Faculty Senate Monthly Packet November 1982

Portland State University Faculty Senate

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MEMORANDUM

TO Senators and Ex-Officio Members of the Senate

FROM Jim Heath, Acting Secretary to the Faculty

DATE October 21, 1982

The Senate will hold its regular meeting on Monday, November 1, 1982, at 3:00 p.m. in 150 Cramer Hall.

Agenda:

A. Roll

*B. Approval of the Minutes of the October 4, 1982 Meeting

C. Announcements and Communications from the Floor

D. Question Period
   1. Questions for Administrators -- none submitted
   2. Questions from the Floor for the Chair

E. Reports from Officers of Administration and Committees
   1. Enrollment and Registration Up-Date--President Blume or designee

F. Unfinished Business -- none

G. New Business
   *1. Curriculum Committee--Course and Program Proposals -- Tang
   *2. Graduate Council--Course and Program Proposals -- Bolton
   *3. Proposal to Create Separate Department of Computer Science -- Moseley

H. Adjournment

*The following documents are included with this mailing:

B Minutes of October 4, 1982 Senate Meeting
GlA Curriculum Committee, Review of Course and Program Proposals**
GlB Summary, 1983-84 Proposed Changes in Existing Programs**
GlC Summary, 1983-84 Proposed New Courses and Changes in Old Courses**
G2 Graduate Council, Review of Course and Program Proposals**
G3 Proposal to Create Separate Department of Computer Science**

**Included for Senators and Ex-Officio Members only

Senators unable to attend the meeting should pass this mailing to their alternates.
Minutes:
Presiding Officer: Frederick Waller
Secretary: Jim Heath


Alternates Present: Tracy for Dueker, Degraff for Gerity, Bates for Heath, Peterson for Holloway, Raedels for Jenkins, Steinke for Lutes, Guzman for Holloway.

Ex-officio Members Present: Blumel, Corn, Dobson, Erzurumlu, Forbes, Gruber, Heath for Hardt, Harris, Howard, Guy for Leu, Paudler, Pfingsten, Rauch, Ross, Schendel, Todd, Toulan, Trudeau, Van't Slot, Williams.

APPROVAL OF THE MINUTES

The minutes of the June 7, 1982 meeting of the Senate were approved without change.

ANNOUNCEMENTS

WALLER reminded Senators to turn the names of their alternates in to the Secretary and reported that, as in past years, the Campus Ministry invited Senators for sherry and conversation following the Senate meeting.

WALLER noted that the President had appointed an ad hoc committee chaired by Carl Abbott to consider possible changes to the Faculty Constitution required by the recent academic reorganization. ABBOTT commented that his committee was dealing only with the issues of the composition of the Faculty Senate and Constitutional committees. WALLER stated that Senators who had other concerns about how the reorganization might affect the Constitution should bring them to the attention of the Steering Committee.

HAMMOND described efforts by himself, Dick Muller, and Vivienne Olson to organize a program through the PSU Foundation to help faculty who have been terminated because of the budget crisis. He reported that 45 persons have pledged or contributed almost $10,000. Of the 8 or 9 tenure track faculty terminated, all but two have found suitable employment. The two who have not—one from the MESC and one from CMI—are teaching classes through DCE.
However, it is not certain as yet whether enrollments will be high enough to merit continuation of the classes. The CMI faculty member is unhappy about the offer he received and the procedures followed and has asked the AAUP Council to explore the matter.

QUESTIONS FOR ADMINISTRATORS

1. In response to a question regarding administrative savings or costs resulting from the academic reorganization of the University, President BLUMEL stated that the creation of the College of Liberal Arts and Science and the School of Performing Arts produced a savings of $120,028. He provided the following details:

<table>
<thead>
<tr>
<th></th>
<th>Before Reorganization</th>
<th>After Reorganization</th>
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</thead>
<tbody>
<tr>
<td>Arts and Letters</td>
<td>$145,507</td>
<td>$242,701</td>
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<tr>
<td>Science</td>
<td>148,627</td>
<td>119,561</td>
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<tr>
<td>Social Science</td>
<td>188,156</td>
<td></td>
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<tr>
<td>TOTAL</td>
<td>$482,290</td>
<td>$362,262</td>
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</table>

The creation of the Department of Dance resulted in additional costs of $8,554 ($3,809 to place the department head on a 10-month contract and $4,745 for student pay to provide secretarial services).

The change of designation for Engineering and Applied Science from Division to School and the transfer of the Center for Population Research and the Public Administration Program to the School of Urban and Public Affairs generated no costs or savings.

In response to a follow-up question from COOPER, BLUMEL said that there were some moving and remodeling costs involved in the reorganization. Those costs were in the budget of the Physical Plant. He added that he did not have the figures with him.

2. Regarding the question about long-range planning by the State System, BLUMEL reminded the Senate that he had addressed that subject at considerable length in his Convocation Address on September 22.

REPORTS FROM OFFICERS OF THE ADMINISTRATION

1. BLUMEL reported on enrollment, noting that Fees Paid as of October 1 were down 2.33% from last fall. However, other measures of enrollment activity suggest a decline of 5-7%, probably the latter figure. (Other OSSHE schools report enrollment patterns as follows: UO, -7.5%; OSU, -5.9%; WOC, -9%; SOC, -8%; OIT, even; EOC, -2%). BLUMEL added that if PSU holds to the minus 5-7% range, we should meet our budgeted figure, if the credit carrying load does not decline from past years. WALLER asked if that meant
we would have no penalty to our state funding. BLUMEL replied that would depend upon the enrollment totals for the entire State System. He noted that the community colleges appeared to be swamped with students. He also emphasized to the Senate that his remarks during his Convocation Address regarding the need to recruit and retain students were in no way intended to suggest that PSU should lower its academic standards.

2. Presiding Officer WALLER encouraged all Senators and all faculty to consider carefully the impact of Ballot Measure #3 on Oregon and on higher education if it passes this November. He provided the following information for those who may wish to become actively involved in working to defeat the measure:

Oregon Committee Against Ballot Measure #3
Local Office: 7000 SW Hampton, Suite 207
Tigard, Oregon
684-3196

Send contributions to: 87 High Street
Salem, Oregon 97301

UNFINISHED BUSINESS: None

NEW BUSINESS

HAMMOND proposed that the Senate adopt the following resolution:

"Resolved: the President of the Senate, in consultation with the Senate Steering Committee, shall appoint a Faculty Support Fund Committee to

1. Review and decide upon applications made by eligible faculty members for grants from the fund.

2. Recommend to the Senate policies concerning the future disposition of the fund in relation to the purposes for which it was established.

3. Inform the Senate at appropriate time intervals concerning the size and uses of the fund."

JOHNSON asked if there were any legal implications. BLUMEL asked Van't Slot if the resolution was consistent with the procedures of the PSU Foundation. VAN'T SLOT stated that what the Foundation needed was someone to be identified who had the authority to withdraw funds. He added that he saw no legal problems.

The resolution passed by voice vote.

ADJOURNMENT

The meeting was adjourned at 3:34 p.m.
TO: Faculty Senate

FROM: University Curriculum Committee
    Nancy Tang (chair), Carl Abbott, Catherine Evleshia, Carole Gatz,
    Kathy Greer, Nan Teh Hsu, Sheldon Haren, Norm Wyers, Helen Yeungelsen,
    and Anthony Wolk

Consultants: Forbes Williams and Den Gardner

The Curriculum Committee has reviewed the following program changes, new
course proposals and proposals for changes in existing courses.

COLLEGE OF SCIENCE

Biology - New courses - approved

Chemistry - program change request on course requirements - approved
    - new courses - approved
    - course changes - approved

Computer Science - change in program for course requirements - approved
    - course changes - approved

Earth Sciences - change in program for course requirements - approved
    - new courses - approved. Note: G 413 has had graduate
      credit added which was inadvertently omitted in typing.
    - changes in courses - approved

Mathematics - program change - catalog statement regarding grades
    and 15 hours of upper division math to be taken at
    PSU - approved
    - new courses - approved. Note: Mth 426, 427 and
      Mth 459 have been edited to improve the clarity of
      prerequisite information
University Curriculum Committee  
October 10, 1982

Physics - course changes - approved

Public Health Studies - course changes - approved  Note: PHS 452 course description has been edited to delete "PHS 450, 451, 452 may be taken in any order; however".

The Curriculum Committee recommends that the College of Science requests for Biology, Chemistry, Computer Science, Earth Sciences, Mathematics, Physics and Public Health Studies program changes, new courses and course changes be approved as edited.

COLLEGE OF SOCIAL SCIENCE

Black Studies - program change - the changes in certificate requirements revising the program description - approved

- course changes - approved. Note: BST 262 title has been edited to read: Survey of the Economics of Africa

COLLEGE OF ARTS AND LETTERS

Art and Architecture - new courses - approved. Note: AA 482 has had the following addition: Prerequisite: 9 credits in AA 291.

- course changes - approved

Speech Communication - new courses - approved

- course changes - approved.

The Curriculum Committee recommends that the College of Social Science, Black Studies program and course changes be approved.

The Curriculum Committee recommends that the College of Arts and Letters Art and Architecture and Speech Communication new courses and course changes be approved.

The remainder of requests to the Curriculum Committee will be brought to the Faculty Senate at the December meeting.
University Curriculum Committee

SUMMARY OF NEW COURSE REQUESTS at OCTOBER 10, 1962

<table>
<thead>
<tr>
<th>New Courses</th>
<th>Courses Dropped</th>
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<tbody>
<tr>
<td>SCIENCES</td>
<td></td>
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<tr>
<td>- Biology</td>
<td>M 163</td>
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<td>M 406</td>
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<tr>
<td>- Chemistry</td>
<td>CH 145, 146</td>
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<td>- Earth Sciences</td>
<td>G 207, 307, 413</td>
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<td>G 417, 418, 419</td>
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<td></td>
<td>Mth 426, 427</td>
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<td>Mth 458, 459</td>
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<tr>
<td>- Mathematics</td>
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<tr>
<td>SOCIAL SCIENCE - Black Studies</td>
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<td></td>
<td>Bst 211, 212, 213</td>
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<td></td>
<td>Bst 230</td>
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<td>Bst 263</td>
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<tr>
<td>ARTS AND LETTERS - Art &amp; Architecture</td>
<td>AA 320, 321, 322</td>
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<tr>
<td></td>
<td>AA 482</td>
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<td></td>
<td></td>
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<tr>
<td>- Speech</td>
<td>SP 471L</td>
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<td></td>
<td>SP 486</td>
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<td>SP 497</td>
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</table>
TO: Curriculum Committee
Graduate Council

FROM: Margaret J. Dobson

SUBJECT: Summary - 1983-84 Proposed Changes in Existing Programs

I. COLLEGE OF SCIENCE

A. The Department of Mathematics requests changes in the course requirements for a BA/BS Degree in Computer Science. The request involves the substitution of two courses (Mth 325 Introduction to Linear Algebra with Applications - 3 credits, CS 351 Discrete Mathematics - 3 credits) for two courses deemed less relevant to advanced computer science (Mth 321 Differential Equations - 3 credits and Mth 340 Introduction to Group Theory and Applications - 3 credits). This substitution takes advantage of several courses which were not available when the original program requirements were formulated.

B. The Department of Mathematics requests the following change to improve the quality of the Bachelor's Degree in Mathematics:

Existing Catalog Statement

Courses on which a grade of Pass has been received can be used to fulfill the department graduation requirements.

Proposed Catalog Statement

Only grades of A, B, C, or P count toward satisfying the minimum major requirements. Transfer students majoring in mathematics are required to take a minimum of 15 hours of PSU upper division mathematics.

C. The Department of Chemistry requests changes in the course requirements for a BA/BS Degree in Chemistry. The requested change will permit the major student to take either Ch 424, Ch 426 or Ch 436 to meet the analytical requirement. (Note: Ch 424 and Ch 426 are now offered in alternate years.) The calculus requirement is rewritten for clarity only.

D. The Department of Earth Sciences requests changes in the title of the Degree from BS in Earth Sciences to BS in Geology. The specific program changes involve deletion of G 313 Optical Mineralogy (3 credits) and addition of CS 250 Computer Science (3 credits). Also, G 206 Geology Lab is being added to G 204 and G 205 Geology Lab as a required course. Two new courses result in the assignment of a three
level spreading of the existing G 407 course currently offered for 1 credit hour for 3 terms. G 207 Bibliographic Resources (1 credit) and G 307 Geogological Report Writing (1 credit) and G 407 Seminar (1 credit) reflect this level spreading.

E. The College of Science requests changes in the title of the MAT/MST Degree in General Science to MAT/MST Degrees in Science. Effective at the beginning of Summer Term, 1982, the MAT/MST Degree Programs in Biology, Chemistry, Physics and Earth Sciences were eliminated. Currently, two MAT/MST degrees remain in the College of Science, namely the MAT/MST Degree in General Science and the MAT/MST Degree in Mathematics. This request involves a proposed change in the MAT/MST Degree in General Science to MAT/MST Degree in Science which is considered to be a less limiting title. It is expected that many students will still want to concentrate their graduate work in Biology, Chemistry, Earth Science and Physics. Other students will want a more broadly based science degree - the kind described by the term General Science. The title "Science" will readily accommodate both kinds of students and will indicate that a department based MAT/MST program may be arranged.

II. COLLEGE OF SOCIAL SCIENCE

A. The Department of Black Studies requests the following changes in the Black Studies Certificate requirements:

- Replace current requirements #2 and #3 with the statement, "completion of 15 credits of lower division courses with approval of advisor."

- Reduce the number of specializations from the current four to the following two: 1) Black Culture and Civilization and 2) Black Social Development.

- Add the following statement: "All courses used to satisfy certificate requirements need not be Black Studies courses, but can include appropriate course work in other departments as approved by the advisor."

These changes reflect an effort to solidify and systematize the certificate program requirements.

B. The Department of Economics requests the following minor change in the program requirement statement regarding mathematics and statistical methods: Add "Differential calculus and linear algebra are highly recommended."

C. The Department of Economics also requests addition of the following statement to attain a minimal quality in students who transfer to PSU from other institutions: Add: "Majors must take a minimum of course work from this department, and must maintain at least a 2.00 grade point average in work completed in this department."
D. Further, the Department of Economics requests changes in the listing of existing core requirements to remove any ambiguity concerning the scheduling of the last six hours required for applied option major; and to clarify an error in the text which identifies Ec 512, Research Methods, as Ec 507, Research Methods.

E. The Department of Psychology requests several changes in the major program designed to attain minimal quality in students who transfer to PSU from other institutions. Specifically, the change in the requirement at the 200 level is made necessary by a proliferation of 200 level courses at the community colleges and the Department wishes to require that transfer students complete at least 9 hours of upper division courses in residence at PSU. In addition, more departmental control is being exercised by limiting omnibus numbered courses which are acceptable toward meeting program requirements.

III. SCHOOL OF BUSINESS ADMINISTRATION

A. The School of Business Administration requests the substitution of MGMT 111, Fundamental Computer Concepts (3 credits) for MGMT 109, Business Computing at PSU (1 credit) as a required course for all Business Administration majors. The effect is to increase BA requirements and decrease BA electives by two credit hours.

B. The Department of Accounting requests changes in the course requirements for graduation with a specialization in accounting. The proposed changes raise the number of required accounting credit hours from 21 to 30. The changes proposed are necessary to meet AACSB accreditation standards. Although the Department is not currently seeking accreditation, it seems clear that this is a next step in the overall accreditation process in the School of Business Administration. The course changes proposed should be made at this time in order to have these requirements specified in the forthcoming issue of the University Bulletin (Catalog) before making application for accreditation.

C. The Finance/Law Department requests changes in the course requirements for graduation with a specialization in finance. The request involves deletion of FinL 414 Laws of Business Organization, Securities and Antitrust (3 credits), addition of FinL 443 Investments (3 credits), and substitution of 400-level finance elective courses (6 credits) for upper division finance courses (6 credits).

D. The Management Department requests changes in the course requirements for graduation with a specialization in management. The request involves the identification of several courses to meet the existing 9 credit hour specific management course requirement. This proposed change will permit flexibility in staffing and scheduling required courses.
IV. SCHOOL OF HEALTH AND PHYSICAL EDUCATION

The School of Health and Physical Education requests changes in the Teacher Education Option and in the Urban Community Physical Education Option in Physical Education. Each of these degree options require courses in the physical education "service course" program (PE 180/185/190) as a means of broadening the student's background in activity areas. Because of legislative action the funding for service courses was eliminated and as a result some of the courses recommended in the existing programs are no longer being offered or are available only on a special fee basis. To adjust to this lack of availability, the School of Health and Physical Education proposes that the number of credits required in the elective activities be decreased and that the remaining required credits be taken in elective professional activity classes. Three elective professional activity courses are being proposed which will be offered only once a year. The School will have available faculty by adjusting teaching assignments.

V. SCHOOL OF SOCIAL WORK

The School of Social Work requests changes in the MSW Program which increase the total required minimum credit hours from 84 to 90 and is more explicit regarding the distribution of these credit hours in the areas of Field Instruction, classroom instruction and research.

VI. SCHOOL OF URBAN AFFAIRS

A. The School of Urban Affairs requests changes in the Undergraduate Urban Studies Certificate Program. The proposed changes involve the following:

- Increase of required Urban Studies courses from 15 hours to 24 hours and reduction of hours to be chosen from specified courses in Administration of Justice, Arts and Sciences, Business, and Social Work from 24 to 15. The reallocation of credit hours from related social sciences to Urban Studies reflects the maturing of the urban studies curriculum and the widening of available courses within Urban Studies.

- Reduction of total hours from 60 to 48. This change involves the elimination of 12 hours of unspecified electives with "urban content". Reduction will bring the Urban Studies Certificate more in line with other certificate programs at PSU, OSU, and UO, where the average number of hours (excluding foreign language for area studies) is 40. Elimination of the category of general urban-related electives will have no negative educational impact, because special topics courses and seminars can still be counted toward the certificate within the categories of urban studies courses and related courses in other departments.
• Specification of additional required courses in Urban Studies. Students will be required to complete either USP 426 or 427 and either USP 312, 413, or 421, in addition to the present requirement of USP 411 and 412. As above, this change recognizes the increased variety available within the Urban Studies program, particularly in the area of urban planning and design, where there are no comparable courses offered elsewhere on campus.

• Addition of USP 211 and 212 to the list of courses acceptable to satisfy a 6 hour Tools and Methods requirement. These course additions recognize the relevance of these areas of study in the required program.

B. The School also requests changes in the PhD and MUS graduate programs which merely clarify in more detail the existing program requirements. The proposed changes are considered to be editorial in nature.

VII. DIVISION OF ENGINEERING AND APPLIED SCIENCE

A. The Division of Engineering and Applied Science requests changes in the undergraduate programs. Currently, all undergraduate degree programs in the Division of Engineering are options in "Engineering and Applied Science". Since departments associated with these degree programs have now been established, it is appropriate that options be changed to degrees offered by each department while maintaining the BS in Applied Science as a divisional degree. Accordingly, it is proposed to change the existing options to the following specific degree designations:

- BA, BS - Civil Engineering
  Offered by the Department of Civil Engineering
  (The Structural Engineering Option will be discontinued after ABET has renewed its accreditation under Civil Engineering.)
- BA, BS - Electrical Engineering
  Offered by the Department of Electrical Engineering
- BA, BS - Mechanical Engineering
  Offered by the Department of Mechanical Engineering
- BA, BS - Applied Science
  Offered by the Division of Engineering and Applied Science

B. The Division also requests a name change of the MA/MS Degree in Applied Science and Engineering to MA/MS Degree in Engineering. This name change and associated identification of program options in civil, mechanical, and electrical engineering will greatly enhance the recognition of the existing graduate program by students and by the professional community. The identification of the MA, MS degree as Applied Science has been misleading and misunderstood by both students and employers. The Division now has well developed undergraduate curricula in civil, electrical and mechanical engineering, and there exists an urgency to address the needs of current and prospective graduate students by properly identifying the master's program as a graduate degree in engineering. The name change will serve to identify properly the type of graduate program PSU students currently pursue.
New Courses

AA 320, 321, 322. Graphic Production. (3, 3, 3)
   AA 320: The preparation of artwork for printing, including the
   exploration of tools, media, paste-up techniques, and copy camera.
   Emphasis on the creative use of graphic production principles in the
   design process. AA 321: The preparation of comprehensive layouts and
   finished artwork using graphic arts photographic methods and materials,
   including darkroom procedures, the copy camera and contact printing.
   Emphasis on the creative use of graphic arts photography in the design
   process. AA 322: The preparation of finished artwork for a variety
   of communication formats, including graphic displays, slide productions,
   overhead transparencies, and posters. Emphasis on the creative use of
   graphic production methods and materials in the design process.
   Prerequisites: AA 195, 196, 197 and 9 credits of AA 299. It is
   recommended that these courses be taken in sequence.

AA 482. Anatomy for Artists. (3) (Grad)
   An analytical investigation of the construction of the human figure with
   emphasis on those aspects which most determine surface form and action.

Changes in Old Courses

AA 414 (Fall), 415 (Winter), 416 (Spring). Art in the Secondary School. (3, 3, 3)
   (Department of Art portfolio approval required for admission to this course.)
   AA 414: methods and materials for teaching and coordinating art programs
   K-12; emphasis on organizing demonstrations, lectures and visual presenta­
   tions with slides, tapes, films, video and exhibitions. AA 415: sixty
   hours observation and practicum at various school levels. Seminars and
   participation in intercultural, special and individualized education
   applied to art. Research into the community as a resource; art as a
   career and for the consumer. Developing courses of study and lesson
   plans and the sequence for program balance with two and three-dimensional
   experiences, color, media and materials, design and craftsmanship appropriate
   to student age level. AA 416: Seminar concurrent with ED 416 Student
   Teaching. Prerequisites: ED 310, ED 312, and admission to the teacher
   education program.
   (Change in description.)

AA 466, 467, 468. Advanced Graphic Design. (4, 4, 4)
   Advanced work in advertising design and illustration. The problems
   are selected to prepare the student with a creative and experimental
   approach. Prerequisites: 9 credits of AA 299 and AA 320, 321, 322.
   (Change in prerequisites.)
Changes in Old Courses

**ENGLISH**

Wr 227. Technical Writing. (3)
Practical experience in forms of technical communication, emphasizing the report. Prerequisite: Wr 121. May not be used for the nonmajor distribution requirement or for the composition requirement.
(Formerly Technical Report Writing. Change in title, description, prerequisites, and limitation on use.)

Wr 323. English Composition. (3)
The required 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. Prerequisites: satisfactory completion of Wr 121 and junior standing (90 credits or more). These 3 credits may not be used for fulfilling requirements of any major program or for nonmajor distribution requirements.
(Change in prerequisites.)

**SPEECH COMMUNICATION**

New Courses

Sp 471L. Instrumentation Laboratory. (1) (Grad)
A course specifically designed to provide students with experience in utilizing mechanical, electrical, and electronic equipment in specifying the production and perception of the speech signal. Additionally, students will learn the nature, purpose, and care of such equipment. Prerequisites: Sp 370, Sp 371, concurrent enrollment with Sp 471, or consent of instructor.

Sp 486. Articulation Disorders. (2) (Grad)
Discussion of types and causal patterns of articulation disorders, description of and practice with assessment tools and techniques, presentation of intervention principles and descriptions of various intervention techniques and approaches. Prerequisites: Sp 370, Sp 481, and concurrent or previous enrollment in Sp 483.

Sp 497. Survey of Audiology for Special Educators. (3) (Grad)
A survey of hearing problems and auditory processing difficulties in children. Classroom and individual intervention for such individuals is emphasized. Basic hearing testing techniques are taught. Strategies for helping children are presented. The course is primarily designed for special educators and classroom teachers.

Change in Old Course

Sp 484. Clinical Speech Therapy. (1-3) (Grad)
Supervised clinical work with speech and language defective children and adults enrolled for counseling, testing, and management in the Speech and Hearing Clinic; group discussion of case histories, techniques and theoretical constructs. May be repeated. Maximum: 18 credits. Prerequisites: Sp 481, Sp 483, Sp 486, or consent of instructor.
(Change in prerequisites.)
COLLEGE OF SCIENCE

BIOLOGY

New Courses

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 the student to formulate intelligently his or her own philosophy of gardening. This course does not satisfy the Department of Biology Botany course requirement, and is intended for non-majors.

Bi 406. Laboratory Project. Credit to be arranged.

CHEMISTRY

New Courses

CH 145, 146. Introduction to Environmental Chemistry Laboratory. (1, 1)
Optional laboratory work to accompany Introduction to Environmental Chemistry (CH 141, 142). For elementary education and non-science majors. Concurrent enrollment in the appropriate lecture course is required. One two-hour laboratory. Pass/No Pass only.

CH 520. Selected Topics in Analytical Chemistry. (2)
Current topics in analytical chemistry such as chromatographic theory and methods, electroanalytical methods, electrochemical kinetics and analytical applications of spectroscopy. As subject matter will vary, course may be repeated with consent of instructor. Prerequisite: Graduate standing and consent of instructor.

Change in Old Course

CH 140, 141, 142. Introduction to Environmental Chemistry. (3, 3, 3)
(Formerly Chemistry and Society. Change in title.)

COMPUTER SCIENCE

Changes in Old Courses

CS 251. Introduction to Computer Science II. (3)
Introduction to the organization of a digital computer. Number representations, instruction execution, assembly language programming, and the assembly process. Prerequisite: CS 250 or CS 249 or equivalent.
(Formerly Introduction to Computer Programming II. Change in title, description and prerequisites.)
COLLEGE OF SCIENCE - continued

COMPUTER SCIENCE - continued

Changes in Old Courses - continued

CS 252. Introduction to Computer Science III. (3)
Introduction to systematic program design, use of a variety of data
structures, recursion. Program correctness, verification and testing.
Students will write a substantial computer program during the term.
Prerequisite: CS 250 and CS 251 or equivalent.
(Formerly Introduction to Computer Programming III. Change
in title, description and prerequisites.)

CS 351. Discrete Mathematics. (3)
Introduction to mathematical concepts that are useful in computer
science. Topics from algorithms, manipulation of sums and products,
permutations, binomial coefficients, harmonic numbers. Fibonacci
numbers, generating functions, asymptotic expansions, and trees.
Prerequisite: Mth 203 or 206, and CS 252, or equivalent.
(Change in description and prerequisites.)

CS 352. Data Structures. (3)
(Formerly Information Structures. Change in title.)

CS 353. Algorithms. (3)
Detailed study of a variety of algorithms, including algorithms for
sorting and searching. Analysis of algorithms to determine their
efficiency. Prerequisites: CS 351 and CS 352, or equivalent.
(Formerly Data Structures. Change in title, description and
prerequisites.)

CS 355, 356. Algorithmic Languages and Compiler Design. (3, 3)
Introduction to formal language theory and to the theory and
practice of constructing translators for these languages. Emphasis
on context-free languages and synthetic analysis. Students will
construct a compiler for a suitable subset of a known high-level
language. Prerequisites: CS 351 and CS 352, or equivalent.
(Change in prerequisites.)

CS 358. Introduction to Numerical Calculus. (3)
Introduction to numerical methods. Includes topics from elementary
discussion of errors, polynomial interpolation, quadrature, linear
systems of equations, and solution of nonlinear equations. Credit
will not be given after Mth 451, 452, or 453. Prerequisites: CS
250 and Mth 325.
(Change in prerequisites.)

CS 359. Advanced COBOL. (3)
An advanced course in COBOL. Topics include random file i/o
and structured design, coding and testing. Students will write
a substantial COBOL program during the quarter. Prerequisite:
CS 259 or equivalent.
(Change in description.)
Changes in Old Courses - continued

CS 454. Data Base Systems. (3) (Grad)
Study of data base system features, design and use of data base systems. Prerequisite: CS 352 or equivalent.
(Formerly Data Base Management. Change in title, description, and prerequisites.)

CS 458. Computer Organization. (3) (Grad)
Introduction to logic design. Computer arithmetic, memories, processes, control and input/output. Data formats, addressing, and instruction sets. Study of the logic control of a simple computer, and the relationship between the software requirements of a computer and the architecture of the computer. Prerequisite: CS 352 or equivalent.
(Change in description and prerequisites.)

CS 480, 481, 482. Introduction to the Theory of Computation. (3, 3, 3) (Grad)
Structure and behavior of finite and infinite machines. Formal languages and their relation to machines, computability and undecidability. Prerequisite: CS 351.
(Change in prerequisites.)

EARTH SCIENCES

New Courses

G 207. Bibliographic Resources. (1)
Methods of geological literature search.

Planning, organization and preparation of geological reports.

G 413. 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 411.

G 521. Advanced Economic Geology. (4)
Petrology of magmatic and hydrothermal ore deposits; source of metals and ore fluids, geochemistry of ore solutions, conditions of metal transport and deposition, and alteration. Prerequisite: G 421, G 411.

G 593. Volcanic Stratigraphy. (3)
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 412, G 419, G 459 or consent of instructor.

-5-
Changes in Old Courses

G 312. Mineralogy. (4)
Description, classification and genesis of minerals. Two lectures, two 2-hour laboratory periods. Prerequisite: one year of general chemistry.
(Formerly G 312, 313, 314. Mineralogy, Optical Mineralogy, and Igneous and Metamorphic Petrology. (4, 4, 4). Change in title, description and division of sequence.)

G 314. Igneous and Metamorphic Petrology. (4)
Description, classification and genesis of igneous and metamorphic rocks. Two lectures; two 2-hour laboratory periods. Prerequisite: G 312.
(Formerly G 312, 313, 314. Mineralogy, Optical Mineralogy, and Igneous and Metamorphic Petrology. (4, 4, 4). Change in title, description, prerequisites, and division of sequence.)

G 316. Sedimentary Mineralogy and Petrography. (3)
Descriptive study of terrigenous, allochemical and orthochemical sedimentary rocks and minerals, including their genesis by weathering, diagenesis and other geochemical processes, and their petrographic character. Prerequisite: G 314, or consent of instructor.
(Formerly G 425. Change in number.)

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.
(Change in lecture hours from (2) to (3) and change in laboratory hours.)

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 102, Ph 201, or concurrent enrollment.
(Change in prerequisites.)

G 407. Seminar. Credit to be arranged.
(Deletion of course description to conform to University standard for omnibus courses.)

G 411. Optical Mineralogy. (4)
Microscopic techniques for identification and study of minerals and rocks. Two lectures; two 2-hour laboratory periods. Prerequisites: G 316 and one year of general physics.
(Formerly G 312, 313, 314. Mineralogy, Optical Mineralogy, and Igneous and Metamorphic Petrology. (4, 4, 4). Change in number, title, description, prerequisites and division of sequence.)
G 412. Igneous and Metamorphic Petrograph. (4) (Grad)
Petrographic methods in description and classification of igneous
and metamorphic rocks. Two lectures; two 2-hour laboratory periods.
Prerequisites: G 312, 314, 316, 411 or consent of instructor.
(Change in prerequisites.)

G 421. Economic Geology. (3) (Grad)
Economics of mineral deposits; geology of metallic and nonmetallic
mineral deposits. Prerequisites: G 316, G 393, or consent of
instructor.
(Change in prerequisites.)

G 450. Rocks and Minerals. (3) (Grad)
Opportunity to become acquainted with rocks and minerals without
prerequisites of more technical courses. Especially useful to
students expecting to teach general science or elementary grades.
Two lectures; one 2-hour laboratory period. Prerequisite: upper
division standing. Credit not allowed if taken with or after G
312, 314, 316. Not for geology majors.
(Change in prerequisites.)

G 455. Minerals in World Affairs. (3)
(Deletion of graduate credit.)

G 481. Field Geology I. (6) (Grad)
Geologic mapping sedimentary and volcanic 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.
(Change in prerequisites.)

G 494. Soil and Rock Dynamics. (3) (Grad)
Physical properties of earth materials in natural and altered
condition. Prerequisites: Ph 203, Mth 203, G 316, or consent
of instructor.
(Change in prerequisites.)

G 511. Advanced Mineralogy. (3)
Study and analysis of mineral groups critical to petrogenic analyses
and interpretations. Laboratory examination of mineral groups by
optical and X-ray techniques. Prerequisites: physical chemistry,
G 316, 411, or consent of instructor; radiation safety certification.
(Change in prerequisites.)

G 518. Clay Mineralogy. (3)
Prerequisite: Radiation safety certification.
(Addition of prerequisite.)
Changes in Old Courses - continued

G 525, 526, 527. Sedimentary Petrology. (3, 3, 3)
Study of the physical, chemical, mineralogical character of sediment and the geometry of sedimentary deposits, with special emphasis upon interpretation of orogenesis dispersal, environment of deposition, and tectonic control of sedimentation. Two lectures; one 3-hour laboratory period. Prerequisites: G 314, 316, 392 and 411; and/or consent of instructor; Radiation Safety Certification.
(Change in prerequisites.)

G 594. Advanced Structural Geology. (3)
Mechanics of rock deformation, structural petrology, structural analysis, and tectonics. Prerequisites: G 314, 316, 391, or consent of instructor.
(Change in prerequisites.)

Old Courses Dropped

G 444, 445, 446. Geologic History of Life. (3, 3, 3) (Grad)
G 456. Rock Study. (3)

MATHEMATICS

New Courses

Mth 417, 418, 419. Systems Analysis and Synthesis. (3, 3, 3) (Grad)
Modern mathematical treatment of systems theory and analysis; mathematics of extrema, calculus of variations. Euler-Lagrange equation. Application to dynamical systems; operators, integral transformations, matrices; application to physical and engineering systems. Prerequisites: Mth 322, 324.

Mth 426, 427. Introduction to Mathematical Modelling. (3, 3) (Grad)
Basic introduction to the construction, solution and analysis of mathematical models. Models will be chosen from the life, management, physical and social sciences. Topics may include: Markov chain models, linear programming, probability models, graph theory, differential equations. Courses must be taken in sequence. Prerequisite: Mth 321, Mth 325 or Mth 342, CS 249 or CS 250.

Mth 458. Applied Statistics for Engineers and Scientists. (3) (Grad)
Histograms; binomial, Poisson, normal, t, F, and Chi-square distributions; central limit theorem; testing hypothesis; correlation and regression analysis; analysis of variance; computer applications. Prerequisite: Mth 325.
New Courses - continued

Mth 459. Applied Regression Analysis. (3) (Grad)
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 365 and Mth 325 or Mth 458.

PHYSICS

Changes in Old Courses

Ph 207, 208, 209. General Physics (with calculus). (3, 3, 3)
Introductory physics for students majoring in engineering and science. Three lectures. Prerequisite for Ph 207: Mth 201 previously or concurrently and Ph 204 concurrently. Prerequisite for Ph 208: satisfactory completion of Ph 207 and Ph 205 concurrently. Prerequisite for Ph 209: satisfactory completion of Ph 208 and Ph 206 concurrently.
(Change in prerequisites.)

Ph 431, 432, 433. Electricity and Magnetism. (3, 3, 3) (Grad)
Advanced undergraduate study of electricity. Ph 431: fields due to charges at rest. Ph 432: electric currents, the field due to the motion of charge (magnetism), magnetic materials, and the concise summary of classical electricity and magnetism in Maxwell's equations. Ph 433: study of Maxwell's equations taken together and the phenomena that those equations imply or describe, e.g., radio waves, optics, and special relativity. Prerequisites: Ph 203 or Ph 209; Mth 321.
(Change in prerequisites.)

PUBLIC HEALTH STUDIES

Changes in Old Courses

PHS 443, 444, 445G. Principles of Environmental Health and Safety. (3, 3, 3)
Prerequisites: These courses do not have to be taken in sequence. Students registering for graduate credit for 445G must have taken 443 and 444.
(Change in prerequisites.)

PHS 446, 447, 448G. Public Health Principles and Practices. (3, 3, 3)
Prerequisite: These courses do not have to be taken in sequence; however, 446 and 447 must be taken by students requiring graduate credit for 448g.
(Change in prerequisites.)
Changes in Old Courses - continued

PHS 450. Epidemiology I. (3)
An historical approach to epidemiology. Related examples of the application of the traditional epidemiologic methods as they have been used for the control of communicable diseases. Modern applications of traditional epidemiologic methods will be discussed.
(Formerly PHS 450, 451. Epidemiology. Change in title and division of sequence.)

PHS 451. Epidemiologic Biostatistics. (3)
This course will describe the biostatistical methods which are applicable for epidemiologic research. It will emphasize in particular epidemiologic measures of effect. It will include non-parametric statistics which are applicable to a wide variety of public health problems. Standardization techniques will be particularly emphasized and opportunities for group workshops will be presented. Prerequisite: Mth 364 or consent of instructor.
(Formerly PHS 452. Change in number and prerequisites.)

PHS 452. Epidemiology II. (3) (Grad)
Discusses basic epidemiologic research methods, details cohort, case comparison and prevalence studies. Emphasis is on epidemiologic research design and the measurement and evaluation of community problems and solutions. Biostatistical methods, as they apply to epidemiologic design, will be referenced. Prerequisites: PHS 450, 451, 452 may be taken in any order; however, students requiring graduate credit for PHS 452 must have taken 450 and 451.
(Formerly PHS 451. Epidemiology. Change in number, title, addition of prerequisites and addition of graduate credit.)
Changes in Old Courses

BSt 221. Survey of Afro-American Literature. (3)
An introductory survey course which examines the writings of blacks since the American revolutionary period. Course will also include an overview of the oral tradition of black Americans which provided the foundation for later literary achievements. Finally, an analysis will be made of the impact of the majority culture values, lifestyle, and literary styles on black writing and consciousness.
(Formerly Survey of Black Literature. Change in title.)

BSt 261. The Afro-American Economic Experience. (3)
The role of Afro-Americans in the American economic system. Employment, wage differentials, welfare payments, and the ghetto economy are examined.
(Formerly BSt 261, 262, 263. Change in title, description and division of sequence.)

BSt 262. Survey of African Economics. (3)
Explores the economic potential of the continent in the areas of agriculture and industrial investments. Planning in Africa, governmental policies on foreign investments, markets, distribution, public finance and the role of financial institutions are addressed.
(Formerly BSt 261, 262, 263, Black Economic Experience. Change in title, description and division of sequence.)

BSt 415. Justice and the Afro-American Experience. (3) (Grad)
An examination of the historical and contemporary relationships and interactions between the black population and the legal system in America. Concepts covered will include considerations of definition of criminal conduct, societal responses to minority pressures and demands for justice as well as intergroup relations between non-dominant ethnic groups and enforcement components of society.
(Formerly Justice and the Black Experience. Change in title.)

Old Courses Dropped

BSt 211, 212, 213. Psychology of the Black Experience. (3, 3, 3)

BSt 230. Introduction to Black Political Theory. (3)

BSt 263. Black Economic Experience. (3)

ECONOMICS

New Courses

Ec 420. Women in the Economy. (3) (Grad)
A theoretical and empirical study of women's economic role in the market and family. The course focuses on women's labor force activity, factors affecting the economic welfare of women, and sex discrimination.
New Courses - continued

Ec 446. Labor Legislation. (3) (Grad)

Ec 473. Cultural Economics. (3) (Grad)
The focus of the course is on a general theory of economic development and growth in the conceptual framework of culture and its evolution. The economic process, fed by the dynamics of technological change, is analyzed in cultural and social terms in the tradition of institutional and/or evolutionary economics. The course relates culture, technology, the Entropy Law, exponential evolution and the stages of economic development to the economic process for both advanced countries as well as the less-developed.

Changes in Old Courses

Ec 328. Engineering Economics. (3)
An examination of engineering economy fundamentals concerned with the formulation, techniques, and patterns of economy studies of engineering projects and the underlying rationales of the various approaches. Prerequisite: Ec 202, or consent of instructor.
(Change in prerequisite.)

Ec 445. Collective Bargaining. (3) (Grad)
(Formerly Collective Bargaining and Labor Legislation. Change in title and description.)

Changes in Old Courses

Hst 491. Quantitative History. (3) (Grad)
An introductory treatment of quantitative methods widely used in historical analysis. Application of systematic methods using actual historical materials. Topics include the classification and logical arrangement of data, charts, graphs, simple statistical measures for central tendency, time series, correlation, and regression analysis of historical data. Prominent examples of recent quantitative
Hst 491 (continued) contributions to historical writing will be examined. Prerequisites: Mth 104 or comparable knowledge of algebra or consent of instructor. (Formerly Elementary Quantitative Methods in History. Change in title, description, and prerequisites.)

**POLITICAL SCIENCE**

**Changes in Old Courses**

**PS 441. World Politics.** (3-5) (Grad) This course, the first in a sequence of three courses in world politics, 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, and integration, as well as certain substantive elements, e.g., international law and organization. Prerequisite: PS 241 or consent of instructor. (Change in description and prerequisite.)

**PS 442. Contemporary Analysis of World Politics.** (3-5) (Grad) The second course in the world politics sequence 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. Prerequisite: PS 441 or consent of instructor. (Change in description and prerequisites.)

**PS 443. Problems in Contemporary World Politics.** (3-5) (Grad) The third course in the world politics sequence focuses on substantive global problems and issue 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 introduced in the preceding courses. Prerequisite: PS 442 or consent of instructor. (Change in description and prerequisites.)

**PUBLIC ADMINISTRATION**

**New Courses**

**PA 550. Management Uses of the Computer in the Public Sector.** (3) This course considers aspects of the computer information technologies affecting issues of public administration; methodologies for management control of computer resources and their use in planning public policies and programs. The course is not intended as a primer on computer concepts; previous knowledge of computer terminology is not required.
PA 558. Public Productivity Analysis. (3)
This course is an examination of theoretical issues, methodological
problems, applications and current developments in public productivity.
Topics include concepts of organizational effectiveness, performance
indicators, human relations approaches, system analysis, and recent
efforts to improve governmental productivity.

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 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. Health Planning II. (3)
This course examines and pursues the concepts, issues, and problems
of health planning introduced in PA 575, Health Planning I. The use
of quantitative methods and data in health planning is emphasized.
Prerequisite: PA 575, or consent of instructor.

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 non-tax
sources of revenue; intergovernmental fiscal relations; debt management;
productivity; rate analysis; cash flow management; and managing fiscal
retrenchment.
New Courses

Actg 4XX. Accounting and Human Behavior. (3) (Grad)
A survey of current literature dealing with (1) the relationship between accounting information and human behavior and (2) the accountant as a decision maker/employee. Topics include human information processing, efficient markets research, behavioral assumptions of managerial accounting and the accountant's role in large scale organizations. Prerequisites: Actg 314 or Mgmt 362 or consent of instructor.

Actg 484. Survey of Tax Statutes. (3) (Grad)
A study of the federal and Oregon tax structure, including the concepts and policies which shape tax law. The correspondence between accounting principles and tax rules is emphasized. Actg 482 focuses on general concepts applicable to all taxpayers and the taxation of individuals. An introduction to tax research is also provided. Actg 483 covers income taxation of property transactions, transfer taxes, and income taxation of entities in general. Actg 484 emphasizes the more advanced problems in the partnership and corporate areas, international taxation, the selection of a form of doing business, and family tax planning. Prerequisites: Actg 213 for 482; Actg 482 for 483 and 484.
(This course will be a continuation and expansion of an existing two course sequence (Actg 482, 483.).)

Changes in Old Courses

Actg 3XX. Accounting Information Systems. (3)
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: Actg 213, BA 335.
(Formerly Actg 219. The Accounting Process. Change in number, title, description and prerequisites.)

Actg 383, 384, 385, 386. Accounting Theory. (3, 3, 3, 3)
Comprehensive study of generally accepted principles of accounting and of conventional procedures for the measurement of income and presentation of financial data. Problem of theory applicable to income determination and to the more difficult but significant business transactions and interorganizational relationships. Prerequisites: Actg 213 for 383; Actg 383 for 384; Actg 384 for 385 and 386.
(Change in prerequisites.)
Actg 420. Retirement Plans. (3) (Grad)
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
qualification; taxation of benefits; integration with Social
Security. Prerequisite: upper division standing or consent of
instructor.
(Formerly FinL 420. Retirement Plans. Change in prefix.)

Actg 430. Municipal and Governmental Accounting. (3)
Special theory relating to accounting for governmental bodies and
nonprofit organizations requiring accounting by "funds." Involves
study of the relationships of the budgetary process to the control
of expenditures with budget authorizations. Also, a study of the
sources, classification, and availability of revenues for expenditures.
Prerequisite: Actg 213.
(Change in description.)

Actg 482, 483. Survey of Tax Statutes. (3, 3) grad -- Actg 483
and 484 only.
A study of the federal and Oregon tax structure, including the
concepts and policies which shape tax law. The correspondence
between accounting principles and tax rules is emphasized.
Actg 482 focuses on general concepts applicable to all taxpayers
and the taxation of individuals. An introduction to tax research
is also provided. Actg 483 covers income taxation of property
transactions, transfer taxes, and income taxation of entities in
general. Actg 484 emphasizes the more advanced problems in the
partnership and corporate areas, international taxation, the selection
of a form of doing business, and family tax planning. Prerequisites:
Actg 213 for 482; Actg 482 for 483 and 484.
(Formerly Income Tax Laws and Accounting. Change in title and description)

Actg 490. Advanced Accounting Topics. (3)
Accounting for different forms of entities such as partnerships,
joint ventures, estates and trusts, and branch and agency. Accounting
for international transactions and translation of foreign operations.
A study of special reporting problems, such as interim reporting, segment
reporting, personal statements and SEC reporting. Prerequisite: Actg
385.
(Change in prerequisites.)

Actg 491. Accounting for Business Combinations. (3)
Accounting for parent-subsidiary affiliations including a study of
the accounting practices for mergers and consolidations. An
examination of inter-company relationships and the problems of
reporting and disclosure. Prerequisite: Actg. 385.
(Change in prerequisites.)
SCHOOL OF BUSINESS ADMINISTRATION - continued
ACCOUNTING - continued

Changes in Old Courses - continued

Actg 492, 493, 494. Auditing Concepts and Practices. (3, 3, 3) (Grad)
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, collection of evidence, evaluation of internal control, problems and procedures of verification, preparation of audit programs, work papers, and reports. Effects of statistical sampling and computer concepts and control techniques on the audit process. Prerequisites: Actg 385 for 492; Actg. 3XX and 492 for 493; Actg. 493 for 494.
(Change in prerequisites.)

Actg 500A, 500B. Management Accounting. (3, 2)
Two courses: (A) Financial Accounting, (B) Managerial Accounting. A comprehensive study of business financial statements, accounting records, costs, budgets, analyses, and management decisions based on accounting data. Designed for graduate students who have not had principles of Accounting courses.
(Change in credit hours from (2, 2) to (3, 2)).

MANAGEMENT

New Courses

Mgmt 409. Practicum. Credit to be arranged.

Mgmt 410. Selected topics. Credit to be arranged. (Grad)

Mgmt 4XX. Principles of International Management. (3)
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: Mgmt 362 or consent of instructor.

Mgmt 4XX. Materials Management. (Grad)
Materials Management is concerned with the flow of materials to, within, and from an organization. The materials manager must determine how much to obtain, when, and from whom. The course will cover materials acquisition, materials quality, inventory management, materials disposition, and the materials management organization. Prerequisite: Mgmt 329 or consent of instructor.

Mgmt 509. Practicum. Credit to be arranged.
Changes in Old Courses - continued

Mgmt 500A. Computer in Business. (2)
The concepts of computer management information systems study and design. Emphasis is on the application of information systems design to a typical case study where students are shown how to conduct an information systems study and how to design various complementary applications. Designed for graduate students who have not had a computer management information systems course or equivalent. Prerequisite: CS 150, Mgmt 111, or demonstrated proficiency in a computing language.
(Change in prerequisites.)

Mgmt 500B. Production Management Systems. (3)
An exploration of the underlying structure of major managerial problems within the production function, together with the analytical techniques which have proven useful in dealing with these problems. Designed for graduate students who have not had Production and Production Management or the equivalent. Prerequisites: Mgmt 500D or equivalent.
(Change in credit hours from (2) to (3) and addition of prerequisites.)

Mgmt 500C, 500D. Management Science. (2, 3)
Two courses: (C) Algebra (D) Statistics. An introduction to the quantitative concepts and methods applicable to managerial decision making. Designed for graduate students who have not had training in mathematics equivalent to the existing undergraduate requirements. Prerequisite for Mgmt 500D: Mgmt 500C or equivalent.
(Change in description, credit hours from (2, 2) to (2, 3) and prerequisites.)

MARKETING

Change in Old Course

Mktg 500. Marketing Management. (3)
An analysis of the role of marketing in the economy. Special emphasis is placed on the areas of pricing, legal aspects, trends, and theory. Designed for graduate students who have not had Marketing and Marketing Management or the equivalent. Prerequisite: Econ 201 or equivalent.
(Change in credit hours from (2) to (3) and addition of prerequisite.)
New Course

Coun 5XX. Consultation Procedures. (3) (Grad)
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 change, models and strategies of consultation and the role of consultant in differing settings (schools, agencies, court, etc.). Students are required to plan and implement a consultation as a field project.
Prerequisites: Coun 485 (Principles and Practices of Guidance Services) and Coun 581 (Interpersonal Relations I).
Change in Old Course

PE 195. Professional Activities.
Racquetball and Handball. (1)
Instruction and participation in skill progressions; teaching methods; rules interpretation, and performance evaluation.

Self Defense. (1)
Instruction and participation in skill progressions; teaching methods; rules interpretation, and performance evaluation.

Golf. (1)
Instruction and participation in skill progressions; teaching methods; rules interpretation, and performance evaluation.

(Change in description and credit hours from (2, 1, 2) to (1, 1, 1))
Changes in Old Courses

SW 530, 531, 532. Human Behavior in the Social Environment. (2, 2, 2)
This course focuses on the biological, psychological, social and cultural factors interacting during childhood. Class, race and ethnicity, and sex are central issues of concern. Moreover, the individual's development and functioning will be examined in the context of the multiplicity of generations and events with which the person interacts.
(Formerly SW 530, 531. Human Psychological Organization. Change in title and description; and SW 535. Society and Social Behavior. Change in number, title and description.)

SW 553, 554, 555. Advanced Theory of Social Work Practice. (3, 3, 3)
Analysis of basic issues in social work practice; comparative analysis of principles, methods, and theories; synthesis of social work knowledge through the study of practice in special problem areas.
(Change in credit hours from (2, 2, 2) to (3, 3, 3))

SW 560. Introduction to Community Organization and Social Planning. (3)
Overview to the practice field of community organization and social planning. Emphasizes practice issues from various types of organizational bases.
(Change in credit hours from (2) to (3))

SW 561. Social Planning. (2)
Theories and concepts of social planning.
(Change in credit hours from (2) to (3))

SW 562. Program Implementation. (3)
Elements of organizational interaction in the implementation of social plans and programs.
(Formerly SW 563. Interorganizational Analysis. (2). Change in number, title, description and credit hours)

SW 563, 564. Social Administration I and II. (3, 3)
Concepts and practices of administration for the social planner. Emphasizes issues in human service organizations.
(Formerly SW 562. Social Administration. (2), Change in number, credit hours and extension of current course to six hours.)

SW 565. Maintaining Social Service Programs and Systems. (3)
Issues in the design, development and maintenance of social service systems.
(Formerly Social Service Delivery Systems. Change in title, description and credit hours from (2) to (3))

SW 568. Legislative Action and Policy Development. (2)
The legislative process and its implications for the social planner. Focus on the development of social welfare policy.
(Formerly SW 564. Change in number.)
SCHOOL OF URBAN AFFAIRS

ADMINISTRATION OF JUSTICE

Changes in Old Courses

AJ 111. Police and Justice. (3)
An introductory survey of the police function and its part in the
administration of justice in the U.S., including a consideration
of the historical evolvement of the police; their contemporary
activities, organization, and problems; their future development;
and career opportunities.
(Formerly AJ 111, 112, 113. Introduction to Administration
of Justice. Change in title, description and division of
sequence.)

AJ 112. Courts and Justice. (3)
An introductory survey of the judicial function and its part in
the administration of justice in the U.S., including a consideration
of the historical evolvement of the courts; their contemporary
activities, organizations, and problems; their future development;
and career opportunities.
(Formerly AJ 111, 112, 113. Introduction to Administration
of Justice. Change in title, description and division of
sequence.)

AJ 113. Corrections and Justice. (3)
An introductory survey of the corrections function and its part
in the administration of justice in the U.S., including a consideration
of the historical evolvement of corrections; its contemporary
activities, organization, and problems, its future development; and
career opportunities.
(Formerly AJ 111, 112, 113. Introduction to Administration
of Justice. Change in title, description and division of
sequence.)

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.
Prerequisites: AJ 111, 112, 113 or consent of instructor.
(Formerly Police in Society. Change in title.)

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. Prerequisites: AJ 111, 112, 113 or consent of instructor.
(Formerly Correctional Strategies: Theories. Change in title.)
AJ 318. Criminal Justice Research. (3)
A critical examination of the usefulness and limitations of research as applied to criminal justice procedures and programs, with emphasis on the relationship between research findings and program change. Prerequisites: AJ 111, 112, 113 or consent of instructor.
(Formerly Criminal Justice Strategies: Research. Change in title.)

AJ 334. Crime Control Strategies. (3)
The analysis of crime and its relationship to the development of urban areas, incongruent patterns of criminal activities and police organization for "before the fact" policing; demographic and ecological factors in the incidence and distribution of crime and delinquency, and considerations of police planning for elimination of conditions conducive to crime. Prerequisites: AJ 111, 112, 113 or consent of instructor.
(Formerly Prevention and Control of Crime in Urban Areas. Change in title.)

AJ 444. Criminal Law and Legal Reasoning. (3)
Study of the basic concepts related to criminal law and legal reasoning, with analysis of the application of criminal law from both historical and contemporary perspectives. Prerequisites: AJ 111, 112, 113 or consent of instructor.
(Formerly Criminal Law: Introduction to Legal Reasoning. Change in title.)

AJ 445. Legal Aspects of Arrest, Search, and Seizure. (3)
Detailed examination of the law of arrest, with an extensive discussion of search and seizure including some study of electronic surveillance and informants. Prerequisite: AJ 444 or consent of instructor.
(Formerly Criminal Law: Legal Aspects of Arrest, Search, and Seizure. Change in title.)

AJ 446. Fifth Amendment and Court Procedures. (3)
Extensive study of legal issues related to the Fifth Amendment, together with an examination of legal court procedures including legal research techniques and mock trial practice. Prerequisite: AJ 445 or consent of instructor.
(Formerly Criminal Law: Fifth Amendment Issues and Court Procedures. Change in title.)

AJ 461. Organization of Justice Agencies. (3)
A comprehensive and critical examination of the theories, practices, and contemporary research related to the organizational structure of agencies involved in the administration of justice. Prerequisites: AJ 111, 112, 113, and upper division status, or consent of instructor.
(Formerly AJ 461, 462, 463. Police Organization and Administration. Change in title, description and division of sequence.)
Changes in Old Courses

AJ 462. Administration of Justice Agencies. (3)
A critical examination of some of the important management theories and practices related to such administrative activities in justice agencies as: Direction, control, recruitment, selection, training, and performance evaluation of personnel; collective bargaining; planning and research; decision-making; and fiscal matters. Prerequisite: AJ 461 or consent of instructor.
(Formerly AJ 461, 462, 463. Police Organization and Administration. Change in title, description and division of sequence.)

AJ 463. Supervision of Justice Personnel. (3)
A comprehensive and critical examination of the theories, practices, and contemporary research related to supervising the behavior of personnel performing functions associated with the administration of justice. Prerequisite: AJ 462 or consent of instructor.
(Formerly AJ 461, 462, 463. Police Organization and Administration. Change in title, description and division of sequence.)

URBAN STUDIES UNDERGRADUATE PROGRAM

Changes in Old Courses

USP 201. The Urban Physical Environment. (3)
Introduction to the characteristics of cities as physical systems, including land use patterns, the environmental impact of urban growth, and the image of cities; consideration of urban transportation and environmental protection policies.
(Formerly USP 201, 202, 203. The Urban Environment: Introduction to Urban Studies. Change in title, description and division of sequence.)

USP 202. The Urban Social Environment. (3)
Introduction to the social characteristic of urban areas, with consideration of ethnic relations, neighborhood patterns, and policies relating to poverty, welfare, health, and housing.
(Formerly USP 201, 202, 203. The Urban Environment: Introduction to Urban Studies. Change in title, description and division of sequence.)

USP 203. The Urban Environment: Politics and Planning. (3)
Introduction to the political systems and planning options facing metropolitan areas, including government structure, the dimensions of urban politics, and the tools of land use planning.
(Formerly USP 201, 202, 203. The Urban Environment: Introduction to Urban Studies. Change in title, description and division of sequence.)
New Courses

USP 531. Planning Analysis. (3)
The aim of this course is to provide practical techniques in data analysis as employed by urban planners. The emphasis is on the application of statistical tools previously learned to a variety of problems that may confront planners. It is a preparation for more advanced methods used in urban data systems and models. Subjects include the structure of data, data collection methods, data analysis, and graphic presentation. Prerequisites: appropriate introductory sequence in statistical analysis or consent of instructor.

USP 539. Philosophy and Ethics in Urban Research. (3)
This course is designed as a graduate introduction to the philosophy of science and to ethical issues and dilemmas involved in the conduct of social science research. Topics covered include moral, legal and political issues in research, investigators' responsibilities and participants' rights, effects of research on participants and society, professional associations and standards for research, federal role in funding the research process, social scientists' relationship with society, human subjects safeguards, publishing results of research findings.

USP 547. Evolution of Cities. (3)
An examination of the origins of cities and the history of their growth and development. Emphasis is placed on the evolution of urban systems and on historical approaches to solving the problems facing cities. The course also examines the development of the city planning profession and planners' responses to the changing nature of the city. Attention is divided equally among physical, social, economic, and political concerns as they relate to city development.

USP 563. 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.

Changes in Old Courses

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. Winter term.
(Change in description.)
Changes in Old Courses - continued

USP 536. Policy Evaluation Methods. (3)
Focuses on the methodological issues that must be addressed in attempting to evaluate programs and policies. A major part of the course is devoted to cost-benefit and cost-effectiveness analysis and such issues as present value calculations, determining the value of non-market benefits, and correctly evaluating costs. Usefulness of such analysis is also considered in light of political constraints and non-quantifiable benefits and costs. Prerequisites: USP 515 or equivalent. Fall term.
(Change in description.)

USP 572. Regional Economic Structure. (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. Winter term.
(Formerly Urban Economic Structure. Change in title and description.)
DIVISION OF ENGINEERING AND APPLIED SCIENCE

Changes in Old Courses

Nature, scope and role of, and current trends in, engineering;
basic preparation in the rudiments and working methods of engineer­
ing analysis and design; introduction to computer methods and to
basic laboratory work in various engineering areas. Prerequisite:
Mth 102 taken concurrently.
(Change in prerequisites.)

EAS 487. Advanced Strength of Materials. (3) (Grad)
(Addition of graduate credit.)

CIVIL-STRUCTURAL ENGINEERING

New Course

CE 591. Prestressed Concrete Design. (3)
Analysis and design of components of prestressed concrete structures
with reference to current codes. Prerequisite: CE 481, or consent
of instructor.

Changes in Old Courses

CE 368. Water Resources Engineering. (3)
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.
(Formerly Sanitary Facilities: Planning and Design. Change in
title, description and prerequisites.)

CE 384. 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 382 taken
concurrently, or consent of instructor.
(Change in description and prerequisites.)

CE 482. Design of Reinforced Concrete Structures. (3)
Design of footings, slab systems, long columns, walls and other
components of reinforced concrete structures by ultimate strength;
with reference to current codes. Prerequisite: CE 383, CE 481 or
consent of instructor.
(Formerly Design of Reinforced and Prestressed Concrete
Structures. Change in title, description, credit hours from
(4) to (3), prerequisites and deletion of laboratory hours.)
DIVISION OF ENGINEERING AND APPLIED SCIENCE - continued

ELECTRICAL-ELECTRONICS ENGINEERING

Changes in Old Courses

EE 357. Electronic Devices. (4)
Introduction to physical properties and characteristics of electronic devices. Application of matrices and computers to electronic circuits. Three lectures; one 3-hour laboratory period. Prerequisite: EE 265.
(Change in prerequisites.)

EE 421, 422, 423. Advanced Electronics. (4, 4, 4) (Grad)
(Addition of graduate credit.)

EE 425. Communication Systems I. (4) (Grad)
An introduction to signals and noise in electrical communication; signal spectra and filters, noise and random signals, baseband transmission of analog and digital signals, linear modulation and exponential modulation. Prerequisite: EE 365.
(Change in prerequisites and addition of graduate credit.)

EE 426. Communication Systems II. (4) (Grad)
(Addition of graduate credit.)

EE 454. Electrical Energy Systems I. (4) (Grad)
(Addition of graduate credit.)

EE 457, 458, 459. Microprocessor System Design. (4, 4, 4)
Prerequisite: CS 252, and EE 371.
(Change in prerequisites.)

MECHANICAL ENGINEERING

New Courses

ME 390. Stress Analysis of Mechanical Components. (3)
Review of stress analysis for axial, bending, torsional and shearing loads. To include unsymmetric loading and geometry, thermal loads and indeterminate problems. Energy methods as a general method of analysis and as applied to failure theories and numerical analysis techniques. Prerequisites: EAS 212, EAS 381, Mth 321 concurrently.

ME 478. Product and Professional Liability. (3) (Grad)
Engineering aspects of product and professional liability are emphasized. The history of applicable laws is reviewed. Legal concepts and selected court decisions are studied. Steps in formulating loss control programs are presented. Prerequisite: Senior standing in engineering or consent of instructor.
Changes in Old Courses

ME 241. Manufacturing Processes. (3)
A study from the designer's viewpoint of the principal manufacturing processes utilized by industry. Includes casting and forming, machining, welding, quality control, economic process selection. Two lectures; one 3-hour laboratory period.
(Formerly ME 241, 242, 243. Materials and Processes in Manufacturing. Change in title, description and deletion of ME 242, 243.)

ME 491, 492, 493. Mechanical Analysis and Design. (4, 4, 4)
Philosophy and morphology of design; socioecological factors and decision processes in design, utilization of computers in optimization of design factors; design of machine elements; design of mechanical systems; failure criteria and manufacturing considerations in mechanical design. Prerequisites: ME 313, 314; EE 355; ME 390.
(Change in prerequisites.)

ME 496. Topics in Fluid Systems Design. (3) (Grad)
Design speciality topics in fluid mechanics required for the professional practice of engineering. Specific subject matter rotated in succeeding years includes advanced analysis and design of fluid systems, turbo-machinery, fluid transients, gas dynamics, lubrication and bearings, and fluid flow in pollution control. The course may be repeated for credit as the subject matter studied varies. Prerequisite: EAS 361.
(Change in description, credit hours from (4) to (3), deletion of lecture hours and deletion of laboratory hours.)
ADDENDUM A

SCHOOL OF BUSINESS ADMINISTRATION - continued

FINANCE AND LAW

Changes in Old Courses

FinL 333. Foundations of Real Estate Analysis. (3)
Survey 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.
(Formerly FinL 436. Real Estate Practices. Change in number, title, description and prerequisites.)

FinL 343. Stock Market. (3)
Analysis of the operation of the stock market. Procedures in the buying and selling of securities. Examination of current regulatory practices. Prerequisite: upper division standing, or consent of instructor.
(Formerly FinL 434. Change in number and deletion of graduate credit.)

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. Prerequisite: upper division standing, or consent of instructor.
(Formerly FinL 433 grad. Change in number and deletion of graduate credit.)

FinL 425. Bank Management. (3)
Policies, practices, and problems of commercial bank management as well as other financial institutions; loan management, investment management and liquidity management. Prerequisite: FinL 359.
(Formerly FinL 360. Change in number.)

FinL 437. Real Estate Finance. (3) (Grad)
A study of the analytical techniques of real estate finance in the context of the primary mortgage market, the secondary mortgage market and the mortgage futures market. Emphasis on the development of problem solving capabilities with special attention to the market's institutional organization, creative financing techniques, alternative mortgage instruments and hedging techniques. Utilizes computer simulation models to analyze alternative financing strategies. Prerequisite: FinL 333, FinL 359.
(Change in course description and prerequisites.)

FinL 439. Real Estate Appraisal. (3) (Grad)
(Change in prerequisites.)
FinL 447. Real Estate Investments. (3) (Grad)
Analytic study of the investor role in real estate; quantitative approach to evaluation of real estate investments; analysis of investment problems for specific types of properties; tax effects on real estate investments. Prerequisites: FinL 333; FinL 359.
(Change in prerequisites.)

FinL 500. Finance Management. (3)
A study of the problems of the financial manager with particular emphasis on the areas of capital acquisition, capital structure of the firm, control of assets, and the evaluation of the alternative uses of funds. This course is designed for graduate students who have not had Finance or Finance Management or equivalent. Prerequisites: Actg 500B, Mgmt 500C, Mgmt 500D, or equivalents.
(Change in credit hours (2) to (3) and change in prerequisites.)
TO: Faculty Senate


The Graduate Council has reviewed the following program changes, new course proposals, and proposals for changes in existing courses, and makes the attached recommendations.

College of Science

Program change: Change title of MAT/MST Degree in General Science to MAT/MST Degree in Science

MOTION: Move acceptance of change in title of above program.

Course proposals:

Chemistry

CH 520 New course

MOTION: Move acceptance of the above new course.

Computer Science

CS 454 (Grad) Change in title, description, and prerequisites
CS 458 (Grad) Change in description and prerequisites
CS 480, 481, 482 Change in prerequisites

*MOTION: Move acceptance of above course changes.

Earth Sciences

G 521 New course
G 593 New course
G 413 (Grad) New course
G 412 (Grad) Change in prerequisites
G 421 (Grad) Change in prerequisites
G 450 (Grad) Change in prerequisites
G 455 (Grad) Deletion of graduate credit
G 481 (Grad) Change in prerequisites
G 494 (Grad) Change in prerequisites
G 511 Change in prerequisites
G 518 Addition of prerequisite
G 525, 526, 527 Change in prerequisites
G 594 Change in prerequisites
G 444, 445, 446 (Grad) Drop courses

*MOTION: Move acceptance of above new courses, changes in courses, and dropping of courses.

Mathematics

Mth 417, 418, 419 (Grad) New courses
Mth 426, 427 (Grad) New courses
Mth 458 (Grad) New course
Mth 459 (Grad) New course

*MOTION: Move acceptance of above new courses.

Physics

Ph 431, 432, 433 (Grad) Change in prerequisites

MOTION: Move acceptance of above changes in prerequisites.
Public Health Studies  
PHS 452 (Grad) Change in number, title, addition of prerequisites, and addition of graduate credit

*MOTION: Move acceptance of above changes in number, title, prerequisites, and addition of graduate credit.

College of Social Science
Black Studies  
BST 415 Justice and the Afro-American Experience. Change in course title from "Justice and the Black Experience"

MOTION: Move acceptance of above change in course title.

College of Arts and Letters
Art and Architecture  
AA 482 (Grad) New course

MOTION: Move acceptance of the above new course.

Speech Communication  
Sp 471L (Grad) New course
Sp 486 (Grad) New course
Sp 497 (Grad) New course
Sp 484 (Grad) Add prerequisite of Sp 486

MOTION: Move acceptance of Sp 471L (Grad), Sp 486 (Grad)—new courses—and addition of prerequisite to Sp 484 (Grad). Move not to accept Sp 497 (Grad).

School of Education  
Coun 5 New course

MOTION: Move acceptance of above new course.

*Courses related to motions which are lined out had not been acted on by the Graduate Council at the time of this report. Action will be initiated orally at time of Senate meeting.
MEMORANDUM

TO Faculty Senate, Portland State University

FROM Educational Policies Committee

DATE October 18, 1982

SUBJECT: Proposed separation of the current Department of Mathematical Sciences into a Department of Mathematical Sciences and a Department of Computer Science.

Educational Policies Committee Recommendation to the Faculty Senate

The Educational Policies Committee recommends the following motion be approved by the Faculty Senate:

"The Faculty Senate approves the separation of the Department of Mathematical Sciences into a Department of Mathematical Sciences and a Department of Computer Science, with both to remain in the College of Liberal Arts and Sciences."

Justification

The creation of a Department of Computer Science will meet a community need and at the same time strengthen the University and enhance its further development.

The proposed change is in keeping with Portland State University's mission as a comprehensive public university in an area characterized by the growth of high technology industry. The official guidelines for Portland State University, as adopted by the Board of Higher Education, confirm the appropriateness of the action.

The details of the justification are set forth in the attached documentation.

Submitted by: Roger Moseley (Chair)
Colin Dunkeld
Daphne Hoffman
Alice Lehman
Morton Paglin
William Savery
Charles Tracy
Robert Van Atta
Fred Waller
Norman Wyers
John Cunningham
Pat O'Connor
Pamela Reamer-Williams

RM:meh
Enclosures
MEMORANDUM

TO: Professor Roger Moseley, Chairman
   Educational Policies Committee

FROM: John B. Gruber

DATE: October 8, 1982

SUBJECT: The creation of a Department of Computer Science

At the September 16, 1982 meeting of the Department of Mathematical Sciences, the faculty approved the following motion:

That the Department of Mathematical Sciences support creation of a separate Department of Computer Science under the College of Liberal Arts and Sciences and that a committee consisting of all Department members who have taught Computer Science in the past, are currently teaching Computer Science, or would like to teach Computer Science in the future be formed to decide how the Department of Computer Science is to be run.

Since that time, Dr. Gene Enneking, Chairman of the Department and Dean William Paudler, Liberal Arts and Sciences, met with members of the faculty to obtain their individual views concerning the motion. The "Computer Science faculty" elected Maria Balogh to shepherd the creation of the new unit until such time when a department head is elected.

Enclosed with this memorandum please find a copy of a Justification for Creation of a Department of Computer Science. I support the creation of a Department of Computer Science. I have discussed the Justification with President Blumel and he too supports the creation of a department and has requested me to bring the matter to your attention and for your consideration.

cc: President Blumel
bc: Dean Paudler
Enc.
TO Dr. J. Gruber, V. P. for Academic Affairs
FROM W. Paudler

Attached please find a "Justification For Creation of a Department of Computer Science" provided by Dr. Gene Enneking. This request is a result of the Mathematical Science Department vote on September 16, 1982, which supported the creation of a Computer Science Department.

I wholeheartedly support this proposal and look forward to the implementation of this recommendation.

WWP:kcp
PROPOSAL FOR CREATION OF A SEPARATE
DEPARTMENT OF COMPUTER SCIENCE
AT
PORTLAND STATE UNIVERSITY

I. Current Status

Computer Science (CS) is currently a part of the Department of Mathematical Sciences. Computer Science received authorization for a separate BS degree effective fall term 1979-80. Since that time the program has been authorized to offer the BA degree in Computer Science as well. Growth in the program has been explosive as the following statistics illustrate:

<table>
<thead>
<tr>
<th>Year</th>
<th>1979-80</th>
<th>1980-81</th>
<th>1981-82</th>
<th>1982-83</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS majors</td>
<td>57</td>
<td>179</td>
<td>368</td>
<td>500</td>
</tr>
<tr>
<td>Fall term SCH</td>
<td>1,455</td>
<td>2,064</td>
<td>3,105</td>
<td>3,105</td>
</tr>
<tr>
<td>New CS admissions</td>
<td>57</td>
<td>151</td>
<td>289</td>
<td>350</td>
</tr>
<tr>
<td>Degrees granted</td>
<td>5</td>
<td>9</td>
<td>18</td>
<td>40</td>
</tr>
</tbody>
</table>

1. Estimate, as enrollment statistics were combined under Mathematics.
2. Estimate.
3. Projected at same level as 1981-82 since current program and support services are unable to support more students.
4. Projection based upon current 20% increase rate over 1981-82.

At present, all administrative support for the Computer Science program is assumed by the administrative structure of the Department of Mathematical Sciences.

Because of the heavy demand for a degree in Computer Science, the program has had to initiate a junior level admissions policy. This policy, approved by the Senate, May 1982, was implemented fall term 1982. To date, 62 juniors have been admitted to the program. Approximately another 60 non-admitted Computer Science juniors have been admitted to reserved courses on a space available basis. At current staffing levels, the program can support roughly 150 upper division Computer Science majors. As a greater number of lower division Computer Science students move into the junior level required courses, and within current restraints, more students would have to be denied admission into the program.
Demand by non-majors has increased dramatically over the past several years as well. Service courses in BASIC, FORTRAN, and COBOL are always fully enrolled. Facility support is at capacity.

Three full-time FTE faculty are currently identified with Computer Science teaching. Additionally, about 4.0 FTE are associated with part-time teaching in Computer Science including qualified individuals from local industry. Two full-time unfilled positions in Computer Science have been available for the past two years. The limited equipment available at this time, the lack of a separate program in Computer Science, the lack of a graduate program in Computer Science, and the current heavy teaching load in Computer Science are all contributing factors to our inability to fill these positions. More importantly, however, the entire country produces approximately 200 Computer Science Ph.D.'s per year. Of those, 130 accept non-university positions. As a result, there exists an average of two vacancies in every Computer Science department and strong recruiting becomes of major importance.

II. Proposal by Department of Mathematical Sciences

At its September 16, 1982 meeting, the faculty of the Department of Mathematical Sciences approved the following as a part of a motion:

That the Department of Mathematical Sciences support creation of a separate Department of Computer Science under the College of Liberal Arts and Sciences....

The remainder of the motion dealt with creation of a committee to commence planning, and such a committee has been established with Dr. M. Balogh as chair. This creation of a Computer Science Department has also been discussed and found support with faculty members of the former College of Science and the Department Heads of the College of Liberal Arts and Sciences.

III. Justification for Proposal

A. Academic Justification

Specific academic reasons for the creation of a separate Department of Computer Science include:

Computer Science is now generally considered as a separate discipline.

A separate Computer Science Department will attract more Computer Science majors and generate greater Computer Science course enrollment (assuming adequate faculty and facility support) leading to a stronger program and a stronger Portland State University as majors will need to take supporting University courses. Additionally, as more and more departments modify their requirements to include Computer Science literacy a general "updating" University-wide will occur.
A separate Computer Science Department is inevitable as support courses for an MA/MS program in Computer Science evolve in the future and additional faculty are hired. The Department currently has two vacant positions in Computer Science with another three and one-half positions identified as part of the Consortium funds (see section C) and a 1983-85 program improvement request to the Legislature.

To assist in Computer Science development, the University has committed resources to purchase a VAX 11/780 computer for Computer Science and physical space for a Computer Science Laboratory.

These developments together with the visibility generated by a free-standing Computer Science Department will assure a stronger program, improve recruitment, aid in securing equipment support from industry and strengthen the academic base of Portland State University.

B. Operational Justification

Specific operational reasons for the creation of a separate Department of Computer Science include:

A separate Computer Science Department will more clearly demonstrate costs associated with an evolving program and the overall administrative workload currently supported by Mathematical Sciences alone.

Greater visibility as a separate department with less confusion toward program goals and identification.

Greater industrial support as a clearly identified separate department.

Computer Science faculty recruitment will be easier, although still difficult.

Existing nationwide salary and course load differentials between Computer Science and Mathematics will be less likely to generate a morale problem.

C. Regional Considerations

A number of events over the past several months point to an identification of Portland State University as a high-technology center. The local electronics industry is very explicit in its desire to have a high quality Computer Science and Electrical Engineering graduate program in the Portland metropolitan area. The strength of that feeling is reflected by an industry representative stating publicly at a high-technology forum with industrial and university representatives present, that they would like to see a Ph.D. program in Computer Science moved to Portland. The chances of that seem remote. However, another development has occurred.
In June, public and private institutions with Computer Science and Engineering programs were asked to submit proposals toward the one million dollar seed fund (one-half million from the State and one-half million from industry) to improve high-technological graduate education in the State as part of a longer term State economic development program. Portland State University's joint Computer Science and Electrical Engineering response included proposals for both faculty and equipment totaling roughly $550,000. As issues evolved, the State System of Higher Education took an active role in putting together a State System response to the Oregon Graduate Center's proposal for approximately $991,000 of that fund. The new Chancellor, William E. Davis, took a leading role in presenting the State System proposal to the funding Consortium board, which included major industrial executives. Portland State University's proposal was included as part of the proposal. The outcome of the process has been reported in the newspapers with $400,000 going directly to Portland State University and $275,000 to Oregon State University earmarked toward supporting Computer Science courses at Portland State.

Some pertinent quotes in relation to the funded program are:

**Consortium report:**

The major need "is to achieve a more equitable balance of high technology resources being located near industry. Solving this problem leads inexorably to the development of high technology education programs in the Portland metropolitan area."

**Consortium report:**

"Immediate and primary focus must be brought on the Portland State University/Oregon State University program. Portland State University programs in Electronic Engineering and Computer Science must be up-graded and expanded at the BS and then the MS levels. Ph.D. level influence can be provided by Oregon State University on the Portland State University campus by term-by-term residence of Oregon State University professors Initially, and by Portland State University faculty in selected specialities augmented by visiting faculty in the medium to long term."

**Governor Atiyeh:**

"This is a critical part of my commitment to economic recovery. First this program represents a consensus between industry and education on what must be done immediately to bolster high technology education in the Portland area."---"This is a start. These funds will be used to attract high quality faculty members who, in turn, will be able to attract donations of advanced equipment from industry and foundations."---"I also will propose money in the next biennium for this program. The Education Coordinating Commission is asking for one million in 1983-85, and it is expected that will be matched by another one million from industry. As governor, I will include this one million in my budget. It simply must be a top priority."
The intent of these quotes is to demonstrate the depth of movement, political or otherwise, toward high-technology development in the Portland area. Further evidence of State System commitment toward Portland State's Computer Science needs is identification of approximately $312,000 for the program as its number one 1983-85 program improvement request to the 1983-85 Legislature.

D. Historical Development at Other Institutions

Statistics provided by the National Science Foundation indicate that, of the Ph.D. granting Computer Science departments in the United States, 32% are located in Colleges of Arts and Sciences, 38% are located in Schools of Engineering and 30% are either autonomous as separate colleges, or are under the auspices of both Arts and Sciences Colleges and Schools of Engineering. The program at Portland State University will be located and remain in the College of Liberal Arts and Sciences. Short descriptions of some Computer Science departments in the Northwest can serve as examples:

University of Portland:

Offers some Computer Science courses. No degree programs in Computer Science.

Lewis and Clark College:

Lewis and Clark College currently has a proposal before their Curriculum Committee to establish a separate Computer Science Department.

Reed College:

Reed College has no Computer Science program. Students are involved with exchange programs with other schools that offer Computer Science programs.

Oregon State University:

The Oregon State University Mathematics Department proposed in 1972 the establishment of a Computer Science Department. The proposal was accepted with the new Computer Science Department housed in the College of Science. Between 13 and 15 faculty are associated with the Department.

University of Oregon:

The Computer and Information Science Department at the University of Oregon was originally a division of the Mathematics Department. It is now a separate department housed in the College of Arts and Sciences. A total of 12 FTE faculty are associated with this Department.
University of Washington:

Housed in the College of Arts and Sciences, Computer Science originated in the College of Engineering but transferred to Arts and Sciences at the request of the Department because of ties to Mathematics and Statistics. Only graduate degrees are offered at present.

Washington State University:

The Computer Science Department became a full-fledged Department in the 1960's. It is housed in the College of Sciences and Arts and employs 11.25 FTE faculty.

Central Washington University:

The Computer Science Program at Central Washington University is independent of any other department. It is housed in the School of Letters, Arts and Sciences. 3.0 FTE faculty are in the Department.

University of Alaska, Anchorage:

The Computer Science Department at the University of Alaska is new, a site for its housing is currently being constructed. The Department will be in the College of Arts and Sciences.

IV. Implementation

Several steps have been taken in connection with implementing a separate Department of Computer Science from the Department of Mathematical Sciences.

A. Faculty

Faculty who teach Computer Science courses have been contacted regarding joint appointments and/or new appointments in Computer Science. Instructional activities would continue substantially as at present with some adjustments for administrative responsibilities. An account number has been established for budgeting purposes in Computer Science. Initial budgeted faculty FTE is about 6.75 with academic salaries budget at approximately $160,000.

B. Departmental Operations

A Computer Science committee has been established to plan Computer Science departmental operating procedures, including participating in the selection of a department head, and to assure a smooth transition.

C. Distribution Requirements

Currently a request is before the Academic Requirements Committee to clarify current "out-of-major" Science distribution requirements for Computer Science majors and Mathematics majors. Can Computer Science students use Mathematics classes for Science distribution and vice versa for Mathematics students? This issue
will need to be resolved independent of this proposal.

D. Computer Science Classified Staffing

It is anticipated that Computer Science will be adequately supported with classified staff (secretarial) to be funded by Portland State University.

E. Departmental Location

A site for the Department of Computer Science is still under active consideration. A site in Shattuck Hall is available for the Computer Science Laboratory.

F. Program Funding

New Positions:

The High Tech Consortium and Program Improvement monies will be used to hire 3.50 FTE faculty to expand the course offerings and frequencies.

The increased enrollment anticipated to be at least 200 students per quarter, once academic and support personnel is in place, along with the Computer Science Laboratory, will more than offset any costs associated with this new Department.