222, 223 General Physics (with Calculus)	9-12
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	3
Ph 311, 312 Introduction to Modern Physics	8
Ph 314, 315 Experimental Physics I	8
Ph 321 Current Electricity	4
Ph 322 Computational Physics	4
Ph 424 Classical Mechanics I	3
Upper-division electives	8
Total in physics (minimum)	47-50
Mth 251, 252, 253, 254 Calculus	16
Mth 256, 322 Applied Differential Equations	7
One year of general chemistry: Ch 221, 222, 223, 227, 228, 229	15
Total	38

Select one of two options (standard or environmental option):

Standard option:

Ph 316 Methods of Experimental Physics I	4
Ph 425 Classical Mechanics II *or* Ph 432 Electricity and Magnetism II	3-4
Total in physics (minimum)	7-8
Two courses in a related area of science or technology (biology, geology, additional chemistry, computer science, electrical circuitry)	6-8
Total	13-16

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, 484; 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:

	Credits
Ph 201, 202, 203 General Physics *or* Ph 211, 212, 213 General Physics (with Calculus)	9-12
Ph 204, 205, 206 Lab for Ph 201, 202, 203 *or* Ph 214, 215, 216 Lab for Ph 211, 212, 213	3
Upper-division physics electives	12-15
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: **C. Bachhuber**

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 183.

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 95.

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, relativity, 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 54. 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:

	Credits
Seminar (Current Literature)	3
One of the following three options:	
1. Thesis	6
2. Cooperative Education/Internship	6
3. Project	3

Of the additional credits required in physics, at least 9 must be in courses with numbers above 610 or the graduate-level sequence in quantum mechanics (Ph 511, 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 graduate 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 183 for the required education courses.

COURSES

Courses marked 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 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 199
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. Pass/no pass only.

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. Pass/no pass only.

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 299
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 crystalline solids and their electron transport processes. Topics include crystal lattices, X-ray diffraction, concepts of quantum physics, Schrödinger 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; Kirchoff'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 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 the history of color photography. Prerequisite: one college-level science or photography course.

***Ph 367**
Cosmology (4)
Past, present, and future of the universe, the Big Bang and the Big Crunch; human attempts to understand the cosmos from a literary, historical, and scientific perspective. Prerequisite: Ph 121 and 122, or General Physics.

Ph 371
Fractals, Chaos, Complexity, 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)
A non-mathematical 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 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 399
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 ideas of quantum mechanics; the Schrödinger equation and its application to one-dimensional problems; electron spin; time independent perturbations. Prerequisites: Ph 318 or 311, Mth 322.

***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)
The Newtonian formulation of mechanics. Kinematics and dynamics of particles in inertial and accelerated reference frames. Conservation principles. Central forces, gravitation, and celestial mechanics. Free and forced vibrations. Prerequisites: Ph 203 or 213; Mth 256 previously or concurrently.

†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 256.

***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 of 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

† Does not carry graduate credit for M.A., M.S. in physics.

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 treatments 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 application as fiberoptics; chemical, biological, and physical sensors; optical information processing, acousto-optics; lasers and detectors. Prerequisites: Ph 203 or 213 or 223, Mth 254.

Ph 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 the stratospheric ozone layer. Mass Balance Models for quantitative analysis of atmospheric composition and trends. Climate change and perturbations of stratospheric ozone in modern times. Lays a foundation for the understanding of the complex issues of climatic change and its many linkages and feedbacks. Questions regarding environmental policy and action are examined in the light of current model results, their predictions and uncertainties. Prerequisites: one year each of calculus and calculus-based physics, introductory course in differential equations.

Ph 472/572
Introduction to Nonlinear Dynamics and Chaos (4)
Introduction to basic theoretical and experimental tools to study chaos and nonlinear behavior. Desktop experiments and computer simulations of chaotic systems. Prerequisite: one year of general physics.

Ph 477/577
Air Pollution (4)
Air pollution meteorology needed to understand air pollution, atmospheric dispersion models, K-theory, box models and receptor models. Use of simple computer models. This course is a foundation for the quantitative understanding of air pollution: At any point in the environment (receptor), how much pollution is caused by a known source? If there are many sources, how much pollution does each source contribute at a receptor? Prerequisites: Ph 213 or 223, one year of calculus, introductory course in differential equations.

Ph 478/578
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.

***Ph 481/581, 482/582, 483/583**
Physical Metallurgy (2, 2, 2)
Introduction to principles of physical metallurgy. Includes the atomic and crystalographic 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.

***Ph 484/584, 485/585, 486/586**
Physical Metallurgy Laboratory (1, 1, 1)
Experimental studies of the structure of metals by light microscope, X-ray diffraction, and microhardness techniques. Heat treatment of metals and studies of the resulting structural changes. Corequisite: concurrent enrollment in Ph 481, 482, 483.

***Ph 490/590, 491/591**
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. Prerequisites: Ph 203, Bi 253, and Ch 223. Calculus, previously or concurrently, is recommended.

***Ph 492/592**
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 503
Thesis (Credit to be arranged.)

Ph 601
Research (Credit to be arranged.)

Ph 603
Dissertation (Credit to be arranged.)

Ph 604
Cooperative Education/Internship (Credit to be arranged.)

Ph 605
Reading and Conference (Credit to be arranged.)

Ph 606
Special Problems/Projects (Credit to be arranged.)

Ph 607
Seminar (Credit to be arranged.)

Ph 610
Selected Topics (Credit to be arranged.)

***Ph 611, 612**
Physics of Solids and Liquids (4, 4)
The theory of mechanical, thermal, electrical, magnetic, and optical properties of solids and liquids. Prerequisites: Ph 413.

***Ph 618, 619**
Quantum Mechanics (4, 4)
Principles of quantum mechanics; the Schrödinger equation; the hydrogen atom and other problems; approximation methods: time-independent and time-dependent perturbation theory; scattering problems. Prerequisites: Ph 411/511, Ph 425.

***Ph 624, 625**
Classical Mechanics (4, 4)
Advanced treatment of analytical mechanics of particles, systems of particles, and rigid bodies. Methods of Lagrange, Hamilton, and Jacobi. Symmetry and conservation laws. Prerequisites: Ph 425.

***Ph 626**
Hydrodynamics (4)
The theory of fluids and continuous media. Equations of continuity, Euler's equation, flow fields, and applications. Prerequisite: Ph 625.

***Ph 631, 632, 633**
Electromagnetic Fields and Interactions (4, 4, 4)
Classical description of the electromagnetic field: classical electron theory and plasmas. Prerequisites: Ph 431.

***Ph 641, 642**
The Physics of Atoms and Molecules (4, 4)
Radiation from atoms and molecules, Raman effect. Structure of one and many electron atoms, Zeeman effect, Stark effect, Lamb shift, hyperfine structure, line intensity. Quantum mechanics of diatomic and polyatomic molecules. Symmetry. Molecular electronic transitions. Valence and resonance. Prerequisites: Ph 411.

***Ph 664, 665, 666**
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.

Ph 679
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.

† Does not carry graduate credit for M.A., M.S. in physics.

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
725-3851

Advisers: **C.L. Calvin, R.D. Tocher**

Freshman Year	Credits F	W	S
Bi 251, 252, 253 Principles of Biology	5	5	5
Ch 104, 105, 106 Introductory Chemistry	4	4	4
Ch 107, 108, 109 Introductory Chemistry Laboratory	1	1	1
Mth 111, 112 Introductory College Mathematics	4	4	-
Mth 241 Calculus for Management and Social Sciences *or* Mth 251 Calculus I	-	-	4
Wr 121 English Composition (any term)	3	-	-
PHE 295 Health and Fitness for Life (any term)	-	3	-
Arts and letters or social science electives (any term)	-	3	-

ALLIED HEALTH
725-3822

Chiropractic, Clinical Laboratory Science (Medical Technology), Cytotechnology, Naturopathic Medicine, Occupational Therapy, Optometry, Physical Therapy, Physician Assistant, Radiation Therapy, and Veterinary Medicine

Advisers: Chiropractic, Naturopathic, Occupational Therapy, Optometry, Physical Therapy, Physician Assistant **K. Hanson**; Clinical Laboratory Science, Cytotechnology, Radiation Therapy, 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
725-3822

Advisers: **R.C. Mercer, F. McClurken-Talley**

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:

Freshman Year	Credits F	W	S
Bi 101, 102, 103 General Biology	3	3	3
Bi 104, 105, 106 General Biology Laboratory	1	1	1
Ch 104, 105, 106 Introductory Chemistry	4	4	4
Ch 107, 108, 109 Introductory Chemistry Lab	1	1	1
Anth 103 Introduction to Social/ Cultural Anthropology (any term)	-	4	-
Soc 200 General Sociology	4	-	-
Mth 111 Introductory College Mathematics (any term)	-	-	4
Wr 121 English Composition (any term)	3	-	-
Psy 204 *or* 200 Psychology as a Social Science *or* Natural Science	-	4	-
Electives (any term)	-	-	3

Sophomore Year	Credits F	W	S
Bi 301, 302, 303 Anatomy and Physiology	4	4	4
Ch 250 Nutrition (any term)	4	-	-
Sp 220 Public Speaking (any term)	-	4	-
Wr 222 Writing Research Papers *or* Wr 323 English Composition	-	-	3
Arts and letters	-	3	3
Electives	5	5	5

Computer proficiency expected

DENTISTRY, MEDICINE, OSTEOPATHY, AND PODIATRY
725-3822

Adviser: K. Hanson, Health Sciences Advising Office, 491A 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.

For students who already have a bachelor's degree but are lacking the specific science prerequisites for medical or dental school, PSU offers a post-baccalaureate program that can be completed in one year (including Summer Session) of intensive study. Postbaccalaureate students, with sufficient background, start with general chemistry in the summer and continue with organic chemistry, biology, and physics during the academic year.

FORESTRY
725-3851

Advisers: **C.L. Calvin, R.D. Tocher**

Freshman Year	Credits F	W	S
Bi 251, 252, 253 Principles of Biology	5	5	5
Ch 104, 105, 106 Introductory Chemistry	4	4	4
Ch 107, 108, 109 Introductory Chemistry Laboratory or	1	1	1
for Forest Products or Forest Engineering: Ch 106 Introductory Chemistry Ch 109 Introductory Chemistry Lab III Ch 221, 222 General Chemistry Ch 227, 228 General Chemistry Laboratory			
Mth 251, 252, 253 Calculus	4	4	4
Wr 121 English Composition (any term)	3	-	-
PHE 295 Health and Fitness for Life (any term)	-	3	-
Electives	-	-	3

LAW
725-4014 OR 725-3921

Advisers: **C.L. Carr, R.W. Lockwood, D.A. Smeltzer**

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 (Phl 202, 445, 446, 447); U.S. history (Hst 201, 202); legal history, constitutional history (Hst 410, 407); political theory (PS 381, 482); constitutional interpretation, constitutional law, the judicial process (PS 321, 422, 423, 407); administration of justice (AJ 420, 440, 460); psychology (Psy 204); general sociology (Soc 200). In addition, many law schools recommend taking a course in accounting principles.

Completion of the Law School Admission Test (LSAT), administered nationally by the Educational Testing Service, is required by nearly all law schools. It is given at Portland State five times each year, but should be taken at the earliest possible date in the student's senior year. The test measures writing ability and general aptitude for legal studies. It does not test knowledge of specific subjects, and is in no sense a test of knowledge about law. There is no standard "passing score" on the test, for each law school makes its own evaluation of an applicant's admissibility, using the LSAT score, GPA (grade point average) and such other factors as it deems relevant.

Competition for admission to law schools is very keen; thus high grade point averages and high LSAT scores are very desirable. Many law schools use the LSAT score and the GPA in computing a total numerical score which constitutes one important factor in determining admissibility. In such a computation a higher score on the LSAT can help to offset a lower GPA or vice versa. Although the LSAT may be repeated, that is generally advisable only if there is strong reason to believe that the test score was due to factors other than basic aptitude, such as illness or extreme nervousness. When the LSAT is repeated, law schools customarily average the test scores. Information concerning the exact test dates is available from Counseling and Testing Services and the law advisers, Departments of Political Science and Administration of Justice.

NURSING
725-3822

Adviser: **R.C. Mercer, F. McClurken-Talley**

To earn a Bachelor of Science degree in nursing, one must complete a two-year preparatory 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 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.

Freshman Year	Credits F	W	S	Su
Bi 101, 102, 103 General Biology	3	3	3	-
Bi 104, 105, 106 General Biology Laboratory	1	1	1	-
Ch 104, 105, 106 Introductory Chemistry	4	4	4	-
Ch 107, 108, 109 Introductory Chemistry Laboratory	1	1	1	-
Mth 111 Introductory College Mathematics	4	-	-	-
Wr 121 English Composition (any term)	-	3	-	-
Anth 103 Social/Cultural Anthropology (any term)	4	-	-	-
English Literature 100-260 (one any term)	-	-	-	4
Phl 201, 202, 203 Introduction to Philosophy; Ethics; Critical Thinking (one any term)	-	-	4	-
Soc 200 Sociology	-	4	-	-
Computer proficiency expected				

Sophomore Year	Credits F	W	S	Su
Bi 301, 302, 303 Anatomy and Physiology	4	4	4	-
Bi 234, 235 Microbiology, Microbiology Laboratory	-	6	-	-
Ch 250 Nutrition (any term)	-	-	4	-
Stat 243 Introduction to Probability and Statistics (any term)	4	-	-	-
Wr 222, 323 Research Paper; English Composition (any term)	3	-	-	3
Psy 200 or 204 Psychology as Natural Science; as Social Science	4	-	-	-
Psy 311 Human Development	-	-	4	-
Sp 215, 218 Introduction to Intercultural Communication; Interpersonal Communication (any term)	4	-	-	4
Sp 313 Communication in Groups (any term)	-	4	-	-
Arts and letters elective (any term)	-	3	3	-
Social science elective (any term)	-	-	4	-

For more details, contact the adviser.

PHARMACY
725-3822

Adviser: **R.C. Mercer**

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 General Chemistry Laboratory
Ch 229 Introductory Chemical Analysis
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 234, 235 Microbiology and Lab
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 204 Psychology as a Social Science
Ec 201 Principles of Economics
Two additional 3-hour courses chosen from: psychology, sociology, *or* economics
One 3-hour course in each of the following areas, plus one added course from any of these areas: Western culture, non-Western culture, and literature and the arts
One year of upper-division human physiology.

The set of courses listed above is for entrance into Oregon State University; requirements may vary for other schools of pharmacy.

PSYCHOLOGY

317 Cramer Hall
725-3923

B.A., B.S.
Minor
M.A., M.S.
Ph.D. in Systems Science—Psychology
Ph.D.—Participating department in Urban Studies Doctoral Program

UNDERGRADUATE PROGRAMS

The program in psychology has been planned with the idea that all students, regardless of major, will have to solve significant psychological problems in their relations with others, at home and at work, in their personal decisions, and in their efforts to understand the problems and processes of society. The program serves students intending to do professional work in the field; liberal arts majors who are interested in psychology as part of a liberal arts education; and students of other social sciences or in a professional field such as business, education, medicine, or the ministry who seek a working knowledge of psychological principles.

The major in psychology requires a minimum of 48 credits in the field. Students must complete the required courses in statistics before taking any 400-level course or any course with statistics as a prerequisite.

Because the field of psychology is varied and complex, students majoring in psychology will need guidance. All students 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:

	Credits
Requirements outside of psychology:	
Stat 243	4
Stat 244	4
Minimum total credits outside of psychology	8
Requirements within psychology:	
Required of all majors:	
Psy 200, 204	8
Psy 321	4
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 equivalent 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:	Credits
All of the minimum requirements listed above	56
Plus:	
Mth 241	4
Bi 101, 102, 103, (104, 105, 106)	12-15
Psy 427	4
Psy 454	4
Psy 455	4
Suggested total credits	84-87

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:

	Credits
Required of all minors: Psy 200, Psy 204	8
20 credits in 300-level psychology courses (excluding 399)	20
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 109.)

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 270.

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 follow:

	Credits
Psy 521/621, 522/622, 523/623	12
Psy 514/614, 515/615, 516/616, 517/617 (Three from this list)	12
Electives	20
Practicum/Research	4
Thesis	8
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:

	Credits
SySc 511 Systems Theory	4
Systems Science (one sequence from listed two-course sequences)	6
Electives	8
Approved Internship	8
Dissertation	27
Total	53

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 marked 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 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 a developing technology of behavior.

Psy 342, 343
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. Credit will not be given for both Soc 342 and Psy 342, or both Soc 343 and Psy 343.

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 409/509
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 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 interrelationships 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, Psy 321 plus either Psy 345, 346, 347, or 348 and four hours of biology.

Psy 454, 455
Experimental Psychology (4, 4)
Principles of experimental design, evaluation of research methods, formulation and testing of simple hypotheses using research procedures, training in the use of standard apparatus, repetition and extension of selected classical experiments in psychology. 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 maladaption. 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 459-461.

***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 children, impact of child care 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 individual's 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 towards 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
Quantitative Methods in Psychology I (4)
Summary of statistics useful for summarizing the distributions of random variables and their relationships: measures of central tendency and variability; correlation and linear regression; alternative measures of association; development of indices for reliability, validity, and item analysis using the algebra of expectations.

Psy 522/622
Quantitative Methods in Psychology II (4)
Survey of the rationale behind and methods of data analysis for basic experimental designs: two group comparisons based on independent or matched observations; their extensions to several groups varying on one factor; two factor designs with independent, matched, or mixed factors; Latin square, randomized block, and analysis of covariance designs. Nonparametric approaches and problems of multiple comparisons will also be discussed.

Psy 523/623
Quantitative Methods in Psychology III (4)
Introduction to the general linear model; topics include multiple regression, discriminant analysis, canonical correlation, multivariate analysis of variance, and analysis of covariance.

Psy 524/624
Quantitative Methods in Psychology IV (4)
Introduction to factor analysis and covariance structure modeling, topics include common factor analysis, principal components, confirmatory factor analysis, LISREL, 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 or Graduate Certificate in Gerontology program.

***Psy 532/632**
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 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.)

CENTER FOR SCIENCE EDUCATION

170 Science Building II
725-4243

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.

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 (BIPOHS), 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 collaboration with the Marine and Environmental Research and Training Program (MERTS) in Astoria, and the Tillamook Education Consortium.

A major focus of the center is the Science in the Liberal Arts Curriculum (SLA), an interdisciplinary cluster of courses that are designed to meet the general and liberal education needs of undergraduate students. In this curriculum, students are encouraged to develop an appreciation for the value of science literacy as a part of active citizenship. They develop an understanding of science's goals and methods and learn to appreciate science as a complex enterprise that takes place in specific contexts shaped by, and in turn shaping, cultural, ethical, political, and economic values. Central to this curriculum are natural science communities of inquiry. Students work in collaborative research teams on open-ended projects, focusing on problem-posing and problem solving. They use "writing to learn" strategies and make use of computers for data analysis, modeling, writing, and resource access via Internet. The skills and projects developed in SLA courses can provide the basis for University Studies senior capstone projects. Courses offered in the center's Science Cornerstone curriculum will address a particular scientific issue in a paired sequence of two team-taught courses. These courses may be taken to satisfy the University Studies' cluster requirements as part of the SLA cluster.

Complementing its role in implementing current programs, the center is committed to an ambitious program of interdisciplinary research and scholarship in the field of science education. Currently the scholarly activities of the center emphasize inquiry into science education as a means of community building, the relationship between science education and ecological issues, and an understanding of social justice and equity in science education. The courses listed below represent the categories of SLA and Cornerstone courses offered by the center. The individual courses are taught by PSU faculty from a variety of science and social science departments.

COURSES

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

Sci 201, Natural Science Inquiry, is the Science in the Liberal Arts Sophomore Inquiry level course offered through University Studies.The upper-division courses, Sci 320, 350, and 399, are part of the Science in the Liberal Arts University Studies general education course cluster.

Sci 201
Natural Science Inquiry (4)
Introductory course in the Science in the Liberal Arts curriculum. 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. The use of collaborative inquiry takes account of the fact 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, scientific writing, and work with public natural resource agencies.

Sci 320
Integrated Science Concepts (4)
Multidisciplinary courses within the natural sciences, focusing on concepts which serve to organize and unify learning, helping students understand problems or issues that connect different realms of scientific activity. The thematic concepts serve as practical, problem-oriented frameworks for the development of scientific content. Among the core concepts used in separate courses are systematicity, hierarchical levels of organization, causality and consequence, dynamic equilibrium, patterned change and evolution, as well as the notions of scale, energy flow, diversity within unity, feedback, and disorder/order relations. Prerequisite: Sci 201.

Sci 350
Context of Science in Society (4)
Collection of courses that 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, with some courses introducing risk-benefit analysis and decision-making methodologies. Prerequisite: Sci 201.

Sci 351
NW 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.

Sci 399
Special Studies (Credit to be arranged.)

Sci 401/501
Research (Credit to be arranged.)

Sci 404/504
Cooperative Education/Internship (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.)

SOCIOLOGY

217 Cramer Hall
725-3926

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.

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. The department has a statistics laboratory and computer facilities.

Requirements for Major. In addition to meeting the general University degree requirements, the major in sociology must meet the following departmental requirements:

	Credits
Soc 200 Introduction to Sociology	4
Soc 300 Sociological Inquiry	4
Soc 310 U.S. Society	4
Soc 320 Globalization	4
Soc 395 Social Research Methods	4
Soc 396 Research Methods Lab	1
Soc 470 Foundations of Sociology	4
Soc 495 Senior Research Seminar	4
Sociology electives, including at least 12 credits in 400-level courses	20
Total in sociology	49
Stat 243 Introduction to Probability and Statistics	4
Total for major	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.

Students intending to graduate with a major in sociology may be required to take a comprehensive examination if they have not completed at least 16 credits in sociology courses in regular Portland State offerings.

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

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.
Soc 370 Sociology of Deviancy
Soc 414 Alcohol and Other Drugs
Soc 418 Criminology and Delinquency
Soc 425 Sociology of Women
Soc 436 Social Movements
Soc 444 Race, Ethnicity, and Nationality
Soc 469 Sociology of Aging

Human Relations, an area preparing the student to work in situations primarily concerned with interpersonal and group relations, including family situations, work contexts, and small group processes.
Soc 339 Marriage and Intimacy
Soc 342 Social Psychology
Soc 343 Social Psychology
Soc 424 Groups, Interaction, and Identity
Soc 425 Sociology of Women
Soc 461 Sociology of the Family

Requirements for a Minor. To earn a minor in sociology a student must complete 28 credits (16 credits of which must be taken in residence at PSU, and 16 credits of which must be upper division), to include the following:

	Credits
Soc 200 Introduction to Sociology	4
24 upper-division sociology credits, 12 credits of which must be numbered 411 through 499, inclusive	24
Total	28

Up to 10 credits taken under the undifferentiated grading option (pass/no pass) can be applied toward fulfilling departmental minor requirements.

SECONDARY EDUCATION PROGRAM

Adviser: **M. Toth**

(See General Studies: Social Science page 110.)

GRADUATE PROGRAMS

The Department offers graduate work leading to the degrees of Master of Arts and Master of Science in sociology, and for students pursuing graduate work in education, the degrees of Master of Arts in Teaching and Master of Science in Teaching (General Social Science). The Department of Sociology participates in the Systems Science Doctoral Program, offering a Ph.D. in Systems Science-Sociology. The Systems Science-Sociology Doctoral Program allows students to receive a Ph.D.with emphasis in the areas of social organization, social psychology, and social change with a systems approach. For more information relative to the Ph.D. program in Systems Science-Sociology, see page 56. 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 270.

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 54. 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 590 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
Sociology or other elective 4

Second Year
Fall
Soc 503 Thesis 4
Soc 513 Thesis Workshop* 1
Sociology or other elective 4
Winter
Soc 503 Thesis 4
Soc 513 Thesis Workshop* 1
Sociology or other elective 4
Spring
Soc 503 Thesis 1
*Core sociology courses

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 110.

COURSES

Courses marked 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 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
Social Research Methods (4)
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 396
Research Methods Lab (1)
Introductory research laboratory for students in Research Methods. Corequisite: concurrent enrollment in Soc 395. Pass/no pass only.

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, with lesser attention 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 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.

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 465/565
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 dissensus 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. Survey of recent empirical studies of religiosity and religious practices in America. New trends in American religion. Prerequisite: Soc 200.

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 495
Senior Research Seminar (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. Prerequisite: Soc 395 and senior standing in sociology.

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 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 issues and researcher responsibility 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 590, 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.

SPEECH COMMUNICATION

23 Neuberger Hall
725-3531

B.A., B.S.
Minor
Special Education Program
M.A., M.S.

UNDERGRADUATE PROGRAMS

The Department of Speech 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. Practica 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 321 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, 370, 371, 380, 389, 493

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 from courses numbered Sp 401 through Sp 409.

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.

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 pass grade option may not be used for major requirements.

1. Complete Sp 220 Public Speaking

2. Complete all of the following: SpHr 370, 371, 380, 389, 461, 464, 487, 488, 489, 494, 495 (speech-language pathology emphasis), 496.

3. Complete 3 credits from one of the following: SpHr 495 (speech-language pathology emphasis), SpHr 490 (audiology emphasis)

SPEECH IMPAIRED EDUCATION LICENSURE

Advisers: **M.E. Gordon-Brannan**

The Speech and Hearing Sciences Program offers a five-year integrated program leading to Oregon licensure for speech impaired. The undergraduate and graduate level courses listed below are the requirements for the integrated initial and continuing license program, some of which may be used to fulfill University requirements for the baccalaureate degree:

Sp 220 Public Speaking (4)
SpHr 262 Voice and Diction (4)
SpHr 370 Phonetics (4)
SpHr 371 Anatomy and Physiology of Speech and Hearing (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) *or* SpHr 585L Consultation and Collaboration Services in Schools (2)
SpHr 487/587 Basic Audiology (4)
SpHr 488/588 Advanced Audiology (4)
SpHr 489/589 Aural Rehabilitative and Educational Audiology (4)
SpHr 490/590 Audiological Rehabilitation Clinic (2)
SpHr 494/594 Introduction to Diagnostic Methods (4)
SpHr 495/595 Disorders of Communication II (4)

[†] SpHr 486/586, and 498/598 require 25 hours of confirmed clinical observation as part of the courses listed as prerequisites.

SpHr 496/596 Introduction to Clinical Management (4)
†SpHr 498/598 Speech-Language Practicum (4)
SpHr 580 Normal Speech and Language Development in Children (4)
SpHr 581 Stuttering (4)
SpHr 582 Voice Disorders (4)
SpHr 584 Assessment and Treatment of Language Disorders: Birth to Age Five (4)
SpHr 585 Assessment and Treatment of Language Disorders in School-aged Children and Adolescents (2)
SpHr 591, 592 Student Teaching in Speech-Language Pathology (14)
‡SpEd 418/518 Survey of Exceptional Learners (3)

GRADUATE PROGRAMS

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 54.

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 own particular interests in the study of human 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, and intercultural communication, which provides 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 45 credits of coursework, including 6 credits of thesis work or a graduate communication project, Sp 510 Communication Project, or Sp 510 Communication Consulting. 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
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 or thesis director; coursework in support of the thesis must be approved by the student's thesis director, in consultation with the thesis committee. Areas of emphasis currently supported in this department include: organizational communication, rhetorical and critical studies, interpersonal communication, intercultural communication, international communication, and mass communication; other areas of emphasis may be developed, according to particular student needs, in consultation with the program adviser or thesis director.
3. Coursework in cognate areas: students are required to complete core coursework in speech communication. Courses outside the department may be proposed at the discretion of the faculty adviser.
4. Complete Thesis or 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. Students who are interested in an academic career or anticipate advanced graduate work, leading toward a Ph.D., should elect the thesis option.
   a. 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 be selected, in consultation with the program adviser, during the first three terms of study. Prior to beginning work on the thesis, all students will be required to demonstrate proficiency in relevant theories and research methodology.
   b. Each student who elects the graduate communication project option will complete a graduate communication project and pass a final written examination covering two areas of emphasis.
      i. The communication project, undertaken as an individual or team activity while enrolled in Sp 510 Communication Project or SP 510 Communication Consulting, will focus on application of acquired knowledge and problem solving to actual communication situations.
      ii. Each student who elects the graduate communication project option will be required to take a written examination on each of the two areas of emphasis. The examining committee must be appointed, with the approval of the student's faculty adviser, no later than the end of the term preceding the term in which the student intends to take the written examinations.

† 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.

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 program in speech and hearing sciences is fully accredited in both speech language pathology and audiology by the Council on Accreditation and Certification of the American Speech-Language Hearing Association.

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, 580, 581, 582, 584, and 585. Core coursework for an emphasis in audiology includes: SpHr 555, 556, 557, 560, 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 proposed at the discretion of the faculty adviser. Coursework in statistics (e.g., Stat 243 and 244) is required. This coursework may be completed prior to enrollment in the graduate program. The statistics requirement is not satisfied by completing SpHr 560. 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 clinic 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. 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 faculty adviser. Students pursuing this option are required to sign up for at least 6 credits and up to 9 credits of SpHr 503 Thesis.

b. 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 selection of project topic, project format, and presentation of the project outcomes. The student will complete the project under the direct supervision of their faculty adviser. 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 marked with an asterisk (*) are not offered every year.

Sp 100
Introduction to Communication (4)
Overview of major topic 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 research project examines 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 culture and 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 requirements include 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 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 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, as well as 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 constricting 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 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, age, 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 those 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. Prerequisite: Sp 215.

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 assumptive 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 every fall.

***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. Prerequisite: one of Sp 218, 313, 314, 324.

Sp 418/518
Advanced Interpersonal Communication (4)
Theory course in which students analyze current concepts and theories related to inter-personal 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. Prerequisite: Sp 218.

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. Prerequisite: Sp 212 or graduate standing.

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: graduate 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.

Sp 447/547
Communication and Aging (4)
Focuses on the intersecting areas of communication and gerontology. Ages of communicators as variables affecting the process and outcome of interaction. Students examine communication and aging through interaction (intrapersonal, interpersonal, intercultural) and through context (organizational, family, medical.) Student projects include interviews with elderly subjects and case studies. Prerequisite: Sp 212.

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.

Sp 514
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. Emphasis is upon selected research designs, data collection and analysis, data input for computer analysis with statistical packages, results interpretation, and writing reports of completed research. Prerequisite: at least one course in statistics.

Sp 525
Seminar: International Communication and Culture (4)
Study and analysis of the international dimensions of 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 assumptive bases. 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 personal research project. Prerequisite: Sp 423 or consent of instructor.

Sp 535 Seminar:
Intercultural Facilitation (3)
Professional preparation for persons with backgrounds in intercultural communication and group leadership in the particular skills of facilitating Intercultural Communication Workshops. Course includes seminar meetings, reading, outside meetings with a co-facilitator, and major responsibility for leading a term-long multicultural group. Prerequisites: Sp 415, 511.

Sp 540
Teaching Communication in College (3)
Theory, methods, and practice in teaching a basic speech communication course at the college level. Consideration of teaching roles, student development, topic selection, sequencing of material and assignments, and evaluation procedures. Prerequisite: T.A. appointment in Speech Communication.

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 546**
Belief Systems in Communication (3)
The course explores the theoretical relationship between the structure of individual and cultural belief systems and the nature of discourse possible within that system. Contributions from the study of anthropology, linguistics, and philosophy will be explored. Students will examine individual belief systems for analysis and report. Prerequisite: Sp 520.

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 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 the manual alphabet and American Sign Language. A study of academic, social, psychological, and other related issues associated with deafness. A comparison of a variety of sign language systems, and an overview of the controversies between total communication and oralism. 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/ phonologic 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 486/586**
Urban Language Clinic (2)
Supervised clinical work with language delayed/ disordered children, from an inner city environment, enrolled for language diagnosis and management in the Speech and Hearing Clinic; practicum experience emphasizes pragmatic techniques in small and large group activities; classroom discussion concerning diagnostic, group management, and intervention methods. Prerequisite: SpHr 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 489/589
Aural Rehabilitative and Educational Audiology (4)
Theoretical course covering the role of speechreading (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,

† SpHr 486/586, and 498/598 require 25 hours of confirmed clinical observation as part of the courses listed as prerequisites.

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 490/590**
Audiological Rehabilitation Clinic (2)
Supervised clinical practicum in the diagnosis and rehabilitation of children and adults with hearing disabilities; staff seminars in case dispositions. Maximum: 18 credits. Prerequisites: SpHr 489/589, 498/598.

SpHr 493/593
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 494/594
Introduction to Diagnostic Methods (4)
Provides students with information on basic methods of assessment in communication disorders. Administration and interpretation of standardized tests, adaptations for clients from culturally different backgrounds, interviewing, and case-history taking will be covered. Prerequisite: SpHr 371.

SpHr 495/595
Disorders of Communication II (4)
Introduction to speech and language disorders with emphasis on voice disorders, stuttering disorders and neurogenic disorders; cleft palate and cerebral palsy will complete the survey. Prerequisite: SpHr 371, 380.

SpHr 495L
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 496/596
Introduction to Clinical Management (4)
Consideration is given to clinical speech and language management, with emphasis upon methods, materials, and techniques in the management of major speech and language problems. 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, voice, language, and hearing problems. Methodology for writing instructional programs which deal with various communication disabilities will be discussed. Devices and methods for tracking and analyzing data are described. Prerequisite: SpHr 370, 380, 494/594, 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 551
Advanced Child Language Disorders Practicum (2)
Provides students with an opportunity to apply methods covered in SpHr 584 to a practicum experience. Students will evaluate language skills, design, and deliver language intervention, under faculty supervision, to preschool language-delayed clients. Pragmatic intervention techniques will be stressed. Techniques for clients from culturally different backgrounds will be emphasized. 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 494/594.

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 characteristics of hearing aids, coupler and real-ear measurement, output limitation, programming and earmolds. Prerequisite: SpHr 488/588.

SpHr 556
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 557
Hearing Aids Laboratory (2)
Provides practical experience in hearing aid testing, repair and modification.

SpHr 558
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 and Hearing Sciences (4)
Introduction to basic electricity, acoustic phonetics, and use of instrumentation and computers for measurement of speech and voice signals. Provides instruction in recording, calibration, and analysis with this equipment, such as the sonograph, sound level meter, oscilloscope, and digital speech analysis systems. Prerequisite: SpHr 461/561.

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 swallow 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 motor speech disorders of dysarthria and apraxia. Issues related to surgical and prosthetic management of velopharyngeal incompetence as well as augmentative/alternative modes of communication to be addressed. Prerequisite: SpHr 495/595, 563, 565.

SpHr 567
Craniofacial Disorders and Speech (3)
Acquaints students with clinical management of cleft palate and other craniofacial anomalies, particularly the role of speech-language pathologist. Students gain exposure to analysis of articulation and resonance disorders of persons with velopharyngeal incompetence. Prerequisite: SpHr 495/595.

† SpHr 486/586, and 498/598 require 25 hours of confirmed clinical observation as part of the courses listed as prerequisites.

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)
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. Also covers acoustics. Prerequisite: 487/587.

SpHr 572
Advanced Hearing Science II (4)
Psychoacoustics, including psychophysical measurement, auditory sensitivity, pitch and loudness perception, masking, and auditory nonlinearities. Course also covers basic electricity, instrumentation in hearing science, and calibration of audiometric equipment. Prerequisites: SpHr 371, 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 574
Immittance Audiometry (3)
This course covers the physical and physiological bases of acoustic immittance measurements of the ear. It also covers the principle underlying tympanometry and acoustic reflex measurement, and the use of immittance in diagnosing auditory pathologies. Lectures are supplemented by practical training in administering the immittance test battery. Prerequisites: SpHr 487/587, 488/588.

***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 prebycusic patient, as well as intervention procedures are emphasized. Psychosocial forces associated with hearing impairment during the aging years are examined. Prerequisite: SpHr 488/588.

SpHr 577
Medical Audiology I (4)
Evaluation of practical application of differential auditory tests used in the assessment of various hearing disorders. Focus on procedures, applications, and implications of various auditory measures forming test batteries which assist in the detection of conduction, cochlear, and retrocochlear lesions. Class demonstrations and supervised experiences. Prerequisites: SpHr 487/587, 488/588.

SpHr 578
Medical Audiology II (4)
Continues examination of medical audiology from SpHr 577. Specific topics to be addressed include otacoustic emissions, electronystagmography, central auditory assessment and clinical decision analysis. Class demonstrations and supervised experiences. Prerequisite: SpHr 577.

SpHr 579
Objective Auditory Measures (4)
Introduction to clinical measurement of auditory evoked potentials. Normative and pathological aspects of electrocochleography and brainstem responses. Also covers advanced acoustic immittance, including physical principles and diagnostic applications. Prerequisite: SpHr 488/588.

SpHr 580
Normal Speech and Language Development in Children (4)
Provides in-depth information on the normal course of speech and language development in children from birth through adolescence. Basic processes in child development and psycholinguistics addressed. Phonological, syntactic, morphological, semantic and pragmatic development are covered. Issues of dialect and bilingualism outlined. Relations of language to the development of reading and writing and the treatment of the learning disabilities discussed. Multicultural issues addressed. Prerequisite: SpHr 494/594.

SpHr 581
Stuttering (4)
Study of stuttering theories, research, methods of diagnosis, and treatment for stuttering and other disorders of fluency. Prerequisite: 495/595.

SpHr 582
Voice Disorders (4)
Deviations of voice found in children and adults. Study of normal and abnormal function of the voice mechanism. Attention to detection, referral, and differential diagnosis of voice problems. Demonstrations of typical voice problems; demonstrations in examination and treatment procedures; review of recent literature and research. Prerequisite: SpHr 495/595.

SpHr 584
Assessment and Treatment of Language Disorders: Birth to Age Five (4)
Outlines causation, prevention, evaluation, and management procedures for addressing developmental language disorders in infants, toddlers, and preschool children. Formal and informal assessment procedures will be covered. Uses and misuses of standardized tests will be discussed. Models of language disorders will be compared and contrasted. Speech sample analysis procedures will be studied. Pragmatic intervention techniques will be stressed. Relations between language and phonology and multicultural issues will also be included. Family-centered practice techniques will be emphasized. Prerequisite: SpHr 498/598, 580. Corequisite: SpHr 551.

SpHr 585
Assessment and Treatment of Language Disorders in School-aged Children and Adolescents (2)
Outlines assessment and treatment methods for addressing developmental language disorders in children aged six through adolescence. Formal and informal assessment procedures covered. Pragmatic intervention techniques stressed. The relations between language disorders and learning disabilities discussed. Alternative service delivery models and pragmatic intervention strategies presented. Methods of assessment and treatment for clients from culturally different backgrounds emphasized. Prerequisites: SpHr 580, 584.

SpHr 585L
Consultation and Collaborative Services in Schools (2)
Provides students with an opportunity to deliver language intervention with school-aged clients 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 (12)
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.

UNIVERSITY HONORS PROGRAM

Honors Program Building
1632 SW 12th
725-4928

B.A. or B.S.—any University major

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 must complete a core component of work in the Honors Program, which satisfies their liberal and general education requirements. Individual core programs will vary to some extent, but all students will complete at least 10 courses in Honors (these 10 courses will include the core course, "Studies in Western Culture," at least two courses designated as colloquia, and the two-term thesis project (6 credit hours).

Studies in Western Culture. A foundation in the theory and methods of the sciences, social sciences, and humanities, Studies in Western Culture examines the literature, politics, art, and ideas of major periods of Western culture. Originally developed under a grant from the National Endowment for the Humanities, the course is open to all Portland State students. Professors of classical studies, science studies, history, and humanities serve as faculty. Written work focuses on material studied in the course, and students receive special instruction and direction in style, analysis, and organization. Students are encouraged to form study groups to supplement their classroom work. More information is available from the University Honors Program office, Honors Program Building, 1632 SW 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 college, who have prepared by working through an appropriate bibliography with faculty from the honors college.

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

Hon 199
Studies in Western Culture I-VI
(5, 5, 5; 4, 4, 4)
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.)

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.

WOMEN'S STUDIES

401 Cramer Hall
725-3516

B.A., B.S.
Minor
Post-baccalaureate Certificate

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 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	Credits
WS 101 Introduction to Women's Studies	4
WS 301 Gender and Critical Inquiry	4
WS 315 Feminist Analysis	4
WS 415 Senior Seminar	4
WS 340 Women and Gender in America, Colonial Era to 1865 *or* WS 341 Women and Gender in America, 1865-Present†	4
WS 342 History of Feminism in the United States	4
WS 404/409 Internship/Practicum (3, 3)	6
WS 411 Experiential Learning Seminar (1, 1).	2
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	
Introduction to Women's Studies	4
WS 301 Gender and Critical Inquiry	4
WS 315 Feminist Analysis	4
WS 415 Senior Seminar	4
WS 404 Cooperative Education/Internship or WS 409 Practicum	6
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.

† Although students have the choice of taking either WS 340 or WS 341, taking both is recommended.

COURSES

Courses marked 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 101
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 Phl 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
Studies in Minority Women (4)
A variable topics course focusing on issues which have historically impacted women of color and specific ethnic categories of minority women, including the relationship between minority women and specific disciplines. Prerequisite: WS 230.

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 missionaries 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.

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 families in the colonial period, and the nineteenth and twentieth centuries. Prerequisite: Hst 201, 202, Sophomore Inquiry (American Studies), or consent of instructor.

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 399
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 theoretical, thematically-based course. The seminar is taught by faculty from multiple disciplines. 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 425
Sociology of Women (4)
Cross-societal 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 basis for the behavior, characteristics, attitudes, and demographic characteristics of women. Prerequisites: Soc 204, 205.

WS 430, 431, 432
Women in the Visual Arts (3, 3, 3)
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 455
Gender and Education (3)
Explores the significance of gender in educational work. 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. Prerequisite: upper division standing. This course is cross-listed as EPFA 455, may only be taken once for credit.

WS 467
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 children, impact of child care and elder care on the workplace, and parental leave and other workplace supports for families. Implications of research for social policy. Prerequisites: Psy 311 and 3 credits in courses numbered Psy 321 or higher.

WS 479
Women and Organizational Psychology (4)
Examines the relationship between gender and the social organization of the workplace. Focus is on gender development as socialization (e.g. hierarch 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.

ASc 410/510
Selected Topics (Credit to be arranged.)

Hum 199
Special Studies (Credit to be arranged.)

Hum 399
Special Studies (Credit to be arranged.)

Hum 405
Reading and Conference (Credit to be arranged.)

Hum 407
Seminar (Credit to be arranged.)

Hum 410
Selected Topics (Credit to be arranged.)

Hum 601
Research (Credit to be arranged.)

Hum 602
Independent Study (Credit to be arranged.)

Hum 603
Thesis (Credit to be arranged.)

Hum 604
Cooperative Education/Internship (Credit to be arranged.)

Hum 605
Reading And Conference (Credit to be arranged.)

Hum 606
Special Problems/Projects (Credit to be arranged.)

Hum 607
Seminar (Credit to be arranged.)

Hum 608
Workshop (Credit to be arranged.)

Hum 609
Practicum (Credit to be arranged.)

Hum 610
Selected Topics (Credit to be arranged.)

ISt 199
Special Studies (Credit to be arranged.)

ISt 399
Special Studies (Credit to be arranged.)
For Extended Studies and Summer Session only.

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

Sc 601
Research (Credit to be arranged.)

Sc 602
Independent Study (Credit to be arranged.)

Sc 603
Thesis (Credit to be arranged.)

Sc 604
Cooperative Education/Internship (Credit to be arranged.)

Sc 605
Reading and Conference (Credit to be arranged.)

Sc 606
Special Problems/Projects (Credit to be arranged.)

Sc 607
Seminar (Credit to be arranged.)

Sc 608
Workshop (Credit to be arranged.)

Sc 609
Practicum (Credit to be arranged.)

Sc 610
Selected Topics (Credit to be arranged.)

SSc 601
Research (Credit to be arranged.)

SSc 602
Independent Study (Credit to be arranged.)

SSc 603
Thesis (Credit to be arranged.)

SSc 604
Cooperative Education/Internship (Credit to be arranged.)

SSc 605
Reading and Conference (Credit to be arranged.)

SSc 606
Special Problems/Projects (Credit to be arranged.)

SSc 607
Seminar (Credit to be arranged.)

SSc 608
Workshop (Credit to be arranged.)

SSc 609
Practicum (Credit to be arranged.)

SSc 610
Selected Topics (Credit to be arranged.)

SCHOOL OF BUSINESS ADMINISTRATION

ROGER S. AHLBRANDT, DEAN
SCOTT A. DAWSON, ASSOCIATE DEAN
ELLEN L. WEST, ASSOCIATE DEAN
SCHOOL OF BUSINESS ADMINISTRATION BUILDING
725-3712—STUDENT SERVICES OFFICE

B.A., B.S.—Business Administration
Minor—Business Administration
Certificate in International Business Studies
Postbaccalaureate Certificate in Accounting
M.B.A.—Master of Business Administration
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. It is designed to achieve two primary objectives: to provide a broad-based understanding of society and the function of business firms within the economic system and to develop a basic competence in the application of business principles and methods to solve organizational problems.

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 and the business minor are also available.

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 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 junior standing, which is 90 credits. Only credits that are accepted as transfer credits by the University will count toward the 90 credits. At least 75 of the 90 credits must have been completed for a letter grade.
3. Have a grade point average (GPA) of at least 2.75 for:
   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.
4. 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 222—Fundamentals of Financial Accounting
BA 223—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—A 200-level speech course
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 and at least 95 credits outside the School of Business Administration. A minimum of 180 credits is required for graduation.

Business administration students will meet the following requirements:

Required Business Core

BA 101 Introduction to Business and World Affairs
BA 205 Business Communications Using Technology
BA 222 Fundamentals of Financial Accounting
BA 223 Decision Making with Accounting Information
BA 302 Organizational Behavior
BA 303 Business Finance
BA 311 Marketing Management
BA 325 Competing with Information Technology
BA 339 Operations and Quality Management
BA 385 Business Environment
BA 495 Business Strategy

Required Nonbusiness Courses (must be completed prior to SBA admission)

Stat 243, 244 Introduction to Probability and Statistics I & II (for business majors)
Sp—A 200-level speech course
Ec 201, 202 Principles of Economics
Wr 121 English Composition or UnSt 101, 102, 103

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. 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.

	Credits
Actg 335 Accounting Information Systems	4
Actg 360 Management Accounting	4
Actg 381, 382 Financial Accounting and Reporting	8
Actg 421 Introduction to Taxation	4
Actg 490 Advanced Financial Accounting and Reporting	4
Actg 492 Auditing Concepts and Practices	4
Actg 495 Integrated Accounting Issues	4
Upper-division accounting course to be chosen from Actg 422, 460, 476, 493, FinL 412	4
Total	36

Students electing accounting as an option will also be required to take: Phl 202 Elementary Ethics or Phl 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.

	Credits
FinL 419 Intermediate Financial Management	4
FinL 443 Investment Principles	4
FinL 449 Analysis of Financial Performance	4
FinL 456 Foreign Financial Operations	4
FinL 465 Finance Topics and Cases	4
Total	20

General Management

Objective: to provide requisite knowledge and skills which enable the student to meet the challenges of managerial responsibilities.

	Credits
Mgmt 464 Contemporary Leadership Issues	4
Mgmt 351 Human Resource Management	4
Mgmt 445 Organizational Design and Change	4
Electives	8
Of the remaining 8 credits, four, i.e., credits 13-16, must be taken within the management area at the 300 or 400 level.	
The final four credits, i.e., credits 17-20, 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.

	Credits
Mgmt 351 Human Resource Management	4
Mgmt 461 Reward Systems and Performance Management	4
Mgmt 471 Staffing and Employee Selection	4
Mgmt 493 Human Resource Policies	4
Upper-division management courses	3-4
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.

	Credits
ISQA 360 Business Computer Fundamentals	4
ISQA 380 Data Communications	4
ISQA 420 Structured Systems Analysis and Design	4
ISQA 425 Database Management	4
Information systems electives	6-8
ISQA 405 Reading and Conference (credit to be arranged: 1-4)	
ISQA 407 Seminar (credit to be arranged: 1-4)	
ISQA 415 UNIX Fundamentals (2)	
ISQA 418 Client-Server Development (3)	
ISQA 421 Object-Oriented Modeling and Design (4)	
ISQA 422 Information Systems Project Management (2)	
ISQA 423 Collaborative Technologies (2)	
ISQA 424 Network and Client Operating Systems (3)	
ISQA 436 Advanced Database Administration (3)	
Total	22-24

Marketing

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
Actg 360 Management Accounting (4)	
FinL 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)	
Actg 360 Management Accounting (4)	
FinL 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 540 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. 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 (Micro-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 222 Fundamentals of Financial Accounting 4
BA 303 Business Finance 4
BA 311 Marketing Management 4
BA 302 Organizational Behavior *or*
BA 385 Business Environment 4

Total 40

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 205) 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 associate dean for undergraduate programs.

Business Administration Requirements

Business core:
- BA 101, 205, 222, 223, 302, 303, 311, 325, 339, 385, 495

International business requirements; choose three of five:
- Actg 476 International Accounting
- FinL 456 Foreign Financial Operations
- Mgmt 446 Principles of International Management
- Mktg 376 International Business Operations
- Mktg 466 Principles of International Marketing

Business option requirements; Choose from: Accounting, Finance, General Management, Human Resources, Information Systems, Advertising Management, Marketing, and Supply and Logistics Management.

International Business Studies Certificate students are encouraged to spend one or more summers in overseas management training work experience by participating in the Portland State University AIESEC exchange program for business and economics students or other overseas internship and exchange programs.

POSTBACCALAUREATE CERTIFICATE IN ACCOUNTING

The Postbaccalaureate Accounting Certificate is a program for students who have earned one or more baccalaureate degrees and who wish to complete the coursework to prepare for the Certified Public Accountant (CPA) Examination. These recommendations include courses in accounting directly related to preparation for the exam as well as professional preparation for public or industry accounting. In addition, courses are recommended in law, basic business, and in other related areas for those whose undergraduate degree is not in business administration.

APPLICATION CRITERIA

The following requirements must be fulfilled prior to applying:

1. Be formally admitted as a postbaccalaureate student at PSU. Proof of admission to PSU must be provided in order to have Conceptual Tools courses assessed by the SBA Student Services Office, 240 SBA.

2. Acquire a second set of official transcripts for your own use in order to have copies of all official transcripts for your student records at home. Photocopies of transcripts are needed to apply to the SBA for advising and possible applications for awards and scholarships.

3. Complete the following Conceptual Tools courses with a grade of C- or better prior to applying to the SBA (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 222 Fundamentals of Financial Accounting
   - BA 223 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:
   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.

Course Requirements

Required Accounting Core:
Actg 335 Accounting Information Systems . . . 4
Actg 360 Management Accounting 4
Actg 381, 382 Financial Accounting and Reporting 8
Actg 421 Introduction to Taxation 4
Actg 490 Advanced Financial Accounting and Reporting 4
Actg 492 Auditing Concepts and Practices . . . 4
Actg 495 Integrated Accounting Issues 4
One additional course chosen from: 4
- Actg 422 Advanced Taxation
- Actg 460 Advanced Managerial Accounting
- Actg 476 International Accounting
- Actg 493 Advanced Auditing
- FinL 412 Business Law

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 9

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 two programs leading to master's degrees: the Master of Business Administration (M.B.A.), which is offered statewide, 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

Applicants to the 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). 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. In addition, international applicants must submit a Test of English as a Second Language (TOEFL) score directly to the Office of Admissions as a part of the application packet. Only those students who have been formally admitted to the M.B.A., M.I.M., 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.

Fall Admission:
Application and all supporting documents:
International applicants—March 1
Domestic applicants—April 1
GMAT taken by previous March

Winter Admission:
Application and all supporting documents:
International applicants—July 1
Domestic applicants—August 1
GMAT taken by previous June

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 54. 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, spread sheet, 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 probably have to take some elective coursework during the evenings or weekends. Students are admitted to the full-time day cohort in fall terms only; students are admitted to the evening cohorts in fall and winter terms. There is no admission in the 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.

Statewide M.B.A. Program. For students outside the greater metropolitan area interested in the Statewide M.B.A. program, please contact the Statewide M.B.A. office at 1-800-547-8887 ext. 4822. Students are admitted to the part-time evening Statewide M.B.A. program in the fall of odd-numbered calendar years. There are currently 15 statewide M.B.A. locations in Oregon.

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)
FinL 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 511 Financial Accounting (4)
Mktg 544 Marketing Management (4)
Mgmt 550 Organizational Management (4)
FinL 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 400/500 level coursework taken for graduate credit. Electives will be selected from courses offered by the School of Business Administration or may, with the approval of the associate dean for 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.

MASTER OF INTERNATIONAL MANAGEMENT

Director: **John Oh**

Conducting business globally is not only a reality but a necessity for corporations to successfully survive and flourish in today's world economy. The progressive and discerning international manager cannot rely on yesterday's knowledge. They 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 a cutting edge, 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 project. 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 (3), Language and Culture Study
Term 2: MIM 517 (4), MIM 515 (4), MIM 519 (4), Language and Culture Study
Term 3: MIM 547 (4), MIM 568 (4), MIM 558 (4), MIM 576 (4), Language and Culture Study
Term 4: MIM 564 (3), 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 (5) Field Study

Typical Part-time Program Schedule

Term 1: MIM 516 (3), MIM 518 (3)
Term 2: MIM 517 (4), MIM 515 (4)
Term 3: MIM 547 (4), MIM 568 (4)
Term 4: MIM 564 (3), 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
Term 10: MIM 575 (4), Language and Culture Study
Term 11: MIM 578 (4)
Term 12: MIM 579 (5) Field Study

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. All 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.

Tutorials. These mini courses are designed to help students prepare for a future activity in the Master of International Management program. For example, students will have several review classes in accounting fundamentals in Term 1 prior to taking Accounting for Global Enterprises (M.I.M. 517) in Term 2.

Field Study in China and Japan. As a capstone experience, students will travel to China and Japan during term six 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 500 or an acceptable GRE score.
3. International Students must also have:
   - A minimum TOEFL score of 550 or successfully pass a Portland State University approved English placement 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 Oregon Joint Professional Schools of Business (OJPSB) 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 to OJPSB. GMAT and GRE scores should be included.

Deadlines for submitting applications and supporting documents for both the full-time and part-time program are:

International applicants:	February 1
Domestic applicants:	March 1
GMAT taken no later than:	January

Note: 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. A formal letter of admission 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.

Oregon Joint Professional Schools of Business (OJPSB). The School of Business Administration is a partner in the Oregon Joint Professional Schools of Business. OJPSB is a consortium partially funded by the Oregon Legislature consisting of Portland State University, University of Oregon, Oregon State University, and Southern Oregon University.

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 the CAPITAL Center, 185th and NW Walker Road in Beaverton.

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.

Option A: 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.

Option B: 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 56.

ACCOUNTING COURSES

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

For information on the accounting option requirements, see page 164. All 300- and 400-level courses require junior-level standing; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 400-level courses.

Actg 199
Special Studies (Credit to be arranged.)

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 223, 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 223.

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 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. Governmental accounting, not-for-profit accounting, and international accounting issues are also covered. Prerequisites: BA 223 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 223.

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 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 multinational corporations (MNCs). Special managerial and control problems of MNCs including performance evaluation, transfer pricing, and taxation. Prerequisites: BA 223 for Actg 476; Actg 511 for Actg 576.

Actg 490
Advanced Financial Accounting (4)
Focuses on accounting for business combinations, domestic and foreign. Also includes study of partnerships, earnings per share, and transactions in foreign currency. 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 under-lying financial reporting are examined with the objective of developing the ability to read, comprehend, and perform a basic analysis of financial statements.

Actg 512
Strategic Cost Management (3)
Course takes the perspective that managers should not use information from accounting systems designed to prepare external financial reports in order to make internal management decisions. Using financial accounting information to run a business is called "managing by the numbers." Provides alternative approaches to developing and using accounting information. Special emphasis will be placed on understanding traditional cost systems, activity-based costing systems, and determining the cost of quality. Course will rely heavily on the examination of actual company situations. Prerequisites: BA 551 and 552.

Actg 520
Retirement Plans (3)
Establishment and administration of pension, profit-sharing, and self-employed retirement plans; plan characteristics; insured, trusteed and self-administered plans; investment policies; federal and state regulation; requirements for Internal Revenue Service qualifications; taxation of benefits; integration with Social Security.

Actg 525
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 526
Tax Theory and Application (3)
Analysis of theory of taxation within the environs of the business community and the effects of taxation upon business and investment decisions, capital structure, and finance policies. Prerequisite: Actg 525.

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 528
Current Tax Developments (3)
Review of recent or contemplated tax changes, including tax reform proposals; legislative, administrative, and judicial developments relating to all forms of taxation; an integrative course in which emphasis is placed on scholarly research and writing. (This course should be taken after the student completes 18 credits in the program.)

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 530
Taxation of Property Transactions (3)
Recognition and taxation of gains and losses from sales, exchanges and other transactions involving property, capital gain or loss, tax basis, and holding period. Prerequisite: Actg 525.

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 inventory; Subchapter S Corporation compared to partnerships. 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 533
Fiduciary Income Taxation (3)
Federal income taxation of estates and trusts, interrelationship of tax elections with federal estate tax, basis problems; correlation with probate estate or testamentary trust accounting.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.

Actg 536
International Taxation (3)
Taxation of United States citizens and businesses on foreign-source income; topics include the forms of multinational operations, foreign tax credits, and tax treaties. Prerequisite: Actg 525.

Actg 537
Tax Accounting Problems (3)
A study of tax accounting methods, reporting periods, special elections, and consolidated returns. Prerequisite: Actg 525.

Actg 538
Computer Applications in Taxation (3)
An evolving course that orients the student to the use of computers in tax practice; emphasis is on the assistance a computer lends to tax planning and decision making; topics include evaluations of after-tax cash projections of investments, alternative reporting techniques and options in family financial planning. Prerequisite: Actg 525.

Actg 539
Estate and Gift Taxation (3)
An exploration of the United States system of taxing transfers by gift or at death. Incorporates a review of the technical structure to enable the student to understand the role a particular rule does or should perform in a transfer tax system. Designed to enhance comprehension of both theoretical aspects and estate planning, in addition to the structural framework. Prerequisite: Actg 525.

Actg 542
Tax Factors in Business Decisions (3)
Intended for the general business (MBA) student. Course will cover the tax implications of common business questions and transactions, including: choice of business entity, acquisition and sale of business assets, compensation and benefits planning, and U.S. taxation of international trade. Students will be exposed to the common income and estate tax planning strategies of individuals and families engaged in business. Not available for credit toward Master of Taxation degree. Prerequisite: Actg 511.

Actg 550
Contemporary Financial Reporting Issues (3)
Financial reporting for general M.B.A. student. Studies of the accounting valuation process, accounting income measurement, and financial disclosure. Contemporary issues are examined in the context of factors that shape accounting standards and current trends in financial reporting. Prerequisite: Actg 511.

Actg 551
Accounting Issues in Enterprise Systems (2)
Study of accounting information systems for operations with an emphasis on accounting issues. Topics include innovative accounting system architectures, creating new value through accounting systems, and limitations and potentials of various accounting information systems.

Actg 553
Financial Statement Analysis (3)
Sound financial information for making business decisions is obtained by an understanding of the accounting data from which the information is derived as well as by the application of tools of analysis. Students will gain an increased understanding of the properties and use of accounting numbers in the determination and forecasting of financial position, the financial disclosure process and its use in comparing business performance. Prerequisite: Actg 511, FinL 561.

Actg 601
Research (Credit to be arranged.)

Actg 607
Seminar (Credit to be arranged.)

BUSINESS ADMINISTRATION COURSES

BA 101
Introduction to Business and World Affairs (4)
Introduction to the business firm operating in the local, national, and global marketplace. Emphasizes the integration of the various functional areas of business as the firm evolves from its entrepreneurial origins to a mature corporation.

BA 205
Business Communications Using Technology (4)
Provides students with the tools that are needed to collect, organize, and present information in a business environment. Students will learn how to use library and Internet resources to collect information. Word processing, spreadsheet, and graphics applications will be used to organize and present business information. Students will be introduced to business report writing, developing and delivering a persuasive presentation, and electronic-mail methods for team-based communication. Prerequisite: BA 101.

BA 222
Fundamentals of Financial Accounting (4)
Assists students in developing an understanding of financial statements and the tools used by external users such as lenders, shareholders, and competitors to evaluate the performance of the firm. Balance sheets, income statements, statements of cash flows, and industry reports will be used to introduce topics such as: assessing risk, liquidity, solvency, operating efficiency, and profitability of the firm. Prerequisite: BA 101.

BA 223
Decision Making with Accounting Information (4)
Designed to aid students in developing effective decision making skills. Course elements include: understanding the organization as a system, information assessment, cash management, operations and capital budgeting, manufacturing cost systems, cost control procedures, managing inventory, problem solving, and measuring the health of the organization. Prerequisite: BA 222.

BA 302
Organizational Behavior (4)
Focuses on issues that are relevant to the three levels of organizational behavior (i.e., individual, group, and organizational). Key topics include: the nature and dynamics of teams, personal values and employee job attitudes, communication, conflict resolution, motivation, leadership, decision making, employee effectiveness, and the impact of organizational level issues such
as policies, structure, design, and culture. Techniques used to facilitate learning may include role plays, cases, presentations, organizational simulations, teamwork, and/or term research papers. Prerequisite: BA 205 and junior standing.

BA 303
Business Finance (4)
Development and study of a decision framework for financial management with special emphasis on small- and medium-sized businesses. Topics include analysis of financial health, planning for future financial performance, evaluation of investment opportunities, and analyses of risk. Financing of firm growth and valuation will be introduced. An integration of the concepts of financial management into a total system approach to business decision making will be facilitated with the use of cases, as appropriate. Prerequisite: BA 205, 222, and junior standing.

BA 311
Marketing Management (4)
Basic marketing concepts from the perspective of the marketing manager. Key focus is to examine the marketing planning and analysis necessary to develop sound marketing plans and strategies. Specific topics include the role of marketing within the firm, analysis of marketing opportunities, selection of target markets and market segmentation, marketing strategies in a global marketplace, use of technology in market, and marketing mix decisions. Experiential learning approaches for class participation will be used. Prerequisites: BA 205 and junior standing.

BA 325
Competing with Information Technology (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, continuous improvement, and total quality management will be discussed. Prerequisite: junior standing.

BA 385
Business Environment (4)
Study and critical analysis of the role of business in its environment with special references to the 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 owners, employees, consumers, 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 MBA 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 MBA 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 international business leaders on current business topics.

BA 551
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, Actg 511, and concurrent enrollment in BA 552.

BA 552
Systems for Performance Measurement (4)
Provides the student with a systematic approach to the determination and measurement of the critical processes for achieving organizational effectiveness and efficiency. Emphasis is given to the development of the necessary information systems to support process integration, critical process measurement, and related decision making. Prerequisite: ISQA 511, Actg 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, FinL 561, Actg 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 AND LAW COURSES

For information on finance option requirements, see page 164. All 300- and 400-level courses require junior-level standing; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 400-level courses.

FinL 199
Special Studies (Credit to be arranged.)

***FinL 218**
Personal Finance (3)
A survey of investments, budgets, real estate ownership, financial institutions, consumers' credit, social security, stock market, mutual funds, and estate planning from the individual's point of view.

FinL 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.

FinL 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.

FinL 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.

***FinL 336**
Principles of Risk and Insurance (3)
A study of the principles and practices of life, fire, casualty, marine, and social insurance.

FinL 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.

FinL 399
Special Studies (Credit to be arranged.)

FinL 401/501
Research (Credit to be arranged.)
Prerequisite: BA 303.

FinL 404/504
Internship (Credit to be arranged.)
Prerequisite: BA 303.

FinL 405/505
Reading and Conference (Credit to be arranged.)
Prerequisite: BA 303.

FinL 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. Prerequisite: BA 303.

FinL 409/509
Practicum (Credit to be arranged.)
Field work involving the practice of professional activities away from campus. Prerequisite: consent of instructor.

FinL 410/510
Selected Topics (Credit to be arranged.)
Consent of instructor.

FinL 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, adverse possession, easements, trusts, REIT, powers of trustees, wills, will substitutes, intestacy, probate. Prerequisite: FinL 226 or BA 385.

FinL 412
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, bankruptcy, security interests, mortgages, suretyship and bulk sales. Covers law part of CPA exam. Prerequisite: FinL 226 or BA 385 (FinL 226 or BA 385 not required for students in postbaccalaureate certificate in accounting program).

FinL 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.

FinL 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 appraisers. Prerequisite: BA 303.

FinL 443
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.

FinL 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: FinL 443.

FinL 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.

FinL 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.

FinL 456
Foreign Financial Operations (4)
Survey of international financial principles and practices underlying the investment and financing decisions of multinational firms. Trade and capital flows, foreign exchange, markets and mechanics, trade financing, international capital markets institutions and financial instruments, exchange risk and exposure management, capital budgeting and capital structure analyses of multinational finance. Prerequisite: BA 303.

***FinL 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.

FinL 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: FinL 419 or 449; admission to the School of Business Administration.

***FinL 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: FinL 336.

FinL 503
Thesis (Credit to be arranged.)

FinL 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.

FinL 543
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. Prerequisite: FinL 561.

FinL 545
Hedging and Risk Management (3)
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. Prerequisite: FinL 561.

FinL 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: FinL 514 or FinL 561.

FinL 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: FinL 561; competency with electronic spreadsheets.

FinL 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: FinL 561.

FinL 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, FinL 514, Actg 511.

FinL 565
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: FinL 514, 561.

FinL 569
Advanced Financial Management (3)
Selected advanced topics in theory and application of valuation, capital investment/capital structure decisions and their interactions, mergers and acquisitions, and leasing. Prerequisite: FinL 561.

***FinL 573**
Investment Analysis and Portfolio Management (3)
A study of the application of both portfolio theory and fundamental valuation techniques in security investment decisions. The implications of modern portfolio theory for portfolio management and in portfolio performance evaluation are emphasized. Prerequisites: FinL 543, 561.

FinL 601
Research (Credit to be arranged.)

FinL 607
Seminar (Credit to be arranged.)

INFORMATION SYSTEMS AND QUANTITATIVE ANALYSIS COURSES

For information on Information Systems option requirements, see page 164. All 300- and 400-level courses require junior-level standing; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 400-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 workable solutions to the information system needs of managed organizations. Topics include computability, data structures, data abstraction, algorithms, recursion vs. iteration, principles of programming languages. Students will use the C language to apply course concepts. Prerequisites: C programming course or passing grade on C programming competency exam, BA 325.

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.

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 meeting 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 415
Operating Systems Fundamentals (2)
Fundamental concepts of the UNIX family of operating systems. Topics include applications, file systems and directory structure, standard utilities, vi, introduction to shell programming, and resource management. One lecture hour; two laboratory hours. Prerequisite: BA 325.

ISQA 418
Client-Server Development (3)
Provides an introduction to client server application development with an emphasis on the client. Topics include graphical user interface development, event driven programming, rapid application development tools, and tools for report writing and query processing. Students will participate in the development of projects. Two lecture hours; two laboratory hours. Prerequisite: BA 325.

ISQA 420
Structured 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 Modeling and Design (4)
Fundamental concepts of object-oriented modeling and design are introduced including encapsulation, classes, inheritance, use of entity-relationship diagrams to model objects and classes, and design techniques. Object-oriented programming CASE tools and languages will be presented and used. Prerequisite: ISQA 360.

ISQA 422
Information Systems Project Management (2)
Introduction to the tools and practices of information systems project management. Topics may include project management concepts and software, training methodologies for non-technical users, documentation development, and alpha/beta testing practices. One lecture hour; two laboratory hours. Prerequisite: BA 325.

ISQA 423
Collaborative Information Systems (2)
Teamwork is a crucial factor in today's fast paced corporations. Information technologies provide several means for teams to work together in a much more effective manner. Fundamental concepts include vertical applications, groupware, and multi-user applications. Students will be shown how to effectively use and implement work group technologies. One lecture hour; two laboratory hours. Prerequisite: BA 325 and consent of instructor.

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 (3)
Advanced study of data environments, data modeling techniques, database design, and query processing and optimization. Emphasis will be placed on client server architecture and SQL processing. Software may include Oracle and SQL Server. Students will participate in database design projects. Other topics will include industry trends and opportunities, and database administration. Two lecture hours; two laboratory hours. 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.

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. Prerequisite: 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 environment 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 assumptions 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. Prerequisite: 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 525**
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 database. 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 environments. Students will learn how managers identify and adopt new technologies for business systems. Topics include hardware/software concepts, needs assessment, decision criteria, and implementation issues. Prerequisite: BA 551.

ISQA 572
Models for Quality Control (3)
Study of variability. Emphasis on quality improvements through the application of experimental design. Topics include accounting for randomness, systematic identification of sources of variation, 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 requirements, see page 164. All 300- and 400-level courses require junior-level standing; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 400-level courses.

Mgmt 199
Special Studies (Credit to be arranged.)

Mgmt 351
Human Resource Management (4)
Studies the human resource management functions performed by the human resource manager as well as by the line executive or supervisor. Uses contemporary approaches and problems to analyze the entire process of performance management, including human resource planning/job design, selection and staffing, training and development, compensation, performance appraisal, and employee and labor relations. Also examines legal questions which affect human resource management. 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.)
Student-selected problems in business operation and management to be studied by the individual and discussed in group meeting under direction of academic staff.

Mgmt 409/509
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 of organizational structure, design, and processes. Management of change from a multilevel 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. Prerequisite: BA 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, interviewing, 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 outdated 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 8 additional credits in human resource management; 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 access to executive/legislative processes. Case analyses and projects may be used in the course. Prerequisite: Mgmt 560.

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**
Management of Service Operations (3)
The difference in operating problems and issues between services and manufacturing is a result of the close interface between operations and consumers in service organizations and the importance of a "service concept." The course will take an operations management view as it develops the similarities and differences between management in the manufacturing and service sectors. Prerequisite: BA 551.

Mgmt 550
Organizational Management (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 assessment, creative problem-solving, compensation, staffing, employee 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 long-term productivity. Aspects of the employee life cycle to 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 organization 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 ethics, 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 164. All 300- and 400-level courses require junior-level standing; graduate courses require admission to the graduate programs. Students admitted to the School of Business Administration will be given registration priority for all 400-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 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

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 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)
A central focus of any marketing effort is the product/service that the firm is offering to its customer. The class focuses on the innovation, competitive advantage, development, and managing of products and services. Topics will include product/service strategy formulation, opportunity assessment, and new product development process. Product life cycle issues and organizational interface issues. Prerequisite: BA 311.

Mktg 452
Business-To-Business Marketing (3)
Management of the marketing activities of enterprises serving business-to-business markets. The course includes industry and competitor analysis, 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 Strategy (3)
Designed to provide an understanding of marketing strategy as it applies to firms in industries characterized by rapid change in the technological environment. It encompasses the strategic marketing planning process including the business environment, competitive market analyses, product innovation, the marketing-engineering-manufacturing interface, value-based pricing, distribution and selling, positioning strategies, and the development and control of the marketing plan. The emphasis will be on how technological change impacts an organization's ability to create and deliver value to its customers. Prerequisite: BA 311.

Mktg 460
Marketing Research (4)
Studies the planning, data collection, analysis, and reporting issues relating to marketing research. Key issues include defining information needs, sampling, sources of 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)
Exploration of the determinants of consumer and organizational buying behavior focusing on contributions from the behavioral sciences. Applications of behavioral concepts to marketing strategy are emphasized along with how to measure, retain, and enhance customer satisfaction and develop long-term customer relationships. Prerequisites: BA 311; 6 credits in psychology, sociology, or anthropology in any combination.

Mktg 464
Marketing Strategy and Management (4)
Integrative course designed to apply marketing concepts in a variety of business applications. Emphasis will be on marketing strategy in the major areas of marketing management including customer identification, industry analysis, product and communication strategies, distribution, pricing and control. Prerequisites: BA 311, Mktg 460, and admission to the School of Business Administration.

Mktg 466
Principles of International Marketing (4)
Differences between domestic and international marketing are examined. A market-oriented conceptual foundation relating international channels of distribution, financing, documentation, transportation organizing, and staffing is presented. Prerequisites: BA 311, Mktg 376.

Mktg 467
Sales Management (3)
Analysis of the sales management function with attention to sales force selection, allocation of sales effort, and motivation and reward of sales force, plus the integration of sales with other marketing activities. Prerequisite: BA 311.

Mktg 475
Retailing (3)
Emphasis is given to understanding the role of retailing in the distribution of goods, with particular attention to the management of retailing including buying, selling, accounting, organization, site location, and legal consideration. Prerequisite: BA 311.

Mktg 503
Thesis (Credit to be arranged.)

Mktg 507
Seminar (Credit to be arranged.)
Marketing Trends and Developments. Marketing Information Systems. Marketing Models. Export Planning for Executives. Sales Force Management.

Mktg 544
Marketing Management (4)
Introduces basic concepts of the marketing process from the perspective of the marketing manager and provides a framework for the analysis of problems in marketing management. A key focus is to examine the marketing planning and analysis necessary to develop sound marketing plans and strategy. Specific topics include the role of marketing strategy within the firm, analysis of marketing opportunities, selection of target markets and market segmentation, marketing strategies in a global marketplace, and marketing mix decisions. Prerequisite: BA 530.

***Mktg 546**
Buyer Behavior and Communication (4)
Study of determinants of buyer purchasing behavior emphasizing contributions from the behavioral sciences. Course will explore application of behavioral concepts to marketing strategy with emphasis on marketing communications 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)
Social-economic progress and the success of the firm depend to a great extent on effective product innovation and management. The course will examine the key role of product management as a central focus of marketing strategy. Major topics will include: new product strategy formulation, marketing opportunity and demand assessment, product design and development, managing the product line, and organizational considerations in product management. Prerequisite: Mktg 544.

***Mktg 551**
Managing Marketing Information (3)
Study of the uses and implementation of tools, methods, processes, and systems for managing marketing information. Emphasis will be placed on the determination of information needs for marketing decisions, the methods, processes, and systems for effective and efficient management of marketing information, as well as the new marketing approaches and tools that utilize information technology for marketing products and services. Prerequisite: Mktg 544.

***Mktg 552**
Relationship and Service Marketing (3)
Course focuses on the understanding of the service-profit chain and its links to customer satisfaction. Producer-customer relationships will be examined in terms of health service profits and growth, satisfied and loyal customers, greater service value. Prerequisite: Mktg 544.

Mktg 555
Technology Marketing (3)
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/engineering/manufacturing interface, product innovation strategies, value-based pricing, buyer behavior and strategic selling, competitive market analysis, and positioning and distribution strategies. Emphasis will be on strategies for marketing technology products in industrial markets.

***Mktg 560**
Research for Marketing Decisions (4)
Designed to study the methods of gathering primary 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 to develop appropriate marketing strategies. Stresses detailed analysis of marketing environments and the design and implementation of marketing strategies. Integrates a case study format. Prerequisites: FinL 561, 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 operational planning for marketing in the global environment. Also examines the management of international, multinational and global marketing enterprises and their marketing activities. Prerequisite: Mktg 544.

***Mktg 567**
Management of the Sales Force (3)
The course involves a detailed study of the sales management function. Issues to be addressed include designing the sales force, setting objectives, planning strategy, and controlling the program. Additional topics cover managing the sales force: recruiting, training, directing, motivating, compensating, and evaluating sales representatives.Prerequisite: Mktg 544.

Mktg 601
Research (Credit to be arranged.)

Mktg 607
Seminar (Credit to be arranged.)

MASTER OF INTERNATIONAL MANAGEMENT COURSES

Courses offered through the Master of International Management program are open only to students admitted to the program.

MIM 510
Selected Topics (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 global/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 (3)
Study of contemporary political, economic, and social issues of significance to the Pacific Rim countries and their responses. How different Asians and Asian governments view each other and the world, politics around the Pacific Rim, regional and subregional cooperation, and Asian response to GATT.

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 (3)
In-depth examination of the management of human resources in the international firm. Course begins with an analysis of human resource management philosophies and approaches to industrial and employee relations in representative countries. The integration of human resource management systems in international firms, including the creation of global corporate culture, and approaches to human resource management transfer across borders.

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 on 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 nonverbal 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
ULRICH H. HARDT, ASSOCIATE DEAN
DAVID KRUG, ASSOCIATE DEAN
608 SCHOOL OF EDUCATION BUILDING, 725-4619

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 Education; Special and Counselor Education)

The Graduate School of Education is authorized by the State Board of Higher Education to offer degree and licensure programs at the graduate level. 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 109) 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.†

DEGREE PROGRAMS

Graduate programs in professional education reflect a commitment on the part of the Graduate School of Education and the University to provide degree and specialist programs which will encompass all disciplines that have relevance to professional education. This approach emphasizes breadth and depth in the liberal arts as well as a commitment to professional education.

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 45. 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.

Graduate Program Requirements. University graduate degree requirements are listed on pages 51 and 54. Specific Graduate School of Education requirements for degree, educational specialists, or license candidates are listed below.

† 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 Information Office.

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 Portland State University and the Graduate School of Education, is the School's highest professional degree. It attests to the demonstrated proficiency of those who are its recipients in an area of advanced graduate study. 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. The program is designed for professional educators interested in improving educational practices in school, college, and other settings.

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 of positions of leadership in urban and suburban communities.

Four specializations are offered: administration, designed for those focusing on elementary and secondary education; postsecondary education, designed for those working in community and four-year colleges and universities and other nonschool settings offering programs for adults; curriculum and instruction, designed for those interested in the improvement of both the curriculum and the instruction found in educational settings; and special and counselor education, designed for those working in education and agency settings.

General Requirements. A minimum of 135 credits is required beyond the baccalaureate. Students must either satisfy degree requirements extant at the time of admission or, at the student's option, may elect to apply requirements adopted after admission. Continuous enrollment is required.

The equivalent of three years of full-time graduate study beyond the baccalaureate is required. A minimum of 72 credits must be completed at Portland State University after admission to the doctoral program, to include the leadership core, specialization, and dissertation.

1. *The Leadership Core.* The leadership core is the common core to be completed by all students and is a feature of the program. With the exception of some options in the curriculum and instruction specialization, the core consists of the following 10 courses:

	Credits
CI 640 Principles of Teaching and Learning	3
CI 641 Research and Practice in Teaching and Learning	3
EPFA 620 Doctoral Studies Proseminar	3
EPFA 630 Educational Organization	3
EPFA 631 Educational Leadership Theory and Research	3
EPFA 650 Politics and Policy Processes in Education	3
EPFA 651 Educational Policy Analysis	3
EPFA 660 Doctoral Research I	3
EPFA 661 Doctoral Research II	3
EPFA 662 Doctoral Research III	3

2. *The Specialization.* Four options are available to students: administration; postsecondary 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	6
EPFA 610 Theory and Research in Educational Administration (3)	
EPFA 610 Social, Historical, Philosophical, and Cultural Foundations of Educational Administration (3)	
Choose courses from one of the following three specialty areas:	
1.District-level Administrative Specialty Courses	12
EPFA 593 School Personnel Administration (3)	
EPFA 595 School Finance (3)	
EPFA 609 Superintendent Practicum (6)	
2.School-level Administrative Specialty Courses	12
EPFA 530 School and Community Relations (3)	
EPFA 609 Administrator Practicum (6)	
EPFA 610 Administering the Work Group (3)	
3.Educational Policy Specialty Courses	12
EPFA 553 History of American Education (3)	
EPFA 554 Philosophy of Education (3)	
EPFA 610 School and Society (3)	
EPFA 610 Social Foundations of Education (3)	
Electives chosen from the following list:	6
EPFA 539 Program Evaluation (3)	
EPFA 575 Law and Education Policy (3)	
EPFA 577 Cultural Pluralism and Urban Education (3)	
EPFA 593 School Personnel Administration (3)	
EPFA 594 School Law (3)	
EPFA 595 School Finance (3)	
EPFA 601 Research (3)	
EPFA 605 Reading and Conference (3)	
EPFA 606 Special Problems (3)	
EPFA 607 Seminar (3-6)	
Total	24

Postsecondary Education	Credits
Required Courses	9
EPFA 607 Advanced Postsecondary Seminar (3)	
EPFA 610 Adult Development (3)	
EPFA 519 Contemporary Issues in Postsecondary Education (3)	
Electives	6-9
EPFA 516 Adult Learning (3)	
EPFA 517 Policy and Governance in Postsecondary Education (3)	
EPFA 533 Planning and Budgeting in Postsecondary Education (3)	
EPFA 536 Postsecondary Curriculum (3)	
EPFA 541 The Community College (3)	
Further Study and/or Field Application	6-9
Internship (varies)	
Directed Reading (varies)	
Additional Coursework (varies)	
Total	24

Curriculum and Instruction	Credits
CI 610 Research and Resources in Curriculum and Instruction	3
CI 609 Research Practicum	3
Research Elective	3
Additional Practicum	3
Integrative Themes for Change	21-24
The student, in consultation with the adviser, will choose an integrative theme to be proposed as part of the program planning process. (As an alternative, more traditional *specializations*—reading and language arts, early childhood education, library media and technology education, mathematics education, etc.—could be the focus of a student's program.)	
Examples of integrative themes are:	
Learning and Human Development	
Inclusive/Multicultural Education	
Community and Environmental Renewal	

Special Education and Counselor Education	Credits
SpEd/Coun 610 Problem-centered Studies in Special and Counselor Education: Seminar I, II, III	18
SpEd/Coun 609 Internship†	12
in College Teaching (3-6)	
and/or in Supervision (3-6)	
and/or in School Settings (3-6)	
and/or in Community Settings (3-6)	
Total	30

The Cognate Field. Students in administration or postsecondary education must complete work in a field(s) outside the Graduate School of Education that complements their degree program. The cognate might be used for several purposes: to gain further knowledge about theories and conceptual frameworks developed by those in other fields that have been or might be applied to education; to develop in-depth knowledge of and skill with specific

† Minimum of 12 credits. As part of each internship, students and faculty will attend an internship seminar.

inquiry methods; and to gain greater breadth in related fields: 12 to 18 credits.

Electives. Students may include up to 45 credits as electives. Electives might include courses taken as part of a master's degree program, additional education courses taken by those coming from fields other than education, and additional cognate work.

Comprehensive Examination. The comprehensive examination covers both the leadership core and the major studies core and is taken in two parts. The first, taken when the student has completed or is nearing completion of the leadership core, is designed to assess a student's ability to integrate and extend knowledge in the leadership core. The second, focused on the specialization, is designed to assess a student's ability to integrate and apply theoretical concepts and research results that inform the dissertation project.

An alternative to the comprehensive examinations is the writing of two formal papers and oral exams by an examining committee.

Dissertation. The doctoral dissertation represents original and independent inquiry which is a contribution to knowledge or is a constructive result of significance and value for educational practice. Students may elect to employ one of several different approved inquiry strategies, including—but not limited to—traditional research designs and methods, ethnographic and descriptive case studies, policy analyses, product development and field testing, and program evaluation. A minimum of 18 credits is directed toward the dissertation project.

With the following exceptions, the requirements for the Ed.D. degree are the same as the general requirements for doctoral degrees at PSU. Candidates for the Ed.D. degree may fulfill the residency requirement after admission to the doctoral program in one of three ways. All require three consecutive terms of full-time approved graduate study at PSU (at least 9 credits per term). The options are: coursework, the study of practice (i.e., field-based work), or dissertation. Students are expected to carry less than a full-time job assignment during the residency period. No foreign language competency is required for the Ed.D. degree.

MASTER OF ARTS OR MASTER OF SCIENCE IN EDUCATION

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 administration (K-12); early childhood administration; postsecondary, adult, and continuing education (which includes a special option designed for students enrolled in the post-baccalaureate program in health care administration at Concordia University); staff development; and research and evaluation.

The purpose of these programs is to prepare educational leaders 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 a common Professional Studies Core, which consists of the following:

Professional Studies Core—15 credits (minimum)
Foundations of Education—6 credits (minimum)
†EPFA 551 Social Foundations of Education *or* EPFA 554 Philosophy of Education
EPFA 455/555 Gender and Education
EPFA 456/556 Urban Schools and At-Risk Status
EPFA 552 History of Education
EPFA 553 History of American Education
EPFA 577 Cultural Pluralism and Urban Education
Research and Evaluation—3 credits (minimum)
†EPFA 511 Principles of Educational Research I
EPFA 512 Principles of Educational Research II
EPFA 513 Principles of Educational Research III
EPFA 515 Educational Measurement
EPFA 539 Program Evaluation
Organizational Systems—3 credits (minimum)
EPFA 510 Organizational Change in Education
†EPFA 520 Educational Organization and Administration
EPFA 531 Human Relations in Educational Organizations
Adult Development—3 credits (minimum)
CI 561 Advanced Educational Psychology
EPFA 510 Adult Motivation
†EPFA 516 Developmental Perspectives on Adult Learning
EPFA 517 Adult Learning

In addition, students must complete the requirements for their area of specialization. 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 also 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 graduate adviser and 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 School of Education requirements and is a 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).

Note: Students in all three specializations must complete Coun 541 Introduction to Counseling and one course in psychopathology prior to admission or before enroll-

† Required course.

ment in the fall term of the first sequence of coursework. Additional prerequisites are specified for students who have not taught who are seeking admission to a school licensure program (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 techniques to the populations seeking counseling services.

The program of study leading to an M.A./M.S. in education with a Community Counseling Specialization must include the following courses:

	Credits
Coun 506 Appraisal Instruments (concurrent with Coun 567)	1
Coun 506 Current Issues in Counseling	3
Coun 506 Legal Issues	1
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 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	3
Coun 586 Psychopharmacology and Mental Illness	3
Coun 587 Mental Health Services	3
EPFA 511 Principles of Educational Research I	3
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 and/or supportive coursework selected from Counseling Special Education, Education, Psychology, Sociology, Social Work, or Anthropology	8
Total	72

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 improve 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
Coun 506 Appraisal Instruments (concurrent with Coun 567)	1
Coun 506 Legal Issues	1
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 Rehabilitation in the Private Sector	3
SpEd 510 Job Placement and Training	3
EPFA 511 Principles of Educational Research I	3
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	72

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 568 Career and Life-style 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	3
Coun 586 Psychopharmacology and Mental Illness	3
Coun 587 Mental Health Services	3
EPFA 511 Principles of Educational Research	3
Practicum Sequence (Year Long): Coun 509 Practicum: Counseling	9
Internship Sequence (Year Long): Coun 509 Practicum: Internship	9
Coun 573 Contemporary Marriage/Family Systems	3
†Coun 574 Family Development Over the Life Cycle	3
†Coun 570 Human and Family Sexuality Across the Life Span	3
†Coun 576 Human Sexuality and Therapeutic Approaches	3
†Coun 577 Advanced Family Therapy	3
†Coun 578 Advanced Marital Therapy.	3
† Coun 579 Therapeutic Strategies and Family Transition	3
Total	84

School Counseling Specialization. For information regarding this specialization, please refer to licensure programs, page 185.

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 186 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 between 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).

† Coun 573 and 575 recommended prior to enrolling in these courses.

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

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:

	Credits
CI 510 Research into Practice: Theory	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), mid-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. All academic requirements for issuance of a Continuing Teaching License are also met. A Continuing Teaching License is issued upon verification of three years of successful teaching in Oregon public schools. The dual Elementary Education/Handicapped Learner endorsement option is a five-term program of integrated coursework and field experiences. (Contact the Graduate School of Education for details.)

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
- Psy 311 Human Development (or equivalent)
- Ed 420/520 Introduction to Education and Society (or the equivalent)
- 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 Core Battery
  - *Mid-level and High School:* Specialty Area Test
- Departmental recommendation (secondary only)
- Proficiency in the use of computers is required.

Specific program admission requirements and application materials are available in each department in the Graduate School of Education.

Program Requirements: Early Childhood and Elementary

	Credits
CI 511 Classroom Management	3
CI 512 Teaching and Learning	3
CI 513 Classroom Instruction and Technology	2-5
CI 516 Integrated Methods I: Reading/ Language Arts	2-5
CI 517 Integrated Methods II: Health, Science, Soc. Studies	2-5
CI 518 Integrated Methods III: Art/Math/ Music/PE	1-5
CI 550 or CI 552 Student Teaching I	6
CI 551 or CI 553 Student Teaching II	15
CI 514 Multicultural and Urban Education	3
SpEd 418/518 Survey of Exceptional Learners	3
CI 515 The Reflective Practitioner	3
Total Credits	56

Program Requirements: Mid-level and High School

	Credits
CI 512 Teaching and Learning	3
CI 513 Classroom Instruction and Technology	2-5
CI 511 Classroom Management	3
CI 519 Special Secondary Methods	3
CI 509 Practicum: Field-Centered Activities	3
CI 521 Reading and Composition in the Content Areas	3
CI 554 Student Teaching I, Secondary	6
CI 555 Student Teaching II, Secondary	15
CI 514 Multicultural and Urban Education	3
SpEd 418/518 Survey of Exceptional Learners	3
CI 515 The Reflective Practitioner	3
CI 548 Advanced Secondary Methods: Specialty Areas	3
Departmental Methods or other course	3
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 pre-primary through 12 (in departmentalized settings) or five through 12 according to their endorsement areas.

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/Handicapped Learner

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 both elementary (K-9) 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, thereby necessitating all school personnel to have a broader professional preparation in working with more diverse populations. PSU faculty work with a dozen local school districts in providing field experiences which complement coursework. Contact the Graduate School of Education for details.

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.

	Credits
CI 570 Child Development and Education	3
CI 571 Play: Curriculum in Early Childhood Education	3
CI 572 Language and Literacy in Early Childhood Education	3
CI 573 Assessment in Early Childhood Education	3

EPFA 529 Early Childhood Education: Relationships with Home & Society 3
SpEd 580 Accommodating Children with Special Needs in Early Childhood Education 3
CI 509 Practicum in Early Childhood Education 3

Total 21

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:

	Credits
Ling 422/522 How Do People Learn a Second Language	3
Ling 423/523 Taking Stock: Assessment and Evaluation in Programs with Language Minority Students	2
CI 443/543 Effective Teaching Strategies for Working with Linguistically and Culturally Diverse Students	3
SpEd 455/555 Working with LEP Children Who Have Special Needs	2
EPFA 465/565 LEP School/Community Relations	3
EPFA 466/566 Impact of Language and Culture in the Classroom	3
EPFA 467/567 ESL/Bilingual Program Design and Models	3
CI 409/509 ESL Bilingual Practicum	3
Total	22

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 library 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 Books and Related Materials for Young People

Initial Endorsement. Twenty-six credits in educational media are required, to include the following:

	Credits
Lib 530 Literature Promotion Programs, K-12	3
†Lib 534 Administration of the School Library Media Center	3
Lib 536 Design and Production of Instructional Media	3
Lib 541 Reference and Information Systems and Services	4
Lib 542 Collection Development and Evaluation	3
†Lib 547 Library Media Instructional Programs, K-12	3
Lib 548 Organization of Library Media Collections	4
Lib 561, 562, or 563 Practicum	3

Continuing Endorsement. Forty-one credits in educational media are required, to include the 26 credits required for the initial endorsement and 15 additional credits to develop further teaching competencies in educational media.

	Credits
Lib 573 Advanced Methods and Procedures in School Library Media Centers	3
Lib 574 Research Strategies for Library Media Specialists	3
Lib 575 Directed Field Experience	3

Two courses (6 credits) from the following options for completion of the minimum 15-credit program:

Lib 510 Multicultural Literature, K-12	3
Lib 510 Contemporary Issues in the Library Media Center	3
Lib 576 Planning and Evaluation of Library Media Programs	3
Lib 587 Video Production	3
Lib 588 Computers and Advanced Technology in the Library Media Center	3
Lib 589 Creative Photography in Education	3
Lib 592 Contemporary Children's and Young Adult Literature	3

Required for the continuing endorsement, if not taken previously:

Lib 428/528 Children's Literature, K-5 *or* Lib 429/529 Books and Related Materials for Young People 3

Detailed information concerning the program in education media/school librarianship may be obtained through the Graduate School of Education.

Initial K-12 Teaching License in Educational Media

Students have the option of selecting a program leading to a K-12 Teaching License in Educational Media. The program includes educational media and education coursework, and a student teaching experience in the library media center. This enables the student to be a K-12 library media specialist, but not a classroom teacher.

	Credits
CI 511 Classroom Management	3
CI 512 Teaching and Learning	3
CI 513 Classroom Instruction and Technology	5
CI 514 Multicultural and Urban Education	3
SpEd 518 Survey of Exceptional Learners	3
Lib 530 Literature Promotion Program, K-12	3
†Lib 534 Administration of the School Library Media Center	3
Lib 536 Design and Production of Instructional Media	3
Lib 541 Reference and Information Systems and Services	4
Lib 542 Collection Development and Evaluation	3
†Lib 547 Library Media Instructional Programs	3
Lib 548 Organization of Library Media Collections	4
Lib 554 Student Teaching I	4
Lib 555 Student Teaching II	15
	59

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.

	Credits
Lib 530 Literature Promotion Programs, K-12	3
†Lib 534 Administration of the School Library Media Center	3
Lib 536 Design and Production of Instructional Media	3
Lib 541 Reference and Information Systems and Services	4
Lib 542 Collection Development and Evaluation	3
†Lib 547 Library Media Instructional Programs	3
Lib 548 Organization of Library Media Collections	4
Lib 554 Student Teaching I	4
Lib 555 Student Teaching II	15
	42

† Field experience required in conjunction with class.

Elementary Education (26 credits)

CI 511 Classroom Management 2
CI 512 Teaching and Learning 3
CI 513 Classroom Instruction and Technology 5
CI 514 Multicultural and Urban Education ... 3
SpEd 518 Survey of Exceptional Learners 3
CI 516 Integrated Methods I: Reading and Language Arts 5
CI 517/518 Methods II or III 5

26

Secondary Education (23 credits)

CI 511 Classroom Management 3
CI 512 Teaching and Learning 3
CI 513 Classroom Instruction and Technology 5
CI 514 Multicultural and Urban Education ... 3
SpEd 518 Survey of Exceptional Learners 3
CI 519 Special Secondary Methods..... 3
CI 521 Reading and Composition in Content Areas 3

23

Note: For dual licensure of elementary or secondary education with special education see page 182.

EDUCATIONAL ADMINISTRATION

Three authorized programs lead to institutional recommendations for initial and continuing licensure of qualified persons for positions as school principals and assistant principals, and school district superintendents and assistant superintendents. All students are required to have an approved program of planned study, as described below, filed 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 L-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 itself may be completed as part of a master's degree in educational administration offered by the department. Candidates who already have completed a masters degree may complete the licensure program independently. The initial administrator curriculum includes:

	Credits
EPFA 510 Human Relations and Educational Foundations	4
EPFA 510 Teaching, Learning, and Curriculum	4
EPFA 510 Human Resource Development and Organizational Change	4
EPFA 509 Administrative Practicum	12
	24

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 involves an intensive one-year cohort program. Option II involves completion of the six modules listed below over a multi-year period. Both options in the Continuing Administrator/ Initial Superintendent curriculum include a district-level practicum integrated within each of the modules:

	Credits
EPFA 510 Curriculum and Instructional Improvement.	6
EPFA 510 Communication and Conflict in Educational Organizations	6
EPFA 510 Social Foundations	6
EPFA 510 Implementing Standards-based Learning	6
EPFA 510 District Policy, Planning, and Operations	6
EPFA 510 Legal and Financial Aspects of Education	6

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, and students also will meet regularly to discuss key issues of educational reform implementation.

	Credits
EPFA 506 Special Problems: District Climate and Communication	4
EPFA 506 Special Problems: Crisis Management and Mediation	4
EPFA 506 Special Problems: Superintendent and Board Relations	4
EPFA 506 Special Problems: Collective Bargaining and Contract Management	4
EPFA 506 Special Problems: Curriculum and Facility Planning	4
EPFA 506 Special Problems: The Politics of Education	4

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 following coursework is recommended as preparation for the reading endorsements. Students should direct their inquiries to the Curriculum and Instruction Department.

Initial Endorsement. A minimum of 21 credits is recommended as follows:

	Credits
Lib 428/528 Children's Literature, K-5 *or* Lib 488/588 Books and Related Materials for Young People	3
CI 474/574 Corrective Reading	3
CI 516 Integrated Methods I (5) *or* CI 472/572 Language and Literacy in Early Childhood Education(3) and CI 510 Teaching Reading in Elementary School (3)	5-6
CI 521 Reading and Composition in the Content Areas	3
CI 529 Administration of School Reading Programs	3
SpEd 563 Advanced Techniques of Reading	3
Total	20-21

Note: Completion of the PRAXIS Speciality Area Exam in Reading is required for Oregon licensure.

Continuing Endorsement. In addition to courses completed for the basic endorsement, 24 credits are recommended:

	Credits
SpEd 512 Assessment and Planning *or* CI 509 Practicum: Reading Assessment	3
CI 525 Issues and Perspectives in the Teaching of Reading	3
CI 547 Advanced Methods: Reading (Elementary) or CI 548 Advanced Methods: Reading (Secondary)	3
15 credits selected from the following:	
CI 491/591 Enriching Children's Reading	3
CI 510 Language, Literacy and Culture	3
CI 510 Literacy Assessment	3
CI 526 Reading for the Creative and Gifted	3
CI 527 Enriching Reading in Secondary School	3
CI 528 Whole Language Approach to Literacy	3
Lib 530 Literature Promotion Programs, K-12	3
Additional electives in consultation with an adviser.	

Note: PRAXIS Speciality Area Exam in Reading and PRAXIS Professional Knowledge are required.

SCHOOL COUNSELING

Track I (with teaching experience)

Students seeking licensure to work as a counselor in the public schools of Oregon must meet the following prerequisites:

1. be eligible for or hold an Oregon teaching license and,
2. be able to document two years of teaching experience.

The Washington schools require the completion of an approved master's program in Counseling including comprehensive exams.

If you do not possess a master's degree in education, you must complete the requirements for the master's to meet the requirements for standard licensure.

Initial License

The program of study leading to an M.A. or M.S. in Education: Counseling with school counseling specialization must include the following courses, a minimum total of 72 credits. Students seeking initial licensure prior to completing a master's degree and M.A./M.S. holders who are seeking licensure must complete the following courses:

	Credits
Coun 506 Diagnosis in Schools	1
Coun 506 Appraisal Instruments (concurrent with Coun 567)	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 568 Career and Life-style Planning	3
Coun 569 Developmental Foundations of Counseling	3
Coun 571 Group Counseling	3
Coun 581 Multicultural Perspectives	3
Coun 598 Consultation Procedures	3
Practicum Sequence (Year-Long):	
Coun 509 Group Counseling Practicum (concurrent with Coun 571)	1
†Coun 509 Practicum: Counseling	6
Total	36

Note: 1) Program prerequisites include Coun 541 Introduction to Counseling (or equivalent) and an upper-division or graduate course in psychopharmacology. 2) Track I School Counselors will be recommended for the initial license at the end of their second year of enrollment, providing all required coursework is completed. 3) All individuals pursuing the school licensure program must complete the prescribed course of studies and pass the PRAXIS specialty exam in school guidance and counseling before the initial license is awarded. 4) All individuals seeking school licensure must present proof of fingerprinting and completion of an anti-discrimination workshop.

Continuing License

Track I (with teaching experience)

Students seeking continuing licensure must have two years' counseling experience under an initial license and complete all the course requirements outlined above for an initial license plus the following additional courses. Anyone who has not completed a master's degree in education, must complete a master's before they will be recommended for the continuing license.

	Credits
Coun 506 Legal Issues	1
Coun 506 Substance Abuse	1
Coun 508 Counseling in the 21st Century	3
Coun 510 Counseling Children and Youth	3
Coun 510 Youth at Risk	3
EPFA 511 Principles of Ed Research	3
Specialty Courses:	4
Internship (Year-Long):	
Coun 509 Practicum: Counseling/School	3
Coun 509 Practicum: Internship/Supervision	9
Total	30

Track II (without teaching experience)

The program of study leading to an M.A. or M.S. in Education: Counseling with a School Counseling Specialization must include the following courses to total a minimum 78 credits:

	Credits
Coun 506 Appraisal Instruments	1
Coun 506 Diagnosis in Schools	1
Coun 506 Legal Issues	1
Coun 506 Special Problems: Counseling	4
Coun 506 Substance Abuse	1
Coun 508 Counseling in the 21st Century	3
Coun 508 Effective Teaching	6
Coun 510 Counseling Children and Youth	3
Coun 510 Human Growth and Development	3
Coun 510 Youth at Risk	3
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 568 Career and Life-style Planning	3
Coun 571 Group Counseling	3
Coun 581 Multicultural Perspectives in Counseling	3
Coun 598 Consultation Procedures	3
EPFA 511 Principles of Ed Research	3
Practicum Sequence (Year-Long):	
Coun 509 Group Counseling Practicum	1
Coun 509 Practicum: Counseling	9
Internship Sequence (Year-Long):	
Coun 509 Practicum: Internship/Supervision	9
Master's thesis and/or supportive coursework which develop a specialty selected from courses offered in Counseling, Special Education, Education, Psychology, Sociology, Social Work or Anthropology	6
Total	78

Note: 1) TSPC requires that persons pursuing licensure as school counselors who do not have a teaching license and/or have not taught two years must complete a 200-clock hour (Coun 508 Effective Teaching-6) supervised student-teaching experience in which they complete a work sample. 2) The initial license will be recommended after completion of the master's degree. 3) PRAXIS exam: All individuals pursuing the school licensure program must complete the prescribed course of studies and pass the appropriate PRAXIS specialty exam and must present proof of fingerprinting and completion of an anti-discrimination workshop before the initial certificate is awarded. 4) The continuing license will be awarded after the experience requirement of TSPC is met.

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
SpEd 418/518 Survey of Exceptional Learners . . . . . .3 credits
SpEd 519 Principles of Special Education . . . . . .3 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).

For further information about the special education program, please call the

† TSPC requires a 200 clock-hour practicum for the initial license. During enrollment in the on-campus practicum, students in the school track will be expected to log an additional 80-100 hours involved in the usual and customary role of the school counselor.

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 (725-4619).

Oregon has recently adopted a new licensure system for teachers. The new licensure system takes effect beginning January 1999. The Handicapped Learner and Severely Handicapped Learner endorsements are replaced by the Special Educator endorsement. As a result, Portland State University is changing its licensure programs to conform with the new licensure standards. The Visually Impaired and Early Intervention programs also will meet the new licensure requirements. All programs are graduate programs offered only to those with bachelor's degree. PSU will begin implementing this new program summer 1998.

Special Educator Endorsement Program—Elementary (Age 3-Grade 8)

SpEd 506 Specialized Techniques 2
SpEd 509 DFE I Low Incidence Disabilities . . 3
SpEd 509 DFE II High Incidence Disabilities . 3
SpEd 510 Inclusion Strategy and Transition Program–Elementary 2
SpEd 510 Instructional Methods I–Elementary 3
SpEd 510 Instructional Methods II–Elementary 3
SpEd 510 The Consulting Teacher–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 512 Diagnostic Assessment 3
SpEd 521 Behavior Management 3
SpEd 525 Student Teaching - Elementary . . . 12
SpEd 532 Functional Assessment 4
SpEd 534 Functional Curriculum 4

Total 53

Special Educator Endorsement Program—Secondary (Grade 5-Grade 12)

SpEd 506 Specialized Techniques 2
SpEd 509 DFE I Low Incidence Disabilities . . 3
SpEd 509 DFE II High Incidence Disabilities . 3
SpEd 510 Inclusion Strat.and Transition Program–Secondary 2
SpEd 510 Instructional Methods I–Secondary 3
SpEd 510 Instructional Methods II–Secondary 3
SpEd 510 The Consulting Teacher–Secondary 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–Secondary 1
SpEd 512 Diagnostic Assessment 3
SpEd 521 Behavior Management 3
SpEd 525 Student Teaching–Secondary 12
SpEd 532 Functional Assessment 4
SpEd 534 Functional Curriculum 4

Total 53

Vision Impaired Learner Endorsement Program

SpEd 506 Specialized Techniques 1
SpEd 509 DFE I Visually Impaired 3
SpEd 509 DFE II Visually Impaired 3
SpEd 510 The Consulting Teacher. 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 3

Total 49

Early Childhood/Early Intervention Endorsement Program

Please contact the Graduate School of Education for information about this program (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 Endorsement

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 six years in which to complete requirements for the continuing endorsement. For information about the continuing endorsement (previously referred to as the standard license), please contact the Graduate School of Education (725-4619).

SCHOOL COURSES

Courses marked 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)
Explores the nature of public education in the social context of the United States. Purpose is to develop critical ways of thinking about schools as social institutions and as a means of cultural transmission and transformation.

Ed 507
Seminar (Credit to be arranged.)

Ed 509
Practicum (Credit to be arranged.)
Consent of instructor.

Ed 510
Experimental Course (Credit to be arranged.)

Ed 525
Student Teaching (6-15)

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 251
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 252
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 253
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 350
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 351
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 for Working With Linguistically and Culturally Diverse Students (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 Limited 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 458/558
Instruction and Management in Kindergarten/ Primary Grades (3)
This course will consider growth and development characteristics of children ages 5-8 years and research on teaching for planning educational programs, curricula, 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)
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 474/574
Corrective Reading (3)
The course is to help classroom teachers understand and give appropriate assistance to children experiencing difficulty in learning to read. It deals with the analysis and interpretation of children's reading performance; the collection and use of relevant background information; the assessment of reading potential; classroom diagnostic testing; planning and implementing activities to help children gain skill, interest, and enjoyment in learning to read; and methods of reporting progress. Prerequisites: a 3-credit course in reading, completion of student teaching, or equivalent.

CI 475†/575
Supervision in Early Childhood Education Settings (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. Prerequisite: Lib 428/528.

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.

† Restricted to students in the Child and Family Studies degree program.

CI 515
The Reflective Practitioner (3)
Perspectives and techniques for formal and informal analysis, information gathering, decision making, value judgements 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 490/590 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 525
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 526
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 527
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 528
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 529
Administration of School Reading Program (3)
The course is for current or future administrators, coordinators, curriculum consultants, or teachers whose responsibilities will include leadership roles in the administration of schoolwide 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 (3)
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, 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 550
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 551
Student Teaching II, K-Primary (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 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 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 566
Curriculum Construction (3)
Evaluation of current curricular programs and trends. Techniques and methods of curricular improvement. Leadership in curricular improvement. Preparation of a curriculum.

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; education 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 ideas against concrete case studies of instruction; formulation and defense of one's own theory. 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 640
Principles of Teaching and Learning (3)
Provides an organizing framework for understanding theories and relationships between teaching and learning; theories, context and concept applications of teaching and learning presented relevant to K-12 and postsecondary settings. Prerequisite: EPFA 620 or concurrent enrollment.

CI 641
Research and Practice in Teaching and Learning (3)
Introduction to the systematic study of teaching and learning, including the review of leading research and development programs; both classroom and system-wide settings considered; attention given to leadership in practice and innovation. Prerequisite: CI 640.

CI 801
Research (Credit to be arranged.)

CI 802
Independent Study (Credit to be arranged.)

CI 804
Cooperative Education/Internship (Credit to be arranged.)

CI 805
Reading and Conference (Credit to be arranged.)

CI 806
Special Problems (Credit to be arranged.)

CI 807
Seminar (Credit to be arranged.)

CI 808
Workshop (Credit to be arranged.)

CI 809
Practicum (Credit to be arranged.)

CI 810
Experimental Course (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 429†/529
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 451†/551
Social Foundations of Education (3)
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 454/554
Philosophy of Education (3)
Study and comparison of the philosophical bases of educational ideas and of the educational implications of philosophical thought.

EPFA 455/555
Gender and Education (3)
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

† Restricted to students in the Child and Family Studies degree program.

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 456/556
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 with Urban Studies.

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.

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 497/597
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 511, 512, 513
Principles of Educational Research and Data Analysis I, II, III (3, 3, 3)
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 514
Advanced Research Designs and Data Analysis in Education (3)
Designs for multiple independent variables; equating designs for multigroups; designs for multiple dependent variables; follow-up procedures for multiple dependent variable designs; selected data collection methods, including questionnaires, interviews, observation, sociometry, and objective tests and scales; computer application in the use of selected designs. Prerequisite: EPFA 513.

EPFA 515
Educational Measurement (3)
Minimum competency, norm-referenced, and criterion-referenced tests; classroom student assessment; characteristics and levels of measurement; reliability; validity; interpreting test scores; standardized tests; constructing selection and supply items; planning and constructing classroom tests; evaluating test items. Prerequisite: graduate standing.

EPFA 516
Developmental Perspectives on Adult Learning (3)
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. Prerequisite: admission to a graduate program.

EPFA 517
Adult Learning (3)
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. Prerequisite: graduate standing.

EPFA 518
Policy and Governance in Postsecondary Education (3)
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 519
Contemporary Issues in Postsecondary Education (3)
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 520
Educational Organization and Administration (3)
Examination of the role, functions, and responsibilities of the educational administrator; study of administrative and organizational theory and its application to the operation of educational organizations and school districts. Prerequisite: graduate standing.

EPFA 521
Introduction to Educational Administration (3)
Introductory course required of applicants to the Basic Administrator certificate program. Considers educational, social, political, economic, organizational, and cultural forces shaping U.S. public schools and their administration.

EPFA 524
Oregon School Law (2)
This course examines the legal framework of the public school system in the state of Oregon. Administration policies are analyzed from the legal perspective. Compliance issues are discussed. Oregon Revised Statutes are interpreted and related to school district and school building operations. Prerequisites: EPFA 520 and admission to the administration program.

EPFA 526
Instructional Budget Management (2)
A course which studies the budget-making process at the district and building level; sources of revenue and fiscal expenditure policies are examined; plans are developed for translating income into instructional goals. Prerequisites: EPFA 520 and admission to the administration program.

EPFA 530
School and Community Relations (3)
An intensive examination of the school and its environment. Major emphasis is on the linking mechanisms utilized by the school in interacting with parents, citizens, and special interest groups. Prerequisite: graduate standing.

EPFA 531
Human Relations in Educational Organizations (3)
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 532
Administration of Curriculum (3)
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: EPFA 521 or CI 566.

EPFA 533
Planning and Budgeting in Postsecondary Education (3)
The course provides an introduction to an overview of planning and budgeting processes used in postsecondary environments. Major emphasis is placed on key concepts and models and applications to institutional cases and on strategies for linking planning and budgeting functions. Prerequisite: graduate standing.

EPFA 535
Assessing Adult Learning (3)
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 levels and to practices that themselves contribute to adult learning. Prerequisite: EPFA 517.

EPFA 536
Postsecondary Curriculum (3)
The course provides a historical and philosophical perspective on postsecondary curriculum with major attention given to review and analysis of current curriculum practices and issues. Attention is given to questions of outcomes, facilitating adult learning, and the assessment of learning. Prerequisite: graduate standing.

EPFA 539
Program Evaluation (3)
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: EPFA 515.

EPFA 540
Improving School District Programs (3)
Relating district policies, goals, objectives, and programs; characteristics of effective instrumental programs; improving district programs, including needs assessment, policy and decision-making, goal setting, resource allocation, and staff training; models and strategies for the evaluation of district policies and programs. Prerequisite: EPFA 520.

EPFA 541
The Community College (3)
An introduction to the history, roles, and functioning of the community college. Prerequisite: graduate standing.

EPFA 553
History of American Education (3)
The historical development of the American educational system, from European backgrounds and colonial beginnings to the present time. Prerequisite: graduate standing.

EPFA 561, 562
Staff Development: Planning, Implementation, And Evaluation I, II (3, 3)
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 574
Supervision and Evaluation of Instruction (3)
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 575
Law and Education Policy (3)
The focus of the course is on the relationship between legal decisions and the educational policy process. Analyses of the major trends toward "legalization" in education is central to the course. Attention especially will be given to the ways legislative, administrative, and judicial decisions and governmental organizations shape educational policies and programs. Prerequisites: EPFA 594 and admission to doctoral program.

EPFA 576
School Buildings (3)
Study of the problems involved in planning, financing, construction, and equipping school buildings. Programs of plant care, maintenance, and use. Analysis of specific district. Prerequisite: consent of instructor.

EPFA 577
Cultural Pluralism and Urban Education (3)
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. Prerequisites: EPFA 594 and admission to the doctoral studies.

EPFA 578
Politics and Policy Processes In Education (3)
An intensive examination of political behavior in educational policy making. Central to the course is a review of the increasing number of educational policies which are formulated at the federal and state levels and the impact of these policies on local school districts. Prerequisites: EPFA 594 and admission to doctoral studies.

EPFA 591
Educational Leadership (3)
Analysis of leadership theories, skills, and techniques as applied to the organization and administration of public education. Prerequisite: graduate standing.

EPFA 593
School Personnel Administration (4-6)
The role of administration in the development of cooperative relationships, improvement and direction of school personnel, both professional and nonprofessional. Prerequisite: admission to the program, or consent of instructor. Two 2-hour seminars plus arranged hours of field work.

EPFA 594
School Law (3)
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 595
School Finance (3)
An examination of the financial structure of school districts, the budget-making process, budget resources, and allocation of funds. Includes study of Oregon's system of program budgeting. Prerequisite: admission to the certificate program in school administration.

EPFA 596
The Principalship (3)
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 521.

EFPA 601
Research (Credit to be arranged.)

EPFA 602
Independent Study (Credit to be arranged.)

EFPA 603
Dissertation (Credit to be arranged.)

EFPA 604
Cooperative Education/Internship (Credit to be arranged.)

EFPA 605
Reading and Conference (Credit to be arranged.)

EFPA 606
Special Problems/Projects (Credit to be arranged.)

EFPA 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 620
Doctoral Studies Proseminar (3)
Inquiry of researchable problems in education; overview of methodology and design for policy studies, ethnographies, experimental and nonexperimental research; the relationships among theory, research, and practice. Prerequisite: admission to the doctoral program.

EPFA 630
Educational Organization (3)
Organizational concepts and theoretical frameworks appropriate to describing and analyzing educational work settings. Prerequisite: EPFA 620 or concurrent enrollment.

EPFA 631
Educational Leadership Theory and Research (3)
Leadership concepts and theories; emphasis on the identification and analysis of significant educational policy issues and problems of educational leadership. Prerequisite: EPFA 630.

EPFA 650
Politics and Policy Processes in Education (3)
Politics of education as a field of study; central attention given to an examination of interest group formation and articulation, the political process and politics of educational decision making. Prerequisites: EPFA 620, 630.

EPFA 651
Educational Policy Analysis (3)
Theory and practice of educational policy development and implementation within educational organizations; focus on the review, analysis, synthesis of theory and concepts from political science and models of policy formation and implementation. Prerequisite: EPFA 650.

EPFA 660
Doctoral Research I (3)
First course in a year-long sequence of three courses designed to provide the student with basic knowledge about the conduct of inquiry in education; focus on qualitative research. Prerequisite: EPFA 620 or concurrent enrollment.

EPFA 661
Doctoral Research II (3)
Second course in a year-long sequence of three courses designed to provide the student with basic knowledge about the conduct of inquiry in education; focus on survey research, computer applications and advanced statistics. Prerequisite: EPFA 660.

EPFA 662
Doctoral Research III (3)
Third course in a year-long sequence of three courses designed to provide the student with basic knowledge about the conduct of inquiry in education; focus on experimental and quasi-experimental design and quantitative methods. Prerequisite: EPFA 661.

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.)

LIBRARY COURSES

Lib 181
Use of the Library (3)
Initial training in the effective use of the University library and resources, such as the card catalog, reference materials, and electronic resources, including the on-line datalog, CD-ROM databases, and Internet.

Lib 401/501
Research (Credit to be arranged.)

Lib 402/502
Independent Study (Credit to be arranged.)

Lib 403/503
Thesis (Credit to be arranged.)

Lib 404/504
Cooperative Education/Internship (Credit to be arranged.)

Lib 405/505
Reading and Conference (Credit to be arranged.)

Lib 406/506
Special Problems (Credit to be arranged.)

Lib 407/507
Seminar (Credit to be arranged.)

Lib 408/508
Workshop (Credit to be arranged.)

Lib 409/509
Practicum (Credit to be arranged.)

Lib 410/510
Experimental Course (Credit to be arranged.)

Lib 425
Instructional Media and Technology (3)
Study of instructional media in the curriculum; computers and computer applications in education; instructional applications of audio and video educational equipment and materials; development of educational materials such as visual transparencies and graphics. Analysis of role of the school library media center in the instructional program. Prerequisite: Introduction to Education.

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
Books and Related Materials for Young People (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 530
Literature Promotion Programs, K-12 (3)
A study of techniques for promoting literature in elementary and secondary schools: author/illustrator studies, reading books aloud, storytelling, booktalks, reading promotion programs, and incorporating literature throughout the curriculum. Prerequisite: Lib 428/528.

Lib 534
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 536
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 541
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 542
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 547
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 548
Organization of Library Media Collections (4)
Principles of organization of library media center collections. Basic cataloging procedures for print, nonprint, and electronic forms of media using standard cataloging and classification codes. Application of online cataloging databases. Prerequisite: Lib 428/528.

Lib 554
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 534. Prerequisites: admission to the program and approved application.

Lib 555
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 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 visitations 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 disc, 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)
A study of the responsibilities and procedures of teachers for guiding students at all levels in becoming more effective and capable persons. Prerequisites: 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 135 credits.

Coun 542, 543
Interpersonal Relations I, II (3, 3)
Development of the self. Emphasis on creative growth and the nature of interaction with others. Communication and belief systems in relation to self-acceptance. To be taken sequentially.

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 Psychoanalytic Jungian, Adlerian, Client-Centered and Gestalt 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 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/labor 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 570
Human and Family Sexuality Across the Life Span (3)
Examines the expression of human sexuality and intimacy and how sexual knowledge, attitudes, and behaviors are learned and developed across the family life span. Review recent research and theory about gender and sexuality.

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 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 breakdowns 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, use of "self," doubling, sculpting, etc., are interventions which are taught using an experiential format. Prerequisite: Soc 461.

Coun 576
Human Sexuality and Therapeutic Approaches (3)
Therapeutic approaches to sexual problems (common psychosexual disorders, sexual compulsion, and sexual symptoms of sexual abuse) from Freudian, psychodynamic, behavioral/cognitive systems, post-modern, "sexual crucible," and EMDR will be discussed.

Coun 577
Advanced Family Therapy (3)
Analyze 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/interactional questions. A major emphasis is 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, remarriage, 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 585
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: Psy 534 or Coun 541.

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 design 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
Rehabilitation in the Private Sector (3)
Covers private sector rehabilitation, the private rehabilitation practitioner's relationship to the client, the insurer, the insurance system, and workers' compensation. Prerequisite: Coun 590

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, consultee, and target (a second-order intervention). Attention is given to systems theory and the facilitation of planned changed, 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 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 455/555
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.

SpEd 513
Instruction and Programming: Handicapped Learner (3)
Comprehensive study of methodological considerations 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, con-

† Restricted to students in the Child and Family Studies degree program.

ducting 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 curriculum. These curriculum areas 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 525
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 overviews.

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/rehabilitation 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
Advanced Assessment/Planning: Handicapped Learner (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 590
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, Prehm, 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.)

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

ROBERT DRYDEN, DEAN
MICHAEL A. DRISCOLL, ASSOCIATE DEAN
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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.E.—Manufacturing Engineering
Ph.D.—Electrical and Computer Engineering
Ph.D.—Participating school in Systems Science Doctoral Program
Ph.D.—Participating school 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 State University. However, engineering majors must be admitted formally to a specific degree program in civil engineer-

ing,
computer engineering, electrical engineering, or mechanical engineering before they will (1) be allowed to enroll in restricted upper-division courses offered by the School and (2) be graduated from that program. Application forms may be obtained from the Dean's Office, School of Engineering and Applied Science, LL Suite 20, Fourth Avenue Building. PSU students who anticipate completing all eligibility requirements before the term for which admission to a degree program is sought may apply.

Students transferring from other institutions who want to be admitted formally to a specific engineering degree program (civil engineering, computer engineering, electrical engineering, mechanical engineering) must:

- Meet all eligibility requirements.
- Apply for admission to PSU.
- Apply for program admission to the School of Engineering and Applied Science.
- Have one copy of their transcripts sent to the School of Engineering and Applied Science.
- Have one copy of their transcripts sent to the Office of Admissions.

Application deadlines for admission to a degree program are:

for fall term	June 15
for winter term	November 1
for spring term	February 1

Eligibility

To be eligible for admission to an engineering degree program, each student should meet the following minimum requirements:

1. Complete, with a minimum grade of C and a minimum GPA of 2.25, a designated set of courses for each undergraduate degree program as follows:

   Civil Engineering, Electrical Engineering, and Mechanical Engineering. The Engineering Core consisting of Ch 221; EAS 101, 211, 215; EE 201, 221; Mth 251, 252, 253, 254, 256; Ph 221, 222, 223, 214, 215, 216; Sp 100†, Wr 121†(59 credits).

   Computer Engineering. Ch 221; CS 162, 200; EAS 101, 102; EE 201, 221; Mth 251, 252, 253, 256; Ph 221, 222, 223, 214, 215, 216; Sp 100†, Wr 121† (59 credits).

2. Have a minimum GPA of 2.25 in all engineering and computer science coursework.

3. Complete a minimum of 90 credits.

Candidates who do not meet all criteria may, upon petition, be granted eligibility when an evaluation of the student's total record justifies such action and they are recommended by the School's Academic Appeals Committee.

Selective Admission

If the number of eligible applicants for admission to any engineering degree program exceeds that for which resources are available, acceptance will be competitive. In the event selective admission becomes necessary, the GPA computed for the required courses for eligibility for program admission will be used. Priority, within reasonable limits, will be given to resident students.

Although the primary purpose of the selective admission procedures is to limit enrollment to the number of students who can be served at a high level of quality, it is recognized that the rigid application of these procedures may eliminate applicants with high potential but who, due to circumstances beyond their control, have had limited access to the type of preparatory education that is essential to achieving the high performance level required for admission. All such applicants will be considered on the basis of their life experience and leadership qualities in addition to their academic achievement.

CONTINUATION CRITERIA

After admission to an engineering degree program (civil engineering, computer engineering, electrical engineering, mechanical engineering), students will be expected to make satisfactory progress toward their declared degree and will be subject to the following rules:

1. The term GPA in all courses taken at PSU must be 2.00 or higher.

2. At the conclusion of each term of the academic year full-time students are normally expected to complete a minimum of 9 credits in PSU engineering and/or computer science courses applicable toward their degree programs. Part-time students are expected to complete a minimum of 12 credits per academic year in PSU engineering and/or computer science courses.

3. Students will be placed on probation when their term GPA as described in (1) is below 2.00, or their progress toward the degree is less than that described in (2).

4. Students placed on probation for two consecutive terms or for a total of three terms will be suspended from specific degree programs. Students also will be suspended if not enrolled in engineering and/or computer science courses for three consecutive terms.

5. Students denied admission or suspended must wait at least one term before reapplying. This waiting period does not apply to those denied due to "selective admission."

APPEALS

Students denied admission or suspended may request reconsideration by submitting a petition. The petition and supporting materials will be reviewed by the appropriate department chair and the School's Academic Appeals Committee, and a recommendation will be forwarded to the dean. The appeal must be made within 30 days of notice to the student of denial of admission or suspension.

GENERAL EDUCATION REQUIREMENT

Students admitted as freshmen beginning with the 1994-95 academic year satisfy the PSU general education requirement with the University Studies program. Transfer students must complete a minimum 33 credits of University Studies courses and/or arts and letters and social science courses. Students should consult with their academic adviser regarding this requirement.

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 a required course is only offered with a pass/no pass option.

GRADUATE PROGRAMS

The School offers graduate programs leading to the degrees of Master of Science and Doctor of Philosophy.

Master's programs are available in civil engineering, computer science, electrical and computer engineering, mechanical engineering, engineering management, and manufacturing engineering.

A Ph.D. program in electrical and computer engineering is offered by the Department of Electrical Engineering.

In addition, the Departments of Civil Engineering, Mechanical Engineering, and the Engineering Management Program in the School of Engineering and Applied 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.

† 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.

ENGINEERING MANAGEMENT

LL Suite 50, Fourth Avenue Building
725-4660

M.S.
Ph.D.—Participating program 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 Management Program (EMP) has been designed for them.

EMP is a graduate program addressed to the needs of engineers and scientists whose objective is to advance to technical management positions in business, industry, or government. It also addresses the needs of those who are interested in continuing their studies toward a research-based career in engineering/technology management in academic institutions or R&D
organizations.

EMP draws on the strengths of the School of Engineering and Applied 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 51 credits in approved graduate courses is required to complete the master's degree in Engineering Management. The program consists of 27 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 (27 credits)

EMgt 520 Management of Engineering and Technology 4
EMgt 530 Decision Making in Engineering and Technology Management 4
EMgt 540 Operations Research in Engineering and Technology Management 4
EMgt 545 Project Management in Engineering 4
†EMgt 555 Technology Marketing 3
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

Electives (20 credits or 16 credits with the thesis option)

The Engineering Management Program 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.

ADMISSION TO THE PROGRAM

In addition to meeting general University admission requirements listed on page 45, applicants to the program are required to have a baccalaureate degree in engineering or related discipline, background in probability/statistics, computer programming, differential equations, 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 EMP director.

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 56.

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.

MANUFACTURING ENGINEERING

(503) 725-4284 (Portland)
(503) 737-2875 (Corvallis)

M.E.

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 jointly administered by Portland State University and Oregon State University (OSU) and makes use of faculty and facilities physically located at both campuses. The degree is awarded jointly by OSU and PSU. Courses are taught via interactive television with reception sites located throughout the state.

The master's degree in manufacturing engineering draws on the strengths of the departments of Mechanical Engineering at PSU, Industrial and Manufacturing Engineering at OSU, Mechanical Engineering at
OSU, and the Engineering Management Program at PSU. It also employs the guidance of a Technical Advisory Board composed of industry representatives.

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.

† Also offered as Mktg 555.

Core Requirements: 30-36 Credits

Courses satisfying core requirements at each institution:

	PSU	OSU
Analysis		
Applied Statistics for Engineers	Stat 560	St 521
Analysis/Numerical Methods†	ME 551	ME 575
Applied Statistics		
Statistical Process Control	ME 587	IE 551
Design of Industrial Experiments	ME 588	IE 552
Manufacturing Management		
Manufacturing Management	EMgt 510	IE 561
Advanced Manufacturing Management Systems	EMgt 510	IE 562
Project Management	EMgt 545	IE 563
Communication and Team Building	EMgt 522	BA 552
Concurrent Engineering		
Concurrent Engineering	ME 510	ME 518
Management (3-9)		
Strategic Planning in Engineering Management	EMgt 525	BA 559
Organizational Management	Mgmt 550	BA 553
Financial Accounting	Actg 511	BA 515

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 ME 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. International applicants are required to submit GRE scores.

At the time of admission, students will apply to either Portland State University or Oregon State University. The university to which they are initially accepted will become their home campus. Applicants will be required to choose a campus prior to applying and will not be permitted to apply to the alternate campus if their first application is rejected.

CIVIL ENGINEERING

138 Science Building II
725-4282

B.S.
Minor in Environmental Engineering
M.S.
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	Credits
EAS 101 Engineering Problem Solving	4
EAS 115 Engineering Graphics	3
Ch 221, 222, 223 General Chemistry	12
Ch 227, 228 General Chemistry Laboratory	2
Mth 251, 252, 253 Calculus I, II, III	12
‡Freshman Inquiry	15
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
CE 211 Plane Surveying and Mapping	3
CE 212 Field Problems in Plane Surveying	1
EE 201 Electrical Engineering Lab I	1
EE 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	12
Total	57

† Other analysis/numerical methods courses may be substituted.
‡ Please see page 15 for information on the general education requirement.

Junior Year	Credits
EAS 361 Fluid Mechanics	4
CE 324 Elementary Structural Analysis	4
CE 325 Indeterminate Structures	4
CE 333 Design of Steel Structures *or* CE 434 Principles of Reinforced Concrete	4
CE 341 Soil Classification and Properties	4
CE 351 Transportation Systems: Planning and Design	4
CE 362 Hydraulics	4
CE 364 Water Resources Engineering	4
CE 371 Environmental Engineering	4
G 301 Geology for Engineers	3
ME 321 Engineering Thermodynamics	4
Stat 460 Applied Statistics for Engineers and Scientists	3
Upper-division cluster	4
Total	50

Senior Year	Credits
CE 444 Geotechnical Design	4
CE 454 Urban Transportation Systems	4
CE 484 Engineering Project Management	3
CE 494 Civil Engineering Design	3
Approved civil engineering electives	20
Upper-division cluster	8
Total	42

†**Approved Civil Engineering Electives**	Credits
CE 311 Engineering Surveys	4
CE 333 Design of Steel Structures	4
CE 420 Advanced Mechanics of Materials	4
CE 421 Analysis of Framed Structures	4
CE 423 Vibration Analysis in Structural Engineering	4
CE 431 Stability of Structures	4
CE 432 Structural Steel Design-LRFD Method	4
CE 434 Principles of Reinforced Concrete	4
CE 435 Design of Reinforced Concrete Structures	4
CE 436 Masonry Design	4
CE 437 Timber Design	4
CE 438 Design of Composite Structures	4
CE 442 In situ Behavior and Testing of Soils	4
CE 443 Introduction to Seismology and Site Evaluation	4
CE 448 Earthquake Accommodation in Design	4
CE 457 Pavement Design	4
CE 464 Hydrologic and Hydraulic Modeling	4
CE 467 Hydrologic and Hydraulic Design	4
CE 474 Unit Operations of Environmental Engineering	4
CE 477 Solid and Hazardous Waste Management	4
ME 322 Applied Fluid Mechanics and Thermodynamics	4
ME 323 Heat Transfer	4
ME 421 Heating, Ventilating, and Air Conditioning Design Fundamentals	4
ME 422 Building Energy Use Analysis and Design	4

MINOR IN ENVIRONMENTAL ENGINEERING

A minor program is available within the School of Engineering and Applied 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:

Mth 254, 256; Ph 221, 222, 223, 214, 215, 216; Ch 221, 222, 223, 227, 228; EAS 361; CE 362, 364, 371, 474, and a minimum of 4 hours of approved electives.

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.

University master's degree requirements are listed on page 54. 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 45 credits of coursework and 3 credits of research project that includes a project report; and the third, completion of 54 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.

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 56.

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 95.

† CE 401, 404, 405, 406 (4 credits maximum); CE 407, 410, and CE 507 through 599 are also accepted. Of the 20 credits of CE electives, a minimum of 8 credits of "design" is required. Students must select these electives from a departmentally approved list of courses that indicates "design credit" content.

COMPUTER SCIENCE

120 Portland Center for Advanced Technology
725-4036

B.S.
Minor in Computer Science
M.S.

UNDERGRADUATE PROGRAM

The computer science program is designed to provide a comprehensive background in computer science and provides an opportunity for specialization in software engineering, compilers for parallel architectures, distributed systems, software testing, term rewriting systems, software metrics, database systems, logic programming, and parallel computing. This program is designed to provide students with the educational background required for a professional career in the computer industry and for further study at the graduate level.

Majors in computer science must complete the following University and departmental degree requirements. Furthermore, all required courses and upper-division computer science electives must be completed with a minimum grade of C.

Freshman Year	Credits
CS 161, 162 Introduction to Computer Science	8
CS 163 Data Structures	4
Mth 251, 252, 253 Calculus I, II, III	12
Sp 100 Introduction to Speech Communication	4
†Freshman Inquiry	15
Total	43

Sophomore Year	Credits
CS 200 Computer Organization and Assembly Language	4
CS 201 Computer Architecture	4
CS 202 Programming Systems	4
CS 250 Discrete Structures	4
CS 251 Logical Structures	4
CS 252 Computational Structures	4
Ph 221, 222, 223 General Physics (with Calculus)	9
Ph 214, 215, 216 Physics Laboratory	3
†Sophomore Inquiry	12
Total	48

Junior Year	Credits
CS 300 Elements of Software Engineering	4
CS 301, 302 Languages and Compiler Design	8
CS 303 Operating Systems and Concurrent Programming	4
CS 350 Algorithms and Complexity	4
Mth 254 Calculus IV	4
Mth 343 Linear Algebra	4
Approved upper-division computer science elective	4
Wr 227 Technical Writing	4
Upper-division cluster	8
Total	44

Senior Year	Credits
Stat 460 Applied Statistics for Engineers and Scientists	3
Approved upper-division computer science electives	16
Approved science electives	8
CS 487, 488 Software Engineering Capstone	6
Upper division cluster	4
Free electives	8
Total	45

Approved Upper-Division Computer Science Electives
Students must complete 20 credits of approved upper-division computer science electives. The current list of approved 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 School of Engineering and Applied Science in the area of Computer Science.

To earn a minor in computer science, a student must complete 36 credits as follows:

CS 161, 162 Introduction to Computer Science	8
CS 163 Data Structures	4
CS 200 Computer Organization and Assembly Language	4
CS 201 Computer Architecture	4
CS 202 Programming Systems	4
Computer science upper-division electives except CS 404	12
Total	36

Only grades of C or better count toward departmental requirements. At least 16 of the required 36 credits must be taken at Portland State University.

GRADUATE 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.

The program contains advanced courses in the areas of software engineering, compilers for parallel architectures, distributed systems, software testing, term rewriting systems, software metrics, database systems, logic programming, natural language processing, and parallel computing. Flexibility is achieved by designing programs of study to meet individual needs.

University master's degree requirements are listed on page 54. The master's program in computer science consists of two options. The first option involves the completion of an approved program of 45 credits plus the writing of a project paper under the direction of a faculty member. 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. For the thesis option, successful completion of a final oral examination covering the thesis is required.

To be considered for admission to the master's degree program, the student must have a 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. The core curriculum (PSU courses in parentheses) includes: high-level language programming (CS 161, 162), algorithms and data structures (CS 163), computer hardware organization and architecture (CS 200, 201), programming systems (CS 202),

† Please see page 15 for information on the general education requirement.

discrete mathematics and logic (CS 250, 251), and calculus (Mth 251, 252, 253). In addition, basic knowledge of compilers (CS 301), operating systems (CS 303), and analysis of algorithms (CS 350) is strongly recommended. Adequate knowledge of an area may be demonstrated by passing the appropriate course with a grade of B or better. A GPA of at least 3.00 in upper-division coursework is required. In addition, applicants must take the general portion of the Graduate Record Examination and submit two letters of recommendation to the department.

CENTER FOR SOFTWARE QUALITY RESEARCH

120 Portland Center for Advanced Technology
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.

ELECTRICAL AND COMPUTER ENGINEERING

102 Portland Center for Advanced Technology
725-3806

B.S.
Minor in Electrical Engineering
M.S.
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 159. 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, optical electronics, and electromagnetics. This program provides the student with the educational background necessary for employment in virtually all electrical engineering fields.

The electrical engineering curriculum at Portland State University is 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	Credits
EAS 101 Engineering Problem Solving	4
EAS 102 Engineering Computation Structures	4
EE 171 Digital Circuits	4
Mth 251, 252, 253 Calculus I, II, III	12
Ph 221, 222, 223 General Physics (with Calculus)	9
Ph 214, 215, 216 Physics Laboratory	3
†Freshman Inquiry	15
Total	51

Sophomore Year	Credits
EAS 211 Statics	4
EAS 215 Dynamics	4
EE 201, 202, 203 Electrical Engineering Laboratory I, II, III	3
EE 221 Electric Circuits	4
EE 222 Signals and Systems	4
EE 223 Feedback and Control	4
EE 271 Digital Systems	4
Ch 221 General Chemistry	4
Ch 227 General Chemistry Laboratory	1
Mth 254 Calculus IV	4
Mth 256 Applied Differential Equations I	4
†Sophomore Inquiry	12
Total	52

Junior Year	Credits
EAS 341 Introduction to Thermal Sciences	4
EE 321, 322, 323 Electronics I, II, III	12
EE 331 Electromagnetic Principles	4
EE 332 Electromagnetic Systems	4
EE 371 Microprocessors	4
EE 301, 302, 303 Electrical Engineering Laboratory IV, V, VI	3
Mth 343 Applied Linear Algebra	4
Stat 460 Applied Statistics for Engineers and Scientists	3
Ph 317, 318 Solid State Physics	6
Wr 227 Technical Writing	4
Total	48

Senior Year	Credits
EE 411, 412, 413	8
Approved electrical engineering electives	20
Upper-division cluster	12
Total	40

‡Approved Electrical Engineering Electives

The student is required to complete at least 20 elective credits, including at least one sequence. Any 400-level electrical engi-

† Please see page 15 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.

neering course may be used, excluding the following omnibus numbered courses (EE 401, 405, 406, 407). EE 406H† Senior Honors Project may be used by students in the electrical engineering honors program.

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	Credits
EAS 101 Engineering Problem Solving	4
EAS 102 Engineering Computation Structures	4
EE 171 Digital Circuits	4
Mth 251, 252, 253 Calculus I, II, III	12
Ph 221, 222, 223 General Physics (with Calculus)	9
Ph 214, 215, 216 Physics Laboratory	3
‡Freshman Inquiry	15
Total	51

Sophomore Year	Credits
EE 201, 202, 203 Electrical Engineering Laboratory I, II, III	3
EE 221 Electric Circuits	4
EE 222 Signals and Systems	4
EE 223 Feedback and Control	4
EE 271 Digital Systems	4
CS 162 Introduction to Computer Science	4
CS 163 Data Structures	4
Ch 221 General Chemistry	4
Ch 227 General Chemistry Laboratory	1
Mth 256 Applied Differential Equations I	4
Mth 343 Applied Linear Algebra	4
‡Sophomore Inquiry	12
Total	52

Junior Year	Credits
EE 321, 322, 323 Electronics I, II, III	12
EE 371 Microprocessors	4
EE 301, 302, 303 Electrical Engineering Laboratory IV, V, VI	3
CS 200 Computer Architecture and Assembly Language	4
CS 250 Discrete Structures	4
Stat 460 Applied Statistics for Engineers and Scientists	3
Ph 317, 318 Solid State Physics	6
Wr 227 Technical Writing	4
Upper-division cluster	8
Total	48

Senior Year	Credits
EE 411, 412, 413	8
EE 485 Microprocessor System Design I	4
CS 303 Operating Systems and Concurrent Programming	4
Approved electrical engineering electives	8
Approved computer science electives	4
Approved math electives	6
Upper-division cluster	4
Total	38

§**Approved Electrical Engineering Electives**	Credits
EE 425, 426 Digital Integrated Circuit Design I and II	4, 4
EE 451, 452 Automatic Control Systems Design I and II	4, 4
EE 461, 462 Communication Systems Design I and II	4, 4
EE 478, 479 Intelligent Robotics I, II	4, 4
†EE 406H Senior Honors Project	4, 4

Approved Computer Science Electives

The student is required to complete at least 8 approved upper-division computer science elective credits.

Approved Mathematics/Science Electives

Any upper-division courses offered by the departments of mathematics and physics.

Minor in Electrical Engineering

A minor program is available within the School of Engineering and Applied Science in the area of electrical 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:

EAS 101, 102, EE 171, 201, 202, 203, 221, 222, 223, 271 or approved equivalents.

At least four of the courses selected from EAS 101, 102, EE 171, 221, 222, 223, 271 must be taken at Portland State University.

Course requirements for the minor also meet partial eligibility requirements for admission to the electrical engineering and computer engineering programs. Students who complete the requirements for the minor may wish to apply for admission to one of these programs. Students graduating in electrical or computer engineering may not claim a minor in electrical engineering. Students planning to minor in electrical engineering should consult with an adviser in the Department of Electrical and Computer Engineering.

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. and Ph.D. degrees in electrical and computer engineering. Graduate-level work is offered in automatic control theory, linear systems, power electronics, digital signal processing, communication systems, optoelectronics, laser systems, advanced electronic systems and VLSI, analog and digital circuit design, computer architecture, computer vision and computer systems, and electromagnetics. The schedule attempts to accommodate both full- and part-time (evening) students. Please refer to the departmental *Graduate Bulletin and Research Report* 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. EE 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 master's degree requirements listed on page 54, 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 EE course sequence and excluding all omnibus numbered courses (EE 501/601, 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.

† Admission to the Department of Electrical and Computer Engineering Honors Program is required. EE 411, 412, 413 and EE 406H are combined to form a 12-credit honors project.

‡ Please see page 15 for information on the general education requirement.

§ Departmental approval is required to substitute other engineering electives for those on the approved list. Electives must be selected in such a way that the total engineering design content in the student's program is at least 24 credits.

Thesis and nonthesis options are available. In the nonthesis option the candidate must pass a final examination covering materials related to the field of specialization. In the thesis option the candidate's program must include a minimum of 6 thesis credits and a final oral thesis defense.

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 51, 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 field outside the Department of Electrical and Computer Engineering. Coursework for the minor field must be supportive of, but distinct from, the major field 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.

MECHANICAL ENGINEERING

128 Science Building II
725-4290

B.S.
M.S.
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. It provides opportunities to specialize in fluid systems, mechanical systems, thermal systems, and machine design. It affords an education suited to meeting the technology needs of the Northwest.

The mechanical engineering curriculum 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 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 101 Engineering Problem Solving	4
EAS 115 Engineering Graphics	3
Ch 221, 222, 223 General Chemistry	12
Ch 227, 228 General Chemistry Laboratory	2
Mth 251, 252, 253 Calculus I, II, III	12
†Freshman Inquiry	15
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
EE 201 Electrical Engineering Laboratory	1
EE 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	12
Total	57

Junior Year	Credit
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

† Please see page 15 for information on the general education requirement.

ME 488 Design of Experiments	2
ME 491 Design Process	2
ME 492 Conceptual Design Project	4
ME 493 Detailed Design Project	4
Design topic electives	8
†Approved mechanical engineering electives	8
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 54. 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, building science, and engineering science. Current faculty research areas include indoor air quality, HVAC, electronic cooling CAD/CAM, dynamic systems modeling, computational mechanics in thermo-fluid systems, and FEM applications in mechanical design.

PH.D. 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 56.

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.

SCHOOL COURSES

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

EAS 101
Engineering Problem Solving (4)
Introduction to basic ideas and tools used in the engineering profession. Basic preparation in the rudiments and working methods of engineering analysis, design, and problem solving, with emphasis on developing skills in the algorithmic method. Introduction to computer methods of implementing problem solution process defined via algorithms. The student learns the FORTRAN language in the latter process.

EAS 102
Engineering Computation Structures (4)
Introduction to advanced data structures useful for solving engineering problems. Continues developing skills in the algorithmic method for engineering problem solving. Modern programming language. Prerequisite: EAS 101.

EAS 115
Engineering Graphics (3)
The graphic language applied to engineering. Projection systems. Multiview and pictorial representation. Introduction to computer graphics.

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

EAS 211
Statics (4)
Principles and applications of static equilibrium to structures and machines. Prerequisite: Mth 252, Ph 221 taken concurrently.

EAS 212
Strength of Materials (4)
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.

EAS 213
Properties of Materials (4)
Basic properties, behavior, and survey of engineering and industrial applications of materials. Three lectures; one 3-hour laboratory period. Prerequisite: Ch 221, EAS 212 taken concurrently.

EAS 215
Dynamics (4)
Fundamental principles and methods of Newtonian mechanics including kinematics and kinetics of motion and the conservation laws of mechanics. Basic particle and rigid body applications. Prerequisites: EAS 211, Mth 253.

EAS 341
Introduction to Thermal Sciences (4)
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.

EAS 361
Fluid Mechanics (4)
Properties of fluid; fluid statics; differential analysis; conservation of mass, energy, and momentum; dimensional analysis; and fluid metering. Three lectures; one 3-hour laboratory period. Prerequisites: EAS 215, Mth 256 taken concurrently.

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

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

EAS 406
Special Projects (Credit to be arranged.)
Consent of instructor.

EAS 407
Seminar (Credit to be arranged.)
Consent of instructor.

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

***EAS 461/561**
Reliability Engineering (4)
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.

† Students must consult with an adviser and select these electives from the departmentally approved list of courses to ensure that the total engineering design content in the student's program equals at least 24 credits.

CIVIL ENGINEERING COURSES

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

CE 211
Plane Surveying and Mapping (3)
An introductory analytical treatment of the principles of engineering measurements applied to plane surveys. Origin of datums, random error, observation systems, computations, nonrigorous adjustments, and topographic mapping. Computer applications. Prerequisite: Mth 251.

CE 212, 213, 214
Field Problems in Plane Surveying (1, 1, 1)
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.

CE 311
Engineering Surveys (4)
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.

CE 324
Elementary Structural Analysis (4)
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: EAS 212 and calculus.

CE 325
Indeterminate Structures (4)
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.

CE 333
Design of Steel Structures (4)
Fundamental principles necessary in the design of steel members and connections subject to various combinations of loads; application of principles to design problems consistent with current design codes; introduction to plastic analysis and design. Three lectures; one 2-hour design or laboratory period. Prerequisite:
CE 325.

CE 341
Soil Classification and Properties (4)
Determination and interpretation of significant engineering properties and behavior of soils; selected application in mechanics of foundations and earth structures. Three lectures; one 3-hour laboratory period. Prerequisite: EAS 213.

CE 351
Transportation Systems: Planning and Design (4)
A study of engineering problems associated with the planning and design of urban and intercity transportation with emphasis on systems approach to problems definition and solution. 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 similitude; introductory, turbulent, and boundary layer theory; open channel hydraulics; and flow measurement. Three lectures; one 3-hour laboratory period. Prerequisite: EAS 361.

CE 364
Water Resources Engineering (4)
Principles of hydrology and hydraulic engineering applied to water supply systems design. Collection and distribution, pump stations, water quality and treatment, economic considerations. Prerequisite: CE 362.

CE 371
Environmental Engineering (3)
Effect of air, land, and water pollutants on environment. Transport and fate of pollutants in environment. Mathematical modeling of water quality. Water quality parameters and standards. Analysis of water quality in rivers, lakes, reservoirs, estuaries, and groundwater systems. Prerequisite: EAS 361.

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

CE 404
Cooperative Education/Internship (Credit to be arranged.)
Consent of instructor.

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

CE 406
Special Projects (Credit to be arranged.)
Consent of instructor.

CE 407
Seminar (Credit to be arranged.)
Consent of instructor.

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

CE 415
Structural Analysis for Architects (4)
Principles and applications of static equilibrium to structures, with emphasis on building structures. Principles of stress analysis for axial force, flexure, and shear; studies in combined stress and column stability. Prerequisites: Mth 111 and 112.

CE 416
Structural Design for Architects (4)
Structural design of solid and glued-laminated wood members and trusses; design of steel and reinforced concrete members; lateral force analysis and design. Prerequisite: CE 415.

***CE 420/520**
Advanced Mechanics of Materials (4)
Advanced studies in mechanics of materials including fundamentals of elasticity, phenomenological material behavior, and theories of failure. Timoshenko beam theory, stress functions, shear stresses, unsymmetrical sections, and beams on elastic foundations. Thick-walled cylinders; approximate methods. Prerequisites: 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 448/548
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 G 475/575. This course is the same as G 477/577; 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 DWOPER 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 profile computation and flood plain 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/graduate standing in civil engineering or consent of instructor.

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 506
Special Projects (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 529/629**
Structural Dynamics (4)
Determination of normal modes and frequencies for structural systems. Transient and steady state response. Derivation and solution of governing equations using matrix formulation. Analysis of linear response of structures to dynamic loadings. Stresses and deflections in structures. Prerequisite: CE 423/523.

***CE 530/630**
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 535/635**
Prestressed Concrete 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 metal 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 testing in the semi-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 565/665**
Advanced Hydrology (4)
Development of mathematical models of hydrologic processes producing streamflow. Models for evaporation, snowmelt, infiltration, soil moisture, and runoff flood routing are developed for basic energy and fluid transport equations. Application of physically based hydrologic models, including HEC 1. Prerequisite: CE 464/564 or equivalent.

CE 566/666
Environmental Data Analysis (4)
Application of probabilistic and statistical models to the description of environmental data. Techniques of exploratory analysis, distribution fitting, Monte Carlo simulation, univariate and multivariate regression, time series analysis and forecasting. Prerequisites: CE 464/564, Stat 460.

***CE 569/669**
Introduction to Subsurface Flow and Contaminant Transport (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**
Numerical Modeling of Subsurface Flow and Contaminant Transport (4)
Review of physical principles of flow and contaminant transport in porous media; finite difference and finite element methods for solving groundwater flow and contaminant transport equations; higher-order upwinding, methods of characteristics and other improved analytically-based numerical methods for solving advection-dominated transport problems; numerical modeling of flow and contaminant transport in saturated, unsaturated and multiple fluid porous systems; real-case study of groundwater flow and groundwater contamination at a field site. Prerequisite: CE 569.

***CE 571/671**
Advanced Topics in Subsurface Flow and Contaminant Transport (4)
A probabilistic approach to analyzing the effects of complex heterogeneity of subsurface environment on field-scale ground-water 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, data base 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 207
Introduction to Programming in Cobol (3)
Introduction to the programming language, COBOL. Fundamentals of data processing. Prerequisite: Mth 111.

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. Programming problems introduce use of a functional language. 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. Programming problems introduce use of a logical language. Prerequisite: CS 250.

CS 252
Computational Structures (4)
Elementary algebraic structures, Boolean algebra; regular languages and finite automata; context-free languages and pushdown automata; automata as computation devices; Turing machines; Chomsky language hierarchy; Church's thesis, computation models and their equivalence; solvability and unsolvability; the halting problem; use of a declarative language. Prerequisite: CS 251.

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 301, 302
Languages and Compiler Design (4, 4)
Principles of programming languages and language implementation by compilation. Techniques of language definition. Run-time behavior of programs. Compilation by recursive descent. Use of LR compiler-generation tools. Design and implementation of a compiler for a small language. Prerequisites: CS 202, 252, 300.

CS 303
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, 252, 300.

CS 304
Operating Systems Design and Implementation (4)
Design and implementation of a small object-oriented operating system in a simulated or virtual environment. The class 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 303.

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 252.

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 409/509
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. Three lecture hours; one 3-hour laboratory period. Prerequisites: CS 302 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 databases, and implementation. To illustrate these issues, programming assignments in languages such as Smalltalk, Eiffel and C++ will be given. Three lecture hours; one 3-hour laboratory period. Prerequisite: CS 302.

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. Three lecture hours; one 3-hour laboratory period. Prerequisite: CS 252.

CS 438/538
Computer Architecture (3)
Hardware description languages and specifications. Processors, memory and bus systems. Arithmetic algorithms. RISCS vs. CISC instruction codes, pipelining. Parallel architectures and connection networks. Performance evaluation, simulation, and analytic models. Prerequisite: CS 202.

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. Three lecture hours; one 3-hour laboratory period. Prerequisites: CS 202, 252.

CS 444/544, 445/545
Database Systems (4/3, 4/3)
Introduction to basic concepts of database technology. Database management system architecture, relational data model, data languages, database design, integrity and security, concurrency control, query processing, deductive database, object orientation in database systems, distributed database. Three lecture hours; one 3-hour laboratory period. Prerequisite: CS 303.

CS 447/547, 448/548
Computer Graphics (4/3, 4/3)
This course will provide an introduction to graphics systems and applications. Basic structure of interactive graphics systems, characteristics of various hardware devices. Control of display devices, implementation of simple packages, device independence, and standard packages. Distributed architectures for graphics, hidden line and hidden surfaces algorithms, representations of curves and surfaces. Three lecture hours; one 3-hour laboratory period. 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. Three lecture hours; one 3-hour laboratory period. 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. Three lecture hours; one 3-hour laboratory period. Prerequisite: CS 301.

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. Three lecture hours; one 3-hour laboratory period. Prerequisites: CS 202, 252.

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. Three lecture hours; one 3-hour laboratory period. Prerequisite: CS 302.

CS 481/581, 482/582
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 innumerable sets. Three lecture hours; one 3-hour laboratory. Prerequisite: CS 252.

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. Prerequisites: senior standing. For CS majors: CS 302, 303, 350. Non-CS majors: permission of the instructor.

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 510
Selected Topics (Credit to be arranged.)
Consent of instructor.

CS 533
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 303.

CS 549
Computational Geometry (3)
Perspective and projective geometry. Analytic projective geometry, projective lines and projective planes. Projective transformations of lines and planes. Homogeneous coordinates. Applications to two-dimensional computer graphics. Conic sections in design. Prerequisites: CS 163 and 451.

CS 550
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 555
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
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
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
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 460, CS 202.

CS 570
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 572
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 303.

CS 573
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 303, Stat 460.

CS 574
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 scaleability will be explored. Prerequisite: CS 303.

CS 575
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 303, Stat 460.

CS 576
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 303.

CS 577
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 302.

CS 579
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 301, 303.

CS 583
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 482.

CS 585
Cryptography (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 252.

ELECTRICAL AND COMPUTER ENGINEERING COURSES

EE 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 stimulators.

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

EE 201, 202, 203
Electrical Engineering Laboratory I, II, III (1, 1, 1)
Prerequisites, or concurrent enrollment in: EE 221, 222, 223, 271. Pass/no pass only.

EE 221
Electric Circuits (4)
Experimental laws, 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.

EE 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: EE 221, Mth 256 or concurrent.

EE 223
Feedback and Control (4)
Stability concepts for linear time- invariant networks, Routh-Hurwitz criterion. Stability through feedback, Nyquist, and root-locus design methods. Compensation methods derived from Bode plots. Introduction to state space system analysis. Prerequisite: EE 222.

EE 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; design 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 EE 171. Prerequisite: EE 171.

EE 301, 302, 303
Electrical Engineering Laboratory IV, V, VI (1, 1, 1)
Prerequisites: EE 201, 202, 203; prerequisites or concurrent enrollment in: EE 321, 322, 323, 331, 332, 371. Pass/no pass only.

EE 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: EE 223.

EE 322
Electronics II (4)
Study of digital circuits used in various logic families. Analysis of electronic amplifiers using small-signal models of electronic devices. Introduction to feedback amplifier analysis and design. Review of transfer function and Bode analysis. Computer-aided design. Prerequisite: EE 321.

EE 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: EE 322.

EE 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.

EE 332
Electromagnetic Systems (4)
Review of electromagnetic wave propagation; design of transmission lines, waveguides, resonators, and antennas. Prerequisite: EE 331.

EE 371
Microprocessors (4)
This course covers the fundamentals of microprocessor architecture, software development, and hardware interfacing. Emphasis is placed on eight bit 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. Prerequisite: EE 271.

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

EE 404
Cooperative Education/Internship (Credit to be arranged.)
Consent of instructor.

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

EE 406
Special Projects (Credit to be arranged.)
Consent of instructor.

EE 407
Seminar (Credit to be arranged.)
Consent of instructor.

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

EE 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: quantitative modeling, communication skills applicable to technical oral and written presentation; for electrical engineers, senior standing in the University and completion of all junior-level required EE classes; for non-EE majors, consent of instructor.

EE 412
Senior Project Development I (4)
In this course, groups of three to five students will apply the structured design methodology learned in EE 411, ME 491, and 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: EE 411, ME 491, or UnSt 421 (Industry Design Processes).

EE 413
Senior Project Development II (2)
Continues development of the design projects started in EE 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 EE/CpE majors are welcome in this class, but they do not need it to fulfill the University Capstone requirement.

EE 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 microelectronic manufacturing. Prerequisite: Ph 318, EE 323.

EE 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: EE 415/515.

EE 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: EE 222.

EE 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, stability, and convolution sum; transforms: Z Transform, discrete Fourier transform and Fast Fourier transform, discrete Hilbert and Hartley transform; State Space description of a system. Prerequisite: EE 418/518.

EE 421/521
Analog Integrated Circuit Design I (4)
Modeling of IC devices: transistors, capacitors, resistors. Temperature and device parameter variation effects. Building blocks of analog integrated circuits: current sources and mirrors, gain stages, level shifters, and output stages. Design of operational amplifiers; frequency response, feedback, and compensation; stability and noise in IC circuits; CAD tools for circuit design and testing. Prerequisite: EE 323.

EE 422/522
Analog Integrated Circuit Design II (4)
Analysis and design of MOS operational amplifiers, noise in IC circuits, design of wideband amplifiers, principles of microwave circuit design, design of impedance matching circuits, comparators, voltage regulators, analog multipliers and modulators, CAD tools for circuit design and testing. Prerequisite: EE 421/521.

EE 425/525
Digital Integrated Circuit Design I (4)
Students in electrical and computer engineering are introduced to the analysis and design of digital integrated circuits. A design project is an integral part of this course. Prerequisite: EE 323.

EE 426/526
Digital Integrated Circuit Design II (4)
Students are instructed in methods and the use of computer-aided design tools for the design and testing of large-scale integrated digital circuits. A design project is an integral part of this course. Prerequisite: EE 425/525.

EE 431/531
Microwave Circuit Design I (4)
Passive microwave components. Design of microstrip circuits. Active high frequency devices. Microwave computer aided design. Prerequisite: EE 332.

EE 432/532
Microwave Circuit Design II (4)
Small-signal amplifier design for gain and noise. Non-linear effects and nonlinear circuit design. Oscillator design. Introduction to MMIC design. Design project is an integral part of this course. Prerequisite: EE 431/531.

EE 441/541
Electrical Energy Systems Design I (4)
Three-phase power, per unit system of calculations, impedance and reactance diagrams, nodal equations, bus admittance and impedance matrices, transformer and synchronous generator modeling, symmetrical components, and fault studies using symmetrical components. Prerequisite: EE 332.

EE 442/542
Electrical Energy Systems Design II (4)
Fault studies with admittance and impedance matrices, system protection fundamentals, dc transmission, solution of linear algebraic equations as applied to power flow methods, industrial grounding practices. Prerequisite: EE 441/541.

EE 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: EE 322.

EE 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: EE 445/545.

EE 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: EE 223.

EE 452/552
Control Systems Design II (4)
Controllability, observability, identification, and stability of linear systems (continuous and discrete). Use of analog and digital computers in control systems. Implementation issues. Prerequisite: EE 451/551.

EE 455/555
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 EE/CPE or CS, or graduate standing.

EE 456/556
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: EE 455/555.

EE 461/561
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: EE 222.

EE 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: EE 461/561.

EE 478/578
Intelligent Robotics I (4)
Basic problems of intelligent robotics. Computers for logic and logic programming. Hardware for artificial intelligence. Formulation and reduction of problems. Tree-search methods and architectures. Predicate calculus and resolution method. Methods of formulating and solving problems in logic programming. Unification in hardware. Fuzzy logic and fuzzy logic machines. Machines for logic programming and artificial intelligence. Reasoning by analogy and induction: application of associative processors. Prerequisite: EE 485/585 or 425/525.

EE 479/579
Intelligent Robotics II (4)
Sensors. Computer vision hardware. Problems in image processing, vision, manipulation, and planning. Machines for image processing and computer vision. Morphological processors. Manufacturing inspection. Non-numeric computers. Path planning. Localization. Use of reasoning and learning. Applications in scheduling, planning, and assignment. Computer architectures for robotics. Integrated robotic systems for manufacturing. Architectures of comprehensive mobile robots. Robots in health care. System integration. Examples of application. Prerequisite: EE 478/578.

EE 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: EE 371.

EE 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: EE 485/585.

EE 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: EE 331.

EE 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: EE 491/591.

EE 501
Research (Credit to be arranged.)
Consent of instructor.

EE 503
Thesis (Credit to be arranged.)
Consent of instructor.

EE 504
Cooperative Education/Internship (Credit to be arranged.)
Consent of instructor.

EE 505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

EE 506
Special Projects (Credit to be arranged.)
Consent of instructor.

EE 507
Seminar (Credit to be arranged.)
Consent of instructor.

EE 510
Selected Topics (Credit to be arranged.)
Consent of instructor.

EE 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: EE 323.

EE 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: EE 422/522.

EE 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: EE 426/526.

EE 528/628
Layout Techniques (4)
Methodologies and strategies used to lay out electronic circuits. Full-custom and semi-custom approaches. Gate arrays, standard cells, cell generators, building blocks, and sea-of-gates technologies. Hierarchical circuit description, layout process, and manufacturability. Layout problem as a constrained optimization problem. Application of graph theory and mathematical optimization techniques to VLSI layout synthesis. Overview of the most important combinatorial problems in circuit layout and descriptions of their solutions. Prerequisite: graduate standing.

EE 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: EE 528/628.

EE 533/633
Advanced Electromagnetics (4)
Advanced course in electromagnetics. Mathematical methods, electrostatics, boundary value problems, magnetostatics, time varying fields, plane waves. Prerequisite: EE 331.

EE 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: EE 442/542.

EE 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: EE 452/552.

EE 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.

EE 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: EE 565/665.

EE 567/667
Statistical Communications Theory (4)
As an advanced course in communication theory, topics of statistical decision, estimation, and modulation theory are introduced. Statistical aspects of transmission detection and error detection/correction schemes are covered. Prerequisites: EE 461/561, 565/665.

EE 568/668
Introductory Image Processing (4)
Two-dimensional systems, image perception, image digitization (sampling and quantization), image transforms (Fourier, Cosine, K-L transforms), image enhancement (histogram equalization, filtering, spatial operation). Prerequisite: graduate standing.

EE 569/669
Advanced Image Processing (4)
Introduction to random fields, image representation by stochastic models, image restoration (Wiener and Kalman filtering), image coding and compression predictive and transform coding, vector quantization). Prerequisites: EE 565/665, 568/668.

EE 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: EE 568/668.

EE 572/672
Advanced Logic Synthesis (4)
Boolean and multivalued algebras. Cube calculus and its computer realization. Basic operators and algorithms of function minimization. Decomposition and factorization theories. Multilevel minimization. Orthogonal expansions and tree circuits. Cellular logic and its applications to Field Programmable Gate Arrays. Spectral theory of logic optimization. Ordered Binary and Multiple-Valued Decision Diagrams. Design for speed, testability, power consumption, reliability, Reed-Muller forms, and EXOR circuits. Technology mapping. Transduction method. Modern logic synthesis programs, systems, and methodologies. Project that continues in EE 573. Prerequisite: graduate standing in electrical engineering.

EE 573/673
Control Unit Design (4)
Synchronous logic, Finite State Machines: and Moore and Mealy models. Design of FSMs from regular expressions, nondeterministic automata, Petri Nets and parallel program schemata. Partitioned control units. Cellular automata. Realization, minimization, assignment and decomposition of FSMs. Partition and decomposition theory and programs. Micro-programmed

units. Microprogram optimization. Theory and realization of asynchronous, self-timed and self-synchronized circuits. Project continuation. Prerequisite: EE 572/672.

EE 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: EE 573/673.

EE 575/675
Computational and Research Tools in Electrical Engineering (4)
Introduction to the major computer and computational research tools in electrical engineering. UNIX, C, concepts in computer networks and departmental software packages are introduced. Prerequisites: graduate standing and high level programming language.

EE 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: EE 575/675.

EE 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: EE 575/675.

EE 587/687
Advanced Computer Architecture I (4)
An advanced course in computer system architecture and design. Key topics include advanced CPU implementation techniques including pipelining, dynamic instruction issue, superscalar architectures, and vector processing; high-performance memory and IO 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 EE 588/688. Prerequisite: 486/586.

EE 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 EE 587/687. Prerequisite: EE 587/687.

EE 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.

EE 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: EE 492/592.

EE 595/695
Optoelectronics I (4)
Techniques of optoelectronic systems including optical modulation, deflection, and detection. Anisotropic media, electro-optics, nonlinear optics, harmonic generation. Prerequisite: EE 431/531.

EE 596/696
Optoelectronics II (4)
Nonlinear optics, parametric oscillation, frequency conversion, self-focusing, acousto-optics, Brillouin scattering, Raman scattering, magneto-optics, opto-optics. Prerequisite: EE 595/695.

EE 601
Research (Credit to be arranged.)

EE 603
Thesis (Credit to be arranged.)

EE 604
Cooperative Education/Internship (Credit to be arranged.)

EE 605
Reading And Conference (Credit to be arranged.)

EE 606
Special Problems/Projects (Credit to be arranged.)

EE 607
Seminar (Credit to be arranged.)

EE 610
Selected Topics (Credit to be arranged.)

ENGINEERING MANAGEMENT COURSES

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
Special Projects (Credit to be arranged.)

EMgt 507
Seminar (Credit to be arranged.)

EMgt 510
Selected Topics (Credit to be arranged.)

EMgt 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 522/622
Communication and Team Building in Engineering Management (4)
Developing high performance teams for the engineering-driven companies; fundamental concepts that make an effective team; building a high-performance team; the keys to high performance; converting risks into assets; the power of commitment and discipline, and constructive communication; getting results through team dynamics, creative problem solving, and interactive exercises. Prerequisite: graduate standing or eligibility of admission to engineering management program.

EMgt 525/625
Strategic Planning in Engineering Management (4)
Critical issues in shaping the competitive strategy for the engineering-driven companies in a turbulent business environment; key steps and end results of the planning process; corporate mission; Key Result Areas (KRAs) and situational analysis including strengths, weaknesses, opportunities, and threats in KRAs. Identifying planning assumptions, critical issues, setting objectives, formulating strategy. Leadership, organizational culture, and structure to support the implementation of a strategic plan as well as the strategic control systems. Case studies, presentations, term projects, teamwork, and interactive exercises. Prerequisite EMgt 520/620.

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
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 multiple objective 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 545/645
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 CMP/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)
Introduction of discrete simulation techniques for the modeling of random processes and probabilistic events in the simulation of manufacturing systems; concepts of systems modeling with emphasis on the use of an animated simulation package throughout the course. Prerequisite: EMgt 550, basic knowledge of probability and statistics.

EMgt 555/655
Technology Marketing (3)
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/engineering /manufacturing interface, product innovation strategies, value-based pricing, buyer behavior and strategic selling, competitive market analysis and positioning, 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 nonparametric 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, inferencing, 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.

EMgt 601
Research (Credit to be arranged.)

EMgt 603
Dissertation (Credit to be arranged.)

EMgt 604
Cooperative Education/Internship (Credit to be arranged.)

EMgt 605
Reading and Conference (Credit to be arranged.)

EMgt 606
Special Problems/Projects (Credit to be arranged.)

EMgt 607
Seminar (Credit to be arranged.)

EMgt 610
Selected Topics (Credit to be arranged.)

MECHANICAL ENGINEERING COURSES

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. Process selection will be discussed in terms of the economics, process effects on the products, and dimensional and quality of the finished product. Three lecture hours; one 3-hour 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. Prerequisites: 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, EE 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. Two lecture hours and a 3-hour laboratory. Prerequisites: EE 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. Prerequisites: EAS 213.

***ME 415/515**
Advanced Topics in Energy Conversion (4)
Topics chosen for relevancy to current technological practice concerned with energy conversion. Examples include cogeneration, combined cycles, gas power plants in the Northwest, wood waste utilization, advanced engine design and combustion systems, and energy conversion systems pollution control. Each offering of this course will focus on a different single selected topic.

***ME 416/516**
Internal Combustion Engines (4)
Chemical equilibrium, fuel chemistry and properties, thermodynamics of combustion reactions, engine processes as ideal engine cycles, engine combustion processes, engine performance, engine simulation, and vehicle emissions. Prerequisite: ME 322, ME 323, EAS 361.

***ME 417/517**
Gas Turbines (4)
Introduction to the thermodynamic analysis of the performance of gas turbine engines. Study of gas turbines for rotary power output as well as aircraft propulsion. Rotary power analysis focuses on the different gas turbine cycles, including combined cycles. Aircraft propulsion analysis focuses on turbojets, turbofans, turboprops, ramjets, and advanced concepts. Prerequisites: ME 322.

***ME 418/518**
Analysis of Powerplant Cycles (4)
Review of thermodynamic cycle analysis for power generation systems. Advanced treatment of conventional Rankine and gas turbine powerplant cycles. Analysis of advanced energy conversion cycles and schemes, including combined cycles, binary cycles, cogeneration, and fluidized bed reactors. Application to power generation such as geothermal electric and solar thermal electric. Utilization of garbage and wood wastes. Project required. Prerequisites: ME 322 or equivalent and consent of instructor.

ME 420/520
Thermal Systems Design (4)
Introduction to the design of thermal systems for HVAC, energy conversion, and industrial process applications. Procedures for selection of fluid flow equipment, heat exchangers, and combustion equipment. Modeling performance of components and systems. Cost estimation and economic evaluation. Design optimization. Prerequisites: ME 323, EAS 361.

ME 421/521
Heating, Ventilating, and Air Conditioning Design Fundamentals (4)
Fundamental principles and methods of controlling living space environments; design of heating, ventilating, air conditioning, and refrigeration systems for residential, commercial, and industrial purposes. Topics include: moist air properties (psychometrics), air conditioning processes, indoor air quality (comfort and health), heat transmission in building structures, solar radiation, space heating and cooling load analysis, energy calculations, and air conditioning systems and equipment. Prerequisites: ME 323.

***ME 422/522**
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.

***ME 423/523**
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.

ME 424/524
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/hydronic systems design; refrigeration; air handling units; cooling and heating plants; basic control concepts; sensors and actuators; pneumatic, electronic, and digital controls; HVAC subsystem and controls; complete HVAC systems and controls. Prerequisites: ME 421/521 and 351.

***ME 425/525**
Advanced Topics in Building Science (4)
Advanced design or analysis topics will be presented. Topics will be chosen for relevancy 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.

ME 431/531
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.

***ME 437/537**
Mechanical Systems Design (4)
Design of integrated mechanical systems including advanced design of machine elements, statistical and optimal design methods, and design of mechanism systems. Computer design methods will be introduced and used extensively throughout the course. Prerequisites: ME 351, 314.

***ME 441/541**
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.

***ME 442/542**
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.

***ME 443/543**
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.

***ME 444/544**
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.

***ME 445/545**
Advanced Topics in Thermal and Fluid Sciences (4)
Course topics are chosen for relevancy 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.

***ME 446/546**
Compressible Flow (4)
Introduction to compressible flow (gas dynamics). Isentropic flow in varying area ducts (nozzles, diffusers). Adiabatic flow in constant area ducts with friction. Frictionless flow in constant area ducts with heat transfer. Normal, oblique, and moving shock waves. Detonation and deflagration. Applications. Prerequisites: ME 322, EAS 361.

***ME 447/547**
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.

***ME 448/548**
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 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.

ME 452/552
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; EE 221; ME 351.

ME 453/553
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.

ME 455/555
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 455: ME 314; ME 555: graduate standing in engineering.

***ME 457/557**
Introduction to Robotics (4)
Robot kinematics dynamics and control; basic components of robots: controllers, power supplies and end effectors; industrial applications of robots using peripheral devices, sensors, and vision. Prerequisite: ME 351.

***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. Three lecture hours and a 3-hour 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. Two-hour lectures and a four-hour laboratory per week. Prerequisites: ME 411/511; EE 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 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. Two 1-hour lectures; one 4-hour laboratory. Prerequisites: ME 411/511; EE 201, 221.

*__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.

SCHOOL OF FINE AND PERFORMING ARTS

ROBERT SYLVESTER, DEAN
349 LINCOLN HALL, 725-3105

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.F.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 nuturing 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
725-8405

B.A., B.S.—Architecture
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 180 architecture majors share a core curriculum together with 300 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.

Among the new initiatives in the department is the cooperative program with Clackamas Community College offering a specialization in architectural project management.

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 majors in architecture is expected to meet the following departmental requirements:

	Credits
Art 131, 132, or 133 Introduction to Drawing	3
ArH 204, 205, or 206 History of Western Art	6
Art Studio elective	6
Arch 200 Introduction to Architecture	4
Arch 220 Design Drawing	4
Arch 280, 281 Design Fundamentals Studio I, II	8
Portfolio Review/Selected Admissions	
Arch 330, 331 Twentieth Century Architectural History and Theory	8
Arch 380, 381, 382 Architecture Design Studio I, II, III	18
CE 415, 416 Structural Analysis and Design for Architects	8
Arch 460, 461 Architectural Building Technology I, II	8
Arch 480, 481, 482 Architectural Design Studio IV, V, VI	18
Total	91

In order to enroll in the 300-level architecture design studios, all students must submit a portfolio of work for evaluation and approval. Portfolio reviews occur at the end of spring term and Summer Session. Contact department office for details.

All students must obtain an adviser for academic planning of their program. Apply through the department office.

Architecture courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department major requirements. All architecture courses used to satisfy the departmental major requirements, whether taken in the department or elsewhere, must be graded C- or better.

Requirements for the Minor. To earn a minor in architecture a student must complete 43 credits including the following:

	Credits
Art 131, 132, or 133 Introduction to Drawing	3
ArH 204, 205, or 206 History of Western Art	6
Art Studio elective	6
Arch 200 Introduction to Architecture	4
Arch 220 Design Drawing	4
Arch 280, 281 Design Fundamentals Studio I, II	8
Adviser-approved upper-division credits in architecture	12
Total	43

Architecture courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department minor requirements.

Eighteen of the final 24 credits must be taken in residence at PSU.

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 creator/student.

COURSES

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

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 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: Art 131.

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 220.

Arch 330, 331
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 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 designs 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 (2)
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 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
Architectural Design Studio (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.

ART

239 Neuberger Hall
725-3515

B.A., B.S.—Concentration in Applied Design†, Art History, Drawing/ Painting/Printmaking, Graphic Design, Sculpture
B.A. only—Art History Major
Minor in above concentrations
Secondary Education Program
M.F.A.

UNDERGRADUATE PROGRAMS

Many prominent Northwest painters and sculptors began their professional careers by studying art at Portland State University. An even greater number of successful and productive people have used their training in the Department of Art as the basis for careers in commerce, industry, education, and a variety of fields limited only by imagination. Art, which requires personal initiative and imagination and develops skills in mental and manual dexterity, can provide the student with a background well suited for applications that are wide reaching and greatly rewarding.

Art programs are designed to develop the student's creative faculties, a sense of critical judgment, and fundamental skills and techniques. In each of the concentrations within the art major, the principal and supporting courses have one general purpose: to instill a mature, professional attitude toward the process of artistic creation and expression.

At the same time, the program seeks to provide a balance that will permit the student a choice upon graduation. The alternatives are: (1) to undertake formal graduate study; (2) to begin a professional career in the fine or applied arts; or (3) to combine the student's degree program with the basic teaching norm in order to qualify to teach in Oregon public schools.

The major in art requires a minimum of 90 credits in art courses. Included are extensive experiences in studio work and a comprehensive study of the history of art.

† Program is being reviewed and is temporarily suspended.

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

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:

First Year	Credits
Art 115, 116, 117 Basic Design	9
Art 131, 132, 133 Introduction to Drawing	9
ArH 204, 205, 206 History of Western Art	9

Second Year	Credits
Total of 15-24 credits distributed as follows—9-18 credits from the study concentration plus 6-9 additional credits chosen from lower-division art courses outside the study concentration. (Consult departmental adviser for study concentration sheets. All prerequisites must be observed.)	15-24

Third and Fourth Years	Credits
Upper-division art history	9
Upper-division drawing varies with concentration	0-9
Upper-division approved art electives varies with concentration	0-9
Plus complete requirements for a study concentration	36
Total	90-91

(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.)

Of the total credits in art, at least 36 must be upper-division work.

All students must obtain an adviser for academic planning of their program. Apply through the department office.

Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department major requirements.

Requirements for the Minor. To earn a minor in art a student must complete 45 credits including the following:

	Credits
Art 115, 116, 117 Basic Design	9
Art 131, 132, 133 Introduction to Drawing	9
ArH 204, 205, 206 History of Western Art	9
18 adviser-approved credits from one of the study concentrations, including at least 9 credits of upper-division courses: Art History, Drawing/Painting/Printmaking, Graphic Design, or Sculpture	18
Total	45

Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department minor requirements.

Eighteen of the final 24 credits must be taken in residence at PSU.

Art History Major: B.A. Degree Only. 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 183 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 School of Education requirements, see page 183.

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 February 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, personal letter of intent, three letters of recommendation from undergraduate instructors and especially on the portfolio of creative work.

Applicants must have a B.A., a B.S., or a B.F.A. degree with a concentration in drawing, printmaking, painting, sculpture or related field. 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 90 credits which must be distributed in the following way:

	Credits
Art History	18
Thesis	9
Electives	6
Studio work in one area of concentration (drawing/painting/printmaking or sculpture)	51
Graduate seminar	6

During the first two terms in residence each M.F.A. student will choose an adviser in the appropriate area of interest. Together with the adviser, the student will work out a proposal for a thesis (usually a series of paintings, prints, or sculptures). At candidacy review, during spring term of the first year, the student will present an exhibition of work and a thesis proposal to a faculty committee. If the work and thesis proposal are approved, the candidate will spend the second year of the program completing the thesis and writing a thesis report.

The candidate will stand for a second faculty review to approve the completed thesis and thesis report and present an exhibition of the thesis 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 marked 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 nonmajors.

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 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 427/527, 428/528, 429/529__
Ancient Art (3, 3, 3)
Art and architecture of the ancient world from Paleolithic through Roman times. ArH 427/527: Prehistoric and Egyptian. ArH 428/528: Mesopotamian, Aegean, Greek through the Archaic period. ArH 429/529: Greek from classical period, Etruscan, and Roman. Open to nonmajors. Prerequisites: ArH 204, 205, 206.

*__ArH 430/530, 431/531, 432/532__
Women in the Visual Arts (3, 3, 3)
The study of the art of women in various media (painting, sculpture, architecture, printmaking, photography, textiles, illuminated manuscripts, and mixed media.) A three-term sequential class: ArH 430: 11th century (medieval) in Europe to the 18th century; ArH 431: 19th century, early 20th-century America and Europe; ArH 432: 20th-century America and Europe. Open to nonmajors. Prerequisites: ArH 204, 205, 206.

*__ArH 441/541, 442/542, 443/543__
Medieval Art (3, 3, 3)
Art and architecture of Medieval Europe. ArH 441: Early Christian, Byzantine, Carolingian, Otto-nian. ArH 442: Romanesque. ArH 443: Gothic. Open to nonmajors. Prerequisites: ArH 204, 205, 206 or equivalent.

ArH 446/546, 447/547, 448/548
History of Asian Art (3, 3, 3)
Comparative study of architecture, sculpture, landscape design, and painting as expressions of individual and social experience in the cultures of the Far East. ArH 446: Indian and Indonesian. ArH 447: Chinese. ArH 448: Japanese. Open to nonmajors.

*__ArH 451/551, 452/552, 453/553__
American Art and Architecture 17th through 19th Centuries (3, 3, 3)
ArH 451: Colonial and Federal Periods. ArH 452: Early Republic to the Civil War. ArH 453: Civil War to the 20th century. Prerequisites: ArH 204, 205, 206.

*__ArH 457/557, 458/558, 459/559__
History of Architecture (3, 3, 3)
A history of architecture from Prehistory to Post-Modernism. Prerequisites: ArH 204, 205, 206 or equivalent.

ArH 465/565
Great Periods in Art and Architecture (3)
A concentrated study of the art and/or architecture of a major historical period, for example: African sculpture; American painting; Aztec art and architecture; Art of the Indians of the Pacific Northwest; Northern Renaissance art and architecture; others as the occasion demands. Maximum: 9 credits. Prerequisites: ArH 204, 205, 206 or equivalent. Offered intermittently.

*__ArH 470/570__
African Art (3)
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 or Hst 105. This course is the same as BSt 470/570; course may be taken only once for credit.

*__ArH 472/572__
Northern Renaissance Art (3)
Manuscript illumination, painting, and sculpture in the Netherlands, Germany, and France from the 14th to the 16th century. Prerequisites: ArH 204, 205, 206.

*__ArH 473/573, 474/574, 475/575__
Italian Renaissance Art (3, 3, 3)
Painting, sculpture and architecture from the thirteenth to the 16th century in Italy. Prerequisite: 6 credits taken from ArH 204, 205, 206.

ArH 476/576, 477/577, 478/578
Modern Art (3, 3, 3)
A survey of the mainstreams 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 nonmajors. Prerequisites: ArH 204, 205, 206 or equivalent.

*__ArH 480/580, 481/581, 482/582__
Art Since WWII (3, 3, 3)
Introduction to early Modernist movements in Europe and America. ArH 480/580 Painting, Sculpture, and Architecture to 1950. ArH 481/581 European and American Art and Architecture 1950-1980. ArH 482/582 European and American Art and Architecture 1980-present. Open to non-majors. Prerequisite: ArH 204, 205, 206. Recommended: ArH 476, 477, 478.

*__ArH 483/583, 484/584, 485/585__
Baroque Art (3, 3, 3)
A study of European art and architecture from the mid-16th through the mid-18th centuries, examining the evolution of style from Mannerism, through the Baroque to Rococo. Fall: ArH 483, Italy. Winter: ArH 484, Flanders and Holland. Spring: ArH 485, Spain and France. Prerequisite: 6 credits taken from ArH 204, 205, 206.

*__ArH 486/586, 487/587, 488/588__
19th Century Art (3, 3, 3)
A survey of painting and sculpture in the 19th century. ArH 486: Neoclassicism and Romanticism; ArH 487: Realism and Impressionism; ArH 488: Post-impressionism. Open to nonmajors. Prerequisites: ArH 204, 205, 206.

ArH 490/590
History of Modern Design (3)
A history of industrial and applied design from c. 1800 to the present, focusing on the changes in style within the field, but also on the interconnection between the art of design and other forms of visual expression.

ART COURSES

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 199
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 cursives. 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.

† Applied design program temporarily suspended.

Art 224, 225, 226
Graphic Design 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 typography as image. Full color (CMYK) design solutions emphasized. Working knowledge of the Macintosh continues with solutions to more involved design assignments. Course is a prerequisite to upper division computer graphics courses. Prerequisite: Art 115, 116, 117.

Art 260
Photographic Seeing (3)
Introduction to visual literacy. Students learn photographic seeing, design principles, and composition as they investigate the urban environment with a camera. Emphasis on visual communication. No darkroom work. The medium is color slide film, commercially processed. Course may be repeated for maximum of 9 credits.

Art 261
Photography (3)
Study of the camera and processes used in photography; variables of modern cameras including exposure and focusing controls, film and film processing, enlarging, mounting and finishing prints. Slide lectures on history of photography, concerns of composition, emotional impact, qualities of light and expression. Discussion of professional careers in photography. Maximum: 6 credits.

Art 270
Introduction to Printmaking (3)
A laboratory course in graphic media which may include lithography, intaglio, wood cut, serigraphy, collography, and monoprint. Emphasis is on the development from drawing studies to the graphic media. Maximum 9 credits. Prerequisite: Art 131, 132, 133.

Art 281
Painting (3)
A three-term introduction to the principles and practice of painting. Topics include basic theory and use of color and composition. Assignments involve both conceptual approaches and direct observation using still life, figures, and landscape. Maximum 9 credits. It is recommended that the course be taken in a fall, winter, spring term sequence.

Art 291, 292, 293
Sculpture I, II, III (4, 4, 4)
Art 291-Mass: students will be introduced to working in three dimensions through observation 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 constructive 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.

Art 294
Watercolor (3)
The technique and use of watercolor and gouache, with special attention to their characteristics as painting media. Primary emphasis on landscape material. May be substituted for Art 133 or be used as a lower-division art elective. Maximum: 9 credits. Prerequisite: Art 131 and 132 or equivalent.

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. Development of attitudes toward art and understanding 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: Students create visual designs for digital and offset reproduction using QuarkXPress and other software applications. Experience with page composition, typesetting, typographic design, b&w scanning, color selection, importing graphics, and structuring complex documents. Work-flow and production issues, including color pre-press. Art 327: Experience with drawing, painting, layering, masking, transformation tools, custom typography and incorporating pixel images. Assignments focus on illustrations for digital and offset reproduction using Adobe Illustrator. Other software applications may be used as needed. Art 328: Explores photographic manipulation, painting, drawing, and collage. Students prepare illustrations for digital and offset reproduction using Adobe Photoshop and other applications. Experience with color scanning, retouching, image processing, and masking techniques. Theoretical aspects of pixel-based imaging technologies, including color theory, resolution, halftoning, and prepress. In-class projects and exercises designed to provide a framework for using state-of-the-art computer graphics technology for image-making and exploring visual concepts. Primary focus of courses in this sequence is to create and produce professional visual design solutions. Prerequisites: Art 115, 116, 117 or 224, 225, 226, 227, 228, 229.

Art 340
Advanced Photography (3)
Study of photography as a visual language. Students work on extended assignments that explore technical, aesthetic, and ethical issues of photographic communication. Emphasis on the photographic series, with either a documentary or conceptual approach. Maximum: 9 credits. Prerequisite: 3 credits in Art 261.

Art 350
Life Drawing (3)
A studio course that develops observation and perception. Later, analytic skills are combined with personal expression and invention. A variety of media is used to explore the implications of line and modeled form. Maximum: 18 credits. Prerequisites: Art 131, 132, 133.

Art 373
Creative Sculpture (4)
A creative study of all aspects of sculpture involving various media such as clay, plaster, wood, stone, and the metals, with emphasis, as necessary, on architectural sculpturing. Prerequisite: 12 credits in elementary sculpture. Maximum: 18 credits.

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: 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. Prerequisite: 9 credits in watercolor-Art 294 or drawing Art 131, 132, 133.

Art 390
Intermediate Painting (3)
Study of painting concepts, composition, and oil painting techniques. Form and content relationships are explored through assigned independent and group problems. Maximum: 9 credits. Prerequisite: 9 credits of lower-division painting.

† Applied design program is being reviewed and is temporarily suspended.

Art 391
Advanced Drawing (3)
Second-year sequence in drawing with increasing emphasis on the analysis of structural, formal and aesthetic relationships in the expression of space and form. A variety of media will be used, including watercolor and synthetic resin or acrylic media. Prerequisite: 6 credits of lower-division drawing. Maximum: 12 credits.

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 metalsmithing, 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, 438/538
Painting (3, 3, 3)
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. Prerequisite: 9 credits in Art 281. Maximum: 12 credits.

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 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**
Advanced Printmaking (3)
A laboratory course in graphic media in which the student will specialize in one of the following techniques: lithography, intaglio, wood cut, serigraphy, collograph, or monoprint. Maximum 9 credits. Prerequisite: 9 credits of Art 270.

***†Art 482/582**
Anatomy for Artists (3)
An analytical investigation of the construction of the human figure with emphasis on those aspects which most determine surface form and action. Prerequisites: Art 131, 132, 133.

†Art 488/588
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. Prerequisite: 12 credits in elementary sculpture.

†Art 489/589
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. Prerequisite: 12 credits in elementary sculpture.

†Art 490/590
Advanced Painting (3)
Advanced painting theory and practice with special emphasis on problems in color and composition; varied media and techniques are explored with some problems selected involving coordination with architecture. Maximum: 12 credits Art 490 only. Prerequisites: upper-division standing, 12 credits in painting.

†Art 491/591
Current Concerns in Studio Art (3)
An advanced studio course that focuses on contemporary issues including cultural influences, trends in style and expression, and comparative relationships in the visual arts. Experimental materials, methods, and concepts optional. Emphasis on the creative aspects. Analytical-conceptual approach to the various media. Studio work with individual criticism related to the student's personal direction. Maximum: 12 credits Art 491 only. Prerequisites: one course each in elementary sculpture and elementary painting.

†Art 494/594, 495/595, 496/596
Advanced Sculpture Topics (4, 4, 4)
Art 494/594, 495/595: series of rotating topics that address current conceptual approaches and issues in the arts including: installation, site specific, space/body, language, and materials. Art 496/596 independent projects: acting as a capstone course within the concentration the student will be expected to develop their own criteria and issues that result in a body of work which exhibits a focused direction. Prerequisite: upper division standing; 12 credits in sculpture. Maximum: 16 credits.

Art 503
Thesis (Credit to be arranged.)

***Art 513**
Art in the Elementary School (2)
Methods and field experience: a lecture seminar and studio participation course with assigned field experience. Students develop attitudes toward an understanding of children's creative development through course planning in arts and crafts. Prerequisites: Art 312 and admission to the teacher education program.

***Art 514, 515, 516**
Art in the Secondary School (3, 3, 3)
Methods and materials for teaching and coordinating art programs in grades K-12, with emphasis on organizing demonstrations, lectures, and 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.

† Graduate-level studio is intended for M.F.A. students only.

MUSIC

231 Lincoln Hall
725-3011

B.A., B.S.—Music
Minor in Music; Minor in Jazz Studies
B.M.
Music Education Certification Program (K-12)
M.A.T., M.S.T.—Music
M.M.

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 Symphonic Choir, 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, 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.

Requirements for Major. The term "music major" should be understood in its practical sense to designate students earning departmental degrees whether their degrees are departmental or in general studies (arts and letters). Students seeking the B.A. or B.S. in music must complete the following courses:

	Credits
Mus 111, 112, 113 Music Theory I	9
Mus 114, 115, 116 Sight-Singing/Ear Training	3
Mus 203 Music in the Western World	4
Mus 211, 212, 213 Music Theory II	9
Mus 214, 215, 216 Sight Singing/Ear Training and Keyboard Harmony	3
Mus 304, 305, 306 Music History	12
†Mus 195, 395 Band; Mus 196, 396 Orchestra; Mus 197, 397 Chorus	12
†MuP 190, 290, 390, 490 Applied Music (minimum of 6 upper-division credits)	12
Mus 351 Accompanying (required of piano majors only in lieu of 2 credits of Mus 395, Mus 396, or Mus 397)	(2)
‡Mus 47 Final Project or Mus 48 Junior Recital	(no credit)
§Mus 188 Recital Attendance (required through MuP 390)	(no credit)
Music Electives	12
Total	76

The credits in applied music are divided 3 credits at each level. With departmental approval this distribution may be altered; however, a minimum of 6 of the 12 credits must be completed at the upper-division level. A minimum of 6 of the 12 credits of band, orchestra, or chorus must be completed at the upper-division level.

In addition to meeting the general University degree requirements, music majors seeking the professional music degree (Bachelor of Music in performance) must complete the following courses:

	Credits
Mus 111, 112, 113 Music Theory I	9
Mus 114, 115, 116 Sight-Singing/Ear Training	3
Mus 203 Music in the Western World	4
Mus 191, 192, 193 Class Piano	6
Mus 211, 212, 213 Music Theory II	9
Mus 214, 215, 216 Sight Singing/Ear Training and Keyboard Harmony	3
◊Mus 304, 305, 306 Music History II	12
Mus 311 Counterpoint	2
Four credits selected from the following: Mus 312 Counterpoint; Mus 318 Instrumental Arranging; Mus 319 Choral Arranging; Mus 414, 415 Composition I	4
Mus 314, 315, 316 Harmonic and Structural Analysis	6
Mus 320 Fundamentals of Conducting	2
Mus 481 Pedagogy	3
Mus 194, 394 Chamber Music; Mus 198, 398 Jazz Lab Ensemble	6
†Mus 195, 395 Band; Mus 196, 396 Orchestra; Mus 197, 397 Chorus	12
†MuP 190, 290, 390, 490 Applied Music (minimum of 6 credits of 490)	24
§Mus 188 Performance Attendance	(no credit)
Mus 48 Junior Recital (30 minutes minimum)	(no credit)
Mus 49 Senior Recital	(no credit)
Elective music courses to be taken from the following areas: Music History, Music Literature, Composition, Theory, Applied Music, Pedagogy, Practicum, Conducting, additional Ensemble Performance, Instrumental Techniques	18
Mus 351 Accompanying (required of piano majors only in lieu of 2 credits of Mus 395, Mus 396, or Mus 397)	(2)
Total	123

With departmental approval the distribution of applied music credits may be altered; however, a minimum of 12 of the 24 credits must be completed at the upper-division level. A minimum of 6 of the 12 credits of large ensemble must be completed at the upper-division level.

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:

	Credits
Mus 111, 112, 113 Music Theory I	9
Mus 114, 115, 116 Sight-Singing/Ear Training	3
Mus 191, 192, 193 Classical Piano	6

† Music majors and minors must enroll in Applied Music and the related large ensemble (Mus 195/395, 196/396, 197/397) 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 Brown Bag 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 Brown Bag performances.

◊ Six credits also count toward the required 18 upper-division distribution credits required outside of the major.

Mus 211, 212, 213 Music Theory II	9
Mus 214, 215, 216 Sight-Singing/Ear Training and Keyboard Harmony	3
†Mus 304, 305, 306 Music History	12
Mus 271, 272, 273 Jazz Improvisation	6
Mus 471, 472, 473 Advanced Jazz Improvisation	6
Mus 355 Jazz History	4
‡MuP 190, 290, 390, 490 Applied Music (6 credits of 390 and 6 credits of 490)	24
§Mus 195 Band; Mus 196 Orchestra; Mus 197 Chorus, Mus 198 Jazz Lab Band	6
Mus 394 Chamber Music Jazz Combos	6
Mus 398 Jazz Lab Band	6
Mus 424, 425, 426 Instrumental Jazz Arranging	6
Mus 474, 475 MIDI Applications	4
Mus 344 Jazz Keyboard Fundamentals	2
§Mus 188 Performance Attendance	no credit
Mus 48 Junior Recital	no credit
Mus 49 Senior Recital	no credit
Total	116

With departmental approval the distribution of applied music credits may be altered; however, a minimum of 12 of the 24 credits must be completed at the upper-division level. A minimum of 6 of the 12 credits of large ensemble must be completed at the upper-division level.

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:

	Credits
Mus 111, 112, 113 Music Theory I	9
Mus 114, 115, 116 Sight-Singing/Ear Training	3
Mus 203 Music in the Western World	4
‡MuP 190 Applied Music	3
‡Mus 195 Band; Mus 196 Orchestra; Mus 197 Chorus	6
Mus 204, 205, 206 Music History I; Mus 304, 305, 306 Music History II (choose 2)	4
‡MuP 290 Applied Music	3
Mus 188 Performance Attendance (6 terms)	(no credit)
‡Mus 395 Band; Mus 396 Orchestra; Mus 397 Chorus	3
Total	35

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:

	Credits
Mus 271, 272, 273 Jazz Improvisation	6
Mus 471, 472, 473 Advanced Jazz Improvisation	6
Mus 355 Jazz History (Prerequisite: Mus 201 or 261)	4
Mus 424 Jazz Arranging	2
MuP 190 Applied Music	2
MuP 290 Applied Music	2
MuP 390 Applied Music	2
Mus 198 Jazz Lab Band	3
Mus 398 Jazz Lab Band	3
Mus 194 Chamber Music	3
Mus 394 Chamber Music	3
Total	36

All courses used to satisfy the department major or minor requirements, whether taken in the department or elsewhere, must be graded C or above.

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 recommended undergraduate courses designed to prepare the student for the graduate curriculum in music education. The student must complete a bachelor's degree.

Suggested Technical Courses	Credits
Mus 235, 236, 237 Wind and Percussion Instruments	3
Mus 321 Instrumental Conducting	2
Mus 324 Choral Conducting	2
◊Mus 328 Introduction to Musical Careers	2
Mus 332, 333, 334 Stringed Instruments and Vocal Techniques	3
◊Mus 409 Practicum (2 terms; taken with Mus 328 & 484)	2
◊Mus 484 Music with Children	3
Total	17

Other Music Courses	Credits
Mus 111, 112, 113 Music Theory I	12
Mus 203 Music in the Western World	4
Mus 188 Performance Attendance (9 terms)	(no credit)
‡Mus 195, 196, 197 Band, Chorus, or Orchestra	6
Mus 211, 212, 213 Music Theory II	12
Mus 304, 305, 306 Music History	12
Mus 314, 315, 316 Harmonic and Structural Analysis	6
Mus 320 Fundamentals of Conducting	2
‡Mus 395, 396, 397 Band, Orchestra, or Choir	3
MuP 190, 290, 390 Applied Music (minimum of 3 credits of MuP 390)	9
Total	66

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 recommendation 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	Credits
Two of the following:	4
Mus 560 Music History: Medieval Period	
Mus 561 Music History: Renaissance Period	
Mus 562 Music History: Baroque Period	
Mus 563 Music History: Classical Period	
Mus 564 Music History: Romantic Period	
Mus 565 Music History: Early 20th Century	
Mus 566 Music History: Music Since 1950	
One of the following:	3
Mus 532 Band Literature	
Mus 533 Orchestral Literature	
Mus 534 Choral Literature	
One of the following:	3
Mus 521 Band Arranging	
Mus 522 Orchestral Arranging	
Mus 523 Advanced Choral Arranging	
One of the following:	3
Mus 541 Advanced Conducting (Instrumental)	
Mus 542 Advanced Conducting (Choral)	
All of the following:	
Mus 511 Research Methods (Music)	3
Mus 520 Analytical Techniques	3
MuP 590 Applied Music	2
MuP 591 Applied Music-Secondary Instrument (may substitute MuP 590 credits with adviser approval)	2
Ensemble: Chosen with advice of graduate faculty	3
Education/Pedagogy (chosen with adviser's assistance)	9

† Six credits also count toward the required 18 upper-division distribution credits required outside of the major.

‡ Music majors and minors must enroll in Applied Music and the related large ensemble (Mus 195/395, 196/396, 197/397) each term.

§ To be taken concurrently with Applied Music each term through completion of MuP 390. Student attends eight Noon Concert performances.

◊ Practicum Mus 409 must be taken with both Mus 328 and 484.

Elective Studies	10
Music electives chosen from the following areas: applied music, theory, composition, music history, music literature, pedagogy, education, conducting, or additional ensemble performance	
Total	45

M.M. PROGRAM

Master of Music in Performance	Credits
†MuP 590 Applied Music	12
Mus 506 Project and Graduate Recital	2
Mus 594, 595, 596, 597, 598 Chamber Music and/or Ensemble	3
Mus 520 Analytical Techniques	3
Mus 560-566 Music History	4
Mus 530, 531, 533, 534, 536 Music Literature	6
Mus 581, 582, or 583 Pedagogy	3
Mus 511 Research Methods	3
Electives (Determined in conjunction with adviser)	9
Total	45

Master of Music in Conducting	Credits
†Mus 541, 542, 543 Conducting	9
Mus 506 Conducting Project	3
Mus 520 Analytical Techniques	3
Mus 513 Score Reading	3
Mus 595, 596, 597 Ensemble	3
Mus 522 or 521 Orchestra or Band Arranging	3
Mus 523 Choral Arranging	3
Mus 560-566 Music History	4
Mus 530, 531, 532, 533, 534, 536 Music Literature	3
Mus 511 Research Methods	3
Electives (Determined in conjunction with adviser)	8
Total	45

All degree candidates take a final written examination which covers three areas: music education or pedagogy, music theory, and music history, as well as performance or conducting for the M.M. degrees. 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 183.

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 marked with an asterisk (*) are not offered 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.

MuP 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.

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 bandsetting. 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 Keyboard Harmony, Sight-Singing and Ear Training course is required. Prerequisites: Mus 111, 112, 113, 114, 115, 116 and passing keyboard proficiency test.

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 course is required. Prerequisites: Mus 111, 112, 113, 114, 115, 116 and passing keyboard proficiency test.

Mus 235, 236, 237
Wind and Percussion Instruments (1, 1, 1)
A study of the wind and percussion instruments of the orchestra and band for students in the teacher education program.

Mus 261, 262
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 271, 272, 273
Jazz Improvisation (2, 2, 2)
Introduces the fundamentals of jazz improvisation. Beginning jazz skills include scales, song forms, melodic patterns, and repertoire development. Instructor approval required.

† Master of Music candidates must continue to register for applied music credits if a performance major, and conducting credits if a conducting major, until the completion of the Graduate Project or Recital, even if this exceeds the 12 credit minimum.

MuP 290
Applied Music (1-4)
Sophomore year. Continuation of MuP 190. Maximum: 12 credits. Prerequisites: MuP 190 and audition.

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 314, 315, 316
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 318
Instrumental 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
Instrumental Conducting (2)
The principles of conducting and training instrumental organizations. Prerequisite: Mus 320.

Mus 324
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 Sumerian stringed instruments to the modern-day electric guitar. Prerequisite: Mus 110 or 191.

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. Prerequisites: Mus 110, 111, 201, 203.

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. Prerequisite: Mus 110, 201, or 261.

Mus 381
Music Fundamentals (4)
Basic musicianship 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 410/510
Selected Topics (Credit to be arranged.)

Mus 412/512
Fundamentals of Composition (3)
Theoretical historical studies designed to prepare beginning graduate students in the M.A.T./M.S.T. and certificate programs for stylistic studies.

Mus 414/514, 415/515, 416/516 Composition I (2, 2, 2)
Composition in the smaller forms for piano, violin, and other instruments. Prerequisites: Mus 311, 312, 313 and Mus 314, 315, 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 c. 1400 to the present, with examples via listening and study of scores, will be included. 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. Experience in conducting this literature. Particular attention given to the problems facing the public school music director. Prerequisite: Mus 321 or 324.

Mus 451/551, 452/552, 453/553
Advanced Keyboard Skills (3, 3, 3)
This course investigates and applies advanced theoretical concepts to keyboard playing and improvisation. Applications include sightreading, 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, curriculum, 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.

MuP 490
Applied Music (1-4)
Senior year. Continuation of MuP 390. Maximum: 12 credits. Prerequisites: MuP 390 and audition.

MuP 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 590 audition will be assigned MuP 591.

Mus 503
Thesis (Credit to be arranged.)

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 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
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
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 unmixed, such as those encountered in the public schools. Prerequisite: successful completion of the department's graduate entrance examination.

Mus 540
Music History: The 20th Century (2)
Intensive, analytical study of the history of music of the 20th century 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 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 587
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 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.

MuP 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
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: 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 bandsetting. Maximum: 6 credits. Prerequisite: graduate standing in music.

SPECIALIZED COURSES

***Mus 10, 20, 30, 40**
Repertoire 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 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 20-minute Brown Bag performance, 3) a performance project, 4) 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

127 Lincoln Hall
725-4612

B.A., B.S.
Minor
Secondary Education Program
M.A.—Theater Arts

UNDERGRADUATE PROGRAMS

Through classroom study, studio/laboratory preparation, and University Theater production, the Department of Theater Arts is committed to providing liberal-arts based preprofessional training which effectively balances theory and practice. Students seeking professional or educational careers, preparing for advanced degree programs, or pursuing nonmajor study of the arts will participate in a production program encompassing new, modern, and classic works interpreted to confront and illuminate the diverse concerns of contemporary life.

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 core requirements:

	Credits
TA 111, 112 Technical Theater I and II	6
TA 114, 115 Technical Theater Production I and II	2
TA 141, 142 Acting I and II	8
TA 301 Script Analysis	4
TA 311 Scene Design I	4
TA 316 Technical Theater Lab	2
TA 321 Costuming	4
TA 330 Multicultural Theater	4
TA 364 Directing I	4
TA 464, 465 Development of Dramatic Art I and II	8
8 credits chosen from the following:	8
TA 467, 468 Modern Theater I and II	
TA 471 Theater History: Periods/Topics	
TA 472 Theater History: Major Figures	
2 credits of TA 355 Theater Workshop II: Mgmt/PR	2
Upper-division research or production project	6
	62

The theater arts major, depending on area of interest and career aspirations, will select one of three options:

a. the General option,
b. the Performance option,
c. the Design/Technical Theater option.

The Theater Arts *General option* adds the following requirement to the core:

	Credits
24 elective credits from the Theater Arts curriculum with at least 16 carrying numbers 300 or above.	24
Total	86

The *Performance option* adds the following requirements to the core:

	Credits
TA 144 Voice for the Actor I	3
TA 147 Movement for the Actor	3
TA 252 Makeup	2
TA 341, 342 Intermediate Acting I and II	8
	16
8 elective credits selected from the following:	8
TA 145 Acting Workshop (2)	
TA 241 Improvisational Acting I (3)	
TA 344 Voice for the Actor II (3)	
TA 346 Stage Dialects (4)	
TA 353 Theater Workshop II: Acting/Directing (1-3)	
TA 441 Acting Studio (4)	
TA 455 Directing II (4)	
TA 460 Advanced Directing (3)	
Total	86

The *Design/Technical Theater option* consists of three tracks. The theater arts major electing this option will choose to focus in one of the following areas: Scenography, Lighting, or Costume.

The *Scenography track* adds the following requirements to the core:

TA 252 Makeup	2
TA 313 Scene Design II	3
TA 314 Lighting Design I	3
TA 315 Technical Theater Drawing	2
TA 317 Theater Technologies	2
TA 354 Theater Workshop II: Technical Theater	2
TA 421 Costume Design	3
	17
7 elective credits selected from the following:	7
TA 312 Scene Painting (3)	
TA 406 Special Projects (TBA) [Max: 6 credits]	
TA 414 History of Decor (4)	
TA 430 Scene Design III (3) [Max: 6 credits]	
Courses in the Lighting and/or Costume areas.	
Total	86

The *Lighting track* adds the following requirements to the core:

TA 252 Makeup	2
TA 313 Scene Design II	3
TA 314 Lighting Design I	3
TA 315 Technical Theater Drawing	2
TA 317 Theater Technologies	2
TA 354 Theater Workshop II: Technical Theater	2
TA 421 Costume Design	3
	17
7 elective credits selected from the following:	7
TA 406 Special Projects (TBA) [Max: 6 credits]	
TA 435 Lighting Design II (3) [Max: 6 credits]	
Courses in the Scenography and/or Costume areas.	
Total	86

The *Costume track* adds the following requirements to the core:

TA 252 Makeup	2
TA 313 Scene Design II	3
TA 354 Theater Workshop II: Technical Theater	2
TA 326 Pattern Development *or* TA 327 Costume Technology	4
TA 421 Costume Design	3
TA 425 History of Dress I	4
	18
6 elective credits selected from the following:	6
TA 325 Costume Construction (2)	
TA 326 Pattern Development (4) *or* TA 327 Costume Technology (4)	
TA 406 Special Projects (TBA) [Max: 6 credits]	
TA 426 History of Dress II (4)	
Courses in the Scenography and/or Lighting areas.	
Total	86

Courses taken under the undifferentiated grading option (pass/no pass) will not be accepted toward fulfilling department major requirements.

At least 16 credits of upper-division theater arts courses, including 2 credits from TA 355, must be taken in residence at Portland State University.

Requirements for a Minor. To earn a minor in theater arts a student must complete 28 adviser-approved credits (12 credits must be taken in residence at Portland State University), to include the following:

	Credits
One of the following sequences:	8
TA 111, 112 Technical Theater I and II taken with TA 114, 115 Technical Theater Production (8)	
TA 141, 142 Acting I and II (8)	
Theater Arts electives (at least 12 upper-division)	16
Four credits chosen from:	4
TA 464, 465 Development of Dramatic Art I and II	
TA 467, 468 Modern Theater I and II	
TA 471, 472 Theater History	
Total	28

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 department offers graduate work leading to the degree of Master of Arts in theater arts. Each program 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. 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 54. Specific departmental requirements are listed below.

MASTER OF ARTS

The student must successfully complete a minimum of 45 graduate credits with at least 36 credits of approved courses in theater arts. Nine credits may be taken in an approved area 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, scene 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.

Prospective graduate students who plan to earn a Master of Arts should present a minimum of 26 credits in theater arts, including 8 credits in acting, 4 credits in directing, 8 credits in technical theater, 4 credits in costuming, and 2 credits in makeup, 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.

COURSES

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

TA 101
Theater Appreciation (4)
This course is intended as a general introduction to the art of the theater: acting; directing; playwriting; scenic, costume, and lighting design. Emphasis is placed on theater as a performing art today rather than upon the history or origins of the theater. The class, in part, involves attendance at live performances and events in the Portland area.

TA 111, 112
Technical Theater I, II (3, 3)
First term of sequence concerns the planning and building of sets and stage properties, and the production organization skills needed to mount theatrical productions. Second term adds elements of stage lighting, scene painting, and theater sound. Both terms require a three-hour lab period per week and participation in departmental productions presented that term. Must be taken in sequence.

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 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, 315.

TA 314
Lighting Design I (3)
Study of the history and practice in lighting theater productions together with considerations of contemporary technical innovations in the field. Prerequisites: TA 112, 301, 315, 316.

TA 315
Technical Theater Drawing (2)
An introductory course designed to develop drafting and drawing skills in the student and to help prepare him/her for future design and technical work in the theater. Prerequisites: TA 111, 114.

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)
Study and practical application of advanced techniques and materials in all aspects of stagecraft, including properties design and construction and special effects. Prerequisite: 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 325
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 (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 (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 (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 144.

***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 399
Special Studies (Credit to be arranged.)

TA 401/501
Research (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, Multicultural American Drama, Dramatic Criticism, Woman and Theater, and Performing Arts Management.

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 Egyptian to modern times with emphasis on periods most commonly used in theater production. Prerequisite: 6 credits of theater arts.

TA 421/521
Costume Design (3)
An in-depth study of costume design principles. Emphasis is placed on the design of costumes for specific plays, using a variety of styles and rendering media. Prerequisites: TA 321, 325.

TA 425/525, 426/526
History of Dress I, II (4, 4)
Historical survey of dress in Western civilization 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 practice in lighting design skills and techniques, including image projection. Students will participate in departmental productions. Maximum: 6 credits. Prerequisite: TA 314.

***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 455/555
Directing II (4)
Advanced practice in analysis and directing of plays for public performance. Prerequisites: TA 111, 112, 114, 115, 316, 364.

***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 repertories. Examination of key directors and trends in staging. Course may be taken out of sequence. Prerequisite: upper-division standing.

TA 471/571
Theater History: Periods and Topics (1-4)
Concentrated study of a particular period and/or topic in theater history: for example, The Classical Theater Tradition, The Medieval and Renaissance Theater, The Emergence of the Bourgeois Theater, The Nineteenth-Century Theater, 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.

GRADUATE SCHOOL OF SOCIAL WORK

JAMES H. WARD, DEAN
EILEEN M. BRENNAN, ASSOCIATE DEAN
UNIVERSITY CENTER BUILDING, 527 SW HALL, 725-4712

M.S.W.
Ph.D.

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 either Direct Human Services, Community-Based Practice, or Social Service Program Management. Students may focus their studies on a selected field of service: mental health; children, youth, and families; the elderly; health care; and services to the homeless 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. Also, 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 practicums 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 classes 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; classes meet once weekly.

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 March 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) 725-3949 or 725-4712.

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 tongue 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 54. The social work graduate 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 a Ph.D. in social work and social research which focuses on the interactive relationship between policy and practice in social welfare and human services. The objectives of the program are: to prepare professionals for research-based policy and practice decision making in the multifaceted human services; to train students in methods of theoretical analysis and empirical inquiry, especially in applied research in social work and the human services; and to provide a regional resource base for agencies and organizations, both public and voluntary, in developing responses to persistent social problems. The Regional Research Institute for Human Services, the Center for the Study of Mental Health Policy and 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 social problem 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.

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 and must take 8 quarter credit hours outside of the Graduate School of Social Work in that substantive area. Up to 21 credits may be taken in departments or programs other than social work. Each student's program will be individually planned and approved.

A research practicum is required. This involves planning and executing a small, agency-based empirical study under the direction of a faculty 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 will be appointed. The student will develop a dissertation proposal which will be defended orally before the dissertation committee. When the proposal has been approved by the dissertation committee and by the University Human Subjects Research Review committee, the student will be 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 will defend the completed dissertation before the dissertation committee and other interested faculty and doctoral students. The student is expected to demonstrate knowledge of the social problem selected for study, as it relates to the dissertation, 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 an equivalent degree 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 year's 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) and Miller Analogies Test;
- an example of scholarly writing;
- names of four references, two of which must be academic;
- a statement outlining the social problem area in which the student plans to do research; and
- a personal statement.

Application must be made by March 1; 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 51.

EXTENDED STUDIES

The Extended Studies Program of the Graduate School of Social Work is designed to address the post-master's educational needs of social workers and other human service professionals; develop and sustain staff training and education programs in collaboration with state and local agencies; 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 the Graduate School of Social Work, Portland State University, P.O. Box 751, Portland, OR 97207.

CHILD WELFARE PARTNERSHIP

In 1994, the Graduate School of Social Work and the State Office for Services to Children and Families (SCF) entered into a partnership aimed at improving the delivery of child welfare services to abused and neglected children and their families throughout Oregon. The SCF/PSU Partnership consists of three interdependent components:

1. advanced social work education;
2. child welfare training programs; and
3. child welfare quality assurance and evaluation.

The advanced social work education component provides advanced education through a master's degree for SCF employees and PSU graduate students interested in public child welfare careers. The School of Extended Studies trains SCF staff and caseworkers who provide services to families and children. Foster and adoptive parents also receive training through this program. The Child Welfare Partnership in conjunction with the Regional Research Institute for Human Services provides applied research and evaluation for improvement of child welfare programs. All components of the partnership are jointly administered by SCF and PSU.

The SCF/PSU Partnership is a national model for restructuring human service delivery. It improves opportunities for current child welfare workers who wish to gain additional professional training, it directs new social work graduates into public service, and it enhances professional and training curriculum through the use of evaluation data.

Further information may be obtained by writing to the Graduate School of Social Work, Portland State University, P.O. 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 (CMHPS).

The purpose of the CMHPS is to produce high-quality social work researchers in an active program of public mental health research. This will be 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.

The faculty development program consists of an annual series of advanced research workshops open to all faculty and students, a more specific training/consultation series for each of two core research areas, and individual faculty development plans funded by the CMHPS.

A research design/statistical consulting group works with the study teams, pilot project investigators, and other faculty and students wishing to develop research projects. Research and research development activities are focused on mental health issues for both children and adults. Cultural competence issues are addressed for all CMHPS activities.

COURSES

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

SW 301
Introduction to Social Work (3)
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: 3 credits of psychology and 3 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 and quantitative data analysis/interpretation for social work practice and program evaluation. Emphasis on comparing, contrasting, and combining these processes of social research, including conceptualization, operationalization and measurement, sampling, data collection, data analysis, probability, and descriptive and inferential 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
Special Problems (Credit to be arranged.)

SW 507
Seminar (Credit to be arranged.)

SW 508
Workshop (Credit to be arranged.)

SW 510
Selected Topics (Credit to be arranged.)

SW 520
Social Work and Social Welfare Policy (4)
Course defines and describes social welfare policy and the policy-making process. Examines historical and contemporary issues and their impact on the profession of social work and the institution of social welfare. Emphasis is given to the development of policy-practice skills from the perspective of a worker in a human service organization. Highlights the relationships between social problems, social policies, social programs, and social work practice.

SW 522
Issues in Child Welfare (4)
Discusses the rapid change in the goals and methods of child welfare agencies, those agencies charged with the protection of children and the provision of permanency in their lives. Analysis of the formation of policy to reflect empirically based knowledge, ever changing community forces, and developing practice wisdom. Explores major issues facing child welfare services today. Develops skills for policy change. Prerequisite: SW 520.

SW 523
Health Care Policies and Programs (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 530
Generalist Social Work Practice I (4)
Overview of the major influences on the service delivery system with special emphasis on the multiple roles of the generalist social worker, social work values, and ethics. Development of interviewing skills with focus on engagement, development of rapport, definition of purpose, and advocacy. Introduction to theory and the change process at five levels of social work practice: individual, family, group, organization, and community. Special attention to the issues of cultural diversity and populations at risk. Based on the strengths and ecological systems perspectives. Corequisite: SW 500.

SW 531
Generalist Social Work Practice II (4)
Based on the generalist social work practice principles, assessment and goal formulation aspects of the change process emphasized 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 teamwork examined. Introduction to evaluation. Application of strengths and ecological systems perspectives to assessment. Prerequisite: SW 530; corequisite SW 500.

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 with emphasis on strategies of promoting empowerment, equity, and social justice. Development of interviewing skills for intervention and role disengagement. Examination of the entire change process with focus on evaluation strategies and technologies. Prerequisite: SW 531, 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. Discusses assessment, planning and intervention at the individual, family, neighbor-

hood, 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 ethnically and culturally diverse families, schools, neighborhoods and communities. Prerequisite: SW 532; corequisite: SW 500.

SW 537, 538
Advanced Social Service Program 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. 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 541/641
Advanced Theories of Human Behavior in the Social Environment (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)
Presents 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 model assessment which includes diagnostic interviewing, specialty topics (e.g., homelessness, poverty) and critique of conventional and emerging empirical perspectives. Prerequisite: SW 532.

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
Treatment of Sexual Abuse (4)
Examines the impact on and treatment of child sexual abuse with adults, children and families. Emphasis is on an integrative biopsychosocial model, identifying acute and long term sequelae, traumatic and developmental effects, and various intervention modalities. The relationship of clinical narrative to contemporary social discourse about sexual abuse explored, including contemporary debates and controversies in the field. Research, clinical knowledge, developmental theory, and policy implications investigated and analyzed in light of current constructions of sexual abuse as a clinical and social problem. Clinical and policy practice case presentation and consultation included. 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. Prerequisite: SW 532.

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 integrated 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 clinical 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 of 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. Satisfies requirement for SW 501.

SW 571
Social Work with Alcoholics and Their Families (4)
Examination of the development of alcoholism, assessment, diagnosis, and work with alcoholics and/or their family members. Focus on practical skills as well as theory. Prerequisite: SW 532.

SW 572
Women's Issues in Social Work Practice (4)
Examines the experience 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 risk. 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, foci, 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.

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. Reformulation 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
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 110 projects, several of them national in scope, in such fields as youth services, aging services, family and child welfare, child care, employment, criminal justice, alcohol and drug services, rehabilitation, child and adult mental health, and self-help and support groups. A national program of research in the field of mental health began 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—one of five social work research development centers in the nation.

The institute enjoys a base of support from the University and has received more than $25 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 issues are initiated and modified. By bringing varied talents and academic disciplines 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.
- Evaluation of domestic violence services and programs.
- Evaluation of Oregon's JOBS Plus and Oregon Option Program.
- A national clearinghouse to provide information in the field of children's mental health.
- A study of supported housing services for persons with severe mental illness.
- Mental Health Network Project, a study of interorganizational service networks for persons with serious mental illness.
- An assessment of the Oregon Partners Project, an expanded case management system for children with severe emotional disturbances.
- 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.

COLLEGE OF URBAN AND PUBLIC AFFAIRS

NOHAD A. TOULAN, DEAN
WALTER G. ELLIS, ASSOCIATE DEAN
101 COLLEGE OF URBAN AND PUBLIC AFFAIRS, 725-4043

B.A., B.S., M.S.—Administration of Justice
B.A., B.S.—Health Education
B.A., B.S.—Community Development
B.A., B.S.—Political Science
Minor in Administration of Justice
Minor in Athletic Training
Minor in Community Development
Minor in Health Education
Minor in Political Science
Graduate Certificate in Gerontology
M.A., M.S.—Health Education
M.A., M.S.—Political Science
M.P.A.
M.P.H.
M.U.R.P.
M.U.S.
Ph.D.—Public Administration and Policy
Ph.D.—Urban Studies, Urban Studies: Regional Science

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, health education, or athletic training 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 education provides training for many professional careers in health promotion and health education. Students may choose from four tracks: community health, health and fitness, school health, and health sciences. 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 education 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 Maurie 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 alternately to graduate and undergraduate students who are recommended by their divisions and chosen by a faculty committee.

INTERDIVISIONAL PROGRAMS

PH.D. IN PUBLIC ADMINISTRATION AND POLICY

Coordinator: **Henry D. Kass**

The Ph.D. in public administration and policy is an interdisciplinary program that involves faculty throughout the entire College of Urban and Public Affairs and other units of the University. The degree prepares the student to conduct advanced research, exercise critical judgment, and provide highly competent operational support in the world of public affairs and service. Students who graduate from the program are well suited to occupy a variety of positions in these areas, including: college-level teaching, advanced research, consultation, and policy advocacy and administration at either executive or senior staff levels.

The curriculum seeks to prepare students with a firm theoretical grasp of the processes and institutions associated both with policy formation and those involved in administration. Accordingly, the intellectual foundation of the curriculum is the concept of governance, which examines the complex and often ambiguous relationship between policy and administration as it takes place within an evolving constitutional framework.

In addition, the concept of governance upon which the curriculum is built recognizes an emerging world in which the fate of nations and local communities is tied equally to global economic and political events. Thus, it goes beyond the study of national policy and administration to examine the linkages among international, national, regional, and local institutions. At the same time, it takes into consideration the fact that both public policy and administration increasingly involve a wide variety of institutional actors, partnerships, and competitive relationships among governments, non-governmental organizations, not for profit agencies, and private industry.

Degree Requirements

Prerequisites. The Ph.D. program in public administration and policy is designed for students with a wide variety of undergraduate and master's level backgrounds. However, students are required to have completed basic statistics before entry into the program or as soon after entrance as possible. Entering students would also be well advised (but are not required) to have completed courses in micro and macro economics, American government, and introduction to public administration prior to, or shortly after, admission. It should be noted that no credit toward the degree is awarded for remedial work in basic statistics or any of the recommended courses noted above.

Coursework. The doctoral degree in public administration and policy requires 78 hours of required and elective coursework and completion of a dissertation for 27 hours of credit. The coursework and dissertation requirements are shown below:

Foundational Core (18). The student is expected to complete six, 3-credit core courses. This body of coursework is designed to bring all students to an advanced conceptual level in the field of governance and to relate theories of governance explicitly to the administrative and policy process.

Public Administration and Public Policy Fields (24). All students complete 12 credit hours of required and elective coursework in public administration and 12 more in public policy. This coursework is designed to provide a basis for advanced research and analysis in both these areas, as well as explore the complex relationships between them.

Research Methods (16). The research methods sequence covers the basic philosophy of inquiry in contemporary social science, research design, introduction to qualitative research methods, and advanced work in quantitative methods.

Dissertation Course Concentration (20). This body of coursework is selected by the student and dissertation committee. It is designed to provide the specific substantive and methodological background necessary to write the student's dissertation.

Dissertation Research Credits (27).

In completing these requirements students may pursue a course of doctoral studies on a full- or part-time basis.

Continuous Enrollment

All students admitted to the Ph.D. program must be continuously enrolled until graduation, except for periods when 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 students admission.

Administration and Policy Specialization

Those working on the doctorate may wish to specialize in a particular area of administration or policy. This is accomplished by utilizing elective courses available in field areas, as well as gearing dissertation and dissertation concentration hours to the desired area of specialization. Typical specializations pursued by PAP doctoral students include: health policy, urban affairs, administration of justice, aging, not for profit sector studies, educational policy, natural resource policy, human resources and labor relations, budgeting and finance, and organizational development.

Coursework Selection

In planning their field elective and dissertation concentration courses, students may utilize course offerings from appropriate departments throughout the University. These courses may also include up to 15 hours of independent reading and conference coursework.

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 covers the 18 credit hours of foundational core courses and is given when the student finishes this course sequence. Part B of the examination reviews the field courses in public administration and public policy. Part B examinations are prepared specifically for each student by a faculty committee (see below) and administered as soon as practicable after completion of the student's last field coursework.

Advising

All incoming students in the PAP Ph.D. program are advised by the program coordinator for the first quarter of their coursework. They are then assigned a faculty member who is their academic adviser until completion of part A of the comprehensive exam. Prior to embarking on their field studies, students select and recruit a field study committee composed of a chairperson and two additional faculty members. As indicated, this committee will prepare the student's part B comprehensive examinations. Finally, when students are ready to begin work on their dissertations and dissertation concentrations, they select and recruit a dissertation committee to advise them composed of a chairperson and three members. The Office of Graduate Studies and Research appoints an additional member to the committee making a total of

five members. It should be noted students may retain prior advisers and committee members or select entirely new personnel for their dissertation committees.

An effective working relationship with faculty advisers is crucial to the quality and success of doctoral studies. Students should make every effort to keep in touch with advisers and committee members throughout their doctoral work.

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 will help the student frame the research topic and select appropriate coursework to complete the 20 credit hours of the required dissertation concentration. At the point students near completion of the dissertation concentration, they should prepare a dissertation proposal with the advice of their committee. This proposal is presented to the faculty and students in a formal colloquium. If the proposal is approved by the committee, the student starts work on his or her dissertation project. A minimum of one year (27 credit hours) 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 three credits each quarter. When the dissertation is finished and accepted by the committee, an oral defense of the findings is held.

Additional Information and Applications

For additional information on the application process, enrollment procedures, residency requirements, leave of absence, grading policies, etc., please obtain a copy of the *College of Urban and Public Affairs Doctoral Procedure Handbook* and relevant Office of Graduate Studies and Research requirements.

For application materials or further information contact Coordinator, Ph.D. Program in Public Administration and Policy, c/o Office of the Dean, College of Urban and Public Affairs, 101 Urban and Public Affairs Building, P.O. Box 751, Portland, OR 97207-0751. Telephone (503) 725-5143; e-mail: budd@upa.pdx.edu.

INTERINSTITUTIONAL PROGRAMS

MASTER OF PUBLIC HEALTH

The School of Community Health and the Division of Public Administration 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/preventative medicine. The core courses consist of: biostatistics, epidemiology, environmental and occupational health sciences, health systems organization, and social and behavioral sciences. Specialty tracks of health education/health promotion and health administration and policy are provided by the School of Community Health and the Division of Public Administration, respectively. Please refer to the departmental listings for information on specific degree requirements and admission criteria.

SCHOOL OF COMMUNITY HEALTH

212 Health and Physical Education Building
725-4401

B.A., B.S.—Health Education
Minor in Health Education
Minor in Athletic Training
M.A., M.S—Health Education
M.P.H.—Participating school in Master of Public Health

Health education is an eclectic discipline that seeks to bridge the gap between scientific health discoveries and their application to daily living. Health educators seek both to aid in the voluntary selection of healthy behavior patterns for people 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 minors in health education and athletic training. A variety of professional courses are open to all students in the University.

SECONDARY EDUCATION PROGRAM

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 183). 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 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.

UNDERGRADUATE PROGRAMS

The undergraduate health education curriculum is designed around a common core of courses and four separate tracks: community health, health and fitness promotion, school health, and health sciences. The school health track prepares students with the academic content in health education required for admission into the Graduate Teacher Education Program. The health sciences track provides students who wish to be admitted into professional programs in medicine, dentistry, physical therapy, or occupational therapy the opportunity to learn health education content and methods while completing specified science prerequisites. All four tracks prepare students with the entry-level health education competencies recommended by the National Commission for Health Education Credentialing.

A grade of C- or better is required in all coursework required for degrees in the School of Community Health, including core, required, and elective courses. With the exception of practicum and/or 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. Health education majors and minors 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.

ATHLETIC TRAINING MINOR, 725-4401

The minor prepares individuals for part- or full-time careers in the athletic training field, i.e., school related athletic programs, (if licensed to teach) college/university, or professional sports. Completion of the coursework and 1500-hour clinical experience qualifies students to take the National Athletic Trainers' Association Board of Certification Examination. *The athletic training minor is open to all students in the University on a space-available basis.* Because admission is selective, students are encouraged to file an application with the athletic training curriculum director early in their academic careers. Internship coursework is limited to students who have applied and have been accepted into the program.

A candidate for this minor is required to satisfy all University requirements for a baccalaureate degree with an academic major in one of the related fields of study offered at Portland State. All candidates who plan to work as athletic trainers in the public schools should be licensed teachers.

Athletic Training Minor Requirements. Completion of all requirements for graduation with an academic major in one of the fields in which Portland State University offers an undergraduate degree.

B.A./B.S. IN HEALTH EDUCATION

All students wishing to earn the B.A./B.S. degree in health education must complete the requirements listed in the common core plus the requirements listed in one of the tracks which follow.

Common Core Requirements	Credits
Bi 301, 302, 303 Human Anatomy and Physiology	4, 4, 4
Stat 244 Statistics	4
PHE 295 Health and Fitness for Life	4
PHE 363 Communicable Diseases and Chronic Health Problems	4
PHE 350 Health and Health Systems	4
PHE 448 Health Education Techniques and Strategies	4
PHE 471 Program Planning/Evaluation in Health Education	4
PHE 404 Internship	12
Core total	48

Community Health Track. In addition to the previously listed common core requirements, students pursuing the community health track must complete the following requirements:

List A

Choose 16 credits from the following: 16
- PHE 365 Health Promotion Programs for Children & Youth (4)
- PHE 410 Community Building and Public Health (4)
- PHE 435 Crime, Violence, and Personal Safety (4)
- PHE 446 Community Health Principles and Practices (4)
- PHE 450 Epidemiology (4)

PHE 466 Mind/Body Health: Disease Prevention (4)
PHE 480 Controversial Issues in Health (4)
UnSt 421 Health Related Senior Capstone (6)

List B
Choose 24 credits from the following:. 24
PHE 275 Stress Management (4)
PHE 326 Drug Education (4)
PHE 335 Human Sexuality (4)
PHE 345 Acquaintance Rape (4)
PHE 355 Consumer Health (4)
PHE 410 Minority Health (4)
PHE 425 Nutrition for Health (4)
PHE 443 Environmental Health (4)
PHE 453 Reproductive Health of Women (4)
PHE 454 Maternal and Child Health (4)
PHE 456 Health Aspects of Aging (4)
PHE 457 Death Education (4)
PHE 467 Mind/Body Health: Human Potential (4)

Track total 40

Health and Fitness Track. In addition to the previously listed common core requirements, students pursuing the health and fitness track must complete the following requirements:

List A
Required courses 16
PHE 361 Care and Prevention of Injuries (4)
PHE 473 Physiology of Exercise (4)
PHE 474 Exercise Prescription and Training (4)
PE 185 Fitness Activities (4)

List B
Choose 24 credits from the following:. 24
PHE 252 First Aid (4)
PHE 275 Stress Management (4)
PHE 326 Drug Education (4)
PHE 341 Development and Management of Health/Fitness Programs (4)
PHE 345 Acquaintance Rape (4)
PHE 355 Consumer Health (4)
PHE 370 Applied Kinesiology (4)
PHE 410 Athletic Training Administration (2)
PHE 425 Nutrition for Health (4)
PHE 435 Crime, Violence, and Personal Safety (4)
PHE 450 Epidemiology (4)
PHE 456 Health Aspects of Aging (4)
PHE 459 Therapeutic Modalities (2)
PHE 460 Injury Evaluation (2)
PHE 461 Therapeutic Exercise and Rehabilitation (2)
PHE 466 Mind/Body Health: Disease Prevention (4)
PHE 467 Mind/Body Health: Human Potential (4)
PHE 475 Fitness Testing (4)
UnSt 421 Health Related Senior Capstone (6)

Track total 40

School Health Track. In addition to the previously listed common core requirements, students pursuing the school health track must complete the following requirements:

Credits
PHE 252 First Aid 4
PHE 275 Stress Management. 4
Psy 311 Human Development 4
PHE 326 Drug Education. 4
PHE 335 Human Sexuality 4
PHE 355 Consumer Health 4
PHE 365 Health Promotion for Children and Youth. 4
PHE 425 Nutrition for Health 4
PHE 443 Environmental Health. 4
Ed 420 Introduction to Education and Society. 4
PHE 466 Mind/Body Health: Disease Prevention *or* PHE 467 Mind/Body Health: Human Potential 4

Track total 44

List B: Preprofessional Science Requirements
Choose one of the following options: Premedicine, Predentistry, Prephysical Therapy, Preoccupational Therapy. Referring to the table below for that option, complete the minimum number of science credits indicated for each department under that option. In choosing which courses to complete in a given department, you should verify for yourself the specific prerequisites required by the professional school(s) to which you intend to apply for admission. You may make use of advising sheets for each option provided by the College of Liberal Arts and Sciences Advising Center which summarize prerequisites for professional schools in Oregon and selected schools in the Pacific Northwest.

Minimum Credits	**Premedicine**	**Predentistry**	**Prephysical Therapy**	**Preoccupational Therapy**
Biology	15	15	15	15
Chemistry	32	28	28	
Physics	15	15	15	5
Math/Stat	4		4	4
Psychology			12	16
Sociology				4
Computer Science				3
Subtotal credits	**66**	**58**	**74**	**47**
Credits from List A	16	16	16	16
Total Track Credits	**82**	**74**	**90**	**63**

Health Sciences Track. In addition to the previously listed common core† requirements, students pursuing the health sciences track must complete the following requirements:

List A
Choose 16 credits from the following:. 16
PHE 252 First Aid (4)
PHE 275 Stress Management (4)
PHE 326 Drug Education (4)
PHE 355 Consumer Health (4)
PHE 361 Care and Prevention Injuries (4)
PHE 365 Health Promotion Programs for Children and Youth (4)
PHE 370 Applied Kinesiology (4)
PHE 410 Minority Health (4)
PHE 410 Maternal and Child Health (4)
PHE 425 Nutrition for Health (4)
PHE 446 Community Health Principles and Practices (4)
PHE 450 Epidemiology (4)
PHE 453 Reproductive Health of Women (4)
PHE 456 Health Aspects of Aging (4)
PHE 457 Death Education (4)
PHE 459 Therapeutic Modalities (2)
PHE 460 Injury Evaluation/Rehabilitation (2)
PHE 461 Therapeutic Exercise and Rehabilitation (2)
PHE 466 Mind/Body Health: Disease Prevention (4)
PHE 473 Physiology of Exercise (4)
PHE 474 Exercise Prescription and Training (4)
PHE 475 Fitness Testing (4)
UnSt 421 Health Related Senior Capstone (6)

Health Minor. Students wishing to complete a minor in health must complete the core courses plus courses listed in one of the following options:

Core requirement
Bi 301, 302 Anatomy and Physiology 8
PHE 350 Health and Health Systems. 4
PHE 363 Communicable Diseases and Chronic Health Problems 4
PHE 448 Health Education Techniques and Strategies. 4

Subtotal 20

Option I
PHE 355 Consumer Health 4
PHE 443 Environmental Health. 4
PHE 450 Epidemiology 4
PHE 471 Program Planning and Evaluation in Health Education. 4
PHE 480 Controversial Issues in Community Health 4

Subtotal 20

Option II
PHE 326 Drug Education. 4
PHE 335 Human Sexuality 4
PHE 365 Health Promotion Programs for Children and Youth 4
PHE 425 Nutrition for Health 4
PHE 466 Mind/Body Health: Disease Prevention 4

Subtotal 20

† Students electing the health sciences track will be required to complete an internship of 4-8 credits, depending on the academic objectives and needs of the student.

Option III

PHE 252 First Aid	4
PHE 361 Care and Prevention of Injuries	4
PHE 370 Applied Kinesiology	4
PHE 473 Physiology of Exercise	4
PHE 474 Exercise Prescription and Training	4
Subtotal	20
Total	40

Athletic Training Minor. (See page 250)

	Credits
Bi 301, 302 Anatomy and Physiology	4, 4
PHE 425 Nutrition for Health	4
PHE 361 Care and Prevention of Injuries	4
PHE 363 Communicable Diseases and Chronic Health Problems	4
PHE 370 Applied Kinesiology	4
PHE 404 Internship	6-9
PHE 410/510 Athletic Training Administration	2
PHE 459/559 Therapeutic Modalities	2
PHE 460/560 Injury Evaluation	2
PHE 461/561 Therapeutic Exercise and Rehabilitation	2
PHE 473/573 Physiology of Exercise	4
Total	42-45

GRADUATE PROGRAM

The School of Community Health offers the Master of Public Health degree concentration, Health Education/Health Promotion, in cooperation with Oregon Health Sciences University and Oregon State University. The School also offers graduate work leading to the Master of Arts and the Master of Science degrees.

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.

To be considered for admission to the graduate degree program, a student must have a bachelor's degree in health education, health and fitness promotion, human performance (or the equivalent), or complete prerequisites established by the School of Community Health. Additional admission requirements include a cumulative undergraduate GPA of 3.00 or higher, completion of the Graduate Record Examination, three academic letters of recommendation, and a 500-word essay.

Students completing 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, 45 required credits in the concentration, and an internship. Upon entering the programs students must choose between concentrations in community health and risk reduction. Program electives must be approved by an adviser and should be chosen based on a predetermined elective focus. In addition, a comprehensive written exam must be successfully passed.

Students pursuing an M.A./M.S. degree in health education must complete at least 45 graduate credits with a cumulative GPA of 3.00 or higher, including a core of 21-27 credits, depending on whether a final project (6 credits) or a thesis (9 credits) is elected. Students must determine a concentration, including approved electives, in consultation with the academic adviser. Within a concentration, students may design a program aimed at health evaluation, health program planning, worksite health and fitness promotion, or some other special interest within the framework of the School of Community Health.

PUBLIC HEALTH EDUCATION COURSES

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

***PHE 199**
Special Studies (1-3)

PHE 252
First Aid (4)
Emergency care for various types of injuries: assessment, life threatening injuries, medical emergencies, and special situations. Additional training for childbirth and CPR for adult, infant, and child. Course leads to Red Cross certification.

***PHE 275**
Stress Management (4)
An overview of the physiology of stress, stress triggers, assessment of stress, and stress management techniques and strategies.

PHE 295
Health and Fitness for Life (4)
Examines scientific literature regarding lifestyle choices that promote optimal health and functioning. Behaviors regarding self-protection, self-care, and health promotion are compared to recommendations emerging from this literature.

PHE 326
Drug Education (4)
Examines various approaches to drug education with an emphasis on prevention models. Epidemiology of and trends in drug use in the U.S. and effects on society. Reviews current and controversial issues and legal information on drug use effects.

PHE 335
Human Sexuality (4)
A survey of the psychological, physiological, and behavioral aspects of human sexuality, with particular emphasis on the influence of popular culture on these dimensions.

***PHE 341**
Development and Management of Health/ Fitness Programs (4)
Survey of organization and management of community, commercial, and corporate health/fitness programs. Emphasis on planning, organizing, financing, staffing, and managing health/fitness programs. Out of class, on-site visitation required.

PHE 345
Acquaintance Rape and Self-protection (4)
Examines the cognitive issues leading to acquaintance rape (i.e., aggressive male behavior, lack of assertive behavior, belief in social myths, vulnerability from use of alcohol, drugs). Class involves lectures/films/speakers and practical self-protection techniques.

***PHE 346**
Crime, Violence, and Personal Safety (4)
Examines crime and violence in the United States, develops prevention and protection strategies to minimize risk; explores crime statistics, the circumstances that put us most at risk, and who the criminal tends to be. Personal projection devices and available community services are discussed.

PHE 350
Health and Health Systems (4)
An overview of the organization, financing, and delivery of health services in the United States, with particular emphasis on analysis from professional, organizational, community, and systems perspectives.

PHE 355
Consumer Health Issues (4)
Identifies and critically analyzes issues related to the production, marketing, and consumption of health-related goods and services. Media messages about consumer health issues are examined; topical and timely research is analyzed. Prerequisite: PHE 295.

PHE 361
Care and Prevention of Injuries (4)
Introduction to the prevention, recognition, care, and rehabilitation of injuries resulting from participation in activity. Practical skills are demonstrated and practiced with emphasis on student participation. Prerequisites: Bi 301, 302.

PHE 363
Communicable Diseases and Chronic Health Problems (4)
Reviews etiology, epidemiology, and approaches to prevention of infectious and chronic diseases. Aspects of risk factors, transmission, pathogenesis, immunology, case management, and control programs are discussed. Basic human physiological processes are reviewed. Prerequisites: Bi 301, 302.

PHE 365
Health Promotion Programs for Children and Youth (4)
Provides an understanding of factors that influence health status and development of children and youth in the United States. Particular attention will be directed at health promotion programs for children, youth, and families in school and community settings. Includes a service component.

PHE 370
Applied Kinesiology (4)
Overview of anatomical and mechanical bases of human movement. Review of biomechanical principles with applications to exercise and health. Prerequisite: Bi 301.

PHE 401/501
Research (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 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

PHE 406/506
Special Projects (Credit to be arranged.)

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. Prerequisite: six hours in PHE coursework or consent of instructor.

***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.
Prerequisite: six hours of 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: six credits of PHE coursework or community health experience.

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: junior standing and 12 credits in PHE.

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. Prerequisite: PHE 335.

PHE 456/556
Health Aspects of Aging (4)
Examines the myths versus realities regarding changes in functional capacity and health that may occur with age. Ways to extend potential and maximize capacities throughout life are discussed. Prerequisites: PHE 295, Bi 302.

PHE 457/557
Death Education (4)
Identifies and examines the meaning of death in life. Topics include: attitudes towards death; decisions that surround death; grieving/coping; death and the health care system; social/cultural and legal issues. Prerequisite: six hours of PHE coursework.

***PHE 459/559**
Therapeutic Modalities (2)
An overview of the indications, contraindications, clinical application, pain management, and physical principals of common therapeutic modalities used in the training room or sports medicine setting. Prerequisite: PHE 361.

***PHE 460/560**
Injury Evaluation (2)
An in-depth study of upper and lower body injuries resulting from participation in activity. Emphasis will be on clinical evaluation skills. Prerequisite: PHE 361.

***PHE 461/561**
Therapeutic Exercise and Rehabilitation (2)
Provides a foundation of the current trends in therapeutic exercise and rehabilitation. Uses a systematic approach to evaluation and exercise program development, techniques, indications, contraindications, and exercise progression. Prerequisite: PHE 361.

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. Prerequisites: senior standing and 12 credits 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
Fitness Testing (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 512
Principles of Health Behavior I (3)
Presents an overview of the biological, psychological, behavioral, sociocultural, and environmental factors that function in the promotion of health and prevention of disease. Theories developed to explain health and illness behaviors at intrapersonal, interpersonal, and group/community levels are introduced. Ethical issues involved in health-related behavior change are examined. Satisfies the core M.P.H. requirement. Prerequisite: graduate standing.

PHE 513
Principles of Health Behavior II (3)
A postmodern approach to health behavior theory and its applications. Major theories are critiqued from positivist, social constructionist, and critical theory perspectives. Feminist and empowerment-based approaches are contrasted with traditional behavioral interventions. Ethical implications of postmodern orientations to health behavior are explored. Prerequisite: PHE 512.

***PHE 518**
Topics in Health Education (3)
In-depth analysis of recent 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 include: death and dying, nutrition, international health, environmental health, exercise, special populations, personal safety, and disease. Prerequisite: graduate standing.

***PHE 519**
Current Issues in Public Health (3)
Course provides a broad overview of recent research and related program developments on current public health issues. Issues may include: AIDS; sexually transmitted diseases; maternal and child health; international health; alcohol, tobacco, and drugs; nutrition; environmental health; exercise; gerontology; and mental health. Prerequisite: graduate standing.

PHE 520
Research Design: Nontraditional Approaches (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
Research Design in Health: Traditional Approaches (3)
Introduction to traditional methods of designing and conducting research as they are currently practiced in the fields of health education and health/fitness promotion. Topics include: descriptive, historical, and evaluative research methods, plus experimental, quasi-experimental, and non-experimental designs and review of statistical concepts. Prerequisite: graduate standing.

***PHE 531**
Women and Exercise: Physiological Aspects (3)
Overview of physiological and health-related effects of exercise on women. Emphasis on the responses and adaptations to exercise specific to women. Topics include gender differences, the menstrual cycle, pregnancy, menopause, and osteoporosis. Prerequisite: PHE 473/573.

***PHE 542**
Programs in Sex Education (3)
Designed to provide elementary, junior high school, senior high school teachers and other professionals with appropriate content and materials for teaching in the area of human sexuality. The course will examine the controversial issues related to sex education instruction and will review available materials and curricula in the field. Prerequisite: PHE 231/Psy 299.

***PHE 543**
Drug and Alcohol Education (3)
This course is designed to familiarize students with principles and programs in dealing with problems of drug and alcohol use/abuse. Prevention models are emphasized. Prerequisite: PHE 326.

PHE 549
Quantitative Analysis in Health Studies (3)
Application of quantitative methods to topics in health studies. Topics include: computer applications for health studies research and univariate and multivariate techniques for analysis of data relating to health studies. Prerequisite: Mth 243, 244.

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 558**
Health Curriculum (3)
Designed to make a critical analysis and evaluation of the total school health program; to develop analytical skills of the prospective health educator in special methods, techniques, and tools relating to instruction, and to allow the student an opportunity to organize and present materials which will provide the student with an effective background for future practical use in the field. Prerequisite: graduate standing.

PHE 576
Exercise And Health (3)
Exploration of research dealing with relationships between exercise and health. Topics include: cardiovascular disease; diabetes; immune function; cancer; obesity/weight control; bone health; mental health. Prerequisite: PHE 473.

PHE 577
Exercise and Nutrition (3)
The physiological processes which govern the digestion and use of essential nutrients, the modifications which are needed as a result of exercise, and the role that exercise and nutrition play in the diseases of overabundance. Prerequisites: Ch 250, 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.

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.

† Not more than 12 credits in any combination of numbers may be applied to the 180-credit requirement. Additional fees will be charged for these courses.

MARK O. HATFIELD SCHOOL OF GOVERNMENT

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: Administration of Justice, Political Science, and Public Administration. The School also contains three institutes: the Criminal Justice Policy Research Institute within Administration of Justice; the Executive Leadership Institute; and Institute for Nonprofit Management within Public Administration. A fourth institute, the Columbia/ Pacific Policy Institute for Energy and the Environment, is a private nonprofit organization affiliated with the School. The Public Administration and Policy Ph.D. is an interdisciplinary program administratively housed in the Office of the Dean of the
College of Urban and Public Affairs.

ADMINISTRATION OF JUSTICE

313 College of Urban and Public Affairs
725-4014

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:

Core Courses	Credits
AJ 200 Introduction to Adult Criminal Justice Process	4
AJ 210 Introduction to Juvenile Justice Process	4
AJ 220 Crime Literacy	4
AJ 330 Crime Control Theory and Strategy	4
AJ 380 Criminal Justice Research	4
AJ 409 Senior Practicum	8
AJ 410 Special Topics (selected from a variety of 4-credit courses designed to meet professional interests)	12
AJ 420 Criminal Law and Legal Reasoning	4
AJ 440 Constitutional Criminal Procedures	4
AJ 460 Court Procedures	4
AJ 490 Senior Colloquium	4
Total AJ core credits	56

Supporting Courses	Credits
CS 105 Computing Fundamentals	4
Sp 215 Introduction to Intercultural Communication	4
Phl 202 Elementary Ethics	4
Psy 434 Introduction to Psychopathology	4
Soc 200 Introduction to Sociology	4
Soc 337 Minorities	4
Soc 418 Criminology and Delinquency	4
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	Credits
AJ 200, 210, 220, 330	16
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 program of graduate study and research 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	Credits
AJ 511 Historical Perspective of Criminal Justice	3
AJ 515 Theories of Crime and Justice	3
AJ 520 Legal Perspective of Criminal Justice	3
AJ 530 Political/Economic Perspectives of Criminal Justice	3
AJ 550 Comparative Perspective of Criminal Justice	3
Research Core Courses	
USP 530 Research Design	3
PA 551 Data Analysis and Statistics for Public Administration	3
Supporting Elective Courses	18
Thesis	6
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 marked 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. Contemporary 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 changes 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
Correctional Practices (3)
Analysis of the various treatment and rehabilitation practices attempted with various types of offenders in both an institutional setting and in the community; includes an examination and evaluation of behavior modification, psychiatric and psychological approaches, group treatment methods, reality therapy, as well as other lesser-known approaches.

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, halfway 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.

POLITICAL SCIENCE

117 Cramer Hall
725-3921

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

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 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 diversity that will become the subject of analysis and research. Divisional courses associated with the politics of diversity option are arranged under three topical headings: diversity in America, regional and global diversity, and diversity and justice. Information regarding the courses associated with each of these areas is available at the division office. This option also requires students to select 4 courses from outside political science. These courses are to be selected with the advice and consent of a student's adviser. A list of recommended outside courses is available at the Political Science Office.

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 as a part of the major requirements. These courses are to be selected with the advice and consent of a student's adviser. A list of outside courses is available at the division office.

Basic course requirements for the politics of diversity and politics of conflict and cooperation options are as follows:

1. Select an adviser.
2. PS 200 Introduction to Politics
3. 44 total credits in the Division of Political Science, with 32 of these being upper-division work
4. 16 credits of upper-division work from selected courses outside political science, adding up to 60 total credits
5. A relevant 407 seminar (part of the 44 credits of divisional work)
6. Preparation and submission of a concluding essay, prepared under the adviser's supervision, on a topic of the student's choosing. (Four credit hours of PS 401 will be devoted to the essay and will count as part of the 44 credits of political science work required.)

Requirements for Minor. To earn a minor in political science, a student must complete 28 credits in political science (of which 15 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

Adviser: **D. A. Smeltzer**

(See General Studies: Social Science page 109.)

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 271.

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 Analogy Test. The Miller's Analogy 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 54. 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 five 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.

Total credits: 50

Students who wish to earn an M.S. in political science are required to take PS 595 Research Methods for Political Science as part of their program. Those seeking an M.A. in Political Science must pass an examination in one foreign language to be administered by the Department of Foreign Languages and Literatures.

Examinations. Candidates for the M.A. and M.S. degrees will be required to take a three-hour examination on each of the two fields of concentration. These written examinations normally will be taken during the term in which the candidate will complete 44 credits of the graduate program. The written examinations may be followed by an oral examination at the option of the candidate's examiners.

The candidate who is planning to take the examinations in a particular term must notify the divisional graduate secretary of such intention by the Friday of the second week of that term. The candidate must by that time have consulted with the two faculty examiners about the books, articles, and other materials in the two fields over which the student will be examined.

Examinations will not be given in the absence of such consultation. The written examinations will be given in the eighth week of the term (sixth week if it is Summer Session) with the orals, if required, taking place during the following two weeks.

Candidates for the Master of Arts degree must pass an examination in a foreign language administered by the Department of Foreign Languages and Literatures. Candidates for the Master of Science degree must pass an examination in statistical application administered by the Division of Political Science or complete for credit two graduate-level political science methods courses. The foreign language examination or the statistical application examination must be completed by the sixth week of the term in which the candidate expects to receive the degree. Candidates must check with the respective departments for dates and times of examinations in order to meet the above deadline.

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

Program with a political science concentration will be designed to enhance the candidates' capacity to meet their particular teaching responsibilities. See page 45 for University requirements for these degrees.

COURSES

Courses marked 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: the 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 rivalries, 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 legislatures and governors, and efforts to reform legislative politics. Recommended: PS 101 and 102.

PS 318
Media, Opinion and Voting (4)
Examines the impact of the media and other social forces on public opinion and political participation in America. The course pays particular attention to the formation, direction, and intensity of public opinion, and its relationship to voting and policy decisions. Provides opportunity for students to create simulated TV campaign advertisements. Recommended: PS 102.

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 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 politics 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 358
Introduction to Communism (4)
Analysis of the evolution of communist systems in the twentieth century. Among the issues to be discussed are the relationship of ideology to politics, the communist model of development through a command economy, the role of the communist party in politics and society, and relations among the major communist countries. Special attention is given to the prospects for survival of the remaining communist states as well as the causes of collapse and the process of democratization in the post-communist states.

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 399
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 410/510
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 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 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 and 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 444/544**
International Political Economy (4)
A study of the contending theories of international political economy: power and interdependence, 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 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 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 455/555
Post-Soviet Politics (4)
This course provides an historical survey of the evolution and analyzes the causes of its collapse and the nature of politics in one or more of the post-Soviet successor states. Special attention is given to the problems posed to political democratization and economic liberalization by the legacy of Soviet authoritarianism and the command economy.

PS 462/562
International Relations in 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 international 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 institutions, formal and informal, that shape government 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 479/579
Transitions to Democracy (4)
Comparative analysis of political systems which have experienced a transition from an authoritarian to a democratic regime. Attention is given to the conditions supportive of democratic transition and to the problems of maintaining democratic 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 discussed and criticisms of the liberal tradition, as offered by communitarians, classical republicans, feminists, and postmodernists, are examined. 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 justice, justice and the rule of law, inter-generational 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 American 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 Thought: 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 considered include democratization and the Jacksonian period, slavery and the nature of the Union, Social Darwinism and industrialization, the progressive period, the coming of the welfare state, and contemporary concerns. Attention 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 "science of politics." The philosophical foundations of empirical social science are critically examined and discussed along with the foundations of interpretive social science, critical social science, feminism, post modernism, and rational choice theory. Recommended: PS 381.

PS 495/595
Research Methods for Political Science (4)
Introduction to an examination of methodological 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

224 College of Urban and Public Affairs
725-3920

M.P.A.
M.P.A.: Health Administration
M.P.H.—Participating Division in Masters of Public Health
Ph.D.—Participating 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 from 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.

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)
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 590 Human Resource Management in the Public Sector (3)

Area II—Skill Development (9 Credits)
Three of the following:
PA 510 Intercultural Communications in the Public Sector (3)
PA 510 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 550 Managing Information Resources (3)
PA 555 Program Evaluation & Management (3)
PA 557 Operations Research in Public Management (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.
or
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 public sector personnel 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 Personnel Administration 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 Public Personnel Administration; 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 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 of Public Administration 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 of Public Administration 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.

Other Specialty Areas. The courses for a specialty in Administration of Justice to be provided by the Administration of Justice Division will be available by the 1998-99 academic year. 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 60 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 510 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 586 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.
or
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 510 Building Healthy Communities (3)
PA 572 Health Politics (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)
PH 512 Epidemiology Survey (3)
PH 525 Biometry Survey (3)
PHE 580 Concepts of Environmental Health (3)
PHE 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)
And 12 credits from the following:
PA 576 Strategic Planning 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)
PA 589 Research Methods 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

ACCREDITATION

The Master of Public Administration and the Master of Public Administration: Health Administration degrees are accredited by the National Association of Schools of Public Affairs and Administration. The Master of Public Health degree has received pre-accreditation from the Council on Education for Public Health.

PH.D. IN PUBLIC ADMINISTRATION AND POLICY

The Division of Public Administration cooperates with other divisions in the College of Urban and Public Affairs to offer an interdivisional degree in public administration and policy. For details, see the program description on page 248.

COOPERATIVE DEGREE PROGRAMS IN COMMUNITY HEALTH CARE SYSTEMS AND PUBLIC HEALTH

The Division of Public Administration at Portland State University maintains a cooperative degree program with the Department of Community Health Care Systems, School of Nursing, The Oregon Health Sciences University. Students trained as Registered Nurses at an accredited institution, and who have been admitted to both the Division of Public Administration and the School of Nursing, are able to simultaneously earn the M.P.A. and the M.S.N. degrees. Curriculum requirements for the two degrees are jointly administered by the two institutions. The total required credits for the two degrees are less than if each degree were taken separately. Requests for information on the cooperative degree program and admission requirements should be directed to the respective departments.

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
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
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.

COLUMBIA/PACIFIC POLICY INSTITUTE FOR ENERGY AND THE ENVIRONMENT

205 College of Urban and Public Affairs
725-8101

The Columbia/Pacific Policy Institute for Energy and the Environment is not organizationally part of the College of Urban and Public Affairs; however, it is an important affiliated entity which is housed in the College and works closely with the faculty and staff of the Division of Public Administration.

The Columbia/Pacific Policy Institute for Energy and the Environment was organized in 1996 to add another voice to the growing regional debate over the uses of the Northwest's natural resources. The Institute has particular interest in (1) the technology-driven national and global restructuring of the electric utility industry, and (2) reconsideration of the institutions that govern use of the Columbia River and allocations among users. It pursues its interests through "white papers," workshops, editorial write-ups, direct representation to decision makers, and other means. It works closely with faculty within the Division of Public Administration and with faculty and staff throughout the University. Institute staff serve as Division adjunct faculty.

COURSES

Courses marked 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 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 "in-service" students, those who have limited or no administrative experience. 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)
Explores 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 520
Management of Not-for-profit Organizations (3)
Deals with a wide range of management needs, problems, and issues of not-for-profit organizations. It considers such items as the following: the executive director as manager; working with a policy board; 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 volunteerism, 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
Managing Nonprofit Boards (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 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 540.

PA 533
Public Policy: Origins and Process
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
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 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, team work, 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 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 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, planned change, change implementation and evaluation, and the development of appropriate interpersonal competencies and skills. Focuses on the public manager as change agent.

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 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 theory, techniques of data collection, tabulation and presentation; sampling theory, statistical reasoning and analytic techniques of estimation and hypothesis testing; and computer applications for statistical analysis. Prerequisite: 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 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 557
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, queueing, 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 558
Public Productivity Analysis (3)
An examination of theoretical issues, methodological problems, applications and current developments in public productivity. Topics include concepts or organizational effectiveness, performance indicators, human relations approaches, system analysis, and recent efforts to improve governmental productivity.

PA 561
Public Bureaucracy: Political and Legal Aspects (3)
An examination of the theoretical and practical role of public bureaucracy in the formation, planning, and administration of public policy. Issues and concepts in the planning and management of public policy will be analyzed. The role of the bureaucracy in contemporary government will be critically reviewed. Issues of responsiveness, responsibility, equity, organizational structure, effectiveness, and efficiency will be assessed. Administrative procedures and law will be addressed in the context of bureaucratic processes and decision making.

PA 563
Citizens and Administration (3)
This course analyzes modern civic life and its challenges. Its major focus is the often ambiguous relationship between citizens and administrators in the political system. Other topics emphasized are: transformation of civic life in modern times, declining citizen trust in government, modern approaches to citizen participation in government, and the future of "civism" in the United States.

PA 565
Natural Resource Policy and Administration (3)
Reviews the history, politics, and institutions related to current environmental and natural resource policy and its administration. Reviews policy domains like land and forest, water, energy, fish and wildlife, and environmental quality. Special attention is paid to policy and administrative governance issues like sustaining common pool goods, structuring intergovernmental relations, and evaluating policy implementation strategies of direct production, planning, regulation, and changing market incentives. A central premise is that natural resource administrators face a policy arena that is intrinsically problematic because of the dynamic nature of social values about natural resources, the long time horizon implicit in resource systems, the broadening geographic scale considered in natural resources decisions, and the interdependency of social and ecological communities. Recommended as a first course in the environmental and natural resource administration specialization.

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 arid 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 NGO's, 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 567
Energy Resources Policy and Administration (3)
Reviews the history, politics, and institutions related to current energy policy and administration with particular attention to the Pacific Northwest and development of hydroelectric power. National energy policy history is reviewed including political, financial, and environmental problems. Explores the roles of interest groups; state, local, national, and international governments; and regional governing institutions. It explores the changing distribution of social costs and benefits as both a cause and result of policy change. Passage of the 1980 Northwest Power Act, the Northwest Power Planning Council created in the act, and the implementation of the act will be studied, as will current issues like energy conservation, regional power planning, deregulation and the status of institutions involved in energy policy, and Columbia basin fish and wildlife conservation.

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
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 575
Health Planning I (3)
An investigation of the theory and philosophy of health planning. Specific topics include evaluation of community health needs, comprehensive health planning, and the relationship of health planning to administration.

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 experience 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
Advanced Budgeting Concepts and Techniques (3)
Investigates how budgeting can be used to review, analyze, and establish public policy and administrative accountability. Students learn how to: 1) design the best budget system to fit various political environments; 2)review the effectiveness and efficiency of programs through budget analyses; and 3)use the budget to clarify public policy issues and establish management accountability for performance. The mechanics of public budgeting will also be discussed in detail, including developing a budget calendar, making fund balance estimates, balancing revenues and expenditures, and monitoring the approved budget. Students should have practical experience or a previous course in budgeting.

PA 585
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; 512, 525.

PA 590
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 incentives; 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 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, reading, 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. permissive 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 parities 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 continuing grievance problems such as discipline, transfers, senority, overtime, work assignments, insubordination, layoff, recall, and manning requirements. Emphasis will be on the use of case materials to illustrate these problems. Also includes a discussion of arbitration followed by a mock arbitration session. Prerequisite: PA 595.

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.)

PA 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.

PA 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.

PA 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.

PA 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.

PA 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 context of their respective legislative mandates. Prerequisite: admission to the Ph.D. program in public administration and policy.

PA 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.

PA 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.

SCHOOL OF URBAN STUDIES AND PLANNING

341 College of Urban and Public Affairs
725-4045

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, or the interdisciplinary Ph.D. in public administration and policy.

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 two areas of concentrated study: community organization and change or housing and economic 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:	Credits
Sophomore Inquiry Community Studies Cluster course	4
Stat 243 Introduction to Probability and Statistics	4
Soc 200 Introduction to Sociology	4
Ec 201 or 202 Principles of Economics	4
PS 200 Introduction to Politics	3
Total credits	19

Required Core Courses:	Credits
USP 301 Theory and Philosophy of Community Development	4
USP 302 Methods of Community Development	4
USP 303 Community Development Field Seminar	4
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 community development-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	Credits
USP 311 Introduction to Urban Planning	4
USP 426 Neighborhood Conservation and Change	3
USP 450 Citizen Participation	3
USP 428 Concepts of Community Development	3
Elective credits from approved list	16
Total	29

or

Housing and Economic Development	Credits
USP 311 Introduction to Urban Planning	4
USP 312 Urban Housing and Development	4
USP 427 Downtown Revitalization	3
USP 428 Concepts of Community Development	3
Elective credits from approved list	16
Total	30

or

Communication and Community Development	Credits
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	11
Total	34

Field Experience (6 credits)
Participants in the field experience will work in small groups and may be drawn from other majors as well as community development. This capstone will represent a concerted effort to engage a community problem systematically, from every relevant standpoint, and to place it in critical perspective. Each student will prepare a senior paper that explicates the field experience and explores the nature of community development as it is informed by that experience.

Total credits required for the major: 67-73

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

The Ph.D. program in urban studies is characterized by initial general training followed by the development of substantive areas of specialization. During the first two years in the program, the student is expected to select a pattern of core-area coursework that will present alternatives in the understanding of urban problems and processes employed by the participating social science disciplines.

Urban studies Ph.D. students are expected to develop fields of interest that are interdisciplinary in nature. Using urban housing as an example, each of the social sciences has conventional ways in which questions concerning urban housing are posed. The preparation of urban studies graduates is distinctive in that they are expected to have an awareness of approaches employed within several disciplines when examining the conditions under which housing services are available to the residents of a city, and how the residents interact with the urban housing environment.

The School of Urban Studies and Planning offers training in the following areas of advanced interdisciplinary study: urban social patterns and human development; urban and regional structure; and policy analysis. While students are expected to offer an interdisciplinary specialization in at least one of these fields, the student, in consultation with the committee or adviser, may wish to define a field of interest that better suits the student's expected urban research interests. Such cases may include a theoretical field in one of the participating social sciences.

Degree Requirements: Ph.D. in Urban Studies

In addition to the general University requirements for the Ph.D., the school has set the following requirements.

Core-Area Requirements. The core-area requirements of the Ph.D. in urban studies have three basic subdivisions: (1) the substantive core courses, (2) core methods courses, and (3) social science applications seminars. The substantive core consists of five courses: History of Urban Development, Urban Economic and Spatial Structure, Urban Social Structure, Urban Political Structure and Urban Studies Theory. The core methods include USP 530 Research Design, USP 532 Data Collection, and USP 534 Data Analysis. The substantive and methods core courses must be taken by all students.

A student must demonstrate adequate preparation in three social science disciplines by (a) taking three social sciences applications seminars (USP 515-519), or (b) receiving a course waiver if the student has taken adequate previous work in that discipline.

In addition to the three required core-area courses in graduate-level methodology, Ph.D. students must take an additional methods course specified by the field of specialization, and a seminar in field-specific methods applications (USP 690-695).

Field-Area Requirements. In addition to training in methodology and the core area, each student must offer two fields of specialization. The particular program of field-area study is the responsibility of the student and the student's graduate committee. Further, it is recommended that at least one of the student's fields of specialization be within the three areas of advanced study offered by the Urban Studies Ph.D. Program.

It is expected that a student will complete a minimum of 21 credits in support of one field and 18 credits in support of the second field. Twelve additional credits may be taken in one field or divided between the two fields. Courses used to satisfy core-area requirements may not be used to satisfy field-area requirements. Specialized methodology courses deemed appropriate by the student and the advisory committee may be used in partial, or complete, fulfillment of the total credit requirement for fields of specialization. Within each field certain courses are recommended for all students developing specialization in that area. With the foundation provided by such fundamental courses, the student and the graduate committee plan the remainder of the student's training in a field so as to prepare the student for Ph.D.-level research in the chosen areas of specialization.

Policy Analysis is the study of society through systematic frameworks which include the means of gauging changes in society's conditions through various policy interventions. The field includes the identification of urban problems, definition of policy issues, analysis of policy alternatives, implementation of new policies, and evaluation of policy effects on the urban environment. Public organizations are studied primarily from the standpoint of their relationships to policy alternatives and outcomes. Four subareas of specialization are available to students developing a field in policy analysis: prescriptive policy theory and policy analysis methods, decision-making and policy-making behavior, organizational change, and policy evaluation. An awareness of the theoretical issues at stake in the analysis of policy enables the student to evaluate the effects of different policies on urban problems. Some students may not extend the analysis to a substantive level (i.e., apply the theory to a practical urban problem) preferring instead to pursue research in the area of analytical models. Normally, however, the student will develop an interest in particular urban problems such as transportation, housing, or urban environmental quality.

Urban and Regional Structure focuses on the physical entity of the city—the interacting patterns of land, structures, people, and activities, and their evolution through time. This requires understanding of social, economic, political, and environmental systems. Specialized study dealing with urban economic systems, urban physical systems, demography and social ecology, and urban political structure provides this understanding. At a more advanced level, several substantive areas of specialization may be pursued: urban growth and development, locational analysis, and transportation. Research skills in this field include methods of regional science, geographic analysis, and econometric analysis.

Urban Social Patterns and Human Development as a field of study brings the shared interests of several disciplines to bear upon the broad phenomena of urban social structure and social organization, the diversity of life styles and behavior patterns of urban residents, the urban environment as a physical context that influences and is influenced by attitudes and behavior, patterns of social change in urban communities, and human development processes in urban settings with an emphasis on aging and the elderly. Various research skills in this field of study include: naturalistic observation; use of an array of data-gathering procedures such as interviewing; secondary data sources; documents and case histories; and various techniques for identification, analysis, and comparison of social structures and contexts; and quantitative techniques of data analysis.

PH.D. IN URBAN STUDIES: REGIONAL SCIENCE

Regional science focuses on the economic and spatial aspects of metropolitan areas and regions. The general requirements for the Ph.D. in urban studies: regional science follow those of the Ph.D. in urban studies.

Students are required to fill their optional core courses in the following manner: USP 515 and either 543 or 676 for their application seminars; and to take the following courses in addition to the usual core: USP 634 Foundations of Regional Science, USP 635 Regional Science Theory, USP 636 Economic and Political Decision Making, and USP 672 Regional Economic Development. Regional Science students must take a Regional Science Augmentation Seminar of one credit concurrently with USP 672.

Substantive emphasis is offered in the following fields: Development and Planning; Location Theory and Analysis; Transportation; and Geographic Information Systems. In special circumstances, student-nominated fields may be pursued with the prior approval of the faculty. Among the courses in the substantive field must be three one-hour augmentation seminars. These seminars are taught concurrently with selected regular offerings. Augmentation seminars are directed at regional science students and have technical prerequisites beyond those of the paired regular course.

All students in the regional science Ph.D. program must also offer Regional Science Methods as their second field. This field includes two required courses: Ec 570 Econometrics and USP 691 Current Research in Regional Science. The remaining 12 credits may be selected from: USP 533 Planning Analysis; USP 536 Policy Evaluation Methods; Ec 571 Advanced Econometrics; Ec 572 Econometric Forecasting and Simulation; USP 674 Spatial Analysis; USP 678 Impact Assessment; Ec 580 Mathematical Economics; SySc 520, 521, 522 Operations Research I, II, III; SySc 629 Process Modeling and Simulation; SySc 627 Discrete System Simulation; SySc 625 Continuous Systems Simulation; and other methods courses approved by appropriate faculty.

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 248.

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 (25 credits). Each student also defines a field area which is pursued through coursework (21 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:

	Credits
USP 511 Urban Social Structure	3
USP 512 Urban Political Structure	3
USP 513 Urban Economic and Spatial Structure	3
USP 514 Urban Studies Theory	3
USP 569 History of Urban Development	3
Plus one of the following Applications seminars:	4
USP 515 Economics: Applications in Urban Studies (4)	
USP 516 Political Science: Applications in Urban Studies (4)	
USP 517 Sociology: Applications in Urban Studies (4)	
USP 518 Psychology: Applications in Urban Studies (4)	
USP 519 Geography: Applications in Urban Studies (4)	

Soon after the completion of the core courses, each student is required to take the common core examination. This examination is offered each year during fall and spring terms.

In addition to the urban studies core courses, M.U.S. students are required to complete two research methods courses:

USP 530 Research Design	4
USP 532 Data Collection	4
Total credits upon completion of required courses:	27

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. Nineteen credits of field-area coursework are required.

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:

	Credits
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 (36 credits):

Planning Sequence	Credits
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	2
USP 533 Planning Analysis	3
USP 535 Metropolitan Data Analysis	3
Analytical Methods	
USP 510 Legal Processes in Urban Planning	1
USP 515 Economics: Applications to Urban Studies	4
USP 525 Design Analysis in Planning	1
USP 543 Geographic Applications to Planning	3
Workshops (10 credits)	
USP 558 Planning Workshop	9
USP 559 Planning Practice Workshop	1
Specializations (36 credits).	
Total Credits	**72**

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 apply material from their coursework.

GRADUATE CERTIFICATE IN 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 an eight-course format (24 credits minimum) made up of two components, a multidisciplinary core and an area of subspecialization. The multidisciplinary core will provide students with a general multidisciplinary introduction to the field of aging while the area of subspecialization will provide in-depth training which will uniquely fit a student's career interest.

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 45, 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*. Two thousand dollars 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 (or 60 if advanced standing credit for professional experience is approved), of which at least 48 must be

taken at Portland State University. A maximum of 24 credits of advanced standing credit may be requested.

Planning students may apply for advanced standing credit or course waivers for one of the two workshops and a maximum of two of the required core courses (excluding USP 540 and 541) with appropriate academic and professional experience. 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 that student has already acquired knowledge of the subject matter 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.

RESEARCH FACILITIES

The School of Urban Studies and Planning benefits from the activities of four research units: the Center for Population Research and Census, the Center for Urban Studies, the Institute on Aging, 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 marked 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)
Three-term sequence limited to majors in community development that introduces them to the field. USP 301: Theory and Philosophy of Community Development. 1) New approaches to the philosophy of community; 2) theory and comparative practice, and 3) case study of local theory and practice, presentation of an in-depth case study from the Pacific Northwest. USP 302: Methods of Community Development. Review of community organization, community and network analysis, organizational development and management, strategic planning, management issues, and approaches to evaluation. USP 303: Community Development Field Seminar. Participant observation through placement in a community-based organization actively engaged in community development activities on behalf of a specific community, and critical reflection on the placement experience.

USP 311
Introduction to Urban Planning (4)
An interdisciplinary perspective on planning theories, principles, and practice. Focuses on the planning 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 Housing and Development (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 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. 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 405/505
Reading and Conference (Credit to be arranged.)
Consent of instructor.

USP 407/507
Seminar (Credit to be arranged.)
Urban Agriculture. Historic Preservation and Rehabilitation. Neighborhood Planning. Urban History. Other selected topics.

USP 408/508
Workshop (Credit to be arranged.)
Urban Investigation. Land Use. Field Techniques. Neighborhood Analysis.

USP 409/509
Practicum (Credit to be arranged.)
Consent of instructor.

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

USP 420
Urban Design: Analysis of Space (3)
This course is intended to train students to inventory and analyze the spatial elements of urban environments. Students will gain practice in dealing with the interrelationships of buildings, streets, squares, parks, open spaces and transportation modes.

USP 421
Urban Design: History and Concepts (3)
An overview of the field of urban design including: historical perspectives on the physical organization and structural forms of cities from ancient to modern times using examples from man-made environments and from utopian constructs; presentations of concepts and practical examples related to urban design as a process; and a review of methods used in analyzing the design elements of the city. Intended for students with or without design backgrounds.

USP 423/523
The Development Process (3)
Evaluates the new public/private partnerships which are necessary for downtown redevelopment, historic rehabilitation, integrated mixed-use urban centers, urban villages, and new communities. Analyzes the critical conceptual, feasibility, and deal-making phases of the development process, as well as the development and management stages. Examines the new affirmative roles played by both public and private developers, as well as unusual joint development entities. Considers innovative concepts of incremental growth, land and development banking, shared parking, and alternative development patterns. Prerequisites: USP 311 and 428.

USP 424/524
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 425
Community and the Built Environment (4)
Application of psychological and social concepts to understanding community and its relationship to the built environment and urban design. The use of space in interpersonal relations (personal space, territoriality, privacy); the impact of crowding and density on social relations. The functioning of social networks in the city: types of communities, creating intentional communities.

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; residential segregation; neighborhoods in the political process; and neighborhood conservation 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 (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 environment. Includes required field observation. USP 312 recommended. Graduate students undertake a substantial independent project in addition to other course requirements.

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 (4)
A critical survey of the process of urbanization, the nature of urban problems, and alternative policy responses in diverse developing country settings. Specific topics include: historical and contemporary dynamics of urban economic and political development, sectoral problems and policies, including land use, housing, transportation, and social services; the limits and possibilities of national urbanization policies.

USP 450/550
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 454/554
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 455/555
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 456/556
Urban Transportation: Problems and Policies (3)
A survey of the historical, political, and economic forces shaping metropolitan area transportation problems and policies. Topics will include: the relationship of urban transportation systems to energy, environmental, and land development problems; relations between the various transport modes and technologies; current issues in transportation planning and finance, especially the fiscal crisis of public transit; and labor, social, and equity concerns in the supply of transportation services. The focus throughout will be on the nature and determinants of public policy in the transport sector. Graduate students undertake a substantial independent project in addition to other course requirements.

USP 503
Thesis (Credit to be arranged.)

USP 510
Selected Topics (Credit to be arranged.)

USP 511
Urban Social Structure (3)
An introduction to the social aspects of urban areas. Considers concepts such as neighborhood and community in the urban context. Explores how the density and impersonality associated with cities alter social relationships and solve or create social problems. Also relates urban form to social patterns, especially as perceptions of access or isolation are created by the physical and institutional structure of a city.

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 urban areas; and how these different responses then influence the urban areas.

USP 513
Urban Economic And Spatial Structure (3)
An introduction to the economic and spatial aspects of urban areas. Provides an overview of existing theories and empirical evidence relating to urban spatial and economic relationships. Examines the impact of transportation costs; federal, state, and local government policies, and changing economic conditions on these relationships.

USP 514
Urban Studies Theory (3)
Theories of urban development and urban life in historical and comparative context. Basic interdisciplinary approaches to urban analysis. Examination of selected thematic issues that cut across disciplinary boundaries and relate to specific policy areas. Prerequisites: completion of two of the following four courses, USP 511, 512, 513, and 569.

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
Political Science: Applications in Urban Studies (4)
A graduate-level introduction to the field of political science for urban studies students. Major emphasis on the traditional concerns of value conflict and resolution, the rise and fall of liberalism, political institutions, policy formation, and cities, states, and American government. The student investigates particular areas within political science that are cognate with the student's disciplines.

USP 517
Sociology: Applications in Urban Studies (4)
Introduction of the sociological perspective and basic concepts related thereto; review of major theoretical and case study contributions to urban sociology; integration of sociological concepts and perspectives with those of related social science disciplines.

USP 518
Psychology: Applications in Urban Studies (4)
A graduate-level introduction to the theories and fields of psychology. Topics include social interaction, urban social networks, mental health in an urban context, and attitudes and attitude change. Applications of methods, findings, and theoretical points of view from these research areas to the analysis of urban phenomena.

USP 525
Design Analysis in Planning (1)
Approaches to the analysis of design 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 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 (2)
Introduction to using spreadsheet software, graphic displays of data, and desktop mapping packages, as a means to explore and analyze geographic information.

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 in 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 an 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 queuing 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 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 with 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 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, capital improvements, 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 546**
Theory of Urban Design (3)
An exploration of the plurality and contradictions inherent in urban design methodologies. The course will outline the history of urban design, describe current trends, including the separation of urban planning from urban design, and discuss future design possibilities for cities. Special attention will be given to the interactions among social, economic, and political forces. Discussion will also cover cultural determinants and the significance of technological changes. The class will examine the nature of the design process and attempt to develop a model for such processes. Prerequisite: USP 525

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 date 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 social 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 551/651**
Criminality, Crime Control, and Criminal Justice (4)
This course is designed as a graduate introduction to the field of criminal justice study. Topics covered include contemporary and emerging theoretical perspectives on crime, problems of criminal justice theory construction, measurement of crime, analysis of forms of crime, deterrence theory, program evaluation, and criminal justice planning.

***USP 552/652**
Analysis of Crime, Criminal Behavior, and Criminal Careers (3)
Theories of crime causation. Analysis of criminal patterns and careers; biological factors; psychogenic theories; sociological theories: control theory, learning theory, situational factors.

***USP 553/653**
Criminal Justice Policy, Planning, and Evaluation (3)
Analysis of forms and sources of criminal justice policies. Relations between policy formation and planning implementation, planning strategies, varieties of planning, and planning tools and resources in criminal justice. Basic research tools in criminal justice, criminal justice program evaluation methodology.

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 559
Planning Practice Workshop (1)
Involves the completion of a 400-hour internship as part of the M.U.R.P. program. Content of the internship and expectations for it are negotiated among the student, the academic adviser, and the field sponsor. Student must also participate in a colloquium which will emphasize planning criticism at the level of the job, the organization, and the issues with which the organization is concerned.

USP 560/660
Policy Process (3)
Focuses on the politics of the policy process. It examines the role, influence and interaction of legislatures, 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, administration 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 analyses of alternative ways in which urban and social policies are translated into practical actions, including direct public provision, various forms of shared public/private production, planning and regulation of private activities, and the use of incentives. Key issues will be the systematic conflicts generated by each of these approaches and the possibilities of conflict resolution; and various implementation roles associated with the alternatives.

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 external validity and reliability, measurement, analysis of change, ethical issues in evaluation, administration 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 565/665**
Intergovernmental Relations (3)
While intergovernmental relations have been motivated by a strong concern for the effective delivery of public services to clients, either on a distributive or redistributive basis, the activities have become a major part of all units of government. The course examines the structures, functions, processes and programs, officials' actions and attitudes, which are a part of intergovernmental relations. Policy issues are analyzed from the perspective of the professional bureaucracy in government, elected officials, interest groups, and the general public. Several urban policies are examined in a systems context. Fiscal community issues are framed amidst political, economic and administrative forces, all influenced by federal policy-making and implementation. Interorganizational activities in the mixed climate of centralized decision-making and decentralized implementation amidst reduced resources are examined.

USP 566/666
National Urban Policy (3)

The purpose of this course is to generate an understanding of the issues related to the formation of national urban policy. Attention is drawn to questions that confront the policy process: the nature and extent of governmental involvement in urban problem solving; effects of federal intervention in urban development; and future prospects of designing national policy in terms of dwindling economic and natural resources. The course examines policy areas that bear directly upon the arenas of work, education, health, social welfare, justice, environment, and energy.

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 locational 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 elements. 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 (3)
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. Prerequisite: 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 and concepts commonly employed in urban environmental management. Selected topics may include: congestion and pollution, alternative approaches to pollution control, alternative implementation strategies, taxation for the control of externalities, water quality management in river basin systems, air quality management, the problem of the private automobile, economics of solid waste disposal, noise pollution.

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 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 overview colloquium or lecture series covering many disciplines and applied problems relating to understanding adult development and aging. Included are lectures by PSU faculty, program specialists and experts from the community dealing with social psychological issues, bio-physiological issues, and policy-program issues relating to older adults in contemporary urban society.

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 relationship 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 provides the basis for systems procurement, implementation, and use. Prerequisites: Geog 488/588 or USP 591, 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 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 601
Research (Credit to be arranged.)

USP 603
Thesis (Credit to be arranged.)

USP 605
Reading and Conference (Credit to be arranged.)

USP 607
Seminar (Credit to be arranged.)

USP 610
Selected Topics (Credit to be arranged.)

USP 615
Economic Analysis of Public Policy (4)
Introduction to the use of microeconomic analysis in the evaluation of public policy. Intended for entering graduate students with a limited background in economics. Develops basic analytic methods and emphasizes application of the analysis to issues of public policy. Prepares students for advanced classes that use this type of analysis.

USP 631
Research Utilization and Implementation (3)
Evaluates the consumption and utilization of research by alternative audiences. An understanding of the concept of expertise and the analytical and political role of the analyst and analysis. The significance of the dissemination and evaluation of research processes and products. Prerequisite: admission to the Ph.D. program in Public Administration and Policy or consent of instructor.

USP 634
Foundations of Regional Science (3)
This course covers the analytical foundations of the field of regional science, which addresses the optimization of human activity in a spatial setting.

USP 635
Regional Science Theory (3)
This course covers theoretical subjects in the field of regional science associated with locational and regional development analysis, and analysis pertaining to regional development planning.Prerequisite: USP 634.

USP 636
Economic and Political Decision Making (3)
This course is designed to show the student the difference between economic decisions made through a market process reflecting individual preferences, and the collective or political decisions which attempt to allocate resources for the production of goods not provided in the marketplace. The technical, philosophical, and social problems raised by the attempt to provide a rational framework for making policy decisions in this nonmarket public goods area constitute the main emphasis of the course. Illustrative applications to public goods high on the agenda for political decision are used to develop the theoretical concepts and exemplify the empirical problems inherent in the process. Prerequisite: USP 515.

USP 664
Organizational Theory and Behavior (3)
The first part of this seminar is dedicated to a review of the major theories of how we should organize ourselves to work together. The goal is to gain an understanding of organizational thought; what we used to think and why and what we now think and why. The second part is focused on the theory and practice of organizational development, the most contemporary and perhaps most promising movements in this field. Prerequisite: admission to the doctoral programs in the School of Urban and Public Affairs.

USP 690
Current Research in Urban Social Patterns (3)
Focused reading and advanced student research on emerging topics and issues in the field of urban social patterns. Prerequisite: Consent of instructor.

USP 691
Current Research in Regional Science (3)
Focused reading and advanced student research on emerging topics and issues in the field of regional science. Prerequisite: Consent of instructor.

USP 692
Current Research in Policy Analysis (3)
Focused reading and advanced student research on emerging topics and issues in the field of policy analysis. Prerequisite: Consent of instructor.

USP 693
Current Research in Urban and Regional Structure (3)
Focused reading and advanced student research on emerging topics and issues in the field of urban and regional structure. Prerequisite: Consent of instructor.

USP 694
Current Research in Public Administration and Policy (3)
Focused reading and advanced student research on emerging topics and issues in the field of public administration and policy. Prerequisite: Consent of instructor.

USP 695
Current Research in Criminal Justice (3)
Focused reading and advanced student research on emerging topics and issues in the field of criminal justice. Prerequisite: Consent of instructor.

RESEARCH INSTITUTES

CENTER FOR POPULATION RESEARCH AND CENSUS

101 Harder House
725-3922

The Center for Population Research and Census provides a setting for demographic research within the College of Urban and Public Affairs. The Population 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 Population 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 such 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 Population Center's library and are available to faculty, students, and the public. In addition to providing outreach to Oregon's counties and communities, the Population Center offers courses in demography.

One of the important responsibilities of the Population Center is to produce the official population estimates for Oregon's counties and incorporated cities. The Population Center also provides population projections for Oregon's cities and counties. Typical research activities found within the Population Center include enrollment forecasts for school districts, survey research on population issues, social and economic factors affecting demographic change, population distribution and population migration, population geography, and demographic methods. Population Center staff regularly assist city, county, and state governments on examination of population issues.

CPRC's current staff includes personnel trained in demography, sociology, geography, statistics, and computer science. This variety of expertise enables the Population Center to provide an eclectic and multidisciplinary approach to population research.

CENTER FOR PUBLIC HEALTH STUDIES

212 Peter W. Stott Center
725-4401

Portland State University is the home of the Center for Public Health Studies. Although no degree program is offered, students may elect to take a concentration of courses in public health.

Course offerings are interdisciplinary and are designed to provide fundamental preparation for entry-level positions in public health-related areas, particularly those involving environmental quality concerns. Courses introduce multidisciplinary aspects of public health and emphasize the scientific basis for prevention and control of infectious and noninfectious diseases.

Students generally pursue degrees in related disciplines such as health education, biology, chemistry, political science, sociology, and preprofessional programs in allied health. In addition, the Center for Public Health Studies maintains ongoing multidisciplinary research activities consistent with its aim and other departmental interests.

CENTER FOR URBAN STUDIES

322 College of Urban and Public Affairs
725-4020

The Center for Urban Studies, established in 1966, is a multidisciplinary research unit in the College of Urban and Public Affairs. The center's primary research emphases include: urban services, determinants of property value, transportation, regional economic analysis, geographic information systems, and regional decision making. In addition to its research function, the center serves as a resource for community service to units of local government.

Publications of the center have included reports on fiscal analyses of municipal services provision, revenue and expenditure estimates for alternative incorporation/annexation proposals, transportation investment analysis, analyses of urban services, economic and urban development, transportation and land use interactions, transit finance, special needs transit programs, traffic monitoring, travel behavior, transit and parking, recycling, and various aspects of geographic information systems.

The center has sponsored conferences on important urban topics for the interested public. In conjunction with the graduate programs in urban studies and planning, the center provides students with numerous opportunities for research experience through graduate assistantships, research credit, and informal project participation.

The center also houses the Community Environmental Services (CES), formerly known as the Recycling Education Project. CES provides assistance to local communities, governmental agencies, and private organizations on a contractual basis. The mission of CES is to provide students with the opportunity to develop leadership, practical job skills, and civic responsibility, through education, service, and research which address environmental issues and resource sustainability.

CRIMINAL JUSTICE POLICY RESEARCH INSTITUTE

313 College of Urban and Public Affairs
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 siting in multiple communities within Oregon.

INSTITUTE ON AGING

122 College of Urban and Public Affairs
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 students and faculty 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, including state and local area agencies on aging, mental health clinics, hospitals, long-term care facilities, banking institutions, offices of city and county commissioners, legislative committees, and other universities. Funding for this work has been awarded by national, state, and local governmental agencies as well as 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 main office, 122 Urban and Public Affairs.

INSTITUTE OF PORTLAND METROPOLITAN STUDIES

208 Harder House
725-5170

The Institute of Portland Metropolitan Studies is an independent and neutral organization through which community issues can be addressed by higher education. As a part of the College of Urban and Public Affairs at Portland State University, and in conjunction with Oregon Health Sciences University, the institute is able to bring the resources of the academic community to bear on present and future problems in the six-county metropolitan area.

The institute is committed to providing service to the community while also serving as a catalyst, bringing together people and information to address the most critical issues in our region. The institute offers a "neutral table," where issues and ideas can be discussed in an atmosphere promising no repercussions. The institute acts as a facilitator in discussions, providing objective data for decision making but having no stake in the decision.

The institute sponsors research projects designed to address current and emerging issues of regional significance. The institute's governing board identifies research issues that have substantial benefit to the area. Projects include forums and seminars, a web page, publications that showcase the region, and a clearinghouse for reports and studies.

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.

TRANSPORTATION STUDIES CENTER

322 College of Urban and Public Affairs
725-4020

The Transportation Studies Center is a research unit that is closely affiliated with 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 and emphasizes (1) transportation planning, (2) technology transfer, (3) research on transportation and land use interactions, and (4) financing of transportation systems.

The center, in addition to its primary functions in the areas of generation and dissemination of information, encourages and coordinates research activities of University faculty. The center serves to foster an interdisciplinary approach to transportation issues by staffing the activities of a Transportation Research Group. This group is made up of faculty and students, from all parts of campus, with transportation interests.

SCHOOL OF EXTENDED STUDIES

SHERWIN L. DAVIDSON, DEAN
CHERYL LIVNEH, ASSOCIATE DEAN
GLEN SEDIVY, ASSISTANT DEAN
EXTENDED STUDIES BUILDING, 725-4721

Extended Studies offers traditional and unique educational opportunities for all types of students. The courses and seminars offered are available in innovative formats and at convenient times and locations. Course offerings are versatile, allowing students to combine Extended Studies programs with other learning methods, such as formal education, and various informal learning experiences.

As the sole public four-year institution of higher education in metropolitan Portland, the University has developed services for students without regard to campus boundaries. Because of this, Extended Studies programs are characterized by special student registration procedures, convenient course scheduling, and noncredit as well as credit coursework.

The School of Extended Studies, as an extension of Portland State University, works cooperatively with individuals, organizations, and agencies to meet the needs of a rapidly changing work force. Many of Extended Studies' courses are designed specifically to educate the working student in progressive and contemporary areas of study, or to help the working student adapt to career or personal transitions. The context and format of offerings are as diverse as the needs of adult students.

Portland State University also provides a broad range of opportunities for study during Summer Session. A full schedule of day and evening classes is held on campus; in addition, many specialized offerings are conducted at off-campus locations. Summer Session offers flexibility of scheduling for students wishing to accelerate their programs, for teachers and administrators choosing to continue advanced study, for professionals desiring to advance their careers, and for individuals wanting to further their cultural and intellectual development.

Continuing Education/School of Education, 725-4670
Professional development for all educators, administrators, and support staff-those in early childhood, K-12, higher education including community colleges, adult education, human resource development trainers, and human service practitioners.

Community Programs, 725-4802
Development and delivery of continuing education and training programs in community development. In partnership with the College of Urban and Public Affairs, programs are developed for the non-profit and public sector community. Administers off-campus degree completion program in partnership with the College of Liberal Arts and Sciences and the School of Business Administration at the CAPITAL Center.

Distance Learning, 725-4891
Development and coordination of distance learning using technologies such as television and computers.

Early Childhood Training Office, 725-4815
Credit and noncredit courses, conferences, workshops, on-site consultation, and technical assistance in early childhood education, program administration, social services, parent involvement, and nutrition.

Independent Study, 725-4865
College and high school credit courses offered outside the classroom by correspondence, with electronic mail and Internet support. These self-paced courses are open to anyone at anytime.

Professional Development Center, 725-4820
Quality programs to meet the needs of the business community. Offerings include award-winning certificate programs, focused seminars and institutes, specialized contract programs, and refresher courses.

PSU Salem Center, 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 programs

and training in child welfare as part of the Child Welfare Partnership.

PSU Statewide M.B.A. and M.S.W., 725-4822

Delivers PSU's Master of Business Administration and Master of Social Work programs on videotape to admitted students in remote locations throughout the state of Oregon.

CREDIT PROGRAMS

Credit courses for undergraduate and graduate study in numerous fields are held on campus, throughout the Portland area, and throughout the state. Courses are under the direct academic control of University departments and may be used to complete degree requirements, subject to general University rules and regulations for degrees and programs. Courses also are designed to satisfy unique educational needs through special programs, including a statewide M.B.A. and M.S.W. offered via video.

Classes are organized as short-term intensive learning experiences, long-term activities which may span the duration of a year or more, or follow the regular academic calendar schedule.

Off-campus students have library privileges at the Portland State University Library and at other State System of Higher Education libraries. Health services and activities supported by incidental fees are not available for continuing education students.

NONCREDIT PROGRAMS

Extensive noncredit educational offerings for professional development and personal enrichment are scheduled on campus and in community locations. These courses may be open to the general public or to specifically identified audiences in cooperation with agencies, associations, organizations, and groups. Business professional development courses are offered through the Professional Development Center. Human service professional development is offered in collaboration between Continuing Education in the Graduate School of Education, the Counseling Department, and the Graduate School of Social Work. University faculty, training specialists, and independent contractors serve as instructors. Some activities are available in packaged and independent study formats.

Noncredit programs are designed to meet incidental and recurring needs for formal learning where academic credit is not a requirement. In cases where permanent records of course completion and other forms of academic documentation are necessary, noncredit programs are registered through the Continuing Education Unit (CEU) system of measurement. One unit equals 10 clock hours of instruction and is measured in tenths. CEU records are maintained separately from permanent records for credit courses.

REGISTRATION AND FEES
725-4832

For Extended Studies offerings, advanced registration is recommended. Extended Studies' education activities operate on a cost-recovery basis, and fees vary according to the instructional and administrative requirements for the activity. Efforts are made to keep costs equivalent to amounts charged for similar activities in the state-funded campus program. Part-time and full-time students may enroll in Extended Studies courses.

INFORMATION

Call or write: Portland State University, School of Extended Studies, P.O. Box 1491, Portland, OR 97207; telephone: (503) 72LEARN; Web: http://extended.pdx.edu/

School of Extended Studies offices, 1633 SW Park Avenue, are open Mondays through Fridays from 8 a.m. to 5 p.m. Extended Studies program specialists are available for meetings with individuals and groups statewide.

SUMMER SESSION
725-8500

A catalog of Summer Session offerings is issued each year in early April. It may be obtained by calling (503) 725-8500 or by writing PSU Summer Session, P.O. Box 1491, Portland, OR 97207.

Formal admission is not required for Summer Session, and all students are charged only in-state tuition.Courses offered in Summer Session meet departmental and University standards of content, instruction, and credit.

Summer Session offers the greatest possible flexibility in scheduling:

- Eight-week classes
  1998: June 22 to August 14
  1999: June 21 to August 13
- Two-day workshops, two-week courses, four-week courses, and others of varying length, beginning on different dates throughout the summer. Students can take any combination they wish, choosing from eight-week courses, 11-week courses, workshops, and classes meeting on other time patterns.
- Full-year concentrated courses that take eight, nine, 10, or 11 weeks, depending on the subject. Students may select one, two, or three terms of a full-year, concentrated course by registering only for the desired term any time prior to the first day of class in the term desired. Each term lasts from two to four weeks. One or more terms of a concentrated, full-year course may be combined with one or more terms of the same course offered in an eight-week class.

In addition to on-campus courses, there are several programs offered off campus and abroad.

Summer Session at Portland State is not limited to classes. Students may choose from a great variety of special events in the summer, including concerts, recitals, and the award-winning lecture series, "Tour the World at Home This Summer," which features lectures by distinguished visiting professors who come from all over the world to teach in the Summer Session.

The Summer Session Office is located in the School of Extended Studies Building, 1633 SW Park Avenue. It is open weekdays throughout the year, 8 a.m. to 5 p.m.

SPECIAL SUMMER PROGRAMS

PSU's Summer Session offers several study opportunities in Oregon and throughout the world. Information on specific programs is available from the Summer Session Office. Although programs vary from year to year, several are offered on a regular basis, including the following:

Deutsche Sommerschule am Pazifik
Campus Contact: **Steve Fuller**

The Deutsche Sommerschule am Pazifik, a five-week program, offers intensive instruction in German language and literature for qualified undergraduate and graduate students. Graduate work in the Sommerschule may be applied to the University's program leading to a Master of Arts degree in German.

In addition to classes conducted exclusively in German, the program includes movies, music and art events, excursions, and social activities which are scheduled with provision for constant conversational opportunities in German. Applications should be submitted to Deutsche Sommerschule, Office of Foreign Languages.

Haystack Summer Program in the Arts and Sciences

Haystack annually brings artists, writers, and teachers of national recognition to Cannon Beach to conduct one-week and weekend seminars and workshops in the arts and sciences. Haystack takes its name from the famous surf-line rock formation, a towering landmark on Oregon's beautiful north coast.

OFFICE OF INTERNATIONAL AFFAIRS

FREDERICK M. NUNN, VICE PROVOST
KIMBERLEY A. BROWN, ASSOCIATE VICE PROVOST
103-106 SIXTH AVENUE BUILDING, 725-3455

The Office of International Affairs houses International Education Services (International Student and Faculty Services and Study Abroad), the Oregon International Internship Program, 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 125.

MIDDLE EAST STUDIES CENTER

Director: **Jon E. Mandaville**
122 Sixth Avenue Building, 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 community. 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, Foreign Language and Area Studies (FLAS) Fellowships, and the recently established Noury Al-Khaledy Scholarship in Arabic Studies (see page 25 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.

INTERNATIONAL EDUCATION SERVICES

Director: **Dawn L. White**
101 Sixth Avenue Building

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
120 Sixth Avenue Building, 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 internationals 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, 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, 725-4088.

IES/STUDY ABROAD
101/102 Sixth Avenue Building, 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: 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: 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.

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.

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 eight-week summer program focusing on Chinese language is also available.

CHINA: Nanjing
Council on International Educational Exchange (CIEE) Program
Nanjing University hosts this fall and spring semester program, with a year-long option, in which participants study Chinese and area studies. Housing is in dormitories.

CHINA: Shanghai
Council on International Educational Exchange (CIEE) Program
Held at Fudan University, this fall or spring semester program provides participants with Chinese language study and course offerings in international studies. 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.

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.

DENMARK: Copenhagen
Oregon University System (OUS) Program
Students currently enrolled in PSU's Master of Business Administration program are eligible to apply for study fall semester at the Copenhagen School of Economics and Business Administration. Participants may choose to live in dormitories or with host families.

DOMINICAN REPUBLIC: Santiago
Council on International Educational Exchange (CIEE) Program
Spanish language and Caribbean area studies are the focus of this program offered fall and spring semesters, with a full-year option. Advanced Spanish language students are enrolled at the Pontificia Universidad Católica Madre y Maestra (PUCMM), a private institution located in a suburb of Santiago. Lodging is with Dominican families in private homes.

ECUADOR: Quito
Oregon University System (OUS) Program
Two opportunities exist in Quito. The first is a fall term or year-long program, held at the Pontificia Universidad Católica del Ecuador (PUCE), offering courses in Spanish language and Latin American Studies. The courses are designed for foreigners and are taught in Spanish. The second program, offered at the Universidad San Francisco de Quito (USFQ), is available fall term, spring semester, or all year. Designed for students whose Spanish language skills are at the intermediate and advanced levels, the program places students in regular courses with Ecuadorian students. In both programs, lodging is with Ecuadorian host families.

ENGLAND: Please see Great Britain, page 286.

FRANCE: Angers
Northwest Council on Study Abroad (NCSA) Program
The language, culture, and traditions of France are the focus of this term-long program located in western France in the beautiful Loire Valley. Offered every fall, winter, and spring quarter, the program is held in the Centre International d'Etudes Françaises (CIDEF) on the campus of the Catholic University of the West and features course choices offered in English or French. Housing is with French families. Students interested in summer study at CIDEF have several options in terms of length of study, curriculum, and housing.

FRANCE: Haute Bretagne
Council on International Educational Exchange (CIEE) Program
Students take classes through the Division for Foreign Students at the University of Haute Bretagne in Rennes, choosing from a variety of academic subjects, mainly in the

humanities. Students are housed in French homes or in university residences.

FRANCE: Lyon
Oregon University System (OUS) Program
This year-long program is open to qualified students with intermediate or advanced proficiency in French. Students with two years of college-level French may enroll in a language institute at a Lyonnaise university; students with at least three years may enroll in regular university courses at one of four other institutions. Apartments or student dormitories are available for lodging.

FRANCE: Paris
Council on International Educational Exchange (CIEE) Program
A critical studies program emphasizing literary criticism, film studies, and philosophy is offered fall and spring semesters and academic year at the Paris Center for Critical Studies and the University of Paris III. Students locate their own housing with help from program staff.

FRANCE: Poitiers
Oregon University System (OUS) Program
Most students in this year-long program are enrolled at the Institute for Foreigners at the University of Poitiers, studying French language and literature. Regular classes at the University of Poitiers are available to students with sufficient academic preparation. Students may live in dormitories or apartments or with French families.

GERMANY: State of Baden-Württemberg
Oregon University System (OUS) Program
In this exchange program with several universities in the German state of Baden-Württemberg, students enroll in cooperating universities including Freiburg, Heidelberg, Hohenheim, Konstanz, Mannheim, Stuttgart, Tübingen, and Ulm. Housing is in university dormitories.

GERMANY: Tübingen
Oregon University System (OUS) Program
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
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 Jozsef 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: 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: 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 homestays is available.

JAPAN: Tokyo
Oregon University System (OUS) Program
Participants attend Aoyama Gakuin University's School of International Politics, Economics, and Business (SIPEB), 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
The 10-month program, beginning in August at Waseda University, offers a variety of courses, taught in English, in liberal arts and social sciences as well as Asian studies. Lodging is with Japanese families.

JAPAN: Tokyo
Council on International Educational Exchange (CIEE) 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.

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.

MEXICO: Cholula
Oregon University System (OUS) Program
Participants study Spanish language and courses relevant to Latin America at the Universidad de las Américas fall or spring semester (or both). Two years of college-level Spanish is required. Participants live in dormitories or with host families.

MEXICO: Mexico City
Oregon University System (OUS) Program
Universidad Iberoamericana (UIA) in Mexico City is host to this fall and spring semester and academic-year program offering students with intermediate to advanced skills in Spanish language to continue Spanish study and take humanities and social science courses taught in Spanish. Housing is with Spanish families for the first semester.

THE NETHERLANDS: Amsterdam
Council on International Educational Exchange (CIEE) Program
International relations, social science, and Dutch language are features of this fall semester program held at the University of Amsterdam. Housing is in student residences.

POLAND: Warsaw
Council on International Educational Exchange (CIEE) Program
Hosted by the Warsaw School of Economics, participants study Polish language, humanities, and social science. The program is offered fall and spring semester. Housing is in dormitories.

RUSSIA: St. Petersburg
Council on International Educational Exchange (CIEE) Program
The Council offers several options at St. Petersburg University:

1. Russian language programs offered fall and spring semesters and during the academic year, geared for students at the intermediate and advanced levels of Russian.
2. A summer program emphasizing Russian language study.
3. A Russian Language for Research Program offered fall and spring semester and during the academic year.
4. A summer program emphasizing Russian language for research.
5. A summer program focusing on language and business in Russia.

Housing is with Russian families or in a university dormitory.

RUSSIA: St. Petersburg/Moscow
American Council of Teachers of Russian (ACTR) Program
Students enroll in the Department of Russian as a Foreign Language at one of several institutions in St. Petersburg or Moscow. Programs are available fall and spring semesters or for the academic year. In addition, an eight-week summer program is offered. Housing is in university dormitories.

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.

SPAIN: Seville
Council on International Educational Exchange (CIEE) Program
The University of Seville is host to two CIEE-sponsored programs available fall and spring semesters and for an academic year. Humanities and social sciences are the focus of the Liberal Arts Program, while the Business and Society Program is designed for students specializing in these areas.

A third program at the University of Seville, available fall or spring semester, is designed for intermediate level students of Spanish. This Language and Society program also includes courses in the humanities and social sciences.

In addition, CIEE also offers a summer program in art restoration and art history, held at the Council Study Center at the Escuela de Artes Aplicadas.

For all programs in Seville, students live in private homes or residencias (boarding houses).

TAIWAN: Taipei
Council on International Educational Exchange (CIEE) Program
Participants study Chinese language, humanities, economics, and social sciences at National Chengchi University. The program is available fall and spring semesters and academic year.

THAILAND: Khon Kaen
Council on International Educational Exchange (CIEE) Program
Two programs are held at Khon Kaen University. The first, held fall semester, offers coursework in Thai language and literature, women's and development studies, and public health. The second is a six-week summer program in Thai language and development studies. Housing for both programs is student dormitories; in addition, semester students have the option of private housing.

TRINIDAD: Port-of-Spain
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.

TUNISIA: Monastir
Council on International Educational Exchange (CIEE) Program
This six-week summer program focuses on art history in Tunisia, in conjunction with an archaeological field work project in Monastir. Students are housed in apartments.

VIETNAM: Hanoi
Council on International Educational Exchange (CIEE) Program
Vietnam National University is host of this fall and spring semester program, in which Vietnamese language, civilization, and history are the focus of study. Participants stay in foreign student guest houses or private residences.

YEMEN: Sana'a
PSU/AMIDEAST (America-Mideast Educational and Training Services, Inc.) Program
This fall-term program is based in the capital city of Sana'a and features Arabic language study at beginning to advanced levels, as well as international studies courses taught in English. The academic program includes extended excursions. Participants live together in furnished apartments.

OTHER PROGRAMS

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 1998 for the 1999-2000 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.

SPECIAL PROGRAMS

ARMY RESERVE OFFICER TRAINING CORPS
283-7353

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 experience or by completing the following class: MS 214 Basic Summer 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. Minimum requirements include:

- Able to complete the requirements for commission before reaching 30 years of age (may be waived in exceptional cases);
- Complete the Basic Course or have received credit in lieu thereof for previous military service in the Army, Navy, Air Force, or Marine Corps;
- U.S. citizenship;
- Physically qualified under the standards prescribed by the Department of the Army;

Students in the Advanced Program receive a $150 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. The branch of the Army in which a new officer will serve depends on his or her desires, academic qualifications, and the needs of the 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 $450 per school year, and a $150 per month tax free stipend during the school year. These scholarships are available to freshmen or sophomore students in three- and two-year increments. Competition for the scholarships is available to all students, even if not enrolled in the program. More information is available by calling the Military Science Program, 283-7353.

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 want to qualify for entry into the Advanced Course and for those students who may want to try Military Science without obligations. A number of popular or challenging extracurricular activities are associated with these courses. A student can also qualify for entry into the Advanced Course by completing the summer encampment, Camp Challenge, MS 240.

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 three 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 three times a week, MS 132 or 133.

MS 121, 122, 123, and 221, 222, 223
Basic Course: Leadership Laboratory (1, 1, 1, 2, 2, 2)
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. Gain insight into the Advanced Course in order to make an informed decision whether to apply for it. 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, 2, 2, 2)
Open 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 concisely, planning events, coordination of group efforts, advanced first aid, land navigation, and basic military tactics. Learn fundamentals of the Leadership Assessment Program. Two-hours and a leadership lab, MS 221, plus optional participation in a one-hour session of physical fitness three times a week, MS 231.

MS 212/213
Fundamentals of Team Training I and II (2, 2)
Introduction to individual and team aspects of tactics 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. Practical exercises with upper-division ROTC students. Learn techniques for training others as an aspect of continued leadership development. Two-hours and a leadership lab, MS 222 or 223, plus required participation in a one-hour session of physical fitness three times a week, MS 232 or 233.

MS 240
Challenge in Leadership (2)
A six-week summer course conducted at Fort Knox, Kentucky. The student receives pay. Travel, lodging, and most meal costs are defrayed by the Army. The environment is rigorous. No military obligation incurred. Open only to students who have not taken all six of MS 111, 112, 113, 211, 212, and 213, and who pass a physical examination (paid for by ROTC). Completion of MS 240 qualifies a student for entry into the Advanced Course. Three different cycles are offered during the summer, but spaces are limited by the Army. Candidates can apply for a space any time during the school year prior to the summer. Pass/no pass only.

The Advanced Course consists of the courses MS 311, 312, 313, and 411, 412, 413. It 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 all courses numbered greater than 300, to include MS 340, a six-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 $150.00 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 tactics 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.

MS 340
Advanced Leadership Course (3)
A six-week camp conducted at an Army post. Only open to (and required of) 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. Although this course is graded on a pass/no pass basis only, the leadership and skills evaluations at the camp weigh heavily in the subsequent selection process that determines the type commission and job opportunities given to the student upon graduation from ROTC and the University.

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 Army 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. Prepare for a future as a successful Army lieutenant. 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
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. Midterm and final examinations are scheduled concurrently with University testing.

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 other colleges and universities.

PSU LINK
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
725-4452

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. Further information may be obtained from the Vice Provost for Academic Affairs.

DIRECTORIES

OREGON STATE BOARD OF HIGHER EDUCATION

The Oregon State Board of Higher Education, the statutory governing board of the eight-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
Herbert Aschkenasy, Albany President	2001
Tom Imeson, Portland Vice President	1999
Diane Christopher, Medford	1999
James Lussier, Bend	2001
Gail McAllister, Burns	1999
Esther Puentes, Portland	2000
Jim Whittaker, Pilot Rock	2000
Jim Willis, Salem	2001
Phyllis Wustenberg, Bay City	2000
John Wykoff, Portland	1999

OFFICERS OF THE SYSTEM

Joseph W. Cox, Ph.D.
Chancellor

Shirley Merritt Clark, Ph.D.
Vice Chancellor for Academic Affairs

William H. Anslow, M.B.A.
Vice Chancellor for Finance and Administration

Robert Dryden, Ph.D.
Vice Chancellor for Oregon Center for Advanced Technology Education

Virginia Thompson, Ph.D.
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

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 Oregon College Guide*, lists fields of study at all Oregon University System institutions and offers other important information for prospective students. For a free copy, write *The Oregon College Guide*, Oregon University System, P.O. Box 3175, Eugene, OR 97403.

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,
Oregon Institute of Technology

Paul Risser, Ph.D.
President,
Oregon State University

Stephen J. Reno, Ph.D.
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 298. 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 1997 and may not include changes and appointments made after that time.

OFFICE OF THE PRESIDENT

Daniel O. Bernstine (1997) LL.M.
President. B.A. 1969 University of California, Berkeley; J.D. 1972 Northwestern University School of Law; LL.M. 1975 University of Wisconsin Law School.

Roderic C. Diman (1960) Ph.D.
Vice Provost and Special Assistant to the President; Professor of Spanish. B.A. 1957 Trinity College; M.A. 1958, Ph.D. 1971 University of Wisconsin.

Amy Ross (1993) B.A.
Executive Assistant to the President. B.A. 1994 Portland State University.

AFFIRMATIVE ACTION

Robert L. Vieira (1979) Ed.D.
Director of Affirmative Action. B.A. 1972 University of California, Irvine; M.Ed. 1977 Oregon State University; Ed.D. 1996 Portland State University.

Annie Gubitosi-White (1997) M.S.
Assistant Director of Affirmative Action. B.A. 1988 University of California, Riverside; M.S. 1994 Portland State University.

Melinda Lucky (1997) B.A.
Assistant to the Director of Affirmative Action. B.A. 1990 Portland State University.

ACADEMIC AFFAIRS OFFICE OF THE PROVOST

Michael F. Reardon (1964) Ph.D.
Provost; Professor of History and Humanities. B.S. 1960 Georgetown University; M.A. 1961, Ph.D. 1965 Indiana University.

Janine M. Allen (1995) Ph.D.
Vice Provost and Dean of Enrollment and Student Services. B.S. 1973 University of Nebraska-Kearney; M.A. 1979 University of Nebraska-Lincoln; Ph.D. 1995 University of Oregon.

Sherwin L. Davidson (1989) Ph.D.
Vice Provost and Dean, School of Extended Studies; Professor of Social Science. B.A. 1967 Bowling Green State University; M.A. 1972 Western Michigan University; Ph.D. 1978 University of Utah.

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.

Linda I. Devereaux (1984) B.A.
Research Assistant. B.A. 1975 Portland State University.

Donna R. Kiykioglu (1995) B.S.
Executive Assistant to the Provost. B.S. 1984 Portland State University.

JoEllen Lucke (1995) B.S.
Assistant to the Vice Provost. B.S. 1980 Portland State University.

Kay E. Vorderstrasse (1997) B.A.
Scholarship and Events Coordinator. B.A. 1992 Pacific Lutheran University.

Ben E. Waisanen (1997)
Computer Support Specialist.

GRADUATE STUDIES AND RESEARCH

William H. Feyerherm (1990) Ph.D.
Vice Provost for Research and Dean of Graduate Studies; Professor of Social Work. B.A. 1970 Northern Illinois University; Ph.D. 1977 State University of New York, Albany.

James R. Pratt (1994) Ph.D.
Associate Vice Provost for Research, Professor of Environmental Sciences. B.A. 1971 University of Washington; M.S. 1981 Eastern Washington University; Ph.D. 1984 Virginia Polytechnic Institute and State University.

Karin Jewel Alspach (1995) B.A.
Information Specialist. B.A. 1994 Portland State University.

Martha Berry Clarke (1997) M.A.
Compliance Specialist. B.A. 1994 University of Kentucky; M.A. 1998 Georgetown University.

Arezu Movahed (1992) Ph.D.
Coordinator, Research and Sponsored Projects. B.S. 1980, M.C.R.P. 1984 California State University, Fresno; Ph.D. 1995 Portland State University.

Maureen Orr Eldred (1986) B.A.
Coordinator of Graduate Studies. B.A. 1996 Portland State University.

Bernadene A. Pilip (1984) M.S.
Systems Coordinator. B.S. 1971 University of Oregon; M.S. 1988 Portland State University.

INTERNATIONAL AFFAIRS

Frederick M. Nunn (1965) Ph.D.
Vice Provost, International Affairs; Professor of History and International Studies. B.A. 1959 University of Oregon; M.A. 1963, Ph.D. 1963 University of New Mexico.

Kimberley A. Brown (1989) Ph.D.
Associate Vice Provost, International Affairs; Associate Professor of Applied Linguistics and International Studies. B.A. 1974 Macalester College; M.A. 1977, Ph.D. 1988 University of Minnesota.

Anne Bender (1980) B.A.
Study Abroad Adviser. B.A. 1982 Portland State University.

Jean Campbell (1998) Ph.D.
Assistant Director, Middle East Studies Center. B.A. 1968, University of California, Santa Barbara; M.Ed. 1975, Ph.D. 1987 University of Oregon.

Debra Z. Clemans (1997) M.A.
Executive Assistant to the Vice Provost. B.A. 1993, M.A. 1995 Portland State University.

Anne L. Frey (1995) M.A.
International Student Adviser. B.A. 1986 Denison University; M.A. 1994 University of Oregon.

Jon E. Mandaville (1965) Ph.D.
Director, Middle East Studies Center; Professor of History and International Studies. B.A. 1959 Dartmouth College; Diploma Islamics 1961 Edinburgh University (Scotland); M.A. 1964, Ph.D. 1969 Princeton University.

Linda Morrell (1997) B.A.
Research Assistant, Middle East Studies Center. B.A. 1996 Portland State University.

Friedrich Schuler (1990) Ph.D.
Director, Institute for the Study of U.S. Mexican Relations. Associate Professor of History and International Studies. B.A. 1982 Freie Universitaet Berlin, West Berlin; M.A. 1983 University of Texas, Austin; Ph.D. 1990 University of Chicago.

Teresa Taylor (1990) M.A.
Study Abroad Adviser. B.S. 1970 University of London (England); M.A. 1980 Reading University (England).

Linda Walton (1980) Ph.D.
Director, Institute for Asian Studies; Professor of History and International Studies. B.A. 1969 Wellesley College; Ph.D. 1978 University of Pennsylvania.

Dawn L. White (1978) B.A.
Director of International Exchange Programs. B.A. 1979 Portland State University.

Colleen Wilson (1993) B.A.
Global Graduates Coordinator; Assistant to the Director, Institute for Asian Studies; B.A. 1986 Portland State University.

Ron L. Witczak (1996) B.A.
Study Abroad Adviser. B.A. 1991 Oregon State University.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Karen Hanson (1994) B.A.
Health Services Adviser. B.A. 1992 University of Oregon.

Frosti McClurken-Talley (1995) B.S.
Academic Adviser. B.S. 1971 Rochester Institute of Technology.

Robert Mercer (1990) M.A.
Senior Adviser. B.A. 1983, M.A. 1986 Portland State University.

Karen Tosi (1979) M.A.
Coordinator, Challenge/LINK Program; Research Assistant. B.A. 1964, M.A. 1976 Portland State University.

SCHOOL OF EXTENDED STUDIES AND SUMMER SESSION

Sherwin L. Davidson (1989) Ph.D.
Dean, School of Extended Studies; Professor of Social Science. B.A. 1967 Bowling Green State University; M.A. 1972 Western Michigan University; Ph.D. 1978 University of Utah.

Cathie Anderson (1995) B.A.
Program Assistant. B.A. 1994 Marylhurst College.

Linda Anderson (1996) B.A.
Program Assistant. B.A. 1989 Portland State University.

John S. Barna (1978) M.A.
Assistant Professor. B.A. 1971, M.A. 1973 San Francisco State University.

Francis Bates (1997) M.Ed.
Program Specialist. B.A. State University of New York; M.Ed. Wayne State University.

Jena Bauman (1995) M.P.H.
Health Specialist. A.B. 1987 University of Michigan; M.P.H. 1994 University of Michigan.

Lola Bichler (1995) B.S.
Program Assistant, Continuing Education. B.S. 1991 Portland State University.

Johnnie Cain (1993) D.B.A.
Lead Consultant Region X Support Center. D.B.A. 1978 Western Colorado University.

Chris Cartwright (1996) M.P.A.
Program Specialist. B.A. 1979 University of Michigan; M.P.A. 1990 Indiana University.

Patricia Cornman (1993) M.A.
Program Assistant. B.A. 1967 Trenton State College; M.A. 1985 Antioch University.

Richard A. Dewey (1991) M.S.
Program Development Specialist. B.A. 1965 University of California, Berkeley; M.S. 1970 San Diego State University.

Korey Egge (1997) M.A.
Program Assistant. B.A. 1992 University of Oregon; M.A. 1996 Portland State University.

Kristine Elkin (1996) B.A.
Publication Assistant. B.A. 1975 Minneapolis College of Art and Design.

Melissa Endicott (1994) B.S.
Program Assistant. B.S. 1994 Portland State University.

Patrick Feeney (1990) Ph.D.
Program Development Specialist. B.S. 1968 Oregon State University; Ph.D. 1972 University of Washington.

Virginia Fink (1997) M.A.
Early Childhood Special Education/Disabilities Specialist. B.A. University of Alabama; M.A. California State University, San Franscisco.

Mary Foltz (1992) B.S.
Early Childhood Education Specialist. B.S. 1976 University of Oregon.

Cristelle Girbes (1997) M.B.A.
Program Assistant. B.A. 1995 University Jean Moulin-Lyon, France; M.B.A. 1997 Portland State University.

Michael Griggs (1992) M.F.A.
Program Development Specialist, Summer Session. B.A. 1968 Antioch College; M.F.A. 1972 Boston University.

Nancy Goldman (1975) B.S.
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PUBLICATIONS

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CHICANO/LATINO STUDIES

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CHILD AND FAMILY STUDIES

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DEPARTMENT OF ECONOMICS

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Dean Emeritus, School of Engineering and Applied Science; Professor Emeritus of Civil Engineering. Professional Degree 1957 Technical University of Istanbul (Turkey); M.S. 1962, Ph.D. 1970 University of Texas, Austin.

DEPARTMENT OF COMPUTER SCIENCE

Faculty

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Assistant Professor in Computer Science. B.S. 1980, M.S. 1981 Rice University; M.S. 1985 Oregon State University; Ph.D. 1996 University of Wisconsin.

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Professor of Computer Science. Dipl. Ing. 1967 Budapest Institute of Technology (Hungary); Ph.D. 1974 University of California, Berkeley.

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Professor of Computer Science. B.S. 1978 University of Nevada, Reno; M.S. 1981 University of Missouri, Rolla; Ph.D. 1985 Oregon State University.

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Associated Faculty

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DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

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SCHOOL OF FINE AND PERFORMING ARTS

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DEPARTMENT OF ARCHITECTURE

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DEPARTMENT OF ART

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Daniel Pirofsky (1998) B.A.
Assistant Professor of Art. B.A. 1989 Naropa Institute.

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Emeriti Faculty

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Raymond M. Grimm (1956) M.S.
Professor Emeritus of Art. B.F.A. 1953 Washington University; M.S. 1956 Southern Illinois University.

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Professor Emeritus of Art.
Cert-Fine Arts 1951 Portland Museum Art School.

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Professor Emeritus of Art. B.S. 1938 University of Oregon; B.F.A. 1942, M.F.A. 1956 Art Institute of Chicago.

James S. Hibbard (1967) M.A.
Professor Emeritus of Art. B.S. 1965 Portland State University; M.A. 1966 University of Iowa.

L. Robert Kasal (1964) M.A.
Professor Emeritus of Art. B.F.A. 1957 University of Illinois; M.A. 1969 University of California, Berkeley.

Melvin Katz (1966) Cert-Fine Arts
Professor Emeritus of Art. Cert-Fine Arts 1953 Cooper Union.

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Associate Professor Emerita of Art. A.B. 1960 Pembroke College in Brown University; M.A. 1967, Ph.D. 1986 University of Iowa.

Leonard B. Kimbrell (1962) Ph.D.
Professor Emeritus of Art. B.A. 1942 Northwestern Louisiana State College; M.S. 1950, M.F.A. 1954 University of Oregon; Ph.D. 1965 University of Iowa.

Robert Morton (1963) M.F.A.
Professor Emeritus of Art. B.A. 1953, M.F.A. 1957 University of Washington.

Emily L. Young (1987) M.Ed.
Professor Emerita of Art. B.D. 1960, M.Ed. 1964 University of Florida.

DEPARTMENT OF MUSIC

Faculty

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Joel Bluestone (1989) D.M.A.
Associate Professor of Music. B.A. 1981 University of California, San Diego; M.M. 1983, D.M.A. 1987 State University of New York, Stony Brook.

Salvador Brotons (1987) Ph.D.
Associate Professor of Music. B.A. 1985 Conservatori Superior Municipal de Barcelona (Spain); Ph.D. 1987 Florida State University.

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Professor of Music. B.M.E. 1963 University of the Pacific; M.M.E. 1967 Wichita State University; D.M.A. 1976 University of Washington.

Hamilton Cheifetz (1977)
Professor of Music.

Ruth A. Dobson (1977) M.M.
Professor of Music. B.M.E. 1968 University of Montana; M.M. 1970 University of Cincinnati.

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Assistant Professor of Music. B.M. 1984 Eastman School of Music; M.M. 1986 University of Miami.

Charles Gray (1988) M.M.
Professor of Music. B.M. 1974 San Francisco State University; M.M. 1988 North Texas State University.

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Professor of Music. B.S. 1973 Portland State University; M.M. 1985 North Texas State University; D.M.A. 1989 University of North Texas.

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Professor of Music. Prof. Diploma 1956, B.A. 1959, B.A. 1962 Conservatory of Music in Prague (Czechoslovakia); M.M. 1969 University of Southern California.

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DEPARTMENT OF THEATER ARTS

Faculty

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GRADUATE SCHOOL OF SOCIAL WORK

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Faculty

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Emeriti Faculty

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APPENDIX

RESIDENCE CLASSIFICATION POLICY AND PROCEDURES

ln 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 effective November l, 1993, 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 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:

l. 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.
4. Nature and source of financial resources.
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. ln 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. (i) A student may be considered primarily engaged in educational activities regardless of the number of hours for which the student is enrolled. However, a student who is enrolled for more than seven hours per semester or quarter shall be presumed to be in Oregon for primarily educational purposes. (ii) Such period of enrollment shall not he counted toward the establishment of a bona fide domicile of one year in this state unless the student proves, in fact, establishment of a bona fide domicile in this state primarily for purposes other than educational.
(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 he 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;
(3) 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 he 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 (l) 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 to duty at any base, station, shore establishment, or other facility in this state, or while serving as members of the crew of a ship that has an Oregon port of shore establishment as its home port or permanent station, shall be considered residents for purposes of the instruction fee.

(3) An Oregon resident entering the armed services retains Oregon residence classification 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.

(6) The dependent child and spouse of a person who is a resident under section (2) of this rule shall be considered an Oregon resident. "Dependent child" includes any child of a member of the armed forces who:

(a) Is under 18 years of age and not married, otherwise emancipated, or self-supporting; or
(b) Is under 24 years of age, unmarried, enrolled in a full time course of study in an institution of higher learning, and dependent on the member for over one-half of his/her support.

Residence Classification of Aliens

580-10-040 (1) An alien holding an immigrant visa or an A, E, G, H, I, K, L, N, R, NATO, TC, TN, or TD visa, or granted refugee 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 satisfied. 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 temporary, 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 custodian 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.

(5) 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 lRC. 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 non- resident 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. Residency 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 incidentals; 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.

INDEX

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

Z