

UNIVERSITY OF ARIZONA

Faculty Senate

Monday, September 14, 1992

AGENDA

- 3:00 1. Call to order.
- 3:01 2. Andrew D. Hurwitz, President, Arizona Board of Regents.
- 3:20 3. Question and answer period for item 2.
- 3:30 4. Open Session: Dr. Martha Gilliland, United Way.
- 3:40 5. Reports from the President of the University, the Provost of the University, the Chairman of the Faculty, the Secretary of the Faculty, the Presiding Officer of the Faculty Senate, and the President of ASUA.
- 4:00 6. Question and answer period for item 5.
- 4:05 7. Approval of the Minutes of May 4, 1992 (copy enclosed).
- 4:06 8. Approval of Curriculum Bulletin, Vol. 14, No. 9 (copy enclosed).
- 4:10 9. Action on 1996-97 Academic Year Calendar (copy enclosed).
- 4:12 10. Ratification of Timothy Troy, Center for Creative Photography, as Faculty Senator-at-Large, replacing Dr. David Hetrick, who retired in January 1992.
- 4:13 11. Solicitation of nominations for two representatives to the Committee on Budget and Strategic Planning for election at October 5 Faculty Senate meeting.
- 4:21 12. Acceptance of first annual report to the Senate: General Education at the University of Arizona. Compiled by the Instruction and Curriculum Policy Committee from reports submitted by the Colleges of Agriculture, Architecture, Arts and Sciences, Business and Public Administration, Engineering and Mines, and Nursing; the University Composition Board; and the Department of Mathematics. Dr. Kenneth Young, Chair, Instruction and Curriculum Policy Committee.
- 4:23 12. Discussion and action on proposed revision to representation on Arizona Faculties Council (copy enclosed): Dr. J. D. Garcia, Chairman of the Faculty.
- 4:33 13. Reports from standing committees:
- (a) The Academic Personnel Policy Committee.
 - (b) The Budget and Strategic Planning Policy Committee.
 - (c) The Instruction and Curriculum Policy Committee.
 - (d) The Research Policy Committee.
 - (e) The Student Affairs Policy Committee.
- 4:50 15. Question and answer period for item 13.
- 4:58 16. Old Business.
- 4:59 17. New Business.
- 5:00 18. Adjournment.

University of Arizona
 FACULTY SENATE ROSTER
 September 14, 1992

<u>NAME</u>	<u>FACULTY SENATE STATUS</u>	<u>RANK/TITLE AND DEPARTMENT</u>
Anderson, Wendy	Student Representative (1993)	
Atwater, Anne E.	Senator-at-Large (1993)	Prof., Exer. & Sport Sci.
Badger, Terry A.	College Rep., Nursing (1994)	Asst. Prof., Nursing
Barrett, Bruce R.	Senator-at-Large (1993)	Prof., Physics
Bootman, J. Lyle	Ex-officio: elected by Deans	Dean, College of Pharmacy
Coons, Stephen J.	Coll. Rep., Pharmacy (1994)	Assoc. Prof., Pharm. Prac.
Cox, Vivian E.	Senator-at-Large (1993)	Assoc. Prof., Teach./Teach. Ed. and Presiding Officer
Cusanovich, Michael	Ex-officio: Interim Provost	Vice President, Research
Dickinson, Donald	Coll. Rep., SBS (1994)	Prof., Grad. Sch. Lib. Sci.
Dvorak, Robert	Coll. Rep., Architec. (1994)	Assoc. Prof., Architecture
Elliott, Carol L.	Senator-at-Large (1993)	Ref. Librn., College of Law
Enos, Theresa	College Rep., Humanities (1994)	Asst. Prof., English
Ewbank, Henry L.	Senator-at-Large (1993)	Professor, Communication
Fajardo, Laurie L.	College Rep., Medicine (1994)	Asst. Prof., Radiology
Garcia, J. D.	Ex-officio: Chairman of the Faculty (1993)	Professor, Physics
Hammond, Michael	Coll. Rep., SBS (1994)	Asst. Prof., Linguistics
Hildebrand, John G.	College Rep., Non-College (1994)	Director, Neurobiology, ARL
Hill, Fredrick J.	College Rep., Engrg. (1994)	Professor, ECE
Horak, Virginia	College Rep., Education (1994)	Asst. Prof, Teacher Ed.
Impey, Christopher	Senator-at-Large (1993)	Asst. Astronomer, Steward
Inman, Billie Jo	Coll. Rep., Humanities (1994)	Professor, English
Joens, Lynn A.	College Rep., Agriculture (1994)	Professor, Vet. Sci.

Jones, Douglas	College Rep., Non-College (1994)	Science Library
Kaczynski, Lori	Student Representative (1993)	
Konur, Sonjay	Student Representative (1993)	
Larson, Dennis L.	College Rep., Agriculture (1994)	Assoc. Prof., Ag. Engrg.
Law, John H.	Senator-at-Large (1993)	Director, Biotechnology
Lewis, Derek	Student Representative (1993)	
MacDonnell, Scott	Student Representative (1993)	
Mautner, Robert W.	Senator-at-Large (1993)	Librarian, Science Library
McElroy, Keith	Senator-at-Large (1993)	Assoc. Prof., Art
Mitchell, Robert	Senator-at-Large (1993)	Librarian, Main Library
O'Brien, James P.	Senator-at-Large (1993)	Professor, Music
O'Brien, Shirley J.	Senator-at-Large (1993)	Asst. Dir., Opera., Agr.
Pacheco, Manuel	Ex-Officio	President
Pitt, Sheila B.	Senator-at-Large (1993)	Asst. Prof., Art
Reiter, Jocelyn S.	Senator-at-Large (1993)	Professor, Music
Reynolds, Stanley S.	College Rep., BPA (1994)	Assoc. Prof., Economics
Roemer, Elizabeth	Secretary of the Faculty (1994)	Professor, LPL
Siciliano, Danny	Student Representative (1993)	President, ASUA
Silverman, Andrew	College Rep., Law (1994)	Clinical Instr., Law
Songer, J. Glen	College Rep., Agriculture (1994)	Professor, Vet. Sci.
Spera, Gianni	Senator-at-Large (1993)	Assoc. Prof., French & Ital.
Tomizuka, Carl T.	Senator-at-Large (1993)	Professor, Physics
Troy, Timothy	Senator-at-Large (1993)	Librn., Ctr. Creat. Photo.
Valenzuela, Terence	Coll. Rep., Medicine (1994)	Asst. Prof., Surgery
Vezino, Patrick	Student Representative (1993)	

Warburton, Jeffrey	Coll. Rep., Fine Arts (1994)	Assoc. Prof., Theatre Arts
Williams, Ed	Coll. Rep., SBS (1994)	Prof., Political Science
Witte, Marlys H.	Senator-at-Large (1993)	Professor, Surgery
Wright, Stephen H.	Coll. Rep., Medicine (1994)	Assoc. Prof., Physiology
Young, Kenneth C.	Coll. Rep., Science (1994)	Assoc. Prof., Atmos. Sci.
Zwolinski, Malcolm J.	Senator-at-Large (1993)	Assoc. Dir., Renew. Nat. Res.

PARLIAMENTARIAN

Sankey, Robert W. Coordinator of Curricular Matters

ACADEMIC CALENDAR

1996-97

M 14 Tu 15
 W 15 Th 15
 F 15 30
 44

FIRST SEMESTER

Applications for bachelor's degree candidacy
 must be filed for degrees to be awarded
 at close of the following summer session 1 Th

Degrees awarded as of this date for students
 completing requirements at close of
 summer session 8 Th

Residence halls open 18 Su

New Student Orientation Program (Last Session). 19 M - 20 Tu

Opening of School Activities. 19 M - 21 W

Freshman Convocation. 21 W

Classes begin 22 Th

Last day of registration for credit 29 Th

SEPTEMBER

Labor Day--no classes 2 M

Last day for dropping courses resulting in
 deletion of course enrollment from record 18 W

OCTOBER

Last day for dropping courses 30 W

NOVEMBER

Veterans' Day--no classes 11 M

Honors Convocations--no classes 9:00-11:00 a.m. 19 Tu

Thanksgiving recess 28 Th - Dec 1 Su

DECEMBER

Applications for bachelor's degree
 must be filed for degrees to be awarded
 at close of the following fall semester 2 M

Classes and laboratory sessions end 9 M

Semester examinations begin 11 W

Semester examinations end 18 W

Residence Halls Close 19 Th

Winter Commencement 19 Th

M 14 Tu 15
W 16 Th 15
F 15 30
45

SECOND SEMESTER

JANUARY

Residence Halls Open. 12 Su
New Student Orientation Program (Last Session). 13 M - 14 Tu
Opening of School Activities. 13 M - 15 W
Classes begin 15 W
Martin Luther King Holiday. 20 M
Last day of registration for credit 23 Th

FEBRUARY

Last day for dropping courses resulting in
deletion of course enrollment from record 11 Tu

MARCH

Spring Recess 15 Sa - 23 Su

APRIL

Last Day for dropping courses 1 Tu

MAY

Applications for bachelor's degree candidacy must be
filed for degrees to be awarded at close of the
following spring semester 1 Th
Class and laboratory sessions end 7 W
Semester examinations begin 9 F
Semester examinations end 16 F
Residence Halls Close 17 Sa
Spring Commencement 17 Sa

General Education at the University of Arizona

submitted to the Faculty Senate

by the

Instruction and Curriculum Policy Committee

Dr. Kenneth C. Young, chair

Dr. James F. LaSalle

Dr. John D. McCullen

Dr. Marcello Medina

Mr. Robert Mitchell

Dr. Chia-Lin Pao Tao

Dr. Jane Williams

Mr. Scott Hyder

based on reports submitted by

Asst. Dean William Hanekamp, College of Agriculture

Dean Robert Hershberger, College of Architecture

Assoc. Dean Susan Steele, College of Arts and Sciences

Gwen Swanson, College of Business and Public Administration

Assoc. Dean Vern Johnson, College of Engineering and Mines

Dr. Suzanne Van Ort, College of Nursing

Dr. Ty Bouldin, University Composition Board

Dr. Dan Madden, Department of Mathematics

1 September 1992

I. Introduction

This report is intended to provide an overview of the general education program at the University of Arizona, focusing on the philosophical approaches to general education within the various colleges and the evolution of the general education programs as envisioned within each college. These are supplemented by reports from the University Composition Board and the Undergraduate Mathematics Committee, rounding out the overview of the general education program.

II. Philosophical Approaches to General Education

Two underlying themes serve to unify the diversity of approaches to general education as envisioned by the various colleges at the University of Arizona. These are (1) recognition of the need to educate students beyond their major field of study, and (2) the desire to instill the skills and motivation needed for self-directed future learning. Closely coupled with self-directed learning is the development of critical thinking skills. Some colleges stress the development of communication and mathematical skills as an important facet of general education.

A. Breadth of the Educational Experience

Although each college recognizes the need for broadening a student's education, the professional colleges (Engineering, Architecture, and Nursing) tend to focus their general education requirements to supplement their core curricula. For example, one of the goals of general education in the College of Nursing is to provide "breadth and depth in areas which are complementary to professional nursing courses and serve to expand the horizon of the graduate beyond professional nursing preparation." The goal of the general education program within the College of Architecture is "to acquaint students . . . with the philosophy, history and theory of the art and science of architecture in its philosophic, social, environmental, technological and economic aspects." In a similar vein, graduates from the College of Engineering and Mines are expected to have "a thorough understanding of how materials, energy, and information can be adapted to humanity's needs and desires."

In contrast to this focused approach to general education, the general education program of the College of Arts and Sciences is "designed to afford you (the student) the opportunity to learn how different disciplines define, acquire, and organize knowledge..." and is "intended as well to enhance your (the student's) understanding of the reciprocal influences of Western and non-Western cultures..." Goals of the general education program include "an appreciation of complexity and ambiguity, a tolerance for and empathy with persons of different backgrounds or values, and a deepened sense of self..."

Intermediate to these diverse approaches, the College of Business and Public Administration recognizes that "studying human behavior through social sciences directly relates to preparing for managerial careers" and "a course in

ethics is required to help individuals to develop a conceptual framework to use in evaluating the moral and ethical issues that abound in professional and personal lives." The general education program within the College of Agriculture is designed to "offer students an opportunity to blend technical, vocational, analytical, and creative inquiry educational experiences..." This includes developing an "appreciation for and understanding of culture, societies, and the contemporary world.." and to "gain knowledge and appreciation of the arts and humanities."

B. Development of Lifelong Learning and Critical Thinking Skills

The concept that critical thinking and continued learning are vital components of the general education program is expressed in various ways by the different colleges. The College of Agriculture defines a foundation objective of cognitive reasoning to "perfect the students' ability to engage in independent and critical thought using creative and analytical skills to comprehend the complexities of our world's society." General education courses specified by the College of Arts and Sciences are "meant to develop analytic, synthetic, linguistic, and computational skills useful for lifelong learning." All general education courses approved by the College of Arts and Sciences are required to have a "significant writing component" which is discipline and course specific and which emphasizes critical thinking.

A more pragmatic philosophy is followed by the College of Engineering and Mines. "An engineering education develops analytical and quantitative thinking, a critical but optimistic approach to problem solving, and the habit of self-directed future learning." Similarly, the College of Business and Public Administration requires mathematics and natural science courses "in order to assist students in becoming critical thinkers and systematic problem solvers."

C. Development of Communication Skills

The need to develop communication skills of our students is widely recognized. The incorporation of a "significant writing component" in all general education courses approved by the College of Arts and Sciences may be expected to improve communication and critical thinking skills campus-wide since all colleges include such courses in their general education requirements. In fact, it was not necessary for the College of Education to submit a report since they defer their general education requirements to the College of Arts and Sciences' Booklink. Similarly, the College of Pharmacy accepts students subsequent to completion of their general education requirements which are generally met in the College of Arts and Sciences.

The importance of developing communication skills is likewise recognized by the College of Agriculture as valuable in developing "personal skills to enable students to be productive and effective citizens in public, professional and interpersonal communication settings." The College of Business and Public Administration feels that "the study of a second language also complements and strengthens English and communications requirements."

The perceived importance of developing communication skills is also evidenced by the required Upper Division Writing Proficiency Examination (UDWPE), the remedial writing course ENGL 397, and the development of writing emphasis courses within many departments. These substantiate the commitment to developing better communication skills in our undergraduates at the University level, the college level, and at the department level.

D. Development of Mathematical Skills

The development of mathematical skills was not given as high a priority as the development of communication skills except by the College of Engineering and Mines which emphasizes the development of analytical and quantitative thinking. General education courses in the College of Arts and Sciences are intended to develop analytic and computational skills. In the College of Business and Public Administration, mathematics and natural science courses are intended to promote critical thinking and problem solving skills.

Students taking mathematics as part of their requirements fall into two groups: students who need mathematics in future courses; and students who will take no other courses using mathematics. The majority of freshman at the University fall into the former category although the number falling into the second category is surprisingly large. Only 8 of the 30 courses satisfying the science requirement have a math corequisite and over half require no math at all. The Department of Mathematics has balanced the needs of these different groups quite well as evidenced by the increasing success rates in these and subsequent courses.

III. Changes in the General Education Program

The diversity among the various colleges at the University of Arizona and their correspondingly diverse philosophical approaches to general education, imply a diversity of goals and priorities. In this section, we will attempt to summarize some of the accomplishments of, prospects for, and perceived problems related to the general education program.

Addition of courses to or removal of courses from the various lists of approved courses in each of the colleges is an ongoing process. The responsibility for approving or removing courses for general education credit varies from college to college. The General Education Committee of the Arts and Sciences College was very active, approving 31 new courses, removing a few courses because they are taught almost exclusively by graduate assistants, and putting a number on notice to pay attention to their writing component. In addition, the committee held two retreats with members of the Faculty of Humanities and the Faculty of Science.

Within the College of Engineering and Mines, the general education component is integrated into the specific degree requirements and is not a stand alone requirement. The faculty in each department determine the specific curricular requirements for the degrees they offer. The Curriculum Development

Committee coordinates curricular activities within the college and verifies that each fulfills (1) the ABET accreditation requirements, (2) professional requirements created by appropriate professional societies, (3) faculty judgments of what students should learn, and (4) general education requirements imposed by the University. Six study areas in the Humanities and Social Sciences have been defined and students are required to take between 9 and 18 units within a given study area, depending on the department.

Efforts to make the general education requirements more congruent were initiated during the Spring 1992 semester between the College of Arts and Sciences and the College of Business and Public Administration. Discussions involve ways in which greater commonality between the two programs might be achieved. One purpose of this is to ease the transition of students transferring from one program to the other; another is to reduce excessive demand for general education courses on particular departments. It should be noted that both the College of Education and the College of Nursing already follow the approved course list in Booklink which defines the general education options for the College of Arts and Sciences.

The transfer of general education course credit between state universities and community colleges is being examined by the General Education Articulation Task Force which was established by the Transfer General Education Core Curriculum agreement. Both these intra-campus and inter-campus efforts to coordinate general education curricula should improve teaching efficiency and simplify meeting general education requirements for students.

The College of Agriculture plans to reexamine its General Education Statement of Purpose in the fall of 1992. This action is being taken partially in response to the recently published report submitted to President Pacheco by the Task Force on Undergraduate Education.

The College of Arts and Sciences has established a program of Awards for Creative Teaching in General Education. Eight such awards have been given for the academic year 1991-1992. In addition, a program to award researchers for their contributions to general education will begin in 1992-1993. Individuals will apply to the General Education Committee and those selected will receive \$250 to support their research. Ten awards will be made in the fall and ten more in the spring.

Two efforts to improve the quality of general education courses in the College of Arts and Sciences during the 1992-1993 academic year should be noted. A section will be added to course evaluation forms specific to general education courses, asking students to evaluate whether the course is accomplishing what a general education course is supposed to accomplish, as defined by Booklink.

Attention will be paid to further improving the writing component of general education. The Director of Composition, Tilly Warnock, and Associate Dean Susan Steele have developed a multi-faceted plan, involving training and hiring upper division undergraduates to serve as writing consultants to general education courses.

Concern regarding the impact of budget cuts on the availability of required

general education courses has been raised by the College of Nursing and within the College of Arts and Sciences. The College of Nursing may find it necessary to modify the curriculum and/or degree requirements if students encounter increasing difficulty in obtaining courses to fulfill their general education requirements. This topic has also been a concern in the College of Arts and Sciences in which an increasing number of students are petitioning for waiver of some of their general education requirements due to their inability to register for required courses.

An implied concern with the possibility of increasing the University general education requirements was expressed in the report from the College of Engineering and Mines. The imposition of accreditation requirements for the professional colleges (Engineering and Mines, Architecture, and Nursing) is viewed as further restricting an already complex and restrictive curriculum.

IV. Activities of the University Composition Board

The activities of the University Composition Board involve (1) support for Writing Across the Curriculum, (2) assessment of writing proficiency, (3) outreach programs, and (4) research. Limitations imposed by budget cuts and seeming lack of commitment by the administration need to be addressed.

A. Writing Across the Curriculum

A major part of the Board's work involves providing support to writing teachers across campus. In this area of its mission, the Board has undertaken the following:

- (1) Consulting with departments and coordinate the writing of grant proposals to fund curriculum innovation to improve undergraduate writing. A \$248,000 grant proposal was written with the College of Engineering to extend an experiment combining Engineering 102 and English 102. Another proposal was drafted to fund the development of portfolio assessment for placement and upper-division writing.
- (2) Supporting development of writing emphasis courses. Five workshop sessions were offered for the University Teaching Center Orientation series for Writing Emphasis course instructors and three sessions were offered for Composition Program GATs on successful strategies for teaching writing. Assistance was provided in designing an introductory writing course for beginning students through the Department of Language, Reading, and Culture. A newsletter has been initiated to help writing emphasis faculty communicate on a regular basis.
- (3) Consulting with colleges and departments on peer mentoring programs in writing. Consultations with the College of Law and with the Minority Graduate Student Writing Initiative were continued.

- (4) Administering ENGL 397. One hundred twelve sections of ENGL 397, the workshop for students receiving unsatisfactory ratings on the Upper Division Writing Proficiency Examination, were administered.

This year, the Board has begun planning to (1) develop a Writing Center which could extend support for writing to populations not served by ENGL 397, (2) develop departmental support for sections of ENGL 397 specially designed for writing needs of majors, (3) develop more effective ways of work with departmental advisors in assessing student need for additional writing instruction, and (4) open enrollment in ENGL 397 to students who have received satisfactory ratings on the Upper Division Writing Proficiency Examination but feel they need additional writing instruction.

B. Assessment of Writing Proficiency

During the academic year 1991-1992, 4627 Freshman Placement Examinations and 6834 Upper Division Writing Proficiency Examinations were given. As a result of these, 412 reviews were conducted with the affected students. Performance on the Upper Division Writing Proficiency Examination has improved slightly over the last four years with 6% of the students receiving excellent and 24% receiving unsatisfactory ratings during 1991-1992. A total of 225 faculty members participated in grading the Upper Division Writing Proficiency Examination.

Because a single, timed-writing sample has limited validity as an indicator of student writing abilities, the Board is exploring the following options:

- (1) A portfolio option for assessment. The Composition Program and feeder high schools are developing requirements for portfolio representative work for placement in Freshman Composition. Departments could develop requirements for a collection of writings, relevant to the discipline to assess writing skills of upper-division students.
- (2) A revised format for the Upper Division Writing Proficiency Examination to allow students to read articles before the examination.
- (3) A guide to the Upper Division Writing Proficiency Examination, providing students with examples of excellent, satisfactory, and unsatisfactory writing.

C. Outreach Programs

The Board oversees an extensive program of outreach in the public schools. Activities include the following:

- (1) Southern Arizona Writing Project. A \$10,000 matching funds grant was obtained from the National Writing Project, resulting in an increase from one to six participants in the summer institute. Long-term faculty development programs were initiated with Tucson Unified School District and two school districts in the Yuma area.

- (2) Writing Project In-services. Four in-service workshops for public school teachers were held this year.
- (3) Summer Programs. Course curricula were further refined, the Transfer Student Institute was expanded and a Hispanic Writers speaking series was added to these enrichment programs for minority students.
- (4) A pilot project with Tucson Unified School District was initiated to explore a portfolio option for placement in Freshman Composition.
- (5) Consultant services were rendered to Pima Community College English faculty in developing holistic placement procedures for PCC.

The Board plans to better integrate its outreach programs with other units on campus, including the Poetry Center and other departmental efforts. In order to retain national affiliation with the National Writing Project, development of the Southern Arizona Writing Project's in-service programs must be continued and the Summer Institute must be modified.

D. Research Activities

The Board conducts research to explore the teaching of writing at the University and the structure of the undergraduate writing program. Surveys of (1) freshman student attitudes toward their placement in first year composition courses, (2) student attitudes in ENGL 397, (3) departmental advising policies for upper-division writing requirements, and (4) writing emphasis courses were conducted. Data collection for an ethnographic study of the Writing Emphasis course in Electrical and Computer Engineering (ECE 495b) was completed.

These projects will help the Board identify sites and methods for future studies of the teaching of writing at the University of Arizona.

E. Limitations Faced by the University Composition Board

Three major limitations face the Board at the present time: (1) lack of knowledge of the Board's function among faculty and administrators, (2) the failure of the University to provide appropriate professional stability to the unit, and (3) the small size of the staff given the dimensions of the Board's institutional charge.

This year, the Board has met with administrators and faculty to improve understanding of the Board's work. This effort has been deeply supported by Rudy Troike, acting head of the English Department, and Tilly Warnock, Director of Composition. Through their support, communication across campus and in the local public schools has been enhanced. Brochures which will describe the functions and services of the Board are planned. Regular meetings with various groups are planned to build support for the Board's work.

The University Composition Board officially reports to the Intercollegiate Writing Committee which oversees the undergraduate writing program. This year,

the Intercollegiate Writing Committee lost required membership and has not yet been reconstituted, respite efforts to encourage new appointments. Similarly, there has been difficulty recruiting faculty graders for the Upper Division Writing Proficiency Examination.

The Board's budget situation and the issue of continuing eligible status for Board members make it clear that the Board has been unable to win institutional recognition and support for its professional contributions to the University's undergraduate programs. The Board is supported almost entirely from temporary funds which are always endangered in times of budgetary crisis, a fact which suggests that the Board's functions are not seen by the administration as having a permanent place in undergraduate education.

Similarly, despite repeated efforts, academic professionals on the Board remain year-to-year employees. This seriously constrains the ability to recruit and retain the highly-trained personnel needed to enhance the Board's capacity to support colleges interested in developing discipline-specific writing programs for their students. Clearly, a more effective strategy needs to be developed to persuade the upper administration of the permanent importance of writing and the Board's programs in this regard, in undergraduate education at the University.

At present, the Board is so understaffed that all of the Board's obligations cannot be met at the highest level of professional performance and choices must be made between conflicting priorities. This year for example, it was necessary to cut back on in-service programs to public schools and workshops for GATs and faculty and to minimize the number of new Upper Division Writing Proficiency Examinations that were developed. Without additional staff, it will not be possible to provide departments with the research and curriculum design support conducted this past year. Temporary solutions such as internships for qualified graduate students and released-time grants funding do not alter the fact that the Board's charge seriously outstrips the resources of money and personnel allocated for its work.

V. Activities of the Undergraduate Mathematics Committee

The Department of Mathematics serves students from every part of the University at all levels. In the past five years, 45% of the students in courses above 300 were from outside the Department. At least three units of mathematics are required of every undergraduate, while the College of Business and Public Administration and the College of Engineering and Mines require 13 units of mathematics as general education requirements.

The University is one of the leaders in the largest National Science Foundation (NSF) calculus reform effort. In addition, the Department has invested a lot of time and effort establishing close ties with mathematics teachers in high schools and middle schools across the state. Finally, the impact of budget cuts on the undergraduate mathematics program has led to assigning priorities and addressing the most pressing needs.

A. Calculus Reform Effort

Several years ago, a consortium of schools formed to develop an alternate calculus curriculum that would give students a better understanding of the power of calculus. University faculty have been very influential in this project which, by all accounts, has been a great success here and at many other sites across the country. The Department's electronic classroom and well established computer software series have played an important role in this success.

The teaching of calculus will be based completely on consortium material by fall 1993. This change will require that the Department consider changing other courses, both pre-calculus and post-calculus. Consortium material is also being introduced at Arizona State University and Northern Arizona University as well as at junior colleges across the state.

B. Outreach Programs

The goals of the academic outreach component of the Department of Mathematics are to (1) offer students enrichment programs and extracurricular activities that challenge them mathematically, (2) offer teachers a variety of opportunities to upgrade their mathematical knowledge and refine their teaching style, (3) increase the confidence of teachers in the use of problem solving and technology, (4) develop professional pride and regenerate enthusiasm in the teaching of mathematics, (5) foster collaboration among teachers to develop a supportive network that would facilitate an exchange of ideas, (6) develop collegial relations between teachers and University faculty, and (7) provide a forum for a regular exchange of ideas and discussion of curriculum trends in mathematics education.

Major activities of the outreach programs include:

- (1) **Teacher Enhancement Programs.** Making Math Count is a three-year, NSF-funded project to assist middle school teachers to use problem solving and technology in their teaching and encourages minorities and girls into mathematics and sciences.

Promoting Reasoning in School Mathematics is another three-year, NSF-funded teacher enhancement program for junior and high school teachers in the Tucson area in which participants take four week summer courses on problem solving and calculator and computer technology.

The **University School Cooperative Program** allows qualified teachers on paid leave from their district, to teach in the entry-level program, take courses, participate in the mathematics instruction colloquium, and to work on a project of their choice, for a period of one year.

The **Presidential Fellows Program** provides support to qualified high school teachers while on leave from their schools to pursue a program leading to a masters degree.

- (2) Student Programs. Summer Math Camp for gifted junior high students allows 16 eighth grade students from throughout the state to spend two weeks on the University campus, grappling with challenging mathematical problems and learning how technology can be used to further their understanding of concepts.

The White River Junior High Summer Camp is a one week intensive encounter with problem solving and technology for 12 eighth grade students from the Apache Indian Reservation in White River.

Carnaval Matemático is a series of week long carnivals planned for 1992-1993 at the Tucson Children's Museum for ethnic minority middle school students to solve mathematical tasks using exploration, critical thinking, hands-on material, and group work. Eight middle school teachers from Making Math Count will provide guidance to the students.

The University serves as the state coordinator for the American High School Math Exam which is the first stage of national competition for positions on the US Olympiad Team.

- (3) Educational Programs. The addition of two faculty in mathematics education has allowed for expanded activities and significant improvements in the Department's in-service and pre-service programs. New courses have been added to the schedule and are offered after school hours. Moreover, a Ph.D. degree in mathematics education has been created.

Possible future activities include teacher enhancement programs for all levels, curriculum initiatives for grades 9-12, programs to support the State's elementary mathematics specialist endorsement, assisting districts with textbook adoption, and the implementation of the Arizona Student Assessment Plan.

C. Impact of Budget Cuts

An alarmingly large percentage of funding for the Department of Mathematics comes under the title of temporary funds. From the first indications of an impending budget crunch, the Department began planning, recognizing that the needs of all of the students could not be met and that priorities needed to be set. Cuts were made at all levels but the greatest impact would fall on the algebra courses which constitute the largest part of the Department. It was decided to concentrate on students who need mathematics for later courses and seniors who need mathematics to graduate. The General Education Committee of the College of Arts and Sciences and the Undergraduate Council were contacted, asking for temporary changes in policy that would lessen the impact on students and still meet the University's academic goals. It was possible to provide for all the students in groups with top priority.

Continuing financial problems require difficult choices to be made soon. The general education requirements include mathematics as a basic skill needed by all students, but the cost of teaching this skill to our students is large. Costs should be cut according to well-defined academic criteria; a simplistic approach will lead to disaster. The level of achievement that is expected of the

students must be set and an affordable and effective system for reaching these goals must be established, and these must be done in tandem.

It is suggested that the University consider whether its entrance requirements in mathematics are adequate. If mathematics is required in every University major, is a course that prepares business students for calculus a good graduation requirement for English majors? In short, the University must decide the role of mathematics. Is it a hurdle on the way to graduation or an essential tool in today's world. Is mathematics an area of study or an acquired proficiency?

VI. Summary and Conclusions

Certain commonalities underlie the apparent diversity of the general education programs within the various colleges. These include a commitment to a broad-based educational experience and the development of critical thinking skills and continued self-learning after graduation. The diverse manner in which these common goals are addressed reflects the diverse nature of the colleges at the University.

The incorporation of writing emphasis into general education courses is perhaps the most distinguishing feature of recent changes in the general education program. This is viewed as having widespread faculty support and has been formalized in the procedures for accepting courses for general education credit in the College of Arts and Sciences. The impact of these changes extends throughout the University due to the role of the College of Arts and Sciences in providing general education courses for other colleges and as general education curricula become more closely coordinated between colleges.

This revolution in general education at the University is perceived as not being supported by adequate financial resources. Recent budget cuts have resulted in reducing general education course offerings in college algebra and laboratory sciences. Future budget cuts may be expected to result in modifications in the curriculum and/or degree requirements, reductions in or loss of programs such as Writing Across the Campus, the Upper Division Writing Proficiency Examination and Outreach, and inability to retain dedicated and highly-trained faculty and academic professionals.

The general education program at the University of Arizona is continually evolving in response to the dedication of many innovative members of the faculty, professional staff, and administration. This report is intended to promote the exchange of ideas and facilitate coordination of efforts aimed at improving the quality of the general education program at the University of Arizona. Copies of the reports upon which this report was based are available on request.

ANNUAL REPORT 1991-92

FACULTY SENATE BUDGET AND STRATEGIC PLANNING POLICY COMMITTEE

14 September 1992

The Committee met at least once a month during the academic year, during the spring the Committee met nearly weekly and met a number of times during the summer as well. The Committee met with Vice-President Joel Valdez and Vice-President Allan Beigel, Provost Jack Cole, Interim Provost Michael Cusanovich, Vice-Provost Holly Smith, representatives of the Dean's Council, Chief Budget Officer Dick Roberts, Controller Bert Landau and Richard Howard, Director of the Office of Institutional Research.

Re-constitution and re-organization of the Committee

In its Annual Report last years Committee proposed altering the composition and the functioning of the Committee. In particular a constitutional amendment was proposed that would provide for at large election of six members of the Committee serving rotating three year terms. This proposal was brought again to the Senate during the fall, it was subsequently approved and incorporated into the revised Constitution submitted to the Faculty for approval during the spring of 1992. Although the original proposal envisioned an initial election during the spring of 1992 and included a transition plan that portion of the plan was not implemented as yet. Presumably the first election will take place in the spring of 1993.

The Committee also submitted a proposal to the Senate for re-constituting the Ad Hoc Budget Advisory Task Force. This proposal was approved by the Senate and forwarded to the President. The proposed changes have not yet been implemented.

Academic Re-organization

Two different proposals pertaining to this matter came to the Senate (from the Chairman of the Faculty J. D. Garcia and from the Dean's Council). The Committee was asked to review these and produce a proposal which incorporated features of both. This was done and the proposal was subsequently approved by the Senate. The Committee is not aware of any instances in which the new procedures have been followed.

Request from President Pacheco concerning the ASU Senate Resolution on Travel Costs

In March President Pacheco brought to the attention of the Senate Executive Committee a resolution that had been passed by the ASU Faculty Senate. This resolution asked that the ASU administration negotiate contracts with one or more airlines to obtain reduced airfares. This issue had also received attention at the Board of Regents level and there has been continuing interest in the public press. Vice-President Valdez had been

asked by the Regents to produce a study of the matter. Most news reports have failed to recognize that most travel expenditures at the University of Arizona (in contrast to the situation at ASU and NAU which have relatively smaller amounts of external funding). The impetus for contracted travel arrangements have been predicated on the assumption that the University would be able to save money and to use the savings for other expenses. This is clearly not the case when travel funds come from research grants.

The Senate Budget Committee was also asked to provide a recommendation concerning Senate action concurring with the ASU resolution. The Committee met with Vice-President Valdez and obtained some information but has not received any further reports on the study that was to be conducted. The Committee also obtained information concerning the contracts between the State of Washington and various airlines. The Committee has not yet finished its work on the recommendation because of a lack of information from the study in Vice-President Valdez's office.

Financial Planning

In mid-December the Committee received a draft of a proposal for organizing financial planning. This document came from the office of the Vice-Provost. The Committee made various recommendations for changes and again in February. This document is essentially the same as that released by the President's office in March. As was noted by the Committee previously the proposal did not provide for the Committee to play any direct role in Financial Planning. Several members of the Committee served on the President's Ad Hoc Budget Advisory Task Force and several members served on one or the other of the two Ad-Hoc budget advisory committees but not as representatives of the Committee.

In January the Committee responded to a request from President Pacheco concerning proposed areas of budget reduction to meet the anticipated rescission in the 1991-92 budget.

During the late summer members of the Committee met with the Interim Provost to make recommendations concerning the Revised Regents Budget Request for FY 1994. Specifically the Committee reviewed proposals in the four areas of Annualization, Mandated Workload Increases, Demographic Workload and the Governor's 5% increase allowance.

Strategic Planning

At his request the Committee met with Vice-President Beigel in his new planning capacity. The Committee anticipates another meeting early in the fall. The Committee was not involved in the formation of the recently announced ad-hoc task forces and committees. Several members of the Committee are serving on one or more of these but as yet the Committee is not directly involved.

Committee Members

Carrie Jo Braden, Nursing
Robert Dvorak, Architecture
Carol Elliott, Law
Lyn Nadel, Psychology
Terrence Valenzuela, Surgery
Dennis Ray, Plant Sciences
Lee Knight/Danny Siciliano, ASUA President
Donald E. Myers, Mathematics (Chair)



CURRICULUM

Vol. 14 No. 9 The University of Arizona August 31, 1992

USE OF THIS BULLETIN: This material is presented to the Faculty Senate for information or approval as designated. Prior to approval, the material is subject to university-wide review. Questions or objections may be referred to the Curriculum Office, ext. 1-3913, prior to the date below. Items for which objections are raised and which are not resolved will be withdrawn from consideration prior to faculty senate approval. Questions or objections raised after the deadline will be referred to the Faculty Senate or appropriate Council. Deadline for objections on material in this bulletin is September 14, 1992.

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- I. NOTICES (for approval)
- II. NOTICES (for information)
- III. NEW COURSES & COURSE DELETIONS
(for approval)
- IV. COURSE & CATALOG CHANGES
(for information)

I. NOTICES (for approval)

- A. Name change for the major in Personnel Management: The Department of Management and Policy, with the approval of the College of Business and Public Administration, requests approval to change the name of the undergraduate major from Personnel Management to Human Resources Management. The proposed name change would reflect the terminology now used in leading texts, by professional associations, by recruiters coming to campus to interview students, and by those contemplating a career in this field. Most peer schools, as well as most corporations, have moved away from the term "personnel management" to use the term "human resource management." The proposal was approved by the Undergraduate Council on April 7, 1992.
- B. Name change of the Graduate Library School: The Graduate Library School, with the approval of the Faculty of Social and Behavioral Sciences, requests approval for a name change from Graduate Library School to School of Library Science. The Graduate Library School now offers undergraduate courses and anticipates developing an undergraduate minor. The proposed name would reflect these changes. The proposal was approved by the Graduate Council on April 24 and by the Undergraduate Council on May 12, 1992.
- C. Deletion of Nursing Specialist degree: The College of Nursing requests approval to delete the Nursing Specialist degree. No courses have been offered in the Nursing Specialist degree since 1989 and no students have been enrolled in the Nursing Specialist option. The proposal was approved by the Graduate Council on April 24, 1992.
- D. Revision in Composition of Arts & Sciences Grade Appeal Committees: The College of Arts and Sciences requests approval of a proposal to change the composition of their grade appeal committee to include only one faculty member from the department in which the appeal was made. The appeals committees would then consist of two students, one faculty from the department where the appeal was filed, and two faculty members from outside the department of appeal, one of whom would be designated as chair. The proposal was approved by the Undergraduate Council on April 16, 1991.

- E. Master of Public Health degree: The College of Medicine requests approval for a Master of Public Health Degree. The Graduate Program in Public Health would be an interdisciplinary and intercollegiate professional graduate program, designed to educate professionals in prevention of disease, disability and premature death, and promotion of health by means of organized and regulated community efforts. The program is designed to provide graduate education to prepare students to work with communities to identify public health problems, formulate and implement solutions, monitor progress, and evaluate outcomes. The proposal was approved by the Graduate Council on April 24, 1991.

II. NOTICES (for information)

Final action of the Board of Regents, May 1, 1992

- A. Approved the proposal to merge the majors in horticulture and in agronomy and plant genetics into a single major titled plant science.
- B. Approved the proposal to rename the major in reliability engineering for the M.S. degree to reliability and quality engineering

Final action of the Board of Regents, June 12, 1992

- A. Approved the proposal to change the name of the major and the name of the committee from comparative literature and literary theory to comparative culture and literary studies.

Final action of the Board of Regents, July 17, 1992

- A. Approved the proposal to change the name of the Department of Agricultural Economics to the Department of Agricultural and Resource Economics.

III. NEW COURSES & COURSE DELETIONS (for approval)

Aerospace and Mechanical Engineering (A ME)

413. COURSE DELETION: "Product Engineering Design (3)." Eff. II 92-93.
456. NEW COURSE: "Control of Manufacturing Processes (3) I Modeling and control of manufacturing processes. Mathematical modeling of processes, actuators, transducers and sensors; classical control methods including transient response steady-state errors, bode diagrams; root locus and design of closed loop control systems; introduction to digital control systems and robotics; hardware and software issues; computer simulations. 1R, 2L. P, 250, 300, 411. May be convened with 556." Eff. I 92-93.
556. Add: "Control of Manufacturing Processes (3) I For description of course topics, see 456. Graduate-level requirements include more in-depth homework with focus on theoretical considerations, and design project requiring implementation of a five degree of freedom robot. 1R, 2L. May be convened with 456." Eff. I 92-93.

Anatomy (ANAT)

- 595a. NEW COURSE: Colloquium: "Journal Club (1) I II [Rpt./14]. Consult instructor before registering." Eff. I 92-93.
- 696a. NEW COURSE: Seminar: "Departmental Seminar (1) I II [Rpt./14]. Consult instructor before registering." Eff. I 92-93.
- 697a. NEW COURSE: Workshop: "Research Group Discussion (1) I II [Rpt./14]. Consult instructor before registering." Eff. I 92-93.
700. NEW COURSE: "Laboratory Rotation (3) I II Rotations in the research laboratories of faculty in the Department of Anatomy. Consult instructor before enrolling. 10 L." Eff. I 92-93.

Animal Sciences (AN S)

- 520.- Add: "Pathways and Signals in Cells (3) II (Identical with BIOC 520)." Eff. II 92-93.

Anthropology (ANTH)

407. + NEW COURSE: "Bilingualism in the Southwest (3) I II Historical background and theoretical issues dealing with linguistic minority groups in the Southwest. Field trip. (Identical with MAS 407) May be convened with 507." Eff. II 92-93.
475. + NEW COURSE: "Ethnography of the Middle East (3) II Introduction to and critical examination of the ethnographic literature on the peoples/cultures of the Middle East. Foci on social organization, cultural meanings, and regional political economy. (Identical with NES 475) May be convened with 575." Eff. II 92-93.

507. + Add: "Bilingualism in the Southwest (3) I II For description of course topics, see 407. Graduate students are required to give an oral presentation of final paper. (Identical with MAS 507) May be convened with 407." Eff. II 92-93.
575. + Add: "Ethnography of the Middle East (3) II For description of course topics, see 475. Graduate-level requirements include additional paper or more substantial research paper. (Identical with NES 575) May be convened with 475." Eff. II 92-93.
606. + NEW COURSE: "Women's Health in the United States (3) II 1993-94 An examination of social, cultural and political-economic factors affecting women's health in historical and contemporary contexts in the U.S. Focus on anthropological and feminist perspectives. (Identical with WS 606)" Eff. II 93-94.
607. NEW COURSE: "Anthropological Research Methods and Design (3) I Survey of research designs, data collection methods, and data analysis used in ethnographic field research by sociocultural and medical anthropologists. Focus on practical skill acquisition." Eff. I 92-93.

Art (ART/AR E/AR H)

Art Education (ARE)

361. NEW COURSE: "Creative Art Methods (3) Prepares elementary education students to teach art in the self-contained classroom. Various art education methodologies through participating in classroom activities; planning art lessons; presenting art lesson to the class. Class is meant to build on the theoretical base each student has already acquired in previous art classes. P, ART 130." Eff. I 93-94.
- 362.- Delete listing. Eff. I 93-94.

Art History (ARH)

435. NEW COURSE: "History of Prints (3) The technique and functions of the printmaking media from their inception in the 15th century to the present. P, 117 or 118. May be convened with 535." Eff. I 93-94.
535. Add: "History of Prints (3) For description of course topics, see 435. Graduate students will have additional reading assignments and must submit a paper of at least 10 pages, the topic of which must first be cleared with the instructor. May be convened with 435." Eff. I 93-94.

Atmospheric Sciences (ATMO)

- 171L. + NEW COURSE: "Introduction to Meteorology and Climatology Laboratory (1) I II Quantitative exercises illustrating the physical and chemical behavior of the atmosphere and the fundamental concepts used in weather analysis and forecasting. P, 171 or CR. (Identical with GEOG 171L)." Eff. I 92-93
- 595b. + NEW COURSE: Colloquium: "Global Climate Change (2) I P, strong quantitative background in HWR, ATMO, GEOS or RNR. (Identical with GEOS 595b and HWR 595b)." Eff. I 93-94
- 595c. + NEW COURSE: Colloquium: "General Circulation Observations and Modeling (3) II P, 441a, 451a, ENGR 101 (FORTRAN). (Identical with GEOS 595c and HWR 595c)." Eff. II 92-93

Biochemistry (BIOC)

- 195b. + NEW COURSE: Colloquium: "Biotechnology (1) I II (Identical with MICR 195b and MCB 195b)." Eff. I 92-93.
- 195c. + NEW COURSE: Colloquium: "Society and Science (1) I II (Identical with ECOL 195c, MCB 195c, MICR 195c)" Eff. I 92-93.
520. + NEW COURSE: "Pathways and Signals in Cells (3) II Objectives are to outline various mechanisms of intracellular signaling. This includes the chemical and structural bases for the action of second messengers, e.g. calcium and cyclic nucleotides. P, BIOC 460, 462a or equivalent, open to undergraduates with permission. (Identical with MCB 520, AN S 520)." Eff. II 92-93.
577. NEW COURSE: "Biomolecular Structure II (3) II 1993-94 Advanced study of macromolecular structure; theory, methods, and results of x-ray crystallography and NMR. p, 585 or permission of instructor." Eff. II 93-94.
- 597a. + NEW COURSE: Workshop: "Recombinant DNA Techniques (2) S Open to high school biology teachers only. R/L. (Identical with MCB 597a)." Eff. Summer 1992.

Civil Engineering and Engineering Mechanics (CE/EM)

Civil Engineering (CE)

434. NEW COURSE: "Design of Wood and Masonry Structures (3) Determination of gravity and lateral loads on structures. Design of wood structures for axial load, bending and torsion; structural wood panels, diaphragms and shear walls. Types of masonry construction. Design of masonry structures for gravity and lateral loads. P, 331, CR 337. May be convened with 534." Eff. I 92-93.

534. Add: "Design of Wood and Masonry Structures (3) For description of course topics, see 434. Graduate-level requirements include a comprehensive design project. May be convened with 434." Eff. I 92-93.

Classics (CLAS)

- 587.- Add: "Testing and Evaluation in Foreign/Second Language Programs (3) (Identical with GER 587)." Eff. II 92-93.

Communication (COMM)

414. NEW COURSE: "Verbal Communication (3) I II Theory and research on verbal messages. Topics include patterns of conversational interaction, processes of message construction and interpretation, functions and contexts of messages. P, 300. May be convened with 514." Eff. I 92-93
424. NEW COURSE: "Media and Politics in America (3) I Survey of field; media in political campaigns; media coverage of leaders, issues, and institutions; leadership strategies to influence media. May be convened with 524." Eff. I 92-93.
425. NEW COURSE: "Scientific Argument in Public Discourse (3) I Advanced argumentation theory focused on examination of scientific argument in public decision-making. Topics include general theory of fallacies and special fallacies related to scientific reasoning. P, COMM 225." Eff. I 92-93.
514. Add: "Verbal Communication (3) I II For description of course topics, see 414. Graduate students will be required to write a final paper. May be convened with 414." Eff. I 92-93
524. Add: "Media and Politics in America (3) I For description of course topics, see 424. Graduate students are required to produce a 15-20 page research paper involving the application of two major, competing theories to a study of nightly network news. May be convened with 424." Eff. I 92-93.

Computer Science (C SC)

470. COURSE DELETION: "Artificial Intelligence (3)." Eff. II 92-93.
534. COURSE DELETION: "Advanced Computer Graphics and User Interface (3)." Eff. I 92-93.
546. COURSE DELETION: "Parallel Computing (3)." Eff. I 92-93.
570. Delete: "Artificial Intelligence (3)." Eff. II 92-93.

East Asian Studies (EAS/CHN/JPN)

East Asian Studies (EAS)

- 587.- Add: "Testing and Evaluation in Foreign/Second Language Programs (3) (Identical with GER 587)." Eff. II 92-93.

Japanese Studies (JPN)

421. NEW COURSE: "Advanced Readings in Japanese (3) I Reading and discussion in Japanese of a variety of advanced-level materials, including newspaper articles, short articles, and poetry. P, 416/516 or instructor's permission. May be convened with 521." Eff. I 93-94.
422. NEW COURSE: "Advanced Readings in Japanese (3) II Reading and discussion in Japanese of a variety of advanced-level materials, including newspaper articles, short articles, and poetry. P, 421/521. May be convened with 522." Eff. II 93-94.
521. Add: "Advanced Readings in Japanese (3) I For a description of course topics, see 421. Graduate requirements include extra readings and an extra translation project. P, 416/516 or instructor's permission. May be convened with 421." Eff. I 93-94.
522. Add: "Advanced Readings in Japanese (3) II For a description of course topics, see 422. Graduate requirements include extra readings and an extra translation project. P, 421/521. May be convened with 422." Eff. II 93-94.

Ecology and Evolutionary Biology (ECOL)

- 195c.- Add: Colloquium: "Society and Science (1) I II (Identical with BIOC 195c, which is home)." Eff. I 92-93.
- 528r.- Delete: "Advanced Microbial Genetics (3)." Eff. I 92-93.

Electrical and Computer Engineering (ECE)

523. COURSE DELETION: "Network Synthesis (3)." Eff. I 92-93

Engineering (ENGR)

101. NEW COURSE: "Problem Solving Using Computers (3) The design of problem-solving algorithms, their implementation in a structured programming language, and their application in engineering. CR, MATH 124 or 125." Eff. I 92-93.

English (ENGL)

- 587.- Add: "Testing and Evaluation in Foreign/Second Language Programs (3) (Identical with GER 587)." Eff. II 92-93.
- 591a. COURSE DELETION: Preceptorship: "Methodology of Essay Writing." Eff. II 92-93.

- 591b. COURSE DELETION: Preceptorship: "Methodology in Critical Reading and Writing." Eff. II 92-93.

- 596u. NEW COURSE: Seminar: "Contrastive Rhetoric (3) II P, graduate standing." Eff. II 92-93.

Entomology (ENTO)

- 195b.- Add: Colloquium: "Agriculture as a Science (1) II (Identical with PL S 195b, which is home)." Eff. II 92-93.

Epidemiology (EPI)

650. NEW COURSE: "Quantitative Epidemiology (3) I Study of computer intensive multivariate epidemiologic methods including evaluation of potential etiologic environmental exposures in human populations to the risk of disease. 2R, 1L. P, FCM 596r, 596b." Eff. I 92-93.
660. NEW COURSE: "Infectious Disease Epidemiology (3) I [Rpt.] Introduction to epidemiologic methods used in infectious disease investigations. An emphasis will be placed on understanding the relationships between the host, the parasite and the environment as they relate to disease causation. P, FCM 596r, 596b." Eff. I 92-93.
670. NEW COURSE: "Chronic Disease Epidemiology (4) II Nutritional epidemiology, pharmacoepidemiology, occupational epidemiology, and environmental epidemiology. P, FCM 596r and FCM 596b." Eff. II 92-93.
- 696l. NEW COURSE: Seminar: "Epidemiology (3) I II [Rpt./8 units]." Eff. I 92-93.

Family and Consumer Resources (FCR/M CS/I D/HE E/FS)

Family and Consumer Resources (FCR)

129. COURSE DELETION: "Professional Development (2)." Eff. I 92-93.

Merchandising and Consumer Studies (MCS)

436. NEW COURSE: "Textiles and Apparel in the International Economy (3) II Domestic and international economics of the textile and apparel industries with emphasis on production, distribution, and global setting. Current and future international and domestic issues and problems are included. P, ECON 201a or 201b." Eff. II 92-93.

Interior Design (I D)

435. NEW COURSE: "Advanced Computer Aided Design (3) I Advanced course using the computer to create sophisticated presentation drawings. Projects exploring potential applications in computer aided design/drafting with emphasis on 3D modeling and isometric drawing. 1R, 2S. P, 385. Open to majors only." Eff. I 93-94.

Family Studies (FS)

116. COURSE DELETION: "Family Resource Management (3)." Eff. I 93-94.
316. NEW COURSE: "Social and Financial Stressors in Families (3) I 1992-93 Study of the impact of normative and non-normative family life transitions on individuals and families, with emphasis on related social and financial stressors. Course content will include theoretical perspectives on current literature relevant to the study of family life stressors. P, 137." Eff. I 92-93.
356. COURSE DELETION: "Social and Economic Aspects of Housing (3)." Eff. I 92-93.
- 416a-416b. COURSE DELETION: "Management of Family Finances (3-3)." Eff. II 92-93.
436. + COURSE DELETION: "Economics of Aging (3)." Eff. I 92-93.
476. COURSE DELETION: "Family Financial Counseling (3)." Eff. I 92-93.
- 495a. COURSE DELETION: "Senior Report (1)." Eff. I 92-93.
536. + Delete: "Economics of Aging (3)." Eff. I 92-93.

Finance and Real Estate (FIN)

- 697a. NEW COURSE: Workshop: "Research Issues (1-3) [Rpt./5] I II P, Admission to a graduate program in BPA." Eff. I 92-93.

French (FREN)

- 587.- Add: "Testing and Evaluation in Foreign/Second Language Programs (3) (Identical with GER 587)." Eff. II 92-93.

Genetics (GENE)

- 528r.- Delete: "Advanced Microbial Genetics (3)." Eff. I 92-93.

Geography and Regional Development (GEOG)

- 171L.- Add: "Introduction to Meteorology and Climatology Laboratory (1) I II (Identical with ATMO 171L)." Eff. I 92-93.

Geosciences (GEOS)

459. NEW COURSE: "Thermochronology (3) II Closure temperature theory and methods used to determine temperature - time histories of igneous and metamorphic rocks. Applications of thermochronology and P-T-t paths of crustal terranes. G, 458/558, MATH 254 or permission of instructor. May be convened with 559." Eff. II 92-93.
- 487.- COURSE DELETION: "Design of Exploration Programs (3)." Eff. I 92-93.

515. COURSE DELETION: "Advanced Sedimentary Petrology (3)." Eff. I 92-93.
559. Add: "Thermochronology (3) II For description of course topics, see 459. Graduate students will be required to present projects at the end of semester. May be convened with 459." Eff. II 92-93.
- 587.- Delete listing: "Design of Exploration Programs (3)." Eff. I 92-93.
- 595b.- Add: Colloquium: "Global Climate Change (2) I (Identical with ATMO 595b, which is home)." Eff. I 93-94.
- 595c.- Add: Colloquium: "General Circulation Observations and Modeling (3) II (Identical with ATMO 595c, which is home)." Eff. I 92-93.

German (GER)

587. + NEW COURSE: "Testing and Evaluation in Foreign/Second Language Programs (3) Introduction to fundamental concepts, principles, and problems of psychometric measurement relevant to FL/L2 learning. Types of tests and their uses, test construction, analysis and interpretation of results. (Identical with CLAS 587, EAS 587, ENGL 587, FRENCH 587, RUSS 587, SPAN 587)." Eff. II 92-93.

Gerontology (GERO)

- 436.- Delete: "Economics of Aging (3)." Eff. I 92-93.
- 536.- Delete: "Economics of Aging (3)." Eff. I 92-93.

Health Related Professions (HLTH/OSH/EXSS/MEDT)

Health Education (HLTH)

200. NEW COURSE: "Introduction to Health Education (3) I II Determinants of health behavior, the process of health education, and the practice of health education. Open to majors/minors only. P, HLTH 178 or CR." Eff. I 92-93.

Medical Technology (MEDT)

- 471R. Change units from "(3)" to "(5)." Eff. II 92-93
- 472R. Change units from "(3)" to "(4)." Eff. II 92-93
- 472L. Change units from "(1)" to "(2)." Eff. II 92-93
- 473L. Change units from "(1)" to "(2)." Eff. II 92-93
- 474R. Change units from "(4)" to "(5)." Eff. II 92-93
- 474L. Change units from "(1)" to "(2)." Eff. II 92-93
483. Change units from "(4)" to "(5)." Eff. II 92-93
- 571R. Change units from "(3)" to "(5)." Eff. II 92-93
- 572R. Change units from "(3)" to "(4)." Eff. II 92-93
- 572L. Change units from "(1)" to "(2)." Eff. II 92-93
- 573L. Change units from "(1)" to "(2)." Eff. II 92-93
- 574R. Change units from "(4)" to "(5)." Eff. II 92-93

- 574L. Change units from "(1)" to "(2)." Eff. II 92-93
 583. Change units from "(4)" to "(5)." Eff. II 92-93

History (HIST)

461. NEW COURSE: "The Ethnohistory of Mesoamerica and the Andes (3) II 1992-93 The impact of conquest and Spanish rule on the native peoples of Mexico, Central America, Peru, Bolivia and Ecuador. Topics include: conquest and ecology; land and labor; religion and culture; adaptation and resistance. P, 160 or 351 or 368. 2R, 1D. May be convened with 561." Eff. II 92-93.
 561. Add: "The Ethnohistory of Mesoamerica and the Andes (3) II 1992-93 For a description of course topics, see 461. Graduate-level requirements include an additional essay. May be convened with 461." Eff. II 92-93.
 596o. NEW COURSE: Seminar: "Comparative History (3) [Rpt./6 units] II." Eff. II 92-93.

Hydrology and Water Resources (HWR)

- 595b.- Add: Colloquium: "Global Climate Change (2) I (Identical with ATMO 595b, which is home)." Eff. I 93-94.
 595c.- Add: Colloquium: "General Circulation Observations and Modeling (3) II (Identical with ATMO 595c, which is home)." Eff. I 92-93.

Law (LAW)

659. NEW COURSE: "International Humanitarian Law (3) I Modern law of international humanitarian law. The law governing the rights of civilians in war; the rights of prisoners of war; and the protection of the wounded, sick and shipwrecked in war. The major treaties and conventions governing the conduct of nations during armed conflict." Eff. I 92-93.
 673. NEW COURSE: "Law of Mass Media (2) I Issues raised by government intrusion or limitations on news gathering in the courtroom, public meetings, and access to government documents. Government limitations on the content of news including defamation law and prior restraint. Open to majors only. P, first year law classes." Eff. I 92-93.
 675. NEW COURSE: "State and Local Government (3) I General introduction to the non-federal levels of U.S. government. Cases, statutes, constitutional provisions from the perspective of various economic, philosophical and political theories." Eff. I 92-93.
 696i. NEW COURSE: Seminar: "International Environmental Law (3) I Open to majors only. P, first year law courses." Eff. I 92-93.
 696k. NEW COURSE: Seminar: "United States Supreme Court and the Problem of Constitutional Interpretation (2) I." Eff. I 92-93

Library Science (LI S)

401. NEW COURSE: "Introduction to the Organization of Information (3) Introduction to the theories and practices used in the organization of information. Overview of national and international standards and practices for access to information in collections. May be convened with 501." Eff. I 92-93.
 501. Add: "Introduction to the Organization of Information (3) For description of course topics, see 401. Graduate-level requirements include additional assignments and higher expectations. May be convened with 401." Eff. I 92-93.
 576. COURSE DELETION: "Administration of Reference (2)." Eff. I 92-93.

Management and Policy (MAP)

505. NEW COURSE: "Organizational Power (3) II Development of organizational power and influence techniques for individuals and groups. Uses cases and practical experience to build on motivation, negotiation, and group dynamic skills. P, 502." Eff. II 93-94.

Media Arts (M AR)

309. NEW COURSE: "History of the Documentary (3) II Major traditions, movements and film makers. Social, aesthetic, and technical aspects of documentary films and videos. P, M AR advanced standing." Eff. II 93-94.
 462. NEW COURSE: "Advanced Writing for Media (3) I Advanced dramatic/narrative screenplay writing. Practice experience in the creative process leading to a complete screen play. P, M AR 362." Eff. I 93-94.

Mexican American Studies (MAS)

- 407.- Add: "Bilingualism in the Southwest (3) I II (Identical with ANTH 407) May be convened with 507." Eff. II 92-93.
 507.- Add: "Bilingualism in the Southwest (3) I II (Identical with ANTH 507) May be convened with 407." Eff. II 92-93.

Microbiology (MICR)

- 195b.- Add: Colloquium: "Biotechnology (1) I II (Identical with BIOC 195b)." Eff. I 92-93.
 195c.- Add: Colloquium: "Society and Science (1) I II (Identical with BIOC 195c, which is home)." Eff. I 92-93.
 317L. COURSE DELETION: "Laboratory Techniques in General Microbiology and Microbial Physiology (2)." Eff. I 93-94.
 357. COURSE DELETION: "Communicable Diseases (3)." Eff. I 93-94.

- 420L. + COURSE DELETION: "Pathogenic Bacteriology Laboratory (2)." Eff. I 93-94.
- 520L. + COURSE DELETION: "Pathogenic Bacteriology Laboratory (2)." Eff. I 93-94.
- 528r.- Delete: "Advanced Microbial Genetics (3)." Eff. I 92-93.

Mining and Geological Engineering (G EN/MN E/MNEC)

Geological Engineering (G EN)

487. + COURSE DELETION: "Design of Exploration Programs (3)." Eff. I 92-93.
587. + Delete listing: "Design of Exploration Programs (3)." Eff. I 92-93.
587. NEW COURSE: "Applied Neural Network Computing (3) II Theory and applications of artificial neural networks for classification, parameter estimation, prediction, filtering, and association. Emphasis is placed on applications in science and engineering. P, knowledge of a programming language." Eff. II 92-93.

Molecular and Cellular Biology (MCB)

- 195b.- Add: Colloquium: "Biotechnology (1) I II (Identical with BIOC 195b)." Eff. I 92-93.
- 195c.- Add: Colloquium: "Society and Science (1) I II (Identical with BIOC 195c, which is home)." Eff. I 92-93.
- 520.- Add: "Pathways and Signals in Cells (3) II (Identical with BIOC 520)." Eff. II 92-93.
- 528r. + COURSE DELETION: "Advanced Microbial Genetics (3)." Eff. I 92-93.
- 597a.- Add: Workshop: "Recombinant DNA Techniques (2) S (Identical with BIOC 597a, which is home)." Eff. Summer 1992.

Music (MUS)

- 202j. NEW COURSE: "Trombone Choir (1)." Eff. I 92-93.
362. + Delete crosslisting with ARE. Eff. I 93-94.
- 402j. Add: "Trombone Choir (1)." Eff. I 92-93.
- 502j. Add: "Trombone Choir (1)." Eff. I 92-93.

Near Eastern Studies (NES/ARB/PRS)

Near Eastern Studies (NES)

- 475.- Add: "Ethnography of the Middle East (3) II (Identical with ANTH 475)." Eff. II 92-93.
- 575.- Add: "Ethnography of the Middle East (3) II (Identical with ANTH 575)." Eff. II 92-93.

Nursing (NURS)

548. + NEW COURSE: "Statistical Packages in Research (3) I Analysis of data for research projects, theses and dissertations using SPSS and SAS. Organization of data for statistical analysis, entering data and creating command files using the editor, writing and debugging programs. Techniques for producing graphical output using SAS/GRAPH. P, one introductory graduate-level course in statistics. (Identical with STAT 548)." Eff. I 92-93.

Optical Sciences (OPTI)

- 501L. NEW COURSE: "Fundamentals of Applied Optics Laboratory (1) I First-order design; assembly and alignment; camera lens layout and construction; lens properties; aberrations; CCD-TV camera; radiometry; illumination; distortion; MTF. P, 510 or 506." Eff. I 92-93.
- 511L. NEW COURSE: "Lasers and Solid State Devices Laboratory (1) I Gas and semiconductor lasers; modes and beats; modelocking; spectrum analysis; excitons and quantum wells; noise; modulators and detectors; second-harmonic generation; coherent optical transients. P, 511 or 503, 507." Eff. I 92-93.

Pharmacy Practice (PHPR)

440. COURSE DELETION: "Perspectives in Health Care Services (3)." Eff. I 92-93.

Plant Pathology (PL P)

- 195b.- Add: Colloquium: "Agriculture as a Science (1) II (Identical with PL S 195b, which is home)." Eff. II 92-93.

Plant Sciences (PL S)

- 195b.- NEW COURSE: Colloquium: "Agriculture as a Science (1) II (Identical with ENTO 195b and PL P 195b)." Eff. II 92-93.

Political Science (POL)

405. NEW COURSE: "Government and Economic Well-Being (3) I II The impact of government and governmental intervention on the economic livelihoods and quality of life of Americans. P, 102. May be convened with 505." Eff. II 92-93.
461. + NEW COURSE: "Feminist and IR Theories (3) Issues in epistemology; survey and integration of feminist and IR theories; application of feminist theories to IR. P, WS 100 and POL 120 or 250. (Identical with WS 461) May be convened with 561." Eff. II 92-93.

505. Add: "Government and Economic Well-Being (3) I II For description of course topics, see 405. Graduate-level requirements include additional reading assignments and a more detailed paper. P, 102. May be convened with 405." Eff. II 92-93.
- 561.+ Add: "Feminist and IR Theories (3) For description of course topics, see 461. Graduate students will do a classroom presentation, an additional paper, or more extensive writing on papers. P, WS 100 and POL 120 or 250. (Identical with WS 561) May be convened with 461." Eff. II 92-93.

Psychology (PSYC)

- 196a. NEW COURSE: Seminar: "When Bad Things Happen to Healthy People (1) I II." Eff. I 92-93

Public Administration and Policy (PA)

503. NEW COURSE: "Politics and the Policy Process (3) I Various theories of how public policy is formulated." Eff. I 93-94.
- 593b. Delete listing. [Title: "Criminal Justice"] Eff. I 92-93.
- 593c. Delete listing. [Title: "Public Management"] Eff. I 92-93.
- 593d. Delete listing. [Title: "Health Services Administration"] Eff. I 92-93.
- 593f. Delete listing. [Title: "Long Term Care Administration"] Eff. I 92-93.
- 593g. Delete listing. [Title: "Policy and Planning"] Eff. I 92-93.

Religious Studies (RELI)

- 225.- Add: "Introduction to Women and Religion (3) I (Identical with WS 225)." Eff. I 92-93.
- 425.- Add: "Theoretical Issues in the Study of Women and Religion (3) II (Identical with WS 425) May be convened with 525." Eff. II 92-93. [Abbrev.: Theo Isus/Study Wmn & Reli]
- 525.- Add: "Theoretical Issues in the Study of Women and Religion (3) II (Identical with WS 525) May be convened with 425." Eff. II 92-93.

Renewable Natural Resources (RNR/L AR/RA M/WS M/WFSC)

Range Management (RA M)

582. NEW COURSE: "Revegetation Ecology (2) II 1993-94 Overview of traditional and current approaches, principles, ecology, and objectives of revegetation, reclamation, and restoration of semiarid and arid wildlands. P, ECOL 182 or RNR 316, S W 200. Field trip." Eff. II 93-94.
- 595d. COURSE DELETION: "Rangeland Plant Ecology (2)." Eff. I 92-93

Watershed Management (WS M)

505. COURSE DELETION: "Watershed Process Modeling (3)." Eff. II 92-93.
545. COURSE DELETION: "Decision Support Systems in Watershed Management (3)." Eff. I 92-93.
- 595d. COURSE DELETION: "Fire Ecology (2)." Eff. II 92-93.
602. NEW COURSE: "Snow Hydrology (2) II 1993-94 The significance of snow in hydrologic budgets of watersheds and river basins, and potentials for snowpack management. P, 560, 562." Eff. II 1993-94.
605. NEW COURSE: "Watershed Modeling (3) I 1993-94 Application of hydrologic models in evaluating the impacts of climate change and human activities on watersheds. P, 460, 462." Eff. I 93-94.
606. NEW COURSE: "Transport Processes in Watersheds (3) I 1994-95 Derivation and application of equations describing water movement and the generation and transport of sediment and other pollutants in watersheds. P, 460, 462." Eff. I 94-95.

Russian (RUSS)

- 587.- Add: "Testing and Evaluation in Foreign/Second Language Programs (3) (Identical with GER 587)." Eff. II 92-93.

Sociology (SOC)

403. COURSE DELETION: "Sociosomatics (3)." Eff. I 92-93.
503. Delete: "Sociosomatics (3)." Eff. I 92-93.
509. NEW COURSE: "Objects and Methods of Cultural Analysis (3) From content analysis to statistical analysis, means of gathering and analyzing data on cultural objects." Eff. I 92-93.
537. NEW COURSE: "Social Cognition, Affect and Emotion (3) Theories and research that describe how we perceive and react emotionally to the social world. Topics include social attribution, stereotyping, attitude-behavior relations, social accounts, emotion culture and emotion management." Eff. I 92-93.
552. NEW COURSE: "Advanced Topics in Stratification (3) [Rpt./1] 1992-93 An in-depth study of one contemporary area of research in stratification. Topics will vary." Eff. I 92-93.

Spanish and Portuguese (SPAN/PORT)

Spanish (SPAN)

- 587.- Add: "Testing and Evaluation in Foreign/Second Language Programs (3) (Identical with GER 587)." Eff. II 92-93.

Statistics (STAT)

- 548.- Add: "Statistical Packages in Research (3) (Identical with NURS 548)." Eff. I 92-93.
- 560a. NEW COURSE: "Probability (3) I Sample space, basic axioms of probability, combinatorial probability, conditional probability and independence. Binomial, Poisson and normal distributions. Random variables, expectations and variance, law of large numbers, limit theorems on normal distribution, common continuous distributions, transformations of random variables and Jacobians. Characteristic functions and generating functions. Rigorous theoretical foundation course without measure theory. P, two years of calculus, e.g. MATH 125a-125b, MATH 223." Eff. I 93-94.
- 560b. NEW COURSE: "Stochastic Processes (3) II Random walk Brownian motion. Stationary process. Gaussian and Markov process. Renewal theory, queuing, networks, branching process. Weiner and Poisson process. Martingales. Theory and application combined course without measure theory framework. P, 560a." Eff. II 93-94.
572. NEW COURSE: "Categorical Data Analysis (3) II 1993-94 Two-way contingency tables, logistic, probit, long-long regression, loglinear models. Model selection techniques. Testing goodness of fit models. Numerical methods for finding MLE. Treatment of ordinal and nominal variables. Poisson and multinomial samplings. P, 451 and 509." Eff. II 93-94.
641. NEW COURSE: "Statistical Consulting (3) I II Issues in statistical consulting; approaches to clients' problems, missing data. Students gain experience consulting on problems arising from current research on campus. Open to majors only. P, completion of one year of graduate statistics program." Eff. I 92-93

Theatre Arts (T AR)

651. COURSE DELETION: "Experimental Theatre II (3)." Eff. I 92-93.

Veterinary Science (V SC)

- 420L.- Delete: "Pathogenic Bacteriology Laboratory (2)." Eff. I 93-94.
- 520L.- Delete: "Pathogenic Bacteriology Laboratory (2)." Eff. I 93-94.

Women's Studies (WS)

225. + NEW COURSE: "Introduction to Women and Religion (3) I Ways in which women's religious practices have interacted with religious traditions' constructions of gender. The course asks students to consider how the study of religion can illuminate their own self-understandings and cultural locations (Identical with RELI 225)." Eff. I 92-93.

425. + NEW COURSE: "Theoretical Issues in the Study of Women and Religion (3) II The study of women and religion, including religious symbols and rituals; women's constraint and empowerment through religion; reading and writing cultures; women, religion and cross-cultural contact; women, religion and social change. P, WS 225, RELI 225, or permission of instructor. (Identical with RELI 425). May be convened with 525." Eff. II 92-93. [Abbrev: Theo Isus/Stdy Wmn & Rel]
- 461.- Add: "Feminist and IR Theories (3) (Identical with POL 461) May be convened with 561." Eff. II 92-93.
525. + NEW COURSE: "Theoretical Issues in the Study of Women and Religion (3) II For description of course topics, see 425. Graduate-level requirements include a longer writing project, and an additional class presentation. (Identical with RELI 525). May be convened with 425." Eff. II 92-93.
- 561.- Add: "Feminist and IR Theories (3) (Identical with POL 561) May be convened with 461." Eff. II 92-93.
- 606.- Add: "Women's Health in the United States (3) II (Identical with ANTH 660)." Eff. II 93-94.

IV. COURSE & CATALOG CHANGES (for information)

Accounting (ACCT)

Revision to 1991-93 General Catalog, headnotes section, page 92, add the following sentence: "Accounting courses are not offered on a pass-fail basis." Eff. I 92-93.

425. Add "Credit allowed for this course or 525 but not both." Eff. I 92-93.
525. Add "Credit allowed for this course or 425 but not both." Eff. I 92-93.

Agricultural and Resource Economics (A EC)

500. Add repeatability: "[Rpt./1]." Eff. I 92-93.
504. Add repeatability: "[Rpt./1]." Eff. I 92-93.
513. Add repeatability: "[Rpt./1]." Eff. I 92-93.
540. Change prerequisite to "P, STAT 509." Eff. I 92-93.

Anatomy (ANAT)

- 696b. Change semester offering to "II." Delete prerequisites. Add "consult instructor before registering." Eff. I 92-93.

Animal Sciences (AN S)

340. Change title to "Race Track Marketing and Media Relations."
Change units from "(2)" to "(3)." Eff. II 92-93.
413.+ Delete crosslisting "(Identical with GENE 413)." Eff. I 93-94.
414.+ Delete crosslisting "(Identical with GENE 414)." Eff. I 93-94.
477. Change semester offering from "I" to "II." Eff. I 92-93.

Anthropology (ANTH)

507. Change course number from "507" to "608." Title: "History of Anthropological Theory." Eff. I 92-93.
608. Course number changed from "507" to "608." Title: "History of Anthropological Theory." Eff. I 92-93.

Art (ART/ARE/ARH)

Art (ART)

345. Course number changed from "445" to "345." Delete "May be convened with 545." [Title: "Photographic Processes] Eff. II 92-93.
445. Change course number from "445" to "345." Eff. II 92-93.

Art History (ARH)

- 596a. Change course number from "596a" to "596n." Title: "American Art." Eff. I 92-93.

- 596a.- Add Seminar: "Aegean, Roman and Mediterranean Provincial Archaeology (3) [Rpt./30 units] (Identical with CLAS 596a)." Eff. I 92-93.

- 596n. Course number changed from "596a" to "596n." Title: "American Art." Eff. I 92-93.

Astronomy (ASTR)

120. Change course number from "120" to "320." Title: "Philosophical and Historical Aspects of Astronomical Thought." Eff. II 92-93.
320. Course number changed from "120" to "320." Title: "Philosophical and Historical Aspects of Astronomical Thought." Eff. II 92-93.

Atmospheric Sciences (ATMO)

462. Course expansion from "462" to "462/562." Add "May be convened with 562." Eff. II 92-93.
562. Add: "Computer Methods in the Atmospheric Sciences (3) II For description of course topics, see 462. Graduate students will be required to complete an independent project. May be convened with 462." Eff. II 92-93.

Biochemistry (BIOC)

- 410.- Add: "Cell Biology (3) II (Identical with MCB 410.)" Eff. II 92-93.
460.+ Change semester offering from "I" to "II." Eff. II 92-93.
462a-462b.+ Add: "Honors section available for (4) honors credits." Eff. I 92-93.
462b.+ Delete crosslisting with MICR. Eff. II 92-93.
510.- Transfer course from BIOC to PL S as home department. Retain BIOC as a cross-listed department. The revised listing under BIOC should read "Plant Molecular Biology (3) II 1992-93 (Identical with PL S 510)" Eff. II 92-93.
560.+ Change semester offering from "I" to "II." Eff. II 92-93.
565. Change semester offering from "II" to "I." Delete alternate year. Eff. I 92-93.
568. Add prerequisites "P, BIOC 411/511, MCB 411/511, or an equivalent introductory molecular biology course, or permission of the instructor." Eff. I 92-93.
571. Change course number from "571" to "572."
572.+ Course number changed from "571" to "572." Add crosslisting "Identical with MCB 572." Eff. I 92-93.

Business Administration

Revision to 1991-93 General Catalog, college section, page 57, column 1, under "General Business Administration."

Revise final paragraph as follows: "The major consists of 15 units. Students will select one 3-unit 300- or 400-level course from each of five of the following seven areas: (1) accounting; (2) economics; (3) finance and real estate; (4) management and policy; (5) management information systems; (6) marketing (400-level courses only); and (7) public administration and policy." Eff. 1 92-93.

Chemistry (CHEM)

- 460.- Change semester offering from "I" to "II." Eff. II 92-93.
- 462a-462b.- Add: "Honors section available for (4) honors credits." Eff. I 92-93.
- 560.- Change semester offering from "I" to "II." Eff. II 92-93.
565. Change semester offering from "II" to "I." Delete alternate year. Eff. I 92-93.

Classics (CLAS)

- 250a-250b. Change course number from "250a-250b" to "350a-350b." Eff. I 93-94.
- 350a-350b. Course number changed from "250a-250b" to "350a-350b." Add: "Writing Emphasis Course." [Title: "Classical Literature in Translation"] Eff. I 93-94.
- 595f.- Change course number from "595f" to "695f." Eff. I 93-94.
- 596a. + Add crosslisting "(Identical with ARH 596A)." Eff. I 92-93.
- 695f.- Change course number from "595f" to "695f." Eff. I 93-94.

Communication (COMM)

- 696f.- Transfer course from COMM to LING (as home department). Retain COMM as cross-listed department. Eff. I 92-93.

Computer Science (C SC)

237. Change semester offering from "I II" to "I." Eff. II 92-93.
344. + Change semester offering from "I II" to "II." Eff. II 92-93.
373. + Change course number from "373" to "473." For additional changes, see 473." Eff. I 93-94.
445. Change semester offering from "I" to "II." Add: "Writing-Emphasis Course. P, satisfaction of the upper-division writing-proficiency requirements." Eff. II 93-94.
473. + Course number changed from "373" to "473." Change semester offering from "II" to "I." Eff. I 93-94.

East Asian Studies (CHN/JPN/EAS)

Japanese Studies (JPN)

336. Add: History of Japanese Film (3) (Identical with M AR 336)." Eff. II 92-93.

Ecology and Evolutionary Biology (ECOL)

- 159a-159b. Change course prefix from ECOL to EXSS. Change course numbers from 159a-159b to 250a-250b. See EXSS 250a-250b for new course listing. Eff. I 92-93
- 160a-160b. Change course prefix from ECOL to EXSS. Change course numbers from 160a-160b to 251a-251b. See EXSS 251a-251b for new course listing. Eff. I 92-93
420. Change units from "(3)" to "(4)." Eff. II 92-93.
- 428.- Course number changed from "428R" to "428." Home department changed from MCB to PL P. Course title changed. Semester offering changed from "II" to "I." New listing under ECOL reads: "Microbial Genetics (3) I (Identical with PL P 428)." Eff. II 92-93.
- 428R.- Change course number from "428R" to "428." See "428" for additional changes.
475. + Add crosslisting "(Identical with SW 475)." Eff. I 92-93. [RIMC: Crosslist at 400-level only]
- 500a-500b. Change course title and course description as follows: "Topics in Ecology and Evolutionary Biology (4-4) 500a: Introduction to graduate study in ecology and evolutionary biology, via discussion of ongoing faculty research interests. 500b: Introduction to field research methods in ecology. Field trips." Eff. I 92-93.
520. Change units from "(3)" to "(4)." Eff. II 92-93.

Economics (ECON)

549. Change prerequisite to "P, 518." Eff. II 92-93.

Education (EDUC/ED A/ED P/H ED/LRC/SER/TTE)

Language, Reading and Culture (LRC)

427. Change course number from "427" to "428." Eff. II 92-93
428. Course number changed from "427" to "428" and expansion to "428/528." Add: "May be convened with 528." Eff. II 92-93
528. Add: "Bilingual Curriculum Development (3) I II For description of course topics, see 428. Graduate-level requirements may include an in-depth research paper or other project on an aspect related to this course. May be convened with 428." Eff. II 92-93
- 597o.- Add repeatability "[Rpt./3]." Eff. I 92-93.

Special Education and Rehabilitation (SER)

522. Change course number from "522" to "522a." Eff. II 92-93.
- 522a. Course number changed from "522" to "522a." Change course title to "Orientation and Mobility for Teachers of Individuals with Visual Impairment I." Eff. II 92-93.

Electrical and Computer Engineering (ECE)

429. Change semester offering to "I II." Eff. I 92-93.
479. Add "May be convened with 579." Eff. I 92-93.
529. Change semester offering to "I II." Eff. I 92-93.
579. Course revised. New listing should read: "Principles of Artificial Intelligence (3) I For description of course topics, see 479. Graduate-level requirements include additional homework and a term project. May be convened with 479." Eff. I 92-93.

Engineering (ENGR)

- 195b.- Add: Colloquium: "Materials Science and Engineering (1) (Identical with MSE 195b)." Eff. I 92-93.

English (ENGL)

- 295q.- Add: "10Q4 Creativity: A Class in Self Expression (3) I II S GRD (Identical with HUM 295Q)." Eff. I 92-93.
- 597o.+ Add repeatability "[Rpt./3]." Eff. I 92-93.

Family and Consumer Resources (FCR/COUN/FS/HE E/ID/MCS)

Counseling and Guidance (COUN)

403. Delete semester offering "I." Delete "May be convened with 503." Eff. I 91-92.
503. Delete semester offering "S." Delete "May be convened with 403." Eff. I 91-92.

Family Studies (FS)

413. Delete "May be convened with 513." Eff. II 92-93.
427. Change semester offering from "II" to "I." Eff. I 92-93.

Home Economics Education (HE E)

288. Change number of units from "(2)" to "(3)." Eff. I 92-93.

Interior Design (ID)

- 455.+ Add crosslisting "(Identical with MCS 455)." Eff. Summer 1992.
- 555.+ Add crosslisting "(Identical with MCS 555)." Eff. Summer 1992.

Merchandising and Consumer Studies (MCS)

- 455.- Add listing "Visual Merchandising and Display (3) S (Identical with ID 455)." Eff. Summer 1992.
- 555.- Add listing "Visual Merchandising and Display (3) S (Identical with ID 555)." Eff. Summer 1992.

Finance and Real Estate (FIN)

- 528.- Add listing: "Topics in Public and Nonprofit Financial Management (3) II (Identical with PA 528)." Eff. I 92-93.

French and Italian (FREN/ITAL)

French (FREN)

- 696i. Change course title to "Twentieth Century." Eff. I 92-93.

Genetics (GENE)

- 413.- Delete listing "Principles of Animal Breeding (3)." Eff. I 93-94.
- 414.- Delete listing "Animal Breeding Systems (2)." Eff. I 93-94.
- 428R.- Delete listing. Eff. I 92-93.
- 601.- Add: "Molecular and Cellular Biology (4) I Acquire a basic understanding of modern genetics, molecular biology and cell biology, and learn how to apply that understanding to human disease. Open to students in the Masters degree program in Genetic Counseling only. (Identical with MCB 601, which is home)." Eff. I 92-93.

Geography (GEOG)

275. Change course number from "275" to "375." Eff. I 93-94.
375. Course number changed from "275" to "375." [Title: "Metropolitan Tucson"] Eff. I 93-94.
- 418.- Add listing "Advanced Geographic Information Systems (3) II (Identical with RNR 418)." Eff. II 92-93.
- 478.- Add: "Global Change (3) II (Identical with GEOS 478)." Eff. II 92-93.
- 518.- Add listing "Advanced Geographic Information Systems (3) II (Identical with RNR 518)." Eff. II 92-93.
- 578.- Add: "Global Change (3) II (Identical with GEOS 578)." Eff. II 92-93.

Geosciences (GEOS)

- 448.- Change number of units from "(4)" to "(3)." Eff. I 92-93.
451. Change semester offering from "II" to "I." Eff. I 92-93.

- 478. + Add crosslisting with GEOG. Retain other crosslistings. "(Identical with ECOL 478, GEOG 478, HWR 478 and RNR 478)." Eff. II 92-93
- 548.- Change number of units from "(4)" to "(3)." Eff. I 92-93
- 551. Change semester offering from "II" to "I." Eff. I 92-93.
- 578. + Add crosslisting with GEOG. Retain other crosslistings. "(Identical with ECOL 578, GEOG 578, HWR 578 and RNR 578)." Eff. II 92-93

Health Related Professions (HLTH/OSH/EXSS/MEDT)

Exercise and Sport Sciences (EXSS)

- 250a-250b. Course prefix changed from ECOL to EXSS. Course number changed from 159a-159b to 250a-250b. New course listing is: "Human Anatomy and Physiology (3-3) Correlated structure and function of the human body. Primarily for majors in NURS and EXSS; not designed for biology majors." Eff. I 92-93
- 251a-251b. Course prefix changed from ECOL to EXSS. Course number changed from 160a-160b to 251a-251b. New course listing is "Human Anatomy and Physiology Laboratory (1-1) P, CR 250a-250b." Eff. I 92-93.
- 445. Add: "Evaluation and Regulation of Body Build and Composition (3) I Laboratory and field assessment of body fat, lean body mass and comatotype, anthropometry; body build and composition of the athlete; morphology of fat and lean tissue; exercise and dietary regulation of obesity and chronic underweight. P, 250a-250b and 251a-251b. May be convened with 545." Eff. I 92-93.
- 496b. Change title to "Introduction to Microcomputers." Eff. II 92-93.
- 545. Course expansion from "545" to "445/545." New listing under 545 reads "Evaluation and Regulation of Body Build and Composition (3) For description of course topics, see 445. Graduate-level requirements include an additional research project and case report. P, 250a-250b and 251a-251b. May be convened with 445." Eff. I 92-93.
- 596b. Change title to "Introduction to Microcomputers." Eff. II 92-93.
- 695a. + Add crosslisting "(Identical with NEUR 695a)." Eff. II 92-93.

History (HIST)

- 595a. Change course number from "595a" to "695a." Eff. I 93-94.
- 595b. Change course number from "595b" to "695b." Eff. I 93-94.
- 595c. Change course number from "595c" to "695c." Eff. I 93-94.
- 595e. Change course number from "595e" to "695e." Eff. I 93-94.
- 595f. Change course number from "595f" to "695f." Eff. I 93-94.
- 596a. Change course number from "596a" to "696a." Eff. I 93-94.
- 596b. Change course number from "596b" to "696b." Eff. I 93-94.

- 596c. Change course number from "596c" to "696c." Eff. I 93-94.
- 596d. Change course number from "596d" to "696d." Eff. I 93-94.
- 596e. Change course number from "596e" to "696e." Eff. I 93-94.
- 596f. Change course number from "596f" to "696f." Eff. I 93-94.
- 596g. Change course number from "596g" to "696g." Eff. I 93-94.
- 596h. Change course number from "596h" to "696h." Eff. I 93-94.
- 596i. + Change course number from "596i" to "696i." Eff. I 93-94.
- 596j. + Change course number from "596j" to "696j." Eff. I 93-94.
- 596n. + Change course number from "596n" to "696n." Eff. I 93-94.
- 596k. Change course number from "596k" to "696k." Eff. I 93-94.
- 695a. Course number changed from "595a" to "695a." Eff. I 93-94.
- 695b. Course number changed from "595b" to "695b." Eff. I 93-94.
- 695c. Course number changed from "595c" to "695c." Eff. I 93-94.
- 695e. Course number changed from "595e" to "695e." Eff. I 93-94.
- 695f. Course number changed from "595f" to "695f." Eff. I 93-94.
- 696a. Course number changed from "596a" to "696a." Eff. I 93-94.
- 696b. Course number changed from "596b" to "696b." Eff. I 93-94.
- 696c. Course number changed from "596c" to "696c." Eff. I 93-94.
- 696d. Course number changed from "596d" to "696d." Eff. I 93-94.
- 696e. Course number changed from "596e" to "696e." Eff. I 93-94.
- 696f. Course number changed from "596f" to "696f." Eff. I 93-94.
- 696g. Course number changed from "596g" to "696g." Eff. I 93-94.
- 696h. Course number changed from "596h" to "696h." Eff. I 93-94.
- 696j. + Course number changed from "596j" to "696j." Eff. I 93-94.
- 696k. Course number changed from "596k" to "696k." Eff. I 93-94.
- 696l. + Course number changed from "596l" to "696l." Eff. I 93-94.
- 696n. + Course number changed from "596n" to "696n." Eff. I 93-94.

Humanities (HUM)

- 295Q. + Add crosslisting "(Identical with ENGL 295Q)." Eff. I 92-93.

Hydrology and Water Resources (HWR)

Revision to the headnotes section of the 1991-93 Graduate Catalog, page 119, second column, third paragraph should be revised as follows:

"Graduate study programs are individually planned to meet the student's special interests and professional objectives. Certain basic courses in hydrology and water resources are required of each master's candidate unless equivalent courses were taken elsewhere. Both thesis and non-thesis options are available for the Master of Science degree program. Students are required to submit a thesis or demonstrate equivalent evidence of substantial professional accomplishment, including both problem-solving skills and writing ability. Either option must meet departmental criteria and must be approved by the student's committee. All students are expected to acquire a capability for computer programming." Eff. I 92-93.

- 596c. Course number changed from 696h to 596c. Delete prerequisites. Delete alternate year. Eff. I 92-93
- 696h. Change course number from 696h to 596c. See 596c for additional changes. Eff. I 92-93.

Latin American Studies (LA S)

- 595b. Change course number from "595b" to "695b." Eff. I 93-94.
- 596i. + Change course number from "596i" to "696i." Eff. I 93-94.
- 596j.- Change course number from "596j" to "696j." Eff. I 93-94.
- 695b. Course number changed from "595b" to "695b." Eff. I 93-94.
- 696j.- Course number changed from "596j" to "696j." Eff. I 93-94.
- 696l. + Course number changed from "596i" to "696l." Eff. I 93-94.

Library Science (LI S)

403. Delete "403 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 403 reads "Library Collection Development (3) Principles of collection development; evaluation and review of materials; selection tools; acquisition of materials; problems in selection, including censorship. May be convened with 503." Eff. Summer 1992.

404. Delete "404 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 404 reads "Foundations of Library and Information Services (3) Elements of librarianship, historical backgrounds, types of libraries, the role of the library in American life, current issues. May be convened with 504." Eff. Summer 1992.
405. Delete "405 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 405 reads "Basic Reference (3) Survey of general reference sources; discussion of reference technique. May be convened with 505." Eff. Summer 1992.
407. Course expansion from "507" to "407/507." New listing for 407 reads "Library Management (3) Introduction to management concepts, the organizational structure of libraries, systems analysis, financial administration and the utilization of library personnel. May be convened with 507." Eff. I 92-93.
410. Change course number from "410" to "416." See 416 for additional changes. Title: "Introduction to Microcomputers in Libraries." Eff. I 92-93.
410. Course expansion from "510" to "410/510." New listing for 410 reads: "Introduction to Information Science (3) Methods, theories and technology of information science; elements of computer programming and systems design; implementation and management of computer systems in libraries and information centers. May be convened with 510." Eff. I 92-93.
411. Delete "411 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 411 reads "Information Storage and Retrieval (3) Student involvement in on-line, interactive systems. May be convened with 511." Eff. Summer 1992.
416. Course number changed from "410" to "416." Change units from "(1)" to "(3)." New listing should read: "Introduction to Microcomputers in Libraries (3) Examination of the place and function of microcomputers in the library and information environment. Emphasis on hardware and software concepts. Hands-on learning with operation systems, wordprocessing, spreadsheet creation and database management." Eff. I 92-93.

430. Delete "430 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 430 reads "Public Librarianship (3) Administration of tax-supported libraries serving the general public, including problems of governmental relationships, community responsibilities, financial support, buildings, personnel, collections. May be convened with 530." Eff. Summer 1992.
440. Delete "440 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 440 reads "Academic Librarianship (3) Present trends in academic libraries, including financial administration, collection evaluation, personnel requirements and building needs. May be convened with 540." Eff. Summer 1992.
450. Delete "450 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 450 reads "Special Librarianship (3) Mission, organization and administration of the special library. May be convened with 550." Eff. Summer 1992.
- 480a-480b. Delete "480a-480b taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 480a-480b reads "Literature for Children's Librarians (3-3) Literature for younger children, including picture books. Traditional literature for use with children. Reference materials. Fantasy, humor, realistic fiction, poetry, classics, informational books. Criticism and reviewing of children's literature. May be convened with 580a-580b." Eff. Summer 1992.
481. Delete "481 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 481 reads "School Library Administration and Organization (3) Services, finances, personnel, evaluation, quarters, organization and technical services in the school library. May be convened with 581." Eff. Summer 1992.
485. Delete "485 taught through correspondence only." Change effective date for course expansion to Summer 1992. (Listed in Curriculum Bulletin Vol. 14, No. 8 as effective for Fall 1992). New listing for 485 reads "Literature for Adolescents (3) Literature to meet recreational and developmental needs of the junior and senior high school age, including some books for adults. Reviewing and book talks. May be convened with 585." Eff. Summer 1992.
503. New listing reads "Library Collection Development (3) For description of course topics, see 403. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 403." Eff. Summer 1992.
504. New listing reads "Foundations of Library and Information Services (3) For description of course topics, see 404. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 404." Eff. Summer 1992.
505. New listing reads "Basic Reference (3) For description of course topics, see 405. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 405." Eff. Summer 1992.
507. New listing reads "Library Management (3) For description of course topics, see 407. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 407." Eff. 1992-93.
510. New listing reads "Introduction to Information Science (3) For description of course topics, see 410. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 410." Eff. 1992-93.
511. New listing reads "Information Storage and Retrieval (3) For description of course topics, see 411. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 411." Eff. Summer 1992.
530. New listing reads "Public Librarianship (3) For description of course topics, see 430. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 430." Eff. Summer 1992.
540. New listing reads "Academic Librarianship (3) For description of course topics, see 440. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 440." Eff. Summer 1992.
550. New listing reads "Special Librarianship (3) For description of course topics, see 450. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 450." Eff. Summer 1992.
- 580a-580b. New listing reads "Literature for Children's Librarians (3-3) For description of course topics, see 480a-480b. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 480a-480b." Eff. Summer 1992.

581. New listing reads "School Library Administration and Organization (3) For description of course topics, see 481. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 481." Eff. Summer 1992.
585. New listing reads "Literature for Adolescents (3) For description of course topics, see 485. Graduate-level requirements include a greater number of assignments and a higher level of performance. May be convened with 485." Eff. Summer 1992.

Linguistics (LING)

315. Change course title to "Introduction to Phonology." Eff. II 92-93.
- 426.- Change crosslisting to "(Identical with ARB 426)" Eff. I 93-94.
- 526.- Change crosslisting to "(Identical with ARB 526)" Eff. I 93-94.
- 696f. + Transfer course from COMM to LING (as home department). Retain COMM as cross-listed department. Add crosslisting with PSYC. Eff. I 92-93.

Management and Policy (MAP)

405. Change course prefix from "MAP" to "PA." [Title: "System and Program Evaluation"] Eff. I 92-93.
507. + Change course prefix from MAP to PA. Change course number from "507" to "521." See PA 521 for additional changes. Eff. I 92-93.
556. + Course number changed from "696m" to "556." Course title changed to "Gender Issues in Organizational Behavior." Add crosslisting with SOC 556. New course description is as follows: "Gender Issues in Organizational Behavior (3) Reviews the research on several topics having to do with gender and organizations, including: social determinants of career choice; occupational sex segregation; perceptions of men and women as managers; gender issues in motivation, leadership and job satisfaction; work and family issues; implications of technological change for women's employment; organizational change including affirmative action and comparable worth. (Identical with SOC 556)." Eff. I 93-94
605. Change course prefix from MAP to PA. Change course number from "605" to "505." See PA 505 for additional changes. Eff. I 92-93.
- 610a-610b. Change course prefix from MAP to PA. Change course number from "610a-610b" to "528." See PA 528 for additional changes. Eff. I 92-93.
655. Change course prefix from MAP to PA. Change course number from "655" to "526." See PA 526 for additional changes. Eff. I 92-93.
- 696m. + Change course number from "696m" to "556." See 556 for additional changes. Eff. I 93-94

Materials Science and Engineering (MSE)

- 195a. Change course number from "195a" to "195b." Eff. I 92-93.
- 195b. + Course number changed from "195a" to "195b." Add crosslisting with ENGR 195b. Eff. I 92-93.

Mathematics (MATH)

- 344.- Change semester offering from "I II" to "II." Eff. II 92-93.
- 373.- Change course number from "373" to "473." For additional changes, see 473." Eff. I 93-94.
- 473.- Course number changed from "373" to "473." Change semester offering from "II" to "I." Eff. I 93-94.
530. Add the following sentence to course description: "Not applicable to M.A., M.S., or Ph.D. degrees in Mathematics." Eff. I 92-93
- 567a.- Delete listing. Eff. I 93-94.
- 567b.- Delete listing. Eff. I 93-94.

Media Arts (M AR)

221. Course number changed from "321" to "221." Add "2R,2S." Eff. I 93-94.
222. Course number changed from "322" to "222." Change course description to "Survey of major radio and television program types, with emphasis on serial and series forms: drama, melodrama, western, crime drama, comedy, sports. 2R, 2S. P, 200." Eff. I 92-93.
225. Change course description to "Survey of American broadcasting, emphasis on programming, economic and industrial history. 2R, 1D." Eff. I 92-93.
321. Change course number from "321" to "221." Eff. I 93-94.
322. Change course number from "322" to "222." For additional changes, see "222." Eff. I 92-93.
336. Add crosslisting "(Identical with JPN 336)." Eff. II 92-93.
500. Change units from "(3)" to "(1)." Change course description to "Responsibilities of graduate students, forms and procedures, campus resources, research tools, writing standards, and Media Arts content areas in approaches." Eff. I 92-93

Medicine (MED/ANES/FCM/IMED/NEUR/OBG/OPH/PATH/PED/PSYI/RONC/RADI/SURG)

Medicine (MED)

- 696a. Add: "Introduction to Forensic Pathology (1-3) II." Eff. II 92-93.
801. Change units from "(1-12)" to "(12)." Eff. I 92-93.
- 896a. Add prerequisite "P, PATH 801 or permission of instructor." Eff. II 92-93.

Neurology (NEUR)

- 695a. Add: Colloquium: "Motor Control (2) [Rpt./8 units] II (Identical with EXSS 695a, which is home)." Eff. II 92-93.

Microbiology and Immunology (MICR)

205. Add sentence "Not available for major credit." Eff. I 93-94.
317. Course number changed from "317R" to "317." Eff. I 93-94
317R. Change course number from "317R" to "317." Eff. I 93-94
419. + Course number changed from "419R" to "419." Change title to "General Immunological Concepts." Course expansion to "419/519." Add: "May be convened with 519." Eff. I 92-93.
419R. + Change course number from "419R" to "419." See "419" for additional changes." Eff. I 92-93.
420. + Course number changed from "420R" to "420." Eff. I 93-94.
420R. + Change course number from "420R" to "420." Eff. I 93-94.
428.- Home department changed from MCB to PL P. Course title changed. Semester offering changed from "II" to "I." New listing under MICR reads: "Microbial Genetics (3) I (Identical with PL P 428)." Eff. I 92-93.
428R.- Course number changed from "428R" to "428." See "428" for additional changes. Eff. I 92-93.
429. + Add crosslisting with V SC 429. Eff. I 92-93.
440.- Add: "Biodegradation of Pollutants in Soil and Groundwater (3) II (Identical with S W 440) May be convened with 540." Eff. II 93-94.
462b.- Delete listing "Biochemistry (3)." Eff. II 92-93.
519. + Add: "General Immunological Concepts (3) I For a description of course topics, see 419. Graduate-level requirements include an additional term paper. May be convened with 419." Eff. I 92-93.
520. Course number changed from "520R" to "520." Eff. I 93-94.
520R. Change course number from "520R" to "520." Eff. I 93-94.
540.- Add: "Biodegradation of Pollutants in Soil and Groundwater (3) II (Identical with S W 540) May be convened with 440." Eff. II 93-94.

Mining and Geological Engineering (G EN/MN E/MNEC)

Geological Engineering (G EN)

448. + Change number of units from "(4)" to "(3)." Change description to read: "Principles of gravity, magnetic, seismic and electrical exploration; acquisition and interpretation of data to define geologic structure and evaluate resources. 3R, 2ES, 1ED." No change in prerequisites. Retain crosslisting with GEOS. Change instructor to Sternberg/Johnson. Eff. I 92-93.
548. + Change number of units from "(4)" to "(3)." Change instructor to Sternberg/Johnson. Eff. I 92-93.

- 629.- Add listing: "Rock Slope Analyses and Design (3) I (Identical with M NE 629). Eff. I 92-93.

Mining and Geological Engineering (MN E)

629. + Change title to "Rock Slope Analyses and Design." Change course description to: "Geologic and engineering considerations in design of optimum rock slope angles; constitutive models for intact rock and joints; theoretical stability analysis, monitoring and control of existing slopes. Field trip. P, 427. (Identical with G EN 629)." Eff. I 92-93.

Molecular and Cellular Biology (MCB)

410. + Add crosslisting with BIOC. Retain crosslisting with MICR. New course description as follows: "Cell Biology (3) II The molecular basis of the structure and function of animal, plant, and prokaryotic cells with emphasis on experimental analysis. Honors section available for (4) honors credits. P, 181, 182, 462a, recommend 320 and CR 411. (Identical with BIOC 410 and MICR 410)." Eff. II 92-93.
428.- Home department changed from MCB to PL P. MCB retained as a crosslisted department. Course title changed. Semester offering changed from "II" to "I." New listing under MCB 428 reads: "Microbial Genetics (3) I (Identical with PL P 428)." Eff. I 92-93.
428R. Course number changed from "428R" to "428." See 428 for additional changes. Eff. I 92-93.
462a-462b.- Add: "Honors section available for (4) honors credits." Eff. I 92-93.
473. + Add additional crosslisting with PL S 473. Eff. II 92-93.
572.- Add "Biological Regulation (4) I (Identical with BIOC 572)." Eff. I 92-93.
573. + Add additional crosslisting with PL S 573. Eff. II 92-93.
595a. Change repeatability to "[Rpt./6]." Change semester offering to "I II." Eff. I 92-93.
601. + Add: "Molecular and Cellular Biology (4) I Acquire a basic understanding of modern genetics, molecular biology and cell biology, and learn how to apply that understanding to human disease. Open to students in the Masters degree program in Genetic Counseling only. (Identical with GENE 601)." Eff. I 92-93.
696a. Change course title to "Developmental Biology." Change repeatability to "[Rpt./6]." Add: "To be taken only when 596a repeated course limit has been met." Eff. I 92-93.
761. Change title to "Laboratory Rotation I." Change units from "(3)" to "(2)." Add repeatability "[Rpt./1]." Change course description to read: "Research project with graduate faculty for 8 weeks, 15 hours per week. Open to majors only." Eff. I 92-93.

Music (MUS)

Revision to 1991-93 General Catalog, College Section, page 50, column 2:

Under "4, School of Music Requirements":

Revise first sentence to read: 9-12 units selected from courses in the College of Arts and Sciences..."

Delete last sentence of paragraph which begins with, "Voice performance majors can count 12 units of foreign language studies..." Eff. 192-93.

Revision to 1991-93 General Catalog headnotes, page 234, under "Bachelor of

Music," column 1, paragraph 1, to read: "seven units of MUSI 485) and a senior recital (MUS 425) of one unit; *ensemble; one semester of conducted, seven semesters of guitar ensemble, MUS 370, 410a-410b, 420a-420b, 424." Eff. 192-93.

Near Eastern Studies (NES/ARB/PRS)

Near Eastern Studies

- 104a. Change course prefix from "NES" to "ARB." Change course number from "104a" to "101." See "ARB 101" for further change. Eff. 193-94.
- 104b. Change course prefix from "NES" to "ARB." Change course number from "104b" to "102." See "ARB 102" for further changes. Eff. 193-94.
- 105a. Change course prefix from "NES" to "PRS." Change course number from "105a" to "101." See PRS 101 for further change. Eff. 193-94.
- 105b. Change course prefix from "NES" to "PRS." Change course number from "105b" to "102." See PRS 102 for further changes. Eff. 193-94.
140. + Change title and course description. New listing reads: "Middle Eastern Humanities (3) Major trends and traditions in the arts, literatures and languages, religions and philosophies of the Middle East. (Identical with RELI 140)." Eff. 192-93.
- 404a. Change course prefix from "NES" to "ARB." Change course number from "404a" to "401." See "ARB 401" for further changes. Eff. 193-94.
- 404b. Change course prefix from "NES" to "ARB." Change course number from "404b" to "402." See "ARB 402" for further changes. Eff. 193-94.
- 405a. Change course prefix from "NES" to "PRS." Change course number from "405a" to "401." See PRS 401 for further changes." Eff. 193-94.
- 405b. Change course prefix from "NES" to "PRS." Change course number from "405b" to "402." See PRS 402 for further changes. Eff. 193-94.
- 414a. Change course prefix from "NES" to "ARB." Change course number from "414a" to "403." See "ARB 403" for further changes. Eff. 193-94.
- 414b. Change course prefix from "NES" to "ARB." Change course number from "414b" to "404." See "ARB 104" for further changes. Eff. 193-94.

- 415a. Change course prefix from "NES" to "PRS." Change course number from "415a" to "403." See PRS 403 for further changes. Eff. 193-94.
- 415b. Change course prefix from "NES" to "PRS." Change course number from "415b" to "404." See PRS 404 for further changes. Eff. 193-94.
- 424a-424b. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 425a-425b. Change course prefix from "NES" to "ARB." Eff. 193-94.
426. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 439a-439b. Change course prefix from "NES" to "ARB." Eff. 193-94.
448. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 449a. Change course prefix from "NES" to "PRS." Change course number from "449a" to "449." See PRS 449 for further changes. Eff. 193-94.
- 449b. Change course prefix from "NES" to "PRS." Change course number from "449b" to "450." See PRS 450 for further changes. Eff. 193-94.
- 495n. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 495o. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 495z. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 514a. Change course prefix from "NES" to "ARB." Change course number from "514a" to "503." See "ARB 503" for further changes. Eff. 193-94.
- 514b. Change course prefix from "NES" to "ARB." Change course number from "514b" to "504." See "ARB 504" for further changes. Eff. 193-94.
- 515a. Change course prefix from "NES" to "PRS." Change course number from "515a" to "504." See PRS 504 for further changes. Eff. 193-94.
- 515b. Change course prefix from "NES" to "PRS." Change course number from "515b" to "505." See PRS 505 for further changes. Eff. 193-94.
- 524a-524b. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 525a-525b. Change course prefix from "NES" to "ARB." Eff. 193-94.
526. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 539a-539b. Change course prefix from "NES" to "ARB." Eff. 193-94.
548. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 549a. Change course prefix from "NES" to "PRS." Change course number from "549a" to "549." See PRS 549 for further changes." Eff. 193-94.
- 549b. Change course prefix from "NES" to "PRS." Change course number from "549b" to "550." See PRS 550 for further changes." Eff. 193-94.
- 595n. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 595o. Change course prefix from "NES" to "ARB." Eff. 193-94.
- 595z. Change course prefix from "NES" to "ARB." Eff. 193-94.

Arabic (ARB)

101. Course prefix changed from "NES" to "ARB." Course number changed from "104a" to "101." Title changed to "Elementary Arabic I." Eff. I 93-94.
102. Course prefix changed from "NES" to "ARB." Course number changed from "104b" to "102." Title changed to "Elementary Arabic II." Add prerequisite "P, 101." Eff. I 93-94.
401. Course prefix changed from "NES" to "ARB." Course number changed from "404a" to "401." Title changed to "Intermediate Arabic I." Prerequisite changed to "P, 102." Eff. I 93-94.
402. Course prefix changed from "NES" to "ARB." Course number changed from "404b" to "402." Title changed to "Intermediate Arabic II." Prerequisite changed to "P, 401." Eff. I 93-94.
403. Course prefix changed from "NES" to "ARB." Course number changed from "414a" to "403." Title changed to "Advanced Arabic I." Prerequisite changed to "P, 402." Add "May be convened with 503." Eff. I 93-94.
404. Course prefix changed from "NES" to "ARB." Course number changed from "414b" to "404." Title changed to "Advanced Arabic II." Prerequisite changed to "P, 403." Add "May be convened with 504." Eff. I 93-94.
- 424a-424b. Course prefix changed from "NES" to "ARB." Title: "Convers Levantine Arabic." Eff. I 93-94.
- 425a-425b. Course prefix changed from "NES" to "ARB." Title: "Convers Gulf Arabic." Eff. I 93-94.
426. + Course prefix changed from "NES" to "ARB." Title: "Introduction to Arabic Linguistics." Eff. I 93-94.
- 439a-439b. Course prefix changed from "NES" to "ARB." Title: "Egyptian Arabic." Eff. I 93-94.
448. Course prefix changed from "NES" to "ARB." Title: "Arabic Literature in English." Eff. I 93-94.
- 495n. Course prefix changed from "NES" to "ARB." Title: "Modern Arabic Prose." Eff. I 93-94.
- 495o. Course prefix changed from "NES" to "ARB." Title: "Classical Arabic Prose." Eff. I 93-94.
- 495z. Course prefix changed from "NES" to "ARB." Title: "Readings in Classical Arabic Poetry." Eff. I 93-94.
503. Course prefix changed from "NES" to "ARB." Course number changed from "514a" to "503." Title changed to "Advanced Arabic I." Prerequisite changed to "P, 402." Add "May be convened with 403." Eff. I 93-94.

504. Course prefix changed from "NES" to "ARB." Course number changed from "514b" to "504." Title changed to "Advanced Arabic II." Prerequisite changed to "P, 403 or 503." Add "May be convened with 404." Eff. I 93-94.
- 524a-524b. Course prefix changed from "NES" to "ARB." Title: "Convers Levantine Arabic." Eff. I 93-94.
- 525a-525b. Course prefix changed from "NES" to "ARB." Title: "Convers Gulf Arabic." Eff. I 93-94.
526. + Course prefix changed from "NES" to "ARB." Title: "Introduction to Arabic Linguistics." Eff. I 93-94.
- 539a-539b. Course prefix changed from "NES" to "ARB." Title: "Egyptian Arabic." Eff. I 93-94.
548. Course prefix changed from "NES" to "ARB." Title: "Arabic Literature in English." Eff. I 93-94.
- 595n. Course prefix changed from "NES" to "ARB." Title: "Modern Arabic Prose." Eff. I 93-94.
- 595o. Course prefix changed from "NES" to "ARB." Title: "Classical Arabic Prose." Eff. I 93-94.
- 595z. Course prefix changed from "NES" to "ARB." Title: "Readings in Classical Arabic Poetry." Eff. I 93-94.

Persian (PRS)

101. Course prefix changed from "NES" to "PRS." Course number changed from "105a" to "101." Title changed to "Elementary Persian I." Eff. I 93-94.
102. Course prefix changed from "NES" to "PRS." Course number changed from "105b" to "102." Title changed to "Elementary Persian II." Add prerequisite "101." Eff. I 93-94.
401. Course prefix changed from "NES" to "PRS." Course number changed from "405a" to "401." Title changed to "Intermediate Persian I." Prerequisite changed to "P, 102." Eff. I 93-94.
402. Course prefix changed from "NES" to "PRS." Course number changed from "405b" to "402." Title changed to "Intermediate Persian II." Prerequisite changed to "P, 401." Eff. I 93-94.
404. Course prefix changed from "NES" to "PRS." Course number changed from "415a" to "404." Title changed to "Advanced Persian I." Prerequisite changed to "P, 402." Eff. I 93-94.
405. Course prefix changed from "NES" to "PRS." Course number changed from "415b" to "405." Title changed to "Advanced Persian II." Prerequisite changed to "P, 403." Eff. I 93-94.

449. Course prefix changed from "NES" to "PRS." Course number changed from "449a" to "449." Title changed to "Classical Persian Literature in English." Add "May be convened with 549." Eff. I 93-94.
450. Course prefix changed from "NES" to "PRS." Course number changed from "449b" to "450." Title changed to "Contemporary Persian Literature in English." Add "May be convened with 550." Eff. I 93-94.
504. Course prefix changed from "NES" to "PRS." Course number changed from "515a" to "504." Title changed to "Advanced Persian I." Prerequisite changed to "P, 402." Eff. I 93-94.
505. Course prefix changed from "NES" to "PRS." Course number changed from "515b" to "505." Title changed to "Advanced Persian II." Prerequisite changed to "P, 404 or 504)." Eff. I 93-94.
549. Course prefix changed from "NES" to "PRS." Course number changed from "549a" to "549." Title changed to "Classical Persian Literature in English." Add "May be convened with 449." Eff. I 93-94.
550. Course prefix changed from "NES" to "PRS." Course number changed from "549b" to "550." Title changed to "Contemporary Persian Literature in English." Add "May be convened with 450." Eff. I 93-94.

Nuclear and Energy Engineering (NEE)

200. Add prerequisite "P, 201." Eff. I 92-93.

Nutrition and Food Science (N FS)

- 460.- Change semester offering from "I" to "II." Eff. II 92-93.
- 560.- Change semester offering from "I" to "II." Eff. II 92-93.

Optical Sciences (OPTI)

- 512L. Course number changed from "681" to "512L." Course title changed. Units changed from "(3)" to "(1)." New listing reads: "Mathematical Optics Lab (1) II Laboratory in support of 504, 508 and 512. P, 504 or 512 and C SC 227 or SIE 270." Eff. II 92-93.
681. Change course number from "681" to "512L." See 512L for additional changes. Eff. II 92-93.

Pharmaceutical Sciences (PHSC)

302. Change units from "(5)" to "(4)." Delete "3R,3L." Eff. I 92-93.*
306. Add "Physical Pharmacy Lab (1) I. P, CR 302." Eff. I 92-93.*
307. Change units from "(3)" to "(2)." Change prerequisite to "P, 302, 306." Delete "2R,3L." Eff. II 92-93.
309. Add "Dosage Form Design Lab (1) II. P, CR 307." Eff. II 92-93.

Pharmacy Practice (PHPR)

414. Change course title to "Pharmacy Practice Lab." Eff. II 92-93.
442. Course expansion from "442" to "442/542." Eff. I 92-93.
445. Course expansion from "445" to "445/545." Change course title and description. New listing reads: "Medication Use and the U.S. Health Care System (3) I An overview of the U.S. health care system and the consumers, providers, payers, and regulators that comprise it. The role of pharmacy and pharmacists within the health care system will be explored, including an examination of social, behavioral, and economic factors associated with the prescribing, dispensing, and use of medications. May be convened with 545." Eff. I 92-93.
461. Course expansion from "461" to "461/561." Eff. I 92-93.
542. Add: "Professional Practice Management (3) I For description of course topics, see 442. Graduate students will write an additional paper or proposal. May be convened with 442." Eff. I 92-93.
545. Add: "Medication Use and the U.S. Health Care System (3) For description of course topics, see 445. Graduate students will write an additional paper or proposal. May be convened with 445." Eff. I 92-93.
561. Add: "Methodology in Pharmacy Research and Drug Literature Evaluation (3) For description of course topics, see 461. Graduate students will write either an additional paper or proposal. May be convened with 461." Eff. I 92-93.

Pharmacology and Toxicology (PCOL/TOX)

Toxicology (TOX)

- 462a-462b.+ Add: "Honors section available for (4) honors credits." Eff. I 92-93.

Physiology (PSIO)

- 696c. Change course title to "Physiology Student Forum." Eff. I 92-93.

Planetary Sciences (PTYS)

Revision to headnotes of 1991-93 General Catalog, page 258:

Add the following paragraph: "Undergraduate students in the University may obtain a minor in Planetary Sciences. The PTYS minor must include PTYS 403, 411, and six other upper-division units in Planetary Science. The remaining units are chosen by the student and major advisor subject to final approval by the Planetary Sciences Curriculum Committee." Eff. I 92-93.

Planning (PLNG)

- 507.- Delete listing. Eff. I 92-93.
- 655.- Delete listing. Eff. I 92-93.

Plant Pathology (PL P)

428. + Add "Microbial Genetics (3) I Prokaryotic gene structure, replication, transfer and recombination; control of gene expression. Plasmids, bacteriophage, mobile elements; their use in genetic analysis and biotechnology. P, MICR 317 or ECOL 320 (Identical with ECOL 428, MCB 428, MICR 428, S W 428, V SC 428)" Eff. I 92-93

Plant Sciences (PL S)

330. Change course title to "Plant Propagation I: Sexual & Asexual Reproduction." Eff. I 92-93.
430. Course number changed from "482" to "430." New title and listing should read as follows: "Plant Propagation II: Plant Cell and Tissue Culture (3) II Principles and theory of plant tissue culture. Commercial and experimental applications of micropropagation, plant cell/protoplast culture, and plant transformation techniques. 2R, 3L. P, PL S 312 or MCB 181, PL S 330 or consult of instructor. May be convened with 530." Eff. II 92-93.
- 473.- Add: "Recombinant DNA Methods and Applications (4) II (Identical with MCB 473)." Eff. II 92-93.
482. Change course number from "482" to "430." See "430" for additional changes. Eff. II 92-93.
510. + Course transferred from BIOC to PL S as home department. Retain BIOC as a cross-listed department. Retain crosslisting with MCB. The revised listing under PL S should read "Plant Molecular Biology (3) II 1992-93 Introduction to current developments in plant molecular biology. Plant transformation, nitrogen fixation, photosynthesis and chloroplast gene expression, transposable elements. P, 5 units of undergraduate biochemistry (Identical with BIOC 510 and MCB 510)" Eff. II 92-93.
530. Course number changed from "582" to "530." New title and listing should read as follows: "Plant Propagation II: Plant Cell and Tissue Culture (3) II For description of course topics, see 430. Graduate-level requirements include measurement of gene expression in transgenic plants. P, PL S 312 or MCB 181, PL S 330 or consent of instructor. May be convened with 430." Eff. II 92-93.
- 573.- Add: "Recombinant DNA Methods and Applications (4) II (Identical with MCB 573)." Eff. II 92-93.
582. Change course number from "582" to "530." See "530" for additional changes. Eff. II 92-93.

Political Science (POL)

- 596i. + Change title to "Management and Policy for Ecological Sustainability." Eff. I 92-93

- 610a-610b.- Delete listing. Eff. I 92-93.

Psychology (PSYC)

240. Delete phrase "Credit is allowed for this course or 313, but not for both" from course description. Eff. I 91-92.
430. Change title to "Psychology, Law and Social Policy." Eff. I 92-93.
- 462H. Add: "Mental Health Policy (3) [Rpt./3] I II Major issues in law and mental health, including law and policies relating to the clients and providers of mental health services, and the organization/structure of the system for delivering these services. May be convened with 562." Eff. I 92-93.
562. Course expansion from "562" to "462H/562." New listing reads: "Mental Health Policy (3) [Rpt./3] I II For course topics, see 462H. Graduate-level requirements include an extra term paper which ultimately could be prepared for publication as well as additional oral class participation. Could be convened with 462H." Eff. I 92-93.
- 696f.- Add: "Linguistic Investigations and Applications (3) I II (Identical with LING 696f, which is home)." Eff. I 92-93.

Public Administration and Policy (PA)

- 342.- Add: "Criminology (3) I II (Identical with SOC 342)." Eff. I 92-93.
343. + Add crosslisting (Identical with SOC 343)" Eff. I 92-93.
344. + Add crosslisting (Identical with SOC 344)" Eff. I 92-93.
405. Change course prefix from "MAP" to "PA." [Title: "System and Program Evaluation"] Eff. I 92-93.
441. + Add crosslisting (Identical with SOC 441)" Eff. I 92-93.
505. Course prefix changed from MAP to PA. Course number changed from "605" to "505." New listing should read "Methods for Policy Analysis and Program Evaluation (3) II Techniques for analyzing the effects of public policies and programs. P, MIS 552, ECON 500." Eff. I 92-93.
507. Course revised. New listing should read: "Institutional Action (3) II Diagnosis and prescription in market, political, and organizational contexts. Boundaries between organization, market, and politics. Theory and cases. P, 503, 504 AND 506." Eff. I 92-93
508. Add listing: "Public and Nonprofit Financial Management (3) I Financial management and budgeting in the public and nonprofit sectors: techniques and organizational issues. P, ECON 500, PA 506." Eff. I 92-93

- 521.+ Course prefix changed from MAP to PA. Course number changed from "507" to "521." Delete crosslisting with PLNG. New listing should read "Social Policy (3) I Course explores design, implementation and outcomes of social policy initiatives in the U.S. and abroad. Themes include historical overview of antipoverty policy in the U.S., competing explanations for conditions of inequality, and examination of policy solutions (Identical with SOC 521)." Eff. I 92-93.
524. Course number changed from "652" to "524." Title: "Management of Long Term Care Facilities and Programs." Change prerequisite to "P, 522." Eff. I 92-93.
526. Course prefix changed from MAP to PA. Course number changed from "655" to "526." Delete crosslisting with PLNG. New listing should read: "Health Economics (3) II Applies microeconomic theory, industrial organization and public finance to efficiency and equity problems. In the acute and chronic health-care sectors, explores solutions to these problems. P, 522, ECON 500, or permission of instructor." Eff. I 92-93.
528. Course prefix changed from MAP to PA. Course number changed from "610a-610b" to "528." Delete crosslisting with POL. New listing should read: "Topics in Public and Nonprofit Financial Management (3) II Advanced issues in public-sector financial management. P, 508 or FIN 511 (Identical with FIN 528)." Eff. I 92-93.
- 541.- Add: "Deviance and Social Control (3) (Identical with SOC 541)." Eff. I 92-93.
- 550.- Add: "Social Stratification (3) I II (Identical with SOC 550)." Eff. I 92-93.
- 596i.- Change title to "Management and Policy for Ecological Sustainability." Eff. I 92-93
652. Change course number from "652" to "524." Title: "Management of Long Term Care Facilities and Programs." See "524" for additional change. Eff. I 92-93.

Religious Studies (RELI)

- 140.- Change title to "Middle Eastern Humanities." Eff. I 92-93.

Renewable Natural Resources (RNR/L AR/RA M/WS M/WFSC)

Renewable Natural Resources (RNR)

200. Change title to "Foundations in History and Policy." Eff. I 93-94.
- 418.+ Add crosslisting "(Identical with GEOG 418)." Eff. II 92-93.
- 518.+ Add crosslisting "(Identical with GEOG 518)." Eff. II 92-93.

- 596i.- Change title to "Management and Policy for Ecological Sustainability." Eff. I 92-93

Landscape Architecture (L AR)

Revision to 1991-93 General Catalog, page 272, headnotes under Landscape Architecture, second paragraph, second sentence:

"Each applicant to the professional phase must submit an Application for Admission to the Professional Major form to the Program Leader by April 15."

Revision to 1991-93 General Catalog, page 272, headnotes, third paragraph, fourth sentence:

"All applicants to the professional phase will be notified of acceptance or rejection by May 15." Eff. II 92-93.

335. Change semester offering from "II" to "I." Eff. I 93-94.
442. Change semester offering from "I" to "II." Eff. I 93-94.
542. Change semester offering from "I" to "II." Eff. I 93-94.

Range Management (RA M)

- 595a. Change units from "(2)" to "(3)." Eff. I 93-94

Watershed Management (WS M)

415. Delete listing. [Title: "Mensuration"] Eff. II 92-93.
515. Add alternate year "1992-93." Delete "May be convened with 415." Change course format from "2R, 3L" to "3R." Eff. II 92-93.

Sociology (SOC)

- 342.+ Add crosslisting "(Identical with PA 342)." Eff. I 92-93.
- 343.- Add: "The Crime Problem (3) I (Identical with PA 343)." Eff. I 92-93.
- 344.- Add: "Legal Aspects of the Criminal Justice Process (3) I II (Identical with PA 344)." Eff. I 92-93.
- 441.- Add: "The Criminal Justice System (3) II (Identical with PA 441)." Eff. I 92-93.
- 521.- Add: "Social Policy (3) I (Identical with PA 521)." Eff. I 92-93.
- 541.+ Add crosslisting: "(Identical with PA 541)." Eff. I 92-93
- 550.+ Add crosslisting: "(Identical with PA 550)." Retain crosslisting with ANTH. Eff. I 92-93. Note: Crosslisting with PA is at 500-level only.
- 556.- Add: "Gender Issues in Organizational Behavior (3) (Identical with MAP 556)." Eff. I 93-94.
560. Change title to "Race and Ethnicity." Eff. Summer 1992.

Soil and Water Science (S W)

- 428.- Add: "Microbial Genetics (3) I (Identical with PL P 428)." Eff. I 92-93.

440. + Add crosslisting "(Identical with MICR 440)." Eff. II 93-94.
 475.- Add: "Freshwater Algae (4) II 1993-94 (Identical with ECOL 475)." Eff. I 92-93
540. + Add crosslisting "(Identical with MICR 540)." Eff. II 93-94.
 696a. Add repeatability "[Rpt./4]." Eff. Summer 1992.

Statistics (STAT)

451. Change course description and prerequisites to read: "Sample spaces, random variables, probability. Distribution: binomial, normal, Poisson, geometric. Expectation, variance, moment generating functions. Central limit theorems. Basic concepts of sampling distribution, estimation, hypothesis testing. An introductory theoretical course emphasizing concepts, interpretations with limited mathematical proofs. P, Math 123 or MATH 125b, and one of STAT 160, STAT 263, STAT 275, STAT 361." Eff. I 93-94.
551. Course number changed from "663a" to "551." New listing reads: "Applied Statistics I: Regression Analysis (3) I Regression analysis including simple linear regression, multiple linear regression, regression diagnostics, variable selection techniques, collinearity, non-linear models and transformations, case studies. P, 451 and 509, MATH 223." Eff. I 93-94.
552. Course number changed from "663b" to "552." New listing reads: "Applied Statistics II: Experiment Design (3) II Design and analysis of experiments including principles of designing experiments, randomization, blocked designs, factorial experiments, response surface designs, repeated measures, analysis of contrasts, multiple comparisons, analysis of variance and covariance, and variance component analysis. P, 451 and 509, MATH 223." Eff. I 93-94.
553. Course number changed from "664" to "553." New listing reads: "Applied Multivariate Analysis (3) II Methods for analysis of multivariate observations. Random vectors, multivariate expectations and covariance matrices. Multivariate normal distribution. Hotelling T-square distribution. Multi-variate analysis of variance and linear regression. Principal components, discrimination and classification, clustering, canonical correlation and factor analysis. P, 451 and 509." Eff. I 93-94.

554. Course number changed from "665" to "554." New listing reads "Applied Time Series Analysis (3) I Methods for analysis of time series data. Time domain techniques; ARIMA models, estimation of process mean and autocovariance, model fitting, forecasting methods. Special Analysis: estimation of spectral density and coherency, digital filtering, aliasing and prewhitening, choice of lag windows, use of fast Fourier transformation. P, 451 and 509." Eff. I 93-94.
562. Change prerequisites to read "P, 509." Eff. I 93-94.
563. Change prerequisites to read "P, 509." Eff. I 93-94.
- 567a. Change course number from "567a" to "667." See STAT 667 for additional changes. Eff. I 93-94.
- 567b. Change course number from "567b" to "668." See STAT 668 for additional changes. Eff. I 93-94.
660. Change title, course description and prerequisites. New listing reads: "Linear Models (3) I Multivariate normal distribution, distribution of quadratic forms. Generalized inverses. Theory of estimation and hypothesis tests for full rank linear models and less than full rank models applied to regression models, analysis of variance models, variance component and mixed models and unbalanced data models. Theoretical foundation course for linear model analysis techniques. P, 566a, MATH 523." Eff. I 93-94.
- 663a. Change course number from "663a" to "551." See STAT 551 for further changes. Eff. I 93-94.
- 663b. Change course number from "663b" to "552." See STAT 552 for further changes. Eff. I 93-94.
664. Change course number from "664" to "553." See STAT 553 for further changes. Eff. I 93-94.
665. Change course number from "665" to "554." See STAT 554 for further changes. Eff. I 93-94.
667. Course number changed from "567a" to "667." New listing reads: "Theory of Estimation (3) I Measure theory based point estimation theory. Unbiasedness, information inequality, equivariance, location-scale family, exponential family. Maximum likelihood, Bayes and minimax estimation. Admissibility of estimators. Convergency properties. Asymptotic optimality. P, 566b, MATH 523." Delete crosslisting with MATH. Eff. I 93-94.

668. Course number changed from "567b" to "668." New listing reads: "Theory of Testing Hypotheses (3) II Measure-theory-based hypothesis-testing theory. Simple and composite null and alternative hypotheses. Test function. Hypotheses about the exponential family. Testimability. Uniformly most powerful, unbiased, alpha-similar, minimax, in-variant tests. Likelihood ratio tests. Admissibility. Testing population means. Nonparametric tests. P, 566b, MATH 523." Delete crosslisting with MATH. Eff. 193-94.

Theatre Arts (T AR)

Revision to 1991-93 Graduate Catalog, page 47, under the section titled "Major in Theatre Arts," column 2, paragraph 2, under "Design-Technical Production Option."

Second sentence should be revised to read: "Degree requirements are T AR 600, 3 units of 600-level theatre history, 3 units of 600-level dramatic theory or criticism." Eff. 192-93.

Revision to 1991-93 Graduate Catalog, page 47, "Requirements for Master's Degrees," "Major in Theatre Arts:"

Under Acting-Directing Option, (a) Acting Emphasis: Revise first sentence to read: "Program requirements are 504, 549, 551, 552, 575, 4 units of 597, 600, 605, 606, 650, 655, 656, 693, 4 units of 696b, 909, 3 units of 600-level theatre history, 3 units of 600-level dramatic theory or criticism, 3 units of T AR 691, and one unit of MUSI 580v."

Under Acting-Directing Option, (b) Directing Emphasis: Revise first sentence to read: "Program requirements are 531, 549, 551, 552, 556, 575, 4 units of 597, 600, 605, 606, 650, 655, 656, 693, 3 units of 696b, 3 units of 696d, 909, 3 units of 600-level theatre history, 3 units of 600-level dramatic theory or criticism."

Under Dramatic Writing Option: Revise first sentence to read: "Program requirements are T AR 560a-560b, 600 3 units of 600-level theatre history, 3 units of 600-level dramatic theory or criticism ..." Eff. 192-93.

Veterinary Science (V SC)

- 419.- Course number changed from "419R" to "419." Change title to "General Immunological Concepts." Course expansion to "419/519." Add: "May be convened with 519." Eff. 192-93.
- 419R.- Change course number from "419R" to "419." See "419" for additional changes." Eff. 192-93.
- 420.- Course number changed from "420R" to "420." Eff. 193-94.
- 420R.- Change course number from "420R" to "420." Eff. 193-94.
- 428.- Add: "Microbial Genetics (3) I (Identical with PL P 428)." Eff. 192-93.

- 429.- Add: "Introductory Virology (3) I (Identical with MICR 429)." Eff. 192-93.
- 519.- Add: "General Immunological Concepts (3) I For a description of course topics, see 419. Graduate-level requirements include an additional term paper. May be convened with 419." Eff. 192-93.
- 520.- Course number changed from "420R" to "420." Eff. 193-94.
- 520R.- Change course number from "420R" to "420." Eff. 193-94.

Women's Studies (WS)

- 595e. Change course number from "595e" to "695e." Eff. 193-94.
- 596n.+ Change course number from "596n" to "696n." Eff. 193-94.
- 695e. Change course number from "595e" to "695e." Eff. 193-94.
- 696n.+ Change course number from "596n" to "696n." Eff. 193-94.