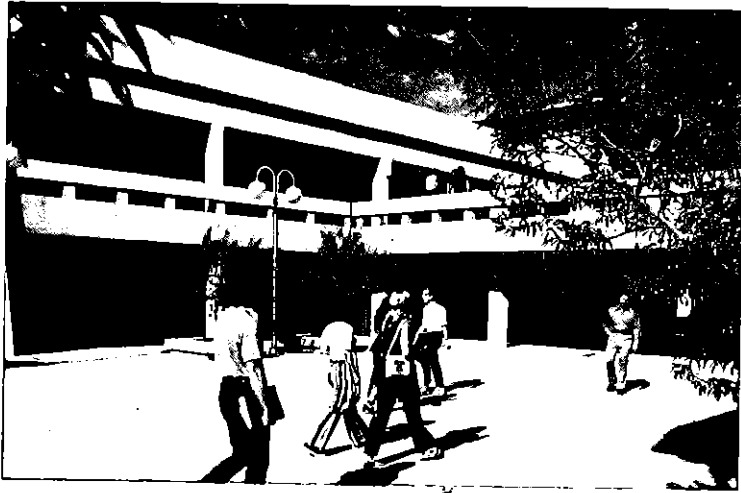


THE UNIVERSITY OF TEXAS AT EL PASO

1975-77

# THE UNIVERSITY OF TEXAS AT EL PASO



CATALOG

1975-77



### ***The Cover Photography and Art***

With this, our 1975-77 Catalog, the University of Texas at El Paso joins the rest of our Nation in celebrating the American Revolution Bicentennial. Our front cover shows two campus views: the Student Union Building Mall and several campus buildings framed by the Franklin range of the Rocky Mountains.

The back cover contains reproductions of Revolutionary war era art works. The top painting, reproduced with permission of the Yale University Art Gallery, is John Trumbull's "The Battle of Bunker's Hill." The bottom painting, reproduced with permission of The Metropolitan Museum of Art, bequest of William H. Huntington, 1885, is James Peale's "George Washington at Yorktown."

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With respect to the admission and education of students, with respect to the availability of student loans, grants, scholarships, and job opportunities, with respect to the employment and promotion of teaching and non-teaching personnel, with respect to the student and faculty activities conducted on premises owned or occupied by the University, and with respect to student and faculty housing situated on premises owned or occupied by the University, The University of Texas at El Paso shall not discriminate either in favor of or against any person on account of her or his gender, creed, color, or national origin.

*Any and all information contained in this catalog is subject to change without notice.*

# CATALOG

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THE UNIVERSITY OF TEXAS AT EL PASO

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Member      Southern Association of Colleges and Schools  
              Texas Association of Colleges  
              Texas Association of Graduate Schools

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**BUSINESS ADMINISTRATION**

**EDUCATION**

**ENGINEERING**

**LIBERAL ARTS**

**NURSING**

**SCIENCES**

**GRADUATE STUDY**



Published by The University of Texas at El Paso

**Volume LXI August 1975 - Number 7501**

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B.S., M.S., Purdue University; M.A., Ph.D., University of New Mexico

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B.S. Virginia State College; M.S., Ph.D., Howard University
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B.S., The University of Texas at El Paso; M.S., Vanderbilt University;  
Ph.D., The University of Texas at Austin

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Date indicates year of original appointment.

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# UNIVERSITY CALENDAR 1975-1977

## Fall Session 1975

### AUGUST

27—Lyndon B. Johnsons Birthday—State Holiday

### SEPTEMBER

- 1—Labor Day Holiday
- 2-4—Registration for Fall Semester Classes
- 4—General Faculty Meeting
- 5—Fall Semester Classes Start
- 5-12—Late Registration and Add Period, Departmental Approval required of all late registrants.
- 19—Last day for special permission registrants to complete registration and pay fees.

### OCTOBER

9-10—Homecoming

### NOVEMBER

- 3—Trans-Pecos Day
- 21—Last day to drop a class with an automatic W
- 27-28—Thanksgiving holidays

### DECEMBER

- 5—Last day for official withdrawal from the University
- 15-19—Final Examinations
- 20—Winter Holidays begin
- 24—Administrative offices close

## Spring Session 1976

### JANUARY

- 5—Administrative offices open
- 19-21—Registration for Spring Semester
- 22—First day spring semester classes
- 22-30—Late registration and add period. Departmental approval required of all late registrants.

### FEBRUARY

- 4—Last day for special permission registrants to complete registration and pay fees.

### MARCH

20-28—Spring break

### APRIL

- 9—Last day to drop a class with an automatic W
- 16—Good Friday
- 19—Easter Holiday
- 20-28—Spring break
- 30—Last day for official withdrawal from the University

### MAY

- 10-14—Final Examinations
- 15—Commencement

## Summer Session 1976

### MAY

31—Registration for first summer term and eleven week classes

### JUNE

1—Registration for first summer term and eleven week classes

2—First summer term classes and eleven week classes begin

2-4—Late registration and add period. Departmental approval required for all late registrants.

25—Last day to drop a class with an automatic W or withdraw from the University for first summer term.

### JULY

6-7—Final examinations for first summer term classes

9—Registration for second summer term

12—Second summer term classes begin

12-15—Late registration and add period. Departmental approval required for all late registrants.

### AUGUST

6—Last day to drop a class with an automatic W or withdraw from the University for second summer term and eleven week classes.

13-14—Final examinations for second summer term and eleven week summer classes

	S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1975	<b>SEPT</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
	1 2 3 4 5 6	1 2 3 4	2 3 4 5 6 7 8	1 2 3 4 5 6
	7 8 9 10 11 12 13	5 6 7 8 9 10 11	9 10 11 12 13 14 15	7 8 9 10 11 12 13
	14 15 16 17 18 19 20	12 13 14 15 16 17 18	16 17 18 19 20 21 22	14 15 16 17 18 19 20
	21 22 23 24 25 26 27 28 29 30	19 20 21 22 23 24 25 26 27 28 29 30 31	23 24 25 26 27 28 29 30	21 22 23 24 25 26 27 28 29 30 31
1976	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>
	1 2 3	1 2 3 4 5 6 7	1 2 3 4 5 6	1 2 3
	4 5 6 7 8 9 10	8 9 10 11 12 13 14	7 8 9 10 11 12 13	4 5 6 7 8 9 10
	11 12 13 14 15 16 17	15 16 17 18 19 20 21	14 15 16 17 18 19 20	11 12 13 14 15 16 17
	18 19 20 21 22 23 24 25 26 27 28 29 30 31	22 23 24 25 26 27 28 29	21 22 23 24 25 26 27 28 29 30 31	18 19 20 21 22 23 24 25 26 27 28 29 30
<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	
1	1 2 3 4 5	1 2 3	1 2 3 4 5 6 7	
2 3 4 5 6 7 8	6 7 8 9 10 11 12	4 5 6 7 8 9 10	8 9 10 11 12 13 14	
9 10 11 12 13 14 15	13 14 15 16 17 18 19	11 12 13 14 15 16 17	15 16 17 18 19 20 21	
16 17 18 19 20 21 22	20 21 22 23 24 25 26	18 19 20 21 22 23 24	22 23 24 25 26 27 28	
23 24 25 26 27 28 29 30 31	27 28 29 30	25 26 27 28 29 30 31	29 30 31	

## Fall Session 1976

### AUGUST

- 27—Lyndon B. Johnsons Birthday—State Holiday
- 30-31—Registrations for Fall Semester classes

### SEPTEMBER

- 1—Registration for Fall Semester classes
- 1—General Faculty Meeting
- 2—First day Fall Semester classes
- 2-10—Late registration and add period—Departmental approval required of all late registrants.
- 6—Labor Day Holiday
- 17—Last day for special permission registrants to complete registration and pay fees.

### OCTOBER

- 15-16—Homecoming

### NOVEMBER

- 19—Last day to drop a class with an automatic W
- 25-26—Thanksgiving Day Holidays

### DECEMBER

- 3—Last day for official withdrawal from the University
- 13-17—Final examinations for Fall Semester
- 18—Winter Holidays begin
- 24—Administrative offices closed

## Spring Session 1977

### JANUARY

- 3—Administrative offices open
- 17-19—Registration for Spring Semester classes
- 20—First day Spring Semester classes
- 20-28—Late registration and add period. Departmental approval required for all late registrants.

### FEBRUARY

- 2—Last day for special permission registrants to complete registration and pay fees.

### MARCH

- 19-27—Spring break

### APRIL

- 7—Last day to drop a course with an automatic W
- 8—Good Friday
- 29—Last day for official withdrawal from the University

### MAY

- 9-13—Final Examinations for Spring Semester
- 14—Commencement



## Summer Session 1977

### MAY

30-31—Registration for first summer term and eleven week classes.

### JUNE

- 1—First summer term and eleven week classes begin.
- 1-3—Late registration and add period. Departmental approval required of all late registrants.
- 24—Last day to drop a class with an automatic W or withdraw from the University for first summer term.

### JULY

- 4—Fourth of July Holiday
- 6-7—Final Examinations for first summer term classes
- 11—Registration for second summer term classes
- 12—Second summer term classes begin
- 12-15—Late registration and add period. Departmental approval required of all late registrants.

### AUGUST

- 5—Last day to drop a second summer term or eleven week class with an automatic W or withdraw from the University
- 15-16—Final examinations for second summer term and eleven week classes

	S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
<b>1976</b>	<b>SEPT</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
	1 2 3 4	1 2	1 2 3 4 5 6	1 2 3 4
	5 6 7 8 9 10 11	3 4 5 6 7 8 9	7 8 9 10 11 12 13	5 6 7 8 9 10 11
	12 13 14 15 16 17 18	10 11 12 13 14 15 16	14 15 16 17 18 19 20	12 13 14 15 16 17 18
	19 20 21 22 23 24 25 26 27 28 29 30	17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	21 22 23 24 25 26 27 28 29 30	19 20 21 22 23 24 25 26 27 28 29 30 31
<b>1977</b>	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>
	1	1 2 3 4 5	1 2 3 4 5	1 2
	2 3 4 5 6 7 8	6 7 8 9 10 11 12	6 7 8 9 10 11 12	3 4 5 6 7 8 9
	9 10 11 12 13 14 15	13 14 15 16 17 18 19	13 14 15 16 17 18 19	10 11 12 13 14 15 16
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	<b>MAY</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>
	1 2 3 4 5 6 7	1 2 3 4	1 2	1 2 3 4 5 6
	8 9 10 11 12 13 14	5 6 7 8 9 10 11	3 4 5 6 7 8 9	7 8 9 10 11 12 13
	15 16 17 18 19 20 21	12 13 14 15 16 17 18	10 11 12 13 14 15 16	14 15 16 17 18 19 20
	22 23 24 25 26 27 28 29 30 31	19 20 21 22 23 24 25 26 27 28 29 30	17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	21 22 23 24 25 26 27 28 29 30 31

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## AN INTRODUCTION TO THE UNIVERSITY OF TEXAS AT EL PASO

We at The University of Texas at El Paso feel that this section of our catalog has only one very important purpose; namely, to introduce ourselves and our campus to those of you who are considering our University to further your education. The first step in our introduction is to give you a brief review of the history of U. T. El Paso. Following this, we have outlined the questions most frequently asked about our University and provided the answers to these questions. Finally, we have provided a section for information on admissions and the admissions process. We sincerely hope that you will find this information interesting and useful as you make your decision about our University. If you have any further questions about U. T. El Paso, do not hesitate to contact any member of our University community. You will probably find, however, that the Director of Admissions can be especially helpful to persons new to the University.

### *U.T. El Paso: A Historical Perspective*

Created in 1913 by an act of the Texas Legislature (and originally named the Texas State School of Mines and Metallurgy), today's University of Texas at El Paso has, since 1916, been located a few minutes north of downtown El Paso in the foothills of the Franklin Mountains.

The U.T. El Paso campus is easy to identify, even from the air. Its distinguishing characteristic is its Bhutanese architecture — unique in the Western Hemisphere — which was derived, 57 years ago, from photographs of the Himalayan kingdom of Bhutan which appeared in *National Geographic Magazine*. This caught the eye of the wife of the school's first dean with the result being the adoption of this architecture for all campus buildings.

Among the most important landmarks in the University's six-decade history are these: in 1919, the institution became a branch of The University of Texas System; in 1927 liberal arts courses were added to the curriculum (today, the College of Liberal Arts of U.T. El Paso is the largest of the five Colleges within the institution); in 1940, a master of arts degree was offered for the first time (today, graduate degrees in 19 fields of study are offered); in 1949, the name of the school was changed to Texas Western College (with enrollment at 2,659); in 1967, emphasizing its close association with the U. T. System, an act of the Texas Legislature changed the institutional name to The University of Texas at El Paso; and in 1968, enrollment at the El Paso school passed the 10,000 mark for the first time.

What of U. T. El Paso today? We can think of one thing which ought to be put up front in any such discussion. The University's president, Dr. Arleigh B. Templeton, has expressed it this way:

"We must give highest priority to ridding ourselves of all our stereotyped ideas about students — that they are all 18, seeking a degree in four years, have adequate money and adequate preparation to get through, have definite career goals, and so on. We have to see students as individuals with individual needs and we have to give students what is necessary for them to stay in school and to have a meaningful education that will work in their behalf when they leave here."

So, when we speak of "students" or "the student" in this or any other U. T. El Paso publication, we are using a convenient term rather than an explicit one. We are talking about all those individuals of whatever sex, age group, or ethnic background who have come to U. T. El Paso to learn.



*The open-door policy of the University's President, Dr. Arleigh B. Templeton, is a well-known and often utilized part of campus life. These open discussions and meetings have helped resolve many difficulties encountered by students, staff, and faculty.*

## QUESTIONS AND ANSWERS ABOUT THE UNIVERSITY OF TEXAS AT EL PASO

*What are the educational opportunities for students who attend U.T. El Paso?*

Answer: Students at U.T. El Paso, today, can select from more than 60 fields of study, ranging from Accounting to Zoology, leading to one of nine undergraduate degrees and six graduate degrees in nineteen specific study areas. In addition to most traditional fields of study, new programs are continually being added to the curriculum as the need becomes evident. Programs which have recently been established include: Black Studies, Chicano Studies, Criminal Justice, Industrial Engineering, Inter-American Studies, Kindergarten and Pre-School Education, Medical Technology, Soviet and East European Studies, and Speech Pathology.

*What is the faculty like at your University?*

Answer: Students at U.T. El Paso are taught by a faculty of some 400 women and men. These teachers comprise every field of scholarship and endeavor — engineers, artists, poets, social scientists, biologists, mathematicians, novelists, historians, linguists, physicists, philosophers, education experts, economists, accountants, lawyers, ethnologists, nurses, and so on. The main priority of all faculty is the effectiveness of their teaching. In addition, most faculty maintain strong research and professional interests. Thus, our faculty have published widely in their professional journals, they have written books and periodicals, and they have held important offices in local, regional, and national professional organizations.



*The main priority of all faculty is the effectiveness of their teaching. In addition, most faculty maintain strong research and professional interests.*

*If I attend your school where would I live?*

Answer: Students have several choices of living quarters. The University operates modern high-rise co-educational residence halls (opened in 1970). In addition to living in excellent facilities, residence hall students are within easy walking distance (5-10 minutes) of the class rooms and recreational and study facilities of the University. Many students also live off-campus in private apartments or with their parents or other relatives.

*What can I do at U.T. El Paso when I am not studying?*

Answer: This is one area where our students have an extra plus. In addition to the usual campus activities (i.e. intercollegiate and intramural sports, student clubs, concerts, student publications, films, lectures, forums, and student government), students attending U.T. El Paso are living in a unique southwest border location which enables them to do the following: snow-ski in the Cloudcroft/Ruidoso, New Mexico resort area; picnic, hike, and camp in this same area during the summer; visit the Carlsbad Caverns or White Sands National Monument; and backpack in the Gila Wilderness area or Lincoln National Forest. All of these activities are within a two hour drive of the University. Of course, another outstanding classroom diversion for our students is our sister city of Juarez, Mexico. With only the Rio Grande River separating our two cities, many students eat, shop, or attend bull fights, and other culturally unique activities across the river.



*Is there anything else I should know about your University?*

Answer: Yes, there is a great deal more to say about U.T. El Paso. However, we feel the essential points have been covered and would like to re-emphasize those things that give our University its unique identity: the administration's commitment to students as unique individuals without whom there would be no university; the faculty's commitment to effective teaching, research and professional activities; and finally the University's southwest border location which affords its students unique learning and recreational experiences.



*The Gila Wilderness Area provides a weekend challenge and diversion for UT El Paso students."*

# ADMISSION STANDARDS

## Admission of New Freshman

A graduate from an accredited high school who meets the minimum entrance examination requirements set by the University is eligible for undergraduate admission to the University of Texas at El Paso. An individual who did not finish high school but is over 18 years of age and has been out of school for more than one year can qualify for admission to the University on the basis of an average standard score of 45 or better on the Test of General Education Development (GED).

Students seeking admission to The University of Texas at El Paso should prepare themselves for college-level work by taking at least 3 years of English, 2 years of Natural Science, 2 years of Social Studies, 2 years of Math, 2 years of Foreign Language, and electives as determined by their particular school. Applicants to the College of Engineering should take at least 2 years of Algebra, 1 year of Geometry, and Trigonometry in preparation for their freshman year. Students who do not meet all these requirements will still be considered for admission to the University based on their entrance examination scores and their final high school rank.

The Scholastic Aptitude Test (SAT) or the American College Test (ACT) is required of all students graduating from American or English-speaking high schools within the past 5 years. Students graduating in the upper half of their high school class must score a minimum of 700 on the SAT or 15 on the ACT in order to be granted clear admission. Students graduating in the lower half of their class must score at least 800 on the SAT or 18 on the ACT.

## Admission of College Transfers

A transfer applicant from a fully accredited institution who has completed at least thirty semester hours of college work with at least a "C" average and has left that institution in good standing is eligible for admission to the University of Texas at El Paso. Transfer students from fully accredited institutions who graduated from high school within the past five years and who have accumulated less than thirty semester hours of credit must also submit SAT or ACT test scores and their high school transcripts in order to clear their admission. A student who does not have a cumulative grade point average of "C" or better but who has satisfactory test scores (ACT or SAT) may be admitted to U.T. El Paso on scholastic probation. Such cases will be individually reviewed by the Director of Admissions in consultation with the appropriate Academic Dean.

An applicant who has attended another college or university is not at liberty to disregard his collegiate record and apply for admission on the basis of his high school record only. The applicant must submit official copies of transcripts from all other colleges and universities attended regardless of the amount of work completed or the student's desire to apply this credit elsewhere.

Transfer students wishing to attend U.T. El Paso for the summer only (Summer Transients) should note this at the time of their application. They will then need to give U.T. El Paso a letter of good standing from the Registrar or Admissions Office of the University they are attending on a regular basis.

A transfer student who is on academic suspension and must wait out a specific length of time before returning to the institution he last attended must wait until that suspension period is over before applying to U.T. El Paso. If he is on academic probation at another institution and has not earned at least nine semester hours there, he must let a full semester intervene before being admitted to the University of Texas at El Paso. A student who is ineligible to return to the school he last attended or whose records are on "Hold" at that institution will not be admitted to the University.

In general, transferred work earned at a fully accredited institution will be evaluated on the same basis as if the work had been completed at U.T. El Paso, provided that the transferred work is included in the core curriculum of the degree the student is seeking. Subject to the core curriculum requirements, junior college credit (freshman and sophomore levels) will be accepted up to a maximum of 66 semester hours.

Courses completed at an unaccredited college will not be officially considered for evaluation as transferred credit until after the student has completed a total of 30 semester hours with a "C" average at the University of Texas at El Paso.

Not more than 30 semester hours of credit earned by extension and/or correspondence may be applied toward a degree. Of those 30 hours, only 18 may be earned by correspondence.

No credit earned by enrollment at another college or university while the student is currently enrolled at The University of Texas at El Paso will be counted toward a degree unless approval has been given in advance by the student's academic dean.



### Admission of Foreign Students

Applicants whose native language is not English are required to submit scores of 500 or better on the Test of English as a Foreign Language (TOEFL) in order to complete their admission requirements. The test should be taken early enough so the results are received by the University at least 60 days before the beginning of the semester for which the student is applying. TOEFL results should be reported to the University directly from the testing agency, and information concerning the exam may be obtained by writing to the Test of English as a Foreign Language, Box 899, Princeton, N. J., 08540.

Students from Spanish-speaking countries who are not proficient in English and are applying for the Inter-American Science Program should submit scores of 800 or better on the Prueba de Aptitud Académica (PAA) to fulfill their entrance requirements.

Since many students have difficulty in obtaining transcripts from their countries the University will accept complete official or notarized copies of high school or college work sent directly from each school involved. If the original transcripts are in the student's possession, he can submit copies with his application and then present the originals upon his arrival at the University and have them notarized at that time.

Financial assistance for foreign students is extremely limited. Therefore each student must furnish a statement of financial support from his parents or sponsor stating that they are able to finance his education while he is in this country. This must be

done before the student's admission can be cleared. Further questions in the area of finances should be sent to the Director of Admissions.

1-20 forms cannot be issued until a student's admission has been completely cleared and his applications, TOEFL scores, health form, official transcripts, and financial statement have been received and processed by the University.

### Re-Admission of Former University of Texas at El Paso Students

Students who have been out of school for more than two long semesters must submit an application for re-admission. Students who have attended another college or university since last attending here must have an official transcript of that work sent so it can be evaluated and posted on his U.T. El Paso record.

### Admission of Students Currently Enrolled in High School

The University of Texas at El Paso in cooperation with area High Schools maintains a joint enrollment option for students wishing to enroll in University classes while still attending high school. This Privileged Entrance Program (PEP) requires that the student submit a formal application, supporting letters of recommendation from high school counselors and/or principals, appropriate test scores, and supporting letters from parents or guardians. Further questions regarding this program should be sent to the Director of Admissions, University of Texas at El Paso.



# ADMISSION EXCEPTIONS

## Provisional Admission

The Board of Regents of the University of Texas System has established, at all component institutions, an admission option for students whose admissions credentials do not qualify them for regular admission. This provisional admission opportunity is routinely available for all students during the Spring and Summer Sessions. In cases where this policy works an unusual hardship on the students a letter detailing the need to enter provisionally in the Fall semester should be sent to the Director of Evaluation. These letters will be forwarded to the Dean of the College of Liberal Arts for review. The Director of Evaluation will subsequently notify the student regarding the admission decision.

Provisional admission requires the student to complete a minimum number of semester hours credit from a selected set of courses with a particular grade point average. Academic advising is required of all provisionally admitted students and is done by the Dean of the College of Liberal Arts. For further information regarding this admission option, please contact the Director of Evaluation, University of Texas at El Paso.

## Conditional Admission

Students whose admission credentials are incomplete, but whose available credentials indicate the probability of regular admission may be admitted conditionally, pending

completion of all required admission credentials. The missing credentials must be supplied to the University during the student's first semester of enrollment, otherwise the student's records will be placed on "hold" and the student will not be allowed to re-enroll.

Students transferring from non-accredited institutions who would not be admissible to the University on the basis of their high school record or test scores may be admitted conditionally. At the end of thirty semester hours completed at U.T. El Paso the academic records of these students will be reviewed. At this point the appropriate academic Dean will make a decision regarding the individual student's academic progress.

## Individual Approval Admission

Students whose individual circumstances are highly unusual with respect to their admission credentials may petition the University for acceptance on an individual approval basis. This should be done in writing to the Director of Admissions, The University of Texas at El Paso. The Director of Admissions will individually review each case and when necessary conduct personal interviews with the candidates for individual approval admission. His recommendations will then be forwarded to the Vice President for Academic Affairs for a final decision.



# RESIDENCE CLASSIFICATIONS

## Categories and Generalized Guidelines for Establishing Texas Residency

### Minors

An individual under eighteen (18) years of age who is living away from his family, and whose family resides in another state or has not resided in Texas for the 12-month period immediately preceding the date of registration shall be classified as a non-resident student.

An individual eighteen (18) years of age or under whose family has not resided in Texas for the 12-month period immediately preceding the date of registration shall be classified as a non-resident student regardless of whether he has become the legal ward of residents of Texas or has been adopted by residents of Texas while he is attending an educational institution in Texas, or within a 12-month period before his attendance, or under circumstances indicating that the guardianship or adoption was for the purpose of obtaining status as a resident student.

An individual 18 years of age or under whose parents were residents of Texas at the time of the student's registration is entitled to pay the resident tuition fee following the parents' change of legal residence to another state, as long as the individual remains continuously enrolled in a regular session in a state-supported institution of higher education.

### Residence of Individuals Over Eighteen

An individual eighteen (18) years of age or over who has come from outside Texas and who is gainfully employed in Texas for a 12-month period immediately preceding registration in an educational institution shall be classified as a resident student as long as he continues to maintain a legal residence in Texas.

An individual eighteen (18) years of age or over who resides out of the state or who come from outside Texas and who registers in an educational institution before having resided in Texas for a 12-month period shall be classified as a non-resident student.

A non-resident student classification is presumed to be correct as long as the residence of the individual in the state is primarily for the purpose of attending an educational institution. After residing in Texas for at least twelve (12) months, a non-resident student may be reclassified as a resident student as provided in the rules and regulations adopted by the Coordinating Board, Texas College and University System. Any individual reclassified as a resident student is entitled to pay the tuition fee for a resident of Texas at any sub-

sequent registration as long as he continues to maintain his legal residence in Texas.

### Married Students

A non-resident who marries and remains married to a resident of Texas, classified as such under this Act at the time of the marriage and at the time the non-resident registers, is entitled to pay the resident tuition fee regardless of the length of time he has lived in Texas, and any student who is a resident of Texas who marries a non-resident is entitled to pay the resident tuition fee as long as he does not adopt the legal residence of the spouse in another state.

### Military Personnel and Veterans

Military personnel are classified as provided by this section in the following manner:

An officer, enlisted man or woman, selectee or draftee of the Military Service of the United States who is assigned to duty in Texas is entitled to register himself, his spouse, and their children in a state institution of higher education by paying the tuition fee and other fees or charges required of Texas residents, without regard to the length of time he has been assigned to duty or resided within the state.

A person on military service who wishes to pay the resident tuition fee for himself or his dependents must submit at the time of each registration a statement from his Commanding Officer or Personnel Officer certifying that he is then assigned to duty in Texas and that same will be in effect at the time of such registration in an institution of higher education.

As long as they reside continuously in Texas, the spouse and children of a member of the Armed Forces of the United States who has been assigned to duty elsewhere immediately following assignment to duty in Texas are entitled to pay the tuition fees and other fees or charges provided for Texas residents.

A person who enrolls in an institution of higher education following his separation from military service must be classified as a non-resident student unless, (1) he was a legal resident of Texas at the time he entered military service and has not relinquished that residence, (2) he can prove that during his military service he has, in fact, established a bona fide, legal residence in Texas at a time at least 12 months prior to his registration, or (3) he has resided in Texas other than as a student for 12 months prior to his registration and subsequent to his discharge from service.

The spouse and children of a member of the Armed Forces of the United States who dies or is killed are entitled to pay the resident tuition fee, if the wife and children become residents of Texas within 60 days of the date of death.

If a member of the Armed Forces of the United States is stationed outside Texas and his spouse and children establish residence in Texas by residing in Texas and by filing with the Texas institution of higher education at which they plan to register a letter of intent to establish residence in Texas, the institution of higher education shall permit the spouse and children to pay the tuition, fees, and other charges provided for Texas residents without regard to length of time that they have resided within the State.

#### **Employees of Institutions of Higher Education Other Than Students**

A teacher, professor, or other employee of a Texas institution of higher education is entitled to register himself, his spouse, and their children in a state institution of higher education by paying the tuition fee and other fees or charges required for Texas residents without regard to the length of time he has resided in Texas. A teacher, professor, or other employee of a Texas institution of higher education is any person employed at least one-half time on a regular monthly salary basis by a state institution of higher education.

#### **Student Employees**

A teaching assistant, research assistant, or other student employee of any institution covered by this section is entitled to register himself, his spouse, and their children in a state institution of higher education by paying the tuition fees and other charges required for Texas residents, without regard to the length of time he has resided in Texas; provided that said student employee is employed at least one-half time in a position which relates to his degree program under rules and regulations established by the employer institution. This exemption shall continue for students employed two consecutive semesters through the summer session following such employment if the institution is unable to provide employment and, as determined under standards established by the Institution, if the employee

has satisfactorily completed his employment.

#### **Competitive Scholarships**

A non-resident student holding a competitive scholarship of at least \$200 for the academic year or summer for which he is enrolled is entitled to pay the fees and charges required of Texas residents without regard to the length of time he has resided in Texas, provided that he must compete with other students, including Texas residents, for the scholarship and that the scholarship must be awarded by a scholarship committee officially recognized by the administration of the institution of higher education.

#### **Citizens of Any Other Country Other Than the United States of America**

An alien who is living in this country under a visa permitting permanent residence or who has filed with the proper Federal immigration authorities a declaration of intention to become a citizen has the same privilege of qualifying for resident status for fee purposes under this Act as has a citizen of the United States.

#### **Student Responsibilities**

The responsibility of registering under the proper residence classification is that of the student, and if there is any question of his right to classification as a resident of Texas, it is his obligation, prior to or at the time of his registration, to raise the question with the administrative officials of the institution in which he is registering and have such officially determined.

Every student who is classified as a resident student but who becomes a non-resident at any time by virtue of a change of legal residence by his own action or by the person controlling his domicile is required to notify the proper administrative officials of his institution at once.

#### **Official Change of Residence Status**

Every student classified as a non-resident student shall be considered to retain that status until such time as he shall have made written application for reclassification in the form prescribed by the institution and shall have been officially reclassified in writing as a resident of Texas by the proper administrative officers of the institution.

## ENDOWMENTS, TRUSTS & MEMORIAL FUNDS

The University of Texas at El Paso is indebted to the generosity of private citizens for many fine endowments, trusts and memorial funds. These permanent funds, invested under trusteeship of the Regents of The University of Texas System or held by other trustees, provide scholarships, purchase library books, underwrite important research, and in many ways enrich the educational experience. The University makes grateful acknowledgement for the following permanent funds.

**ALPHA CHI LIBRARY ENDOWMENT FUND** — Established in 1972 by the scholastic honorary for Juniors and Seniors at the University.

**GRACE ANN BEAL PERMANENT MEMORIAL FUND** — Established in memory of Grace Ann Beal by her sister, Miss Virginia Beal, and by friends. The income from this fund provides scholarship aid to pre-medical students and to students of nursing.

**C. D. BELDING PERMANENT MEMORIAL FUND** — Founded by Mrs. C. D. Belding in memory of her late husband, this fund's income provides scholarships without restriction as to field of study.

**J. B. AND MARGARET BLAUGRUND FOUNDATION LIBRARY FUND** — Established in 1973 by Mrs. Alvin J. Marks, the income from this endowment fund is used to purchase books for the library.

**ANDY AND SYD COHEN ENDOWMENT FUND** — Established by friends of the Cohen brothers. Andy and Syd Cohen are former collegiate and professional athletes, El Paso businessmen, civic leaders and friends of the University. Income from the endowment will be used to provide scholarships to deserving student athletes.

**FRANK B. COTTON ESTATE FUND** — Founded by trustees of the estate of Frank B. Cotton, a Massachusetts manufacturer and investor, the estate's income has provided the University with the Cotton Memorial Building, has afforded financial aid to students, and continues to contribute vitally to the Excellence Program.

**BROOKS DAWSON MEMORIAL SCHOLARSHIP** — Established in 1970 by friends of a former student who was a prominent football player and student leader. The scholarship will be awarded

each year to a student majoring in accounting.

**FESSINGER MEMORIAL LECTURE FUND** — Created by Mr. and Mrs. Moses D. Springer in memory of Mrs. Springer's parents, Reuben and Leona Fessinger, this fund will be used to bring a nationally recognized lecturer in the Physical Sciences to the University each year.

**JOSEPHINE CLARDY FOX FOUNDATION** — Established by the bequest of a prominent El Paso woman who left her estate to the University upon her death in 1970. Mrs. Fox's estate was extensive, including real estate, valuable antiques, paintings, and books, as well as liquid assets. Mrs. Fox established an endowed scholarship fund with a gift of \$20,000, and she created a student loan fund of \$2,500. Her books went to the University Library, and she bequeathed antiques and other valuable items to the Centennial Museum at the University. The remainder of her estate, in accordance with Mrs. Fox's instructions, is an unrestricted endowment named in her honor.

**DAVIS AND BERTHA GREEN PERMANENT ENDOWMENT** — The gift of Davis and Bertha Green, this endowment provides scholarships for students majoring in the Sciences.

**PERCIVAL HENDERSON PERMANENT ENDOWMENT** — The income from the bequest of Percival Henderson provides scholarships for students of Engineering.

**LUCY CLAIRE HOARD PERMANENT MEMORIAL FUND** — This fund, established by Kappa Chapter, Delta Kappa Gamma, affords scholarship aid to a woman student majoring in Education.

**MR. AND MRS. O. B. HOCKER LIBRARY MEMORIAL FUND** — Endowed by the bequest of Mrs. O. B. Hocker of El Paso, who died in 1971. Mrs. Hocker created a trust at the El Paso National Bank whose income is to be used by the University to purchase books in her memory and in her husband's memory.

**DANIEL L. HILL SCHOLARSHIP** — A perpetual scholarship endowed by the family and friends of the late Daniel L. Hill. The endowed scholarship is awarded annually to a deserving student of accounting.

**BEN L. JIROU SCHOLARSHIP IN SCIENTIFIC RESEARCH** — this endowed scholarship was established in 1969 by Mrs. Ben L. Jirou as a memorial to her husband. The income from the endowment will provide an annual scholarship of approximately \$500 per year to a deserving student in the College of Science. Mr. Jirou, an official of the International Boundary and Water Commission, was a resident of El Paso from 1920 until his death in 1967.

**THE GLADYS JOHNSTON MEMORIAL FUND** — Established by the will of Miss Gladys Johnston of El Paso, who died in 1971. Miss Johnston bequeathed her estate to the University to create a permanent fund to purchase books and equipment for the Library.

**EMANUEL AND CHARLOTTE KLEIN LIBRARY MEMORIAL FUND** — Established in 1967 by Mr. Julius Klein of California and Mrs. Bernard Rubenstein of New York City in memory of their parents. The earnings of this fund are used to purchase books for the Library.

**ELIAS G. KRUPP MEMORIAL SCHOLARSHIP** — Established in 1975 by the Jewish Community of El Paso in memory of Elias G. Krupp, prominent El Paso businessman, civic leader and philanthropist. Scholarship to be awarded to a junior or senior majoring in Liberal Arts.

**LEASURE MEMORIAL LIBRARY FUND** — A tribute to the late James L. Leasure (1952), an alumnus of the University and to his father, L. Vere Leasure, who was a member of the original (1916) graduating class of the Texas State School of Mines and Metallurgy, this endowment fund is used to buy books for the University Library.

**LIBRARY ENDOWMENT** — This fund consists of memorial contributions to the University Library, which will purchase one book each year for each \$100 contribution. The name of the person in whose memory the contribution is made is placed in the book purchased in his memory. This endowment contains memorial gifts made in honor of many alumni and friends. For some of them, one memorial volume is added to the Library each year. For others several volumes are purchased. In time, the number of volumes bearing the names of the men and women in whose honor these gifts have been made will be substantial.

**E. RAY LOCKHART LIBRARY MEMORIAL FUND** — Created in 1971 in memory of Mr. Lockhart, a distinguished alumnus who attended the University from 1929 to 1932. The endowment was created by alumni and friends and will purchase engineering books for the Library.

**DR. CHARLES C. G. MANKER MEMORIAL MUSIC FUND** — Established in 1973 by the congregation of the First Unitarian Church of El Paso to honor their late minister, Dr. Manker. The earnings of this endowment fund will be used to provide scholarships in music.

**ALVIN J. MARKS MEMORIAL SCHOLARSHIP** — Established by the Blaugrund Foundation and the family of the late Alvin J. Marks, El Paso civic leader and businessman. The income from the endowment is used to provide one or more scholarships to students selected by the University.

**JOHN JUDY MIDDAGH LIBRARY MEMORIAL FUND** — Established in 1973 by friends and associates of Professor John Middagh, a member of the University faculty for 25 years and chairman of the Journalism Department at the time of his death.

**MARTHA MILLER McDONALD MEMORIAL SCHOLARSHIP IN MUSIC** — This endowed scholarship was created in 1973 by Mr. Kenneth McDonald of Hampton, Virginia in memory of his wife, a graduate of the University, class of 1959.

**ELIZABETH CRAM POLK MEMORIAL ENDOWMENT** — Established in memory of the wife of former University Librarian Baxter Polk, this endowment is used to purchase books for the library. Mrs. Polk died in 1966.

**LLOYD A. NELSON MEMORIAL PROFESSORSHIP IN GEOLOGY** — Friends and associates of the late Dr. Lloyd A. Nelson, a distinguished alumnus and a member of the faculty from 1920 to 1964, have established a professorship in his honor. The professorship required an endowment of \$100,000.

**GORDON PONDER PERMANENT MEMORIAL FUND** — This fund was established by Mr. and Mrs. Jack Ponder in memory of their son, who died while a student at The University of Texas at El Paso. Its income is used to purchase books for the University Library.

**THE PRESIDENT'S ASSOCIATES ENDOWMENT FUND** — This fund was created by the President's Associates, a group of friends of the University who contribute at least \$500 annually to academic programs. Each year one-half of unrestricted gifts from members is transferred to the endowment fund. Income from the endowment is used for academic improvement as determined by the President with approval of the Associates.

**VINCENT M. RAVEL COLLECTION OF JUDAICA** — A memorial to a prominent El Paso physician who made many contributions to the Library during his lifetime. After his death in 1969, his widow gave to the University their collection of books on Jewish history, culture, and customs. A permanent fund to finance additional purchases for the collection was established by Dr. Ravel's friends.

**JULIA ANN ROSS MEMORIAL SCHOLARSHIP** — Created by the El Paso school teacher and alumna for whom the scholarship is named. Mrs. Ross bequeathed to the University a portion of her teacher's retirement fund to establish a scholarship endowment to aid qualified students who are in need of financial assistance. There is no restriction as to field of study, and the scholarship is open to men and women who are citizens of the United States.

**J. M. ROTH PERMANENT MEMORIAL FUND** — Established by the J. M. Roth Society of The University of Texas at El Paso with contributions from the late educator's friends, this fund memorializes a former chairman of the Department of Philosophy and Psychology. Its income provides scholarships to students of Philosophy and Psychology.

**EMMA H. SCHELLENGER TRUST** — Established under the will of Mrs. Emma H. Schellenger as a memorial to her husband, Newton C. Schellenger. The income from this trust held by the El Paso National Bank is used for support of the Schellenger Research Laboratories.

**DAVID WADDELL SCHILLINGER SCHOLARSHIP** — A memorial to the son of Mr. and Mrs. William C. Schillinger, this scholarship was established in 1970. The endowment will provide funds each year to a student or students to be selected by the University. The donors have permitted the University almost full discretion in selecting the recipient, requiring only that highest priority be given to financial need.

**NANDOR SCHWARTZ MEMORIAL SCHOLARSHIP** — Established in 1975 by the Jewish Community of El Paso in memory of Nandor Schwartz, prominent El Paso businessman, civic leader and philanthropist. Scholarship to be awarded to a junior or senior majoring in Liberal Arts.

**MICHAEL M. SHEA MEMORIAL SCHOLARSHIP** — Established in 1975 by the family and friends of Lieutenant Michael J. Shea, USMC, a 1972 graduate of the University, who lost his life in the final evacuation of Americans and refugees

from South Vietnam.

**PATRICIA HEWITT SILENCE MEMORIAL TRUST** — This fund was established by the will of Miss Patricia Hewitt Silence of El Paso, who died in 1970. Her heirs created a trust at the El Paso National Bank, the income of which will be used by the University in the furtherance of music and art, particularly art of the Southwest.

**D. B. SMITH MEMORIAL SCHOLARSHIP** — Established in 1975 in memory of Mr. David B. Smith, a 1952 graduate of the University, by his family, friends and business associates. The scholarship is awarded to a student majoring in Geology.

**HARRY SPITZ MEMORIAL SCHOLARSHIP** — Established in memory of Mr. Spitz, a resident of El Paso for 52 years and a prominent businessman by his widow, Mildred Leikowitz Spitz, and his daughter, Leona Spitz Lakehomer. The scholarship will be awarded to a student majoring in pre-medical studies.

**THE WILLIAM L. STALEY GRANT FOR RESEARCH INTO THE LIFE SUBSTANCE** — A bequest from the late William L. Staley, is administered by Dr. E. W. Rheinheimer and used to support research sponsored by the Schellenger Research Laboratories.

**THE LYDIA STARK MEMORIAL SCHOLARSHIP IN SPEECH THERAPY** — Established in 1970 in memory of a distinguished El Paso civic leader and teacher. The scholarship is to assist students who will make speech therapy a career.

**LUCILLE T. STEVENS ESTATE FUND** — Established by the bequest of Mrs. Lucille T. Stevens, this estate provides income for the University's most valuable scholarship awards. The Stevens Scholarships, in a maximum amount of \$5,000, are directed to male students with outstanding academic records.

**STUDENT LOAN FUNDS** — Financial assistance to students in the form of emergency loans is available through loan funds established by friends of the University, both individual and organizational. The named funds are:

**ANTOINETTE CARDONA LOAN FUND**  
**CLARENCE CERVENKA MEMORIAL LOAN FUND**

**DR. MARION AND BETTY CLINE MEMORIAL LOAN FUND**

**REBEKAH COFFIN LOAN FUND**  
**ENGINEERS LOAN FUND**

FOREIGN STUDENTS LOAN FUND  
JOSEPHINE CLARDY FOX STUDENT  
LOAN FUND  
REYNOLDS-FRIEDMAN MEMORIAL  
FUND

BILL GOODMAN MEMORIAL LOAN  
FUND

EARL HARDAGE LOAN FUND  
HOGG FOUNDATION LOAN FUND  
W. W. LAKE LOAN FUND

LULAC COUNCIL #8 STUDENT LOAN  
FUND

FRANK MEADOR MEMORIAL LOAN  
FUND

MINING AND METALLURGY LOAN  
FUND

EVELYN PORTERFIELD LOAN FUND  
REBECCA STODDERT CHAPTER —  
D.A.R. LOAN FUND

ALUMNI ASSOCIATION LOAN FUND  
FUND

WOMEN'S AUXILIARY EMERGENCY  
LOAN FUND

H. BROOKS TRAVIS LIBRARY ME-  
MORIAL FUND — Established in mem-  
ory of Brooks Travis, distinguished alum-  
nus, El Paso businessman and civic  
leader by his friends and associates.

LEE TREVINO ENDOWMENT FUND —  
This endowment was created by profes-  
sional golfer, Lee Trevino of El Paso. In-  
come from the endowment will be used  
to provide a scholarship for a deserving  
student golfer from the United States  
or Canada.

UNIVERSITY CIVIC BALLETT  
SCHOLARSHIPS — Two scholarships  
awarded annually to full-time students  
with recognized ability in ballet. These  
scholarships were established by the  
University Civic Ballet Foundation of  
El Paso.

CAPTAIN JAMES R. VALTR MEMO-  
RIAL FUND — An endowed scholar-  
ship in memory of Captain Valtr who was  
killed in action in Vietnam on June 16,  
1971. The scholarship is for advanced  
ROTC students, selected by the Depart-  
ment of Military Science. Captain Valtr  
was a graduate of the class of 1968.

KATHERINE H. WHITE MEMORIAL  
LIBRARY FUND — Established by U.S.  
Congressman Richard C. White of El  
Paso in memory of his wife, the late

Katherine Hope Huffman White, an  
active, popular and respected social and  
civic leader, and an alumna of the Uni-  
versity. The income of this fund will be  
used to purchase books for the Library.

B. MARSHALL WILLIS LIBRARY ME-  
MORIAL — This Permanent endowment  
was created in 1968 by friends of B.  
Marshall Willis, a distinguished alumnus  
and El Paso business and civic leader.  
*Income from the endowment will purchase  
books in his memory each year in per-  
petuity.*

ABRAHAM WINTERS — B'NAI B'RITH  
WOMEN SCHOLARSHIP — In memory  
of her husband, Mrs. Judith Winters,  
in conjunction with the B'nai B'rith women,  
awards a scholarship of at least \$100 per  
semester to a needy student. The schol-  
arship is endowed through a trust fund  
established by Mrs. Winters, and addi-  
tional contributions are made by the  
B'nai B'rith women.

JUDITH WINTERS SCHOLARSHIP —  
This endowed scholarship was established  
by Mrs. Judith Winters of El Paso. It  
is awarded annually to a qualified and  
deserving girl student.

WOMAN'S AUXILIARY OF U.T. EL  
PASO LIBRARY ENDOWMENT — This  
perpetual fund for the purchase of Li-  
brary books was established in 1969 by  
the Woman's Auxiliary of the University.  
The Auxiliary contributes each year to  
the growth of the fund.

MR. AND MRS. WILLIAM HENRY  
WOOLDRIDGE LIBRARY FUND — Es-  
tablished in 1971 in honor of Mr. and Mrs.  
W. Henry Woodriddle of El Paso. The  
income from the endowment will be used  
to purchase books for the University  
Library in their honor.

WORRELL MEMORIAL SCHOLARSHIP  
— Established in 1975 by friends of Leon  
Worrell and his son, Corky, of El Paso  
who lost their lives in a boating accident  
at Elephant Butte Lake.

YSLETA VOLUNTEER FIRE DEPART-  
MENT SCHOLARSHIP FUND — Main-  
tained for many years by the trustees of  
this organization and transferred to the  
University in 1970. The University will  
continue the trustees' policy of awarding  
one or more annual scholarships to grad-  
uates of Ysleta High School.



## UNIVERSITY SERVICES AND SPECIAL OFFICES

**THE LIBRARY** — The University Library is the heart of the University, serving the research and study requirements of students and faculty with a rapidly expanding collection of books, periodicals, microfilms, audio-visual materials, documents, and maps. Current holdings of the Library include 348,401 books and bound periodicals, 54,869 documents, 3,491 serial and periodical subscriptions, 257,852 pieces of microfilm, and 50,461 maps. Altogether, the new Map Collection provides support for Geology and Geography. These holdings represent varied and important resources for faculty and students.

The library is fortunate to have several outstanding special collections of books and other materials which support important academic emphases at the University. The Mexican and Southwestern Collection, donated over the years by U.T. El Paso Professor John H. McNeely, is a major resource for scholars, and the Carl Hertzog Collection of materials on printing, books and book design is an interesting and valuable collection. Other special collections include the Ravel Judaica Collection and the S.L.A. Marshall Collection on Military History which was donated recently by Gen. S.L.A. Marshall, a noted military historian.

Latin American and Chicano Studies programs have developed rapidly on this campus, and the Library has been able to add many resources in these areas in the past few years. The Library has also created new services to help support these programs along with the strengthening of library materials.

The Science Library was added as a branch to serve the areas of Mathematics, Chemistry and Physics in 1970, and the Education Library branch was established in 1972. Both collections have extensive holdings of books, periodicals and other materials to serve students and faculty in these two fields.

**THE SCHELLENGER RESEARCH LABORATORIES (SRL)**, created in 1953 under the will of Mrs. Emma L. Schellenger as a memorial to her husband, Newton C. Schellenger, were founded to promote and encourage research in electricity.

SRL specializes in atmospheric and acoustic research and instrumentation. It has investigated virtually every aspect of every parameter of the atmosphere

and has developed specialized instruments for measuring and testing these parameters; some of the instruments are being considered for patents. Studies in the life sciences have included cardiac, dental, and orthopedic research. SRL personnel have journeyed to Antarctica, Hawaii, Puerto Rico, and all over the continental United States for research purposes.

SRL is open to proposals in various fields of the physical sciences, engineering, mathematics, the life sciences, and allied areas, and is able to offer administrative and technical support to all areas of research at The University of Texas at El Paso.

**THE EL PASO CENTENNIAL MUSEUM** was erected in 1936 with funds allocated by the Commission of Control for the Texas Centennial Celebration. It is devoted to the preservation, documentation, and exhibition of objects and ideas pertaining to the human and natural history of the El Paso del Norte region. Noteworthy collections include pottery, stone tools, and shell jewelry from the prehistoric Mexican ruins of Casas Grandes, Chihuahua; mineral and rock specimens from regional and extraregional mines and localities; dinosaur bones from the Texas Big Bend area; and fossil elephant and other remains from local Ice Age deposits.

The Museum Sponsors archeological research in northern Mexico where prehistoric pueblos as well as Spanish missions and garrisons have been investigated. Members of the staff have also participated in an expedition to the Sacred Well of the Maya at Chichen Itza, Yucatan, where underwater excavation uncovered bones of sacrificial victims and gold, jade, copper, wood, and textile ornaments and other objects offered to the Rain God believed to live in the Well.

Current research is focused on the reconstruction of past climatic conditions in the El Paso area as an aid to predicting long range environmental conditions and as a basis for understanding subsistence patterns of Indian societies in the area.

Information derived from Museum research is made available through publications and through exhibits in the Museum where they may be seen between 10 a.m. and 5 p.m. Monday through Friday and between 1 and 5 p.m. on Saturday and Sunday.

THE CROSS-CULTURAL SOUTH WEST ETHNIC STUDY CENTER was established at the UT El Paso campus in September, 1971 under the Spencer Foundation grant. The Center, directed by Dr. Z. Anthony Kruszewski, is devoted to investigating Southwest ethnic group relationships and conflicts. It aims at helping to prepare courses and self-containing units on the Southwest ethnic heritage for inclusion and integration in the regional Liberal Arts curricula. The Center is also coordinating activities aimed at creating a cultural data bank for illuminating various aspects of Inter-ethnic relationships.

The Centers Research Associates conducting projects in Humanities and Social Sciences represent a broad inter-departmental spectrum from various Departments of the Colleges of Liberal Arts and Education, and from the Center for Inter-American Studies at U.T. El Paso. They utilize a variety of research techniques to collect, analyze, and interpret basic cultural data on ethnic groups.

The Center's current projects include: (1) research on Sociolinguistics and Communication problems funded by the Gulf Oil Education Committee, (2) three-year project funded by the National Endowment for the Humanities to develop courses for the Humanities Border Studies Program, (3) the Inter-institutional Bicentennial Project of the El Paso community college/U.T. El Paso, Funded by, the Texas Colleges Bicentennial Program, Inc., and (4) Bilingual/Bicultural Education Symposia project funded by the Excellence Fund. Funding for other projects is pending.

The Center publishes quarterly *Bulletin of the Cross-Cultural Southwest Ethnic Study Center at U.T., El Paso*. Center's research activities and yearly conferences have generated books, articles, M.A. Theses, and, Ph.D. dissertation.

THE JOHN W. KIDD MEMORIAL SEISMIC OBSERVATORY is in continuous year-round operation. The station is equipped with a Benioff verticle seismograph and two Benioff horizontal seismographs with complete component recorders for study of both short-period and long-period seismic waves. The records are used for research studies of earthquakes and related phenomena.

THE CENTER FOR CONTINUING EDUCATION presents courses or programs to answer community needs for education

or training outside the regular channels of instruction. Although college credit is not granted for Continuing Education work, certificates from the University are presented to those who complete the courses. In addition, if the course meets specified requirements, each person who completes it is awarded a Continuing Education Unit(s).

THE BUREAU OF BUSINESS AND ECONOMIC RESEARCH was set up on the campus in September, 1963. Its object is to maintain a continuous survey of the El Paso economy, to conduct and supervise special studies of interest to the University and the community, and to build up a repository of statistical and analytical information. A monthly report is issued and special papers based on economic research are published from time to time.

TEXAS WESTERN PRESS is an internationally known book publisher and university press. It issues hardback books (written by faculty members and off-campus authors) as well as paperbacks (including the *Southwestern Studies* monographs) which are sold nationally. TW Press specializes in the history and culture of the Southwest, although some titles are broader in scope. Manuscripts may be submitted to the director for consideration by the Editorial Board. Offices are located at 1930 Wiggins.

THE UNION SERVICES include a book store, snack bar, meeting rooms, and recreational facilities.

Plays, lectures, and musical performances are presented in Magoffin Auditorium — an air-conditioned building with big-theater stage facilities and modern sound equipment seating 1,600.

The new Fine Arts Complex will also accommodate these activities in its Music and Drama theaters.

STATIONS KTEP (FM) AND KVOF (carrier current) are owned and operated by the University. KTEP broadcasts in stereo with 100,000 watts of power providing daily service to the El Paso metropolitan area. Qualified advanced students may register for operator shifts on KTEP.

KVOF broadcasts to the dorm students. The facilities are designed to provide instruction and practice to beginning broadcasting students.

THE CENTER FOR INTER-AMERICAN STUDIES was established in 1973 to administer the Latin American Studies Program and the Inter-American Science Program. In addition, the Center coordinates most inter-American programs on the campus and acts as a clearing house for information and funding for special projects. The Center publishes a series of Occasional Papers, a periodical newsletter and various other materials of interest to both students and faculty.

The Inter-American Science Program is a first year program in which freshman courses are conducted in Spanish but using textbooks in English. It is designed to serve students who are able to read English but require additional training in speaking skills. Upon completion of two semesters of lower division bilingual courses, students may transfer to a regular University degree program. (See section of Admission Procedures for Foreign Students for requirements for this program.)



## STUDENT AFFAIRS

This division consists of the Student Affairs Office, the Financial Aid and Placement Office, the Housing Office, the International Student Services Office, the Student Activities Office, the Scholarship Office, the Student Health Service, the Study Skills and Tutorial Services Office, Student Publications, the Ticket and I.D. Card Center, the University Counseling Service, The Union, and the Veterans Affairs Office.

The personnel in all the offices in the Division of Student Affairs are concerned with providing services to students and promoting the welfare of the entire student body. Students are encouraged to utilize and take advantage of the services provided by these offices.

### STUDENT AFFAIRS OFFICE

The Student Affairs Office is located in room 102W — The Union. Under the direction of the Dean of Students, this office coordinates all services available to students through departments under its authority. Its primary purposes, however, are to ensure that students' rights are protected and to help students with problems. Students are encouraged to come to the Student Affairs Office whenever they are in need of assistance of any kind. This office is also responsible for student discipline, registered student organizations, social activities on campus, Men and Women of Mines, Who's Who Among Students in American Colleges and Universities and liaison with the Student Association.

### NEW STUDENT ORIENTATION

At the start of every semester and during the summer, Orientation is held for students new to the University of Texas at El Paso. These sessions are designed for both new freshmen and transfer students. Orientation acquaints students with opportunities available at U.T. El Paso and provides them with academic advising and information about university life.

New Student Orientation is coordinated by the staff of the University Counseling Service. Specific information concerning Orientation for any given semester can be obtained by writing or calling New Student Orientation, Room 110 West Union Building (747-5541).

### STUDY SKILLS & TUTORIAL SERVICES

The purpose of these services is to help UTEP students improve their general competency and performance in their academic subjects.

*The Credit Classes.* Two credit classes, taught by members of the Study Skills & Tutorial Services staff, are specifically

designed to help students succeed with their university level course work.

The first of these, *Introduction to College Study*, (English 2121), deals with the following subjects: taking lecture notes, reading & noting textbooks, doing library research, increasing reading speed, improving reading comprehension, preplanning study time, understanding the key terminology of a subject, organizing study materials, preparing for and writing exams, planning and writing papers and oral reports.

The second class, *Quantitative Study Skills*, (Math 2121), is designed to help any student who needs to learn to solve word problems and apply math skills in such courses as freshman chemistry, calculus, business math, etc. Students may register for these classes at registration each semester.

*The Non-Credit Classes.* Free, non-credit classes are taught each semester in vocabulary, algebra review, trigonometry review, and preparation for the LSAT and MCAT. Help sessions are offered in chemistry and various math classes.

*The Free Tutoring Program.* Any UTEP student can seek free tutoring in any subject at any time. The tutors are students who are successful themselves in the subjects they tutor and who have also received special training in tutoring techniques.

"Walk-in" tutoring (no appointment needed) is available in mathematics, chemistry, English conversation, Spanish conversation, writing, reading, and study skills.

Tutoring in other areas is done during weekly or bi-weekly appointments with tutors in the Tutoring Room, 108 West Union, for as long as a student needs help.

A student may secure a tutor or sign up for a non-credit class by coming to the Study Skills & Tutorial Services offices in Rooms 105 West or 108 West Union.

### UNIVERSITY COUNSELING SERVICE

With its central office located in Room 103 of the West Wing of the Student Union Building, the University Counseling Service (UCS) coordinates and provides a variety of services for all members of the University community. The core of these services is the personal, vocational, and academic counseling available to students, staff, and faculty.

Other services coordinated by UCS include the Career Information Center, withdrawal from the University, and testing. The Career Information Center, located in 110 West Union Building, is a centralized library and resource center for students seeking information about graduate and professional opportunities and career opportunities in their major areas or related fields.

Total withdrawals from the University are coordinated by UCS. Any student leaving the University during the semester does so through the UCS Office.

Finally, UCS serves as a testing center, administering interest and personality tests and a wide range of achievement tests such as the LSAT, SAT, ACT, GRE, ATGSB, CLEP, TOEFL, NTE, Miller Analogies Test and Dental Aptitude Test. Placement tests are given in Biology, English, History and Mathematics.

### VETERANS COUNSELING OFFICE

The Veterans Affairs Counseling Office offers professional counseling to veterans and dependents upon request. Academic, vocational, and personal counseling is conducted and pertinent testing programs designed and interpreted. The office is located in 103 West Union Building. (747-5456)

### VETERANS AFFAIRS OFFICE

The Veterans Affairs Office is located in Room 209 West — The Union. It serves those students that are authorized to receive educational benefits from the Veterans Administration. Records are maintained and reports made to the Veterans Administration in behalf of veterans, dependents, and active-duty servicemen enrolled at the University which enables them to receive benefits. Veterans Representatives are available to help students with V.A. related problems through direct communication with the Veterans Administration. This office also provides tutoring services for veterans and a book loan program.

Any question regarding V.A. educational benefits should be directed to this office. It is there to ensure that eligible students receive all the V.A. educational benefits to which they are entitled.

### INTERNATIONAL STUDENT SERVICES

The Director of the International Student Services is available to assist any foreign student with problems concerning immigration documents, certifications for foreign governments, counseling concerning the pattern of American life, referrals for academic counseling, working permits, emergency loans, housing, scholarships and the Host Family Program. Room 206-W Union Building.

### INTERNATIONAL HOUSE

This center for cultural, educational and informational exchange is operated by and open to all foreign students. This is a meeting place, for coffee, informal discussions, music, and a general "home away from home" for the foreign student.

### UNDERGRADUATE SCHOLARSHIPS

The University of Texas at El Paso has an excellent Scholarship Program which is administered to attract and retain outstanding students, and to reward academic excellence. The awards are made possible through the generosity of numerous business firms, civic organizations, professional groups and individuals. The awards generally range from \$200 to \$1,000 for a nine month period.

To be considered for an academic scholarship, a high school applicant must have a "B" average. Transfer students also must have a cumulative grade point average of "B" (3.0) and have completed 24 semester hours in the previous two long semesters at the school attended. Students presently enrolled in U.T. El Paso must possess a cumulative grade point average of "B" (3.0) and have completed 24 semester hours in the previous two long semesters to be eligible.

To apply for a scholarship, a student should: first, secure an Undergraduate Scholarship Packet from the Scholarship Office in the Union, 102 West, P. O. Box 131, U.T. El Paso, El Paso, Texas . . . 79968; secondly, send to the Scholarship Office the most current high school or college transcript. **THE HIGH SCHOOL TRANSCRIPT SHOULD INCLUDE THE FOLLOWING:** (1) present grade point average, (2) approximate class rank, (3) S.A.T. or A.C.T. scores.

Completed Scholarship Applications received by March 1, will be given first priority. Notification of merit scholarship awards will begin each year around the 15th of March.

## FINANCIAL AID AND PLACEMENT OFFICE

The University's Financial Aid and Placement Office, located in Room 103 West of the Union, provides service to all students attending the University. Through its staff, this office provides the student with everything necessary to apply for financial assistance, financial and career counseling and part-time jobs.

### Placement and Employment

Graduating seniors are requested to provide the Placement Office with their credentials in order that the Placement Office can assist them in obtaining careers with business and school districts. These credentials are filed in the Placement Office and are made available to the perspective employers upon request of the students. In addition to career employment, part-time employment is available both on and off campus. Part-time jobs and summer employment is obtained by any student merely by registering with the Placement Office for assistance. The University participates in Work-Study program for employment of students with financial needs. The University has a Co-op program which has been established with government agencies and industries. A student who is in this program will normally be on the job six months and attend school for six months over the period of three or four years in which he is attending the University.

### FINANCIAL AID

Financial aid available to the students at the University includes loans, grants, and the College Work-Study program. All students who qualify and have a financial need are eligible for one or several of these programs. The financial need of the student is based on the parents or his income and what each is expected to contribute from this income.

Loan programs that are available to the students are the National Direct Student Loan Program, Hinson-Hazlewood College Loan Program, Federally Insured Loan Program, Law Enforcement Loan Program, and Emergency Loans in the sum of \$50.00 or less. All loan programs have an interest charge varying from 4% to 7%.

Grants available to the students consist of the Educational Opportunity Grant, the Needy Scholarship Grant, and the Basic Educational Opportunity Grant. These grants vary from a low of \$50.00 to a high of approximately \$1,000. In addition, there is a Law Enforcement Grant limited to in-service Law Enforcement Officers and the grants normally do not exceed \$300 a semester or the amount of mandatory fees,

tuition and books. The \$25.00 Tuition Scholarship is available for students who have a large financial need. The Connally Carillo Act provides that a student under 25 years of age and graduating in the top 20% of his graduating class since 1966 and has a family income of not more than \$4,800 as indicated on their last income tax return is available for an award which includes exception of certain required fees and tuition.

In order to qualify for any financial assistance, a financial statement submitted to the American College Testing Program is required and a University application for financial assistance. When this financial statement is received and the application is filed in the Financial Aid and Placement Office, a student's financial aid package is made up based on his financial need.

All that is necessary is for the student to ask for a complete package for financial assistance from the Financial Aid Office and this will be sent or can be picked up at any time period. It is hoped that all financial aid applications are received by the Financial Aid Office by April 1 preceding the fall semester. This then qualifies a student for the summer sessions and the fall and spring of the next year. Priority is given to the applications received prior to April 1 of each year.

All inquiries about financial aid and placement should be addressed to:

Director of Financial Aid and Placement  
Room 103, West, The Union  
University of Texas at El Paso  
El Paso, Texas 79968

## RESIDENCE HALLS AND MARRIED STUDENT APARTMENTS

U.T. El Paso has two high rise coeducational residence halls, Barry and Kelly Halls. Both are air-conditioned and all student rooms are furnished with adequate facilities, including maid service and mail delivery to the residence halls. Storage rooms, TV lounges, quiet study areas and public lounges are provided, as are laundry rooms with automatic coin-operated washers and dryers. All meals are served at the Commons, immediately adjacent to the residence halls.

The married student apartment complex consists of sixty, two-bedroom units. All apartments are unfurnished except for a stove and refrigerator. Reservations are handled on a first-come, first-serve basis. Usually, there is a waiting list for married student apartments.

Reservations: application for admission to U.T. El Paso and application for the residence halls or the married student apartments are separate transactions. A housing application will be mailed upon request by the Admissions Office when a student applies for admission to the University. Or, an application may be obtained from the Housing Office — Kelly Hall, U.T. El Paso, El Paso, Texas 79968.

All students residing on campus must sign a residence hall or apartment agreement which is a lease-type agreement representing the contractual responsibilities of both the resident student and the University. An advance deposit of \$40 for the residence hall and \$50 for married student apartments must accompany the signed lease-agreement.

For specific information on current rates in the residence halls or the married student apartments, please contact the Housing Office.

#### STUDENT HEALTH SERVICE

The Student Health Service offers free medical services to all U.T. El Paso students.

It is open 24 hours daily including weekends and is staffed by Registered Nurses and Licensed Vocational Nurses. Physicians are on duty Monday through Friday, 7:30 a.m. to 8:30 a.m. and 1:00 p.m. to 2:00 p.m. except Wednesday afternoons. A Consulting Psychiatrist is also available.

#### STUDENT ASSOCIATION

The Student Association Office is located in Room 303E of the Union. It is the student governmental structure through which students participate in the planning, coordination, and execution of their activities. The basic framework of the Student Association resembles the pattern established by the national government. It consists of Executive, Legislative, and Judicial branches where representatives are elected by the student body. All enrolled students are automatically members of the Student Association.

#### STUDENT ACTIVITIES

The Student Activities Office provides extra-curricular activities for the campus community, as well as the City of El Paso.

Activities covered by this office include concerts, with both national and local talent, films, video tapes, fine art exhibits, humorous and dramatic theatrical presentations, and speakers for the Lyceum Se-

ries, which brings men and women of national and international reputation to the campus.

All selections for activities are made by committees composed of either students, or of faculty, staff members, and students. There is a separate committee for films and for Lyceum, as well as an entertainment committee which handles selection of all other facets of entertainment at the University.

Suggestions from students may be made to the Student Activities Vice President through this office. Students may also make arrangements to join selection committees here.

#### THE UNION

The Union is the community center for all members of the university community — students, faculty, administration, alumni and guests. It is not just a building; it is also an organization and a program which provides cultural, social and recreational programs and activities. The Union is a member of the Association of College Unions International (ACU-I).

The Union provides the following services: the Snack Bar — Cafeteria (2nd floor, East Wing); The Union Information Center (1st Floor, East Wing); the Music Listening Room and Browsing Lounge (Room 201, East Wing); the Recreation Room (Basement, West Wing); meeting rooms for Registered Student Organizations and Registered Faculty or Staff Groups; Lost & Found Services and Poster Printing Services (Union Director's Office, 301, East Wing); bulletin boards with information about campus events, want ads, and rides; The University Bookstore (1st Floor, East Wing); and the Exhibition Gallery (2nd Floor, East Wing).

#### UNIVERSITY I.D. AND TICKET CENTER

The Union 109 West Phone: 747-5100

The University I.D. and Ticket Center issues and validates student I. D. cards, replaces lost or broken cards, or cards that need name or status changes. The office also offers student health insurance and handles the insurance claim forms and instructions on how to file them. Information and tickets may be obtained from this office for the Lyceum Series, concerts, ballets, and operas. Brochures on the movies are available at this office, but tickets to the movies are issued at the door of the Union Theater at the time of the showing.

### STUDENT PUBLICATIONS

Student Publications, located in the *West Wing of the Union*, is an independent department of the University supported, in part, by student services fees. The remainder of its operating budget is generated by the sale of advertising for *The Prospector*, the campus newspaper. *Headframe*, a general interest magazine, is published as a supplement to *The Prospector* twice each long semester.

The Student Publications Board, composed of faculty and students, appoints student editors-in-chief and other salaried student staff members of its publications. The Director of Student Publications, who is a University administrator, supervises staff members and operations. Student editors, however, enjoy editorial and news coverage freedom, subject only to canons of responsible journalism.

It is not necessary to be a journalism major to become a staff member of student publications; a student need only discuss with the editor his interest in reporting, writing, photography, etc. and request to work on a publication. However, student publications is not an academic department offering courses in journalism. A student can receive credit by enrolling in journalism courses, offered by the Department of Journalism, which include writing laboratories on the student publications premises and supervised by a journalism instructor.

### ORGANIZATIONS

The University of Texas at El Paso encourages and supports the efforts of students who have common goals and interests to meet together and form organizations.

Procedures for organizing a group and becoming a registered student organization are available in the office of the Assistant Dean of Students (102 West Union). Students are encouraged to come by or to call (747-5148) to discuss their interests and concerns about student organizations.

At the beginning of each long semester, each organization must submit an up-to-date and correct information sheet to the office of the Assistant Dean of Students. Organizations not returning the information forms will be considered inactive. Requests for reactivation must be submitted before an organization can use university facilities. If an organization is inactive for one full semester, it must reapply for reinstatement before the Student Organizations and Activities Committee. Lists of registered student organizations are provided each semester at the Office of the Assistant Dean of Students (102 West Union).

Names and types of currently registered organizations are as follows:

### REGISTERED STUDENT ORGANIZATIONS

ORGANIZATION	IDENTIFICATION
Administrative Management Society	Professional, Special Interest
Alpha Chi	Honorary
Alpha Lambda Delta	Freshmen Women's Honorary
Alpha Phi Omega	Service
American Chemical Society	Professional
American Institute of Industrial Engr.	Professional
American Institute of Mining Engr.	Professional
American Society of Civil Engrs.	Professional
American Society of Mechanical Engrs.	Professional
Anthropology Club	Special Interest
Association for Childhood Education	Professional
Association of Counselors in Training	Professional
Bahai Student Association	Religious
Baptist Student Union	Religious
Black Student Coalition	Special Interest
Campus Crusade for Christ	Religious
Cardinal Key	Jr. Women's Honorary
Chenrizig (Mortar Board)	Senior Women's Honorary
Chi Gamma Iota	Service, Social (Veterans)



Chi Omega	Social Sorority
Chicano Pre-Law Society	Service, Special Interest
Chinese Student Association	Cultural, Social Organization
Circle K International	Service
Delta Delta Delta	Social Sorority
Delta Sigma Pi	Professional, Business
Delta Sigma Theta	Service Sorority
Eta Kappa Nu	Honorary Electrical Engineering
Health Professions Organization	Professional
Hillel	Religious, Jewish
India Student Association	Cultural
Institute of Electrical & Electronic Engrs.	Professional
International Student Organization	Social, Cultural
Kappa Alpha Psi	Social Fraternity
Kappa Delta	Social Sorority
Kappa Delta Pi	Honorary, Education
Kappa Kappa Psi	Honorary, Music
L. A. Nelson Geology Club	Professional, Special Interest
Lambda Alpha Epsilon	Professional, Criminal Justice
Lambda Chi Alpha	Social Fraternity
Latter Day Saints Student Association	Religious
Macuil-Xochitl Association	Social, Service
Mexican Student Association	Social, Service
M.E.Ch.A.	Political
Miners Rifle Club	University Special Interest
Modern Dance Club	Special Interest
Muslim Student Association	Religious
National Chicano Health Organization	Service
Organization of Arab Students	Cultural, Social
Organization of Iranian Students	Cultural, Social
Pershing Rifles	Honorary, Social, Service
Phi Gamma Nu	Professional Business
Phi Kappa Sigma	Social Fraternity
Physical Education Majors	Professional
Pi Tau Sigma	Honorary, Mechanical, Industrial Engr.
Psi Chi	Honorary, Psychology
Scabbard & Blade	National Military, Honorary
Sigma Alpha Epsilon	Social Fraternity
Sigma Delta Pi	Honorary, Spanish
Society of Physics	Professional
Society of Women Engineers	Professional
Student Association of Social Workers	Special Interest
Student International Meditation Society	Special Interest
Students of Mathematics	Special Interest
Tau Beta Pi	Honorary, Engineering
Tau Beta Sigma	Women's Honorary, Band
Tau Kappa Epsilon	Social Fraternity

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Teatro del Pueblo	Special Interest
Thai Student Association	Social
University Players	Special Interest
UTEP Accounting Society	Professional
UTEP Marketing Society	Professional
UTEP Martial Arts Association	Special Interest
UTEP Panhellenic Association	Social, Service
UTEP Press Club	Service
UTEP Rugby Club	Sports Club
UTEP Samothrace	Professional, Special Interest
UTEP Science Fiction	Special Interest
UTEP Sponsor Corp.	Service
UTEP Spurs	Honorary, Service
Wesley Foundation	Religious
Young Americans for Freedom	Political
Young Democrats	Political
Zeta Tau Alpha	Social Sorority



## INTERCOLLEGIATE ATHLETICS

Five NCAA team championships, numerous individual champions, two Sun Bowl victories, and several appearances in the NCAA basketball playoffs are a few of the feats authored by the University of Texas at El Paso's athletic program in recent years. A member of the Western Athletic Conference, the Miners have been national champions in basketball, cross country, outdoor track and twice in indoor track. Several individuals have captured NCAA titles in track and baseball, and the football team has put together victories over Texas Christian and Mississippi in the Sun Bowl Classic.

Such teams as Arizona State, Arizona, Wyoming, Utah, Brigham Young, New Mexico and Colorado State make football appearances at the Sun Bowl, a 30,000 seat stadium located on campus. In recent years the basketball team has made appearances at Madison Square Garden, Chicago Stadium and several NCAA tournaments. The most recent addition to the athletic plant is the 12,500 seat Special Events Center. Currently under construction on campus this beautiful facility will, among other things, house the Miner basketball team. This facility should be completed by December of 1976.

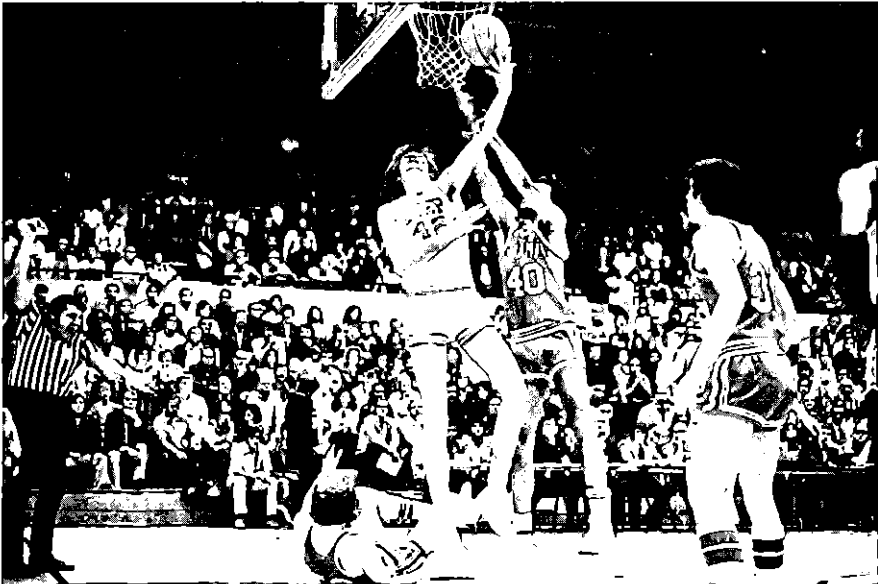
The overall athletic program affords students, staff and community residents a great deal of spectator enjoyment.

## INTRAMURALS

A wide range of activities for men and women are provided through the Intramural Program. The program is administered by the Intramural Director, the Assistant Director of Intramurals and the Intramural Sports Committee. The five major sports are football, basketball, volleyball, softball, and track and field. Other activities range from handball to golf. Sororities, fraternities, residence halls and religious and independent organizations vie for the over-all team championship. Individuals who are not affiliated with an organization competing for points are encouraged to participate in events of interest to them.

The Intramural Department sponsors many interest group clubs with membership open to all students. Some of the clubs are archery, badminton, 3-man basketball, bowling, field hockey, handball, fencing, judo, karate, racquetball, rugby, soccer, swimming and diving, table tennis, volleyball, water polo, weight lifting, wrestling, and century club. Other clubs will be formed as student interest warrants.

Aggie-Miner Day takes place at the end of the Intramural season in May. It involves competition between U.T. El Paso Intramural Champions and the New Mexico State University Champions.



# POLICIES AND PROCEDURES AFFECTING STUDENT LIFE

Detailed policies and procedures affecting student life are printed in the student handbook, *The Pick and Spade*. The handbook supplements the Rules and Regulations of the Board of Regents and covers Student Conduct and Discipline, Speech, Advocacy, and Assembly, Student Organizations, and Student Publications. It fur-

ther provides information regarding activities and services available to all students. Copies of the student handbook may be obtained from the Student Affairs Office or the Student Association Office. The Rules and Regulations of the Board of Regents of The University of Texas System are also available in these offices.

## STUDENT CONDUCT

### General Regulations

1. While enrolled at the University a student neither loses the rights nor escapes the responsibilities of citizenship. A student who violates the law is subject to punishment by civil authorities or civil and campus authorities if the act is committed on campus. All students are expected and required to obey the law, to show respect for properly constituted authority, and to observe correct standards of conduct.

2. Illegal conduct (including the illegal use, possession, or sale of drugs or narcotics, excessive use of alcoholic beverages, dishonesty, gambling, defacing of property, endangering the health or safety of others, use of abusive or vulgar language, hazing, altering of records, possession or use of firearms, failure to respond promptly to official notices, etc.) will subject the student to disciplinary action.

3. Students are expected to maintain a high standard of individual honor in their scholastic work. Scholastic dishonesty (which includes the attempt of any student to present as his own the work of another, or any work which he has not honestly performed, or to pass any examination by improper means) is a serious offense and will subject the student to immediate disciplinary action. The aiding and abetting of a student in any dishonesty is held to be an equally serious offense.

4. The obstruction or disruption of any teaching, research, administrative, disciplinary, public service, or other authorized activity on campus is prohibited and will subject the student or group of students to disciplinary action.

### Penalties

Penalties which may be imposed by the Dean of Students in conjunction with the Student Conduct Committee include the following: admonition, warning probation, disciplinary probation, withholding of transcript or degree, restitution, failing grade,

denial of degree, suspension, and expulsion. In addition, certain privileges may be withdrawn consistent with the severity of the offense and the rehabilitation of the student. These penalties may be imposed singularly or in any combination upon individuals, groups, or organizations.

### Debts

The University is not responsible for any debts contracted by individual students or by student organizations. The University will not assume the role of a collection agency for any organization, firm, or individual to which students may owe money, nor will the University adjudicate disputes between students and creditors over the existence or amounts of debts.

### Debts Owed to the University

No student may refuse to pay or fail to pay a debt he owes to the University. In the event of non-payment of debts owed to the University, the University may withhold the student's records, deny readmission, and withhold a degree to which the student might otherwise be entitled.

### Bad Checks

No student may give the University a check, draft, or order with intent to defraud the University. Disciplinary action may be taken against a student who violates this and the student's failure to pay the University the amount due on or before the fifth class day after he receives written notice that the drawee has rightfully refused payment is Prima Facie evidence that the student intended to defraud the University. A student who gives the University a bad check, draft, or order to cover tuition and fees during registration, the fault not being that of the bank, may be withdrawn from the University if the student fails to pay the University within five class days after he receives written notice.

## STUDENT EXPENSES

Registration fees are payable on a semester basis at the beginning of each semester and must be paid in full before the student will be permitted to enter class or laboratory. The Business Office does not cash checks. However, checks are accepted in settlement of obligations to the University provided they are in the amount owed the University, and the maker has not previously had a check dishonored.

### SUMMARY OF TUITION AND FEES

<i>Semester Hours</i>	<i>Tuition</i>	<i>Student Services Fee</i>	<i>Student Building Use Fee</i>	<i>Total</i>
<b>RESIDENT STUDENTS *</b>				
LONG SESSION (EACH SEMESTER)				
21	\$ 84.00	\$30.00	\$136.50	\$ 250.50
20	80.00	30.00	130.00	240.00
19	76.00	30.00	123.50	229.50
18	72.00	30.00	117.00	219.00
17	68.00	30.00	110.50	208.50
16	64.00	30.00	104.00	198.00
15	60.00	30.00	97.50	187.50
14	56.00	30.00	91.00	177.00
13	52.00	30.00	84.50	166.50
12	50.00	30.00	78.00	158.00
11	50.00	27.50	71.50	149.00
10	50.00	25.00	65.00	140.00
9	50.00	22.50	58.50	131.00
8	50.00	20.00	52.00	122.00
7	50.00	17.50	45.50	113.00
6	50.00	15.00	39.00	104.00
5	50.00	12.50	32.50	95.00
4	50.00	10.00	26.00	86.00
3	50.00	7.50	19.50	77.00
SUMMER SESSION (EACH TERM)				
12	48.00	30.00	78.00	156.00
11	44.00	27.50	71.50	143.00
10	40.00	25.00	65.00	130.00
9	36.00	22.50	58.50	117.00
8	32.00	20.00	52.00	104.00
7	28.00	17.50	45.50	91.00
6	25.00	15.00	39.00	79.00
5	25.00	12.50	32.50	70.00
4	25.00	10.00	26.00	61.00
3	25.00	7.50	19.50	52.00
2	25.00	5.00	13.00	43.00
1	25.00	2.50	6.50	34.00
<b>NON-RESIDENT STUDENTS *</b>				
LONG SESSION (EACH SEMESTER) & SUMMER SESSION (EACH TERM)				
21	\$840.00	\$30.00	\$136.50	\$1006.50
20	800.00	30.00	130.00	960.00
19	760.00	30.00	123.50	913.50
18	720.00	30.00	117.00	867.00
17	680.00	30.00	110.50	820.50
16	640.00	30.00	104.00	774.00

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<i>Semester Hours</i>	<i>Tuition</i>	<i>Student Services Fee</i>	<i>Student Building Use Fee</i>	<i>Total</i>
15	600.00	30.00	97.50	727.50
14	560.00	30.00	91.00	681.00
13	520.00	30.00	84.50	634.50
12	480.00	30.00	78.00	588.00
11	440.00	27.50	71.50	539.00
10	400.00	25.00	65.00	490.00
9	360.00	22.50	58.50	441.00
8	320.00	20.00	52.00	392.00
7	280.00	17.50	45.50	343.00
6	240.00	15.00	39.00	294.00
5	200.00	12.50	32.50	245.00
4	160.00	10.00	26.00	196.00
3	120.00	7.50	19.50	147.00
2	80.00	5.00	13.00	98.00
1	40.00	2.50	6.50	49.00
<b>ALIEN STUDENTS*</b>				
<b>LONG SESSION (EACH SEMESTER)</b>				
21	\$294.00	\$30.00	\$136.50	\$ 460.50
20	280.00	30.00	130.00	440.00
19	266.00	30.00	123.50	419.50
18	252.00	30.00	117.00	399.00
17	238.00	30.00	110.50	378.50
16	224.00	30.00	104.00	358.00
15	210.00	30.00	97.50	337.50
14	200.00	30.00	91.00	321.00
13	200.00	30.00	84.50	314.50
12	200.00	30.00	78.00	308.00
11	200.00	27.50	71.50	299.00
10	200.00	25.00	65.00	290.00
9	200.00	22.50	58.50	281.00
8	200.00	20.00	52.00	272.00
7	200.00	17.50	45.50	263.00
6	200.00	15.00	39.00	254.00
5	200.00	12.50	32.50	245.00
4	200.00	10.00	26.00	236.00
3	200.00	7.50	19.50	227.00
<b>SUMMER SESSION (EACH TERM)</b>				
12	168.00	30.00	78.00	276.00
11	154.00	27.50	71.50	253.00
10	140.00	25.00	65.00	230.00
9	126.00	22.50	58.50	207.00
8	112.00	20.00	52.00	184.00
7	100.00	17.50	45.50	163.00
6	100.00	15.00	39.00	154.00
5	100.00	12.50	32.50	145.00
4	100.00	10.00	26.00	136.00
3	100.00	7.50	19.50	127.00
2	100.00	5.00	13.00	118.00
1	100.00	2.50	6.50	109.00
<b>NURSING STUDENTS*</b>				
<b>LONG SESSION (EACH SEMESTER)</b>				
21	\$ 50.00	\$30.00	\$136.50	\$ 216.50
20	50.00	30.00	130.00	210.00
19	50.00	30.00	123.50	203.50
18	50.00	30.00	117.00	197.00
17	50.00	30.00	110.50	190.50
16	50.00	30.00	104.00	184.00
15	50.00	30.00	97.50	177.50

STUDENT EXPENSES

Semester Hours	Tuition	Student Services Fee	Student Building Use Fee	Total
14	50.00	30.00	91.00	171.00
13	50.00	30.00	84.50	164.50
12	50.00	30.00	78.00	158.00
11	44.00	27.50	71.50	143.00
10	40.00	25.00	65.00	130.00
9	36.00	22.50	58.50	117.00
8	32.00	20.00	52.00	104.00
7	28.00	17.50	45.50	91.00
6	24.00	15.00	39.00	78.00
5	20.00	12.50	32.50	65.00
4	20.00	10.00	26.00	56.00
3	20.00	7.50	19.50	47.00
<b>SUMMER SESSION (EACH TERM)</b>				
12	25.00	30.00	78.00	133.00
11	25.00	27.50	71.50	124.00
10	25.00	25.00	65.00	115.00
9	25.00	22.50	58.50	106.00
8	25.00	20.00	52.00	97.00
7	25.00	17.50	45.50	88.00
6	25.00	15.00	39.00	79.00
5	20.00	12.50	32.50	65.00
4	20.00	10.00	26.00	56.00
3	20.00	7.50	19.50	47.00
2	20.00	5.00	13.00	38.00
1	20.00	2.50	6.50	29.00

\*The fees shown in these schedules must be paid by all students registering for credit. Laboratory Fees are charged, in addition to the above fees, in those courses where applicable. All fees are subject to change without notice. It is the students responsibility to know the fees which are in effect for each semester in which the student enrolls.

**TUITION**

Tuition rates have been established under the authority of House Bill No. 43, Sixty-Second Legislature, Regular Session, 1971. These rates of tuition are subject to change by the Legislature of the State of Texas. Rates for each semester of the Long Session and each term of the Summer Session are:

**Resident Students**

\$4.00 per semester credit hour with Long Semester minimum of \$50.00 and Summer Term minimum of \$25.00. Final credit-hour requirements for thesis only — \$12.00 for three semester credit hours.

**Non-Resident Students**

\$40.00 per semester credit hour (no minimum). Final credit-hour requirement for thesis only — \$50.00 for three semester credit hours.

**Alien Students**

\$14.00 per semester credit hour with Long Session semester minimum of \$200.00 and Summer Session term minimum of \$100.00. Final credit-hour requirement for thesis only \$50.00 for three semester credit hours.

**Nursing Students**

Semester Hours	Long Session Semester	Summer Session Term
12 (or more)	\$50.00	\$25.00

11	44.00	25.00
10	40.00	25.00
9	36.00	25.00
8	32.00	25.00
7	28.00	25.00
6	24.00	25.00
1 - 5 (minimum)	20.00	20.00

**Penalties for Payment of Wrong Fee**

The responsibility of registering under the proper residence is placed upon the student, and it is his duty, at or before registration, if there is any possible question of his right to legal residence in Texas under the State law and University rules, to raise the question with the Director of Admissions and have such question settled prior to registration. There can be no change of residence except upon express authorization by the Director of Admissions. Attempt on the part of a non-resident to evade the non-resident tuition fee will be taken seriously and may lead to expulsion.

Any student who wrongfully pays the Texas rather than the non-resident tuition fee is subject to a fine of ten (10.00) dollars for each such violation.

All questions relative to residency must be submitted to the Director of Admissions.

## Refund of Tuition and Fees

### Withdrawals — Long Session

Applies to tuition, laboratory fees, building use fees, student services fees and parking fees.

Refund policies are subject to change by the Legislature of the State of Texas.

Before or during first full week of classes — 100% less \$15.00 registration fee.

During second full week of classes — 75%.

During third and fourth full weeks of classes — 50%.

After fourth full week of classes — No Refund.

### Dropped Courses During Long Sessions

Applies to tuition and laboratory fees associated with dropped courses, building use fees and student services fees.

Before or during first full week of classes — 100%.

During second full week of classes — 100%. Refunds during this period made *only for changes beyond the student's control as determined by the Registrars Office.*

After second full week of classes — No Refund.

Refund of tuition for dropped courses will be made only if the original payment exceeded the established minimum amount.

Refunds provided for above will be granted if applied for by the end of the semester or *summer session in which the official withdrawal occurs* and if records indicate official withdrawal was appropriately completed.

### Exemption of Certain Veterans of Military Service

Persons who have resided in Texas for at least 12 months prior to the date of registration, and who were citizens of Texas at the time of entry into military service, and who served in the Armed Forces or in certain of the auxiliary services in World War II (except those who were discharged because of being over the age of 38 or because of a personal request), the Korean War, and for more than 180 days during the Cold War, and were honorably discharged therefrom, and who are not eligible to receive educational benefits provided for veterans by the United States Government, are exempted from the payment of tuition and certain required academic

fees, but not from the payment of deposits. To obtain this exemption, the veteran must make application on the form prescribed by and obtained from the Business Office. A certified or photostatic copy of the veteran's service record (usually DD Form 214) must be submitted with the application.

Exemption from fees described above also extends to the children of members of the Armed Forces who were killed in action or who died while in the service during the above named wars, and to orphans of members of the Texas National Guard who were killed while on active duty since January 1, 1946.

### Late Registration Charge

Any student who with proper permission registers in the fall or spring semester after the appointed days for registering in that semester will be required to pay a special charge of \$5.00 for the first late day and \$2.50 for each additional late day to a maximum of \$15.00 to defray the cost of the extra services required to effect his late registration.

Laboratory Fees	<i>per semester</i>
ART 3201, 3205, 3301, 3305, 3311, 3312, 3321 .....	\$ 4.00
3202, 3203, 3204, 3208, 3215, 3302, 3303, 3304, 3308, 3315 .....	8.00
<b>BIOLOGICAL SCIENCES:</b>	
BIOLOGY 1107, 1108, 1212, 1215, 1217, 1319, 2423, 3518, 3519, 3521, 3522, 3524 .....	6.00
2498, 2502, 3498, 3502, 3514, 3515, 3520, 4498, 4502, 5498, 5502, 6498 .....	8.00
<b>MICROBIOLOGY</b> 1336 .....	
1346, 1452, 2241, 2456 .....	6.00
1454, 1458, 2344, 2348 .....	8.00
<b>PLANT SCIENCES</b> 1334, 1336, 2338 .....	
ZOOLOGY 1265, 1367, 1369, 1479 1471, 1477, 2473, 2481 .....	4.00
1475 .....	6.00
1475 .....	8.00
<b>CHEMISTRY</b> 3103, 3104 .....	
1324, 1325 (Lab for 3324- 25) .....	4.00
1321, 1322 (Lab for 3321- 22) 1465, 4411, 4420 .....	5.00
1351, 1352 (Lab for 3351- 52) 2106, 2476, 4213, 4470 .....	6.00
	8.00



STUDENT EXPENSES

<b>GEOLOGY AND</b>			
PHYSICAL GEOGRAPHY 2215,		4354, 4465, 4466	2.00
3106, 3207, 3210, 3305, 3324,		Metallurgical 3101, 3102	4.00
3325, 3420, 3455, 3580, 4206,		3204, 3307, 3404, 3502, 4402,	
4306, 4323, 4410	2.00	4403, 4407, 4412, 4415, 4501,	
3472, 3576	3.00	4509, 4533	6.00
1422, 3327, 3330, 3430, 3440,			
4216, 4217, 4220	4.00		
3205, 3208, 3359, 3405, 4101,			
4102, 4458	5.00		
<b>HEALTH &amp; PHYSICAL EDUC.</b>		<b>Fine Arts Fees</b>	<i>per semester</i>
1101, 1102, 1103	2.00	ART 3405, 3406, 3407, 3408, 3409,	
<b>MASS COMMUNICATION</b>		3410	\$10.00
3308 Fields of Photogra-		<b>MUSIC:</b>	
phy; 4207 Elementary		Applied 2151, 2152, 2161, 2162, 2181,	
Photography	5.00	2182, 2191, 2192, 2251, 2252, 2261,	
Broadcasting; 3320 TV Produc-		2262, 2281, 2282, 2291, 2292, 2351,	
tion; 3321 TV Production;		2352, 2361, 2362, 2381, 2382, 2391,	
3404 Cinematography	5.00	2392, 2451, 2452, 2461, 2462, 2481,	
Radio Stations 1104, 1105, 1204,		2482, 2491, 2492, 3151, 3152, 3161,	
1205, 1304, 1305, 1404, 1405	2.00	3162, 3251, 3252, 3261, 3262, 3351,	
<b>MATHEMATICS 3124, 3324, 3429</b>	8.00	3352, 3361, 3362, 3451, 3452, 3461,	
<b>MODERN LANGUAGES 4101-2</b>		3462, 4161, 4162, 4261, 4262, 4361,	
French; 4101-2 German;		4362, 4461, 4462	25.00
4101-2 Japanese; 4103-4		3181, 3182, 3191, 3192, 3281, 3282,	
Latin; 4101-2 Russian; 4101-		3291, 3292	45.00
2 Spanish; 4101-2 Italian;		3381, 3382, 3391, 3392, 3481, 3482,	
4101-2 Portuguese	2.00	3491, 3492, 4391, 4392, 4491, 4492,	50.00
<b>MUSIC:</b>		<b>Transportation Fees</b>	<i>per semester</i>
Group Instruction 2167, 2168,		<b>BIOLOGICAL SCIENCES:</b>	
2171, 2172, 2175, 2176, 2177,		Biology 6425 — Transportation fee	
2178, 2179, 2271, 2272	4.00	varies according to where course is	
Voice Class 2173, 2174	2.00	based	
<b>PHYSICS 1120, 1121, 3101,</b>		<b>GEOLOGY AND PHYSICAL GEOGRA-</b>	
3102, 4103, 4104, 4107, 4108	4.00	<b>PHY 6465</b>	\$60.00
2343, 2446, 3330, 4320, 4321,		<b>SOCIOLOGY:</b>	
4324, 4339, 4340	5.00	Anthropology 6247 — Archeology	
<b>PSYCHOLOGY</b>		Field Course — Transportation fee	
3221, 3222, 3401	3.00	varies according to where course is	
3523	5.00	based	
<b>BUSINESS ADMINISTRATION:</b>		<b>Miscellaneous Required Fees</b>	
ACCOUNTING 3211, 3212, 3221,		<i>Student Building Use Fee</i> — In accord-	
3321	2.00	ance with provisions of Article 2909c,	
GENERAL BUSINESS 3203	8.00	V.C.S., the Board of Regents of The Uni-	
OFF. MGMT. & BUS. EDUC.		versity of Texas System requires that every	
3101, 3102, 3103, 3104, 3301,		student who registers in The University of	
3302	5.00	Texas at El Paso pay a compulsory student	
3305, 3306	6.00	building use fee of \$6.50 per semester	
MANAGEMENT 3324	8.00	hour. Refund of this fee for students with-	
STATISTICS & QUANT. ANALY.		drawing is made on the same basis as re-	
3301	2.00	fund of tuition.	
<b>ENGINEERING:</b>		<i>Special Examination</i> — A fee of \$1.00	
Civil 1453, 3448, 4456, 4470	2.00	is required of persons who wish to take an	
Electrical 1209, 3442, 3465,		advanced standing examination, an exam-	
4277, 4278	2.00	ination to remove a condition, or an exam-	
2310, 2311, 2412	4.00	ination to be given at a time other than	
Mechanical 3103, 3104, 3205,		that for which it is regularly scheduled.	
3363, 3377, 3464, 3501, 4351,		Permission of his Dean must be secured	

*The University of Texas at El Paso*

**Graduation** — A graduation fee of \$5.00 is required of candidates for graduation. A receipt showing payment of or exemption from this fee must be presented to the respective Dean at the time the degree application is filed. This fee must be paid each time an application for degree is filed and under no circumstances is subject to refund.

Veterans attending the University under an exemption as mentioned on page 48 are not exempt from payment of this fee.

**Student Services Fee** — Under authority of legislation enacted by the 56th Legislature, The Board of Regents has authorized a Student Services Fee in the amount of \$2.50 per semester hour, with a maximum of \$30.00.

Part time students who do not pay the maximum \$30.00 student services fee will be excluded from some student activities. Part time students have the option to pay the full amount to obtain full student activities card usage.

Activities to be supported from this source of income are the Health Service, Student Association, Intramurals, Intercollegiate Athletics, Student Publications, Swimming Pool, Band, Chorus, Chorale, Orchestra, Forensics, University Players, Opera, Ballet, Concerts, Lyceum Series, and Ticket Center.

Refund of this fee will be made only under the same conditions as Refund of Tuition upon surrender to the Business Office of the Student Identification card, Athletic Ticket Book, and such other activity tickets as might be issued.

**Parking Fee** — The Board of Regents has approved a parking fee as follows for those students desiring to park cars on campus:

Fall Semester .....	\$5.00
Spring Semester .....	3.00
Summer Session .....	2.00

*Note:* The fee is payable only once during the school year and is in effect from the date paid to the end of the school year in which paid. There will be no refund made of the parking fee.

**General Property Deposit** — Every Student must make a General Property Deposit of \$10.00. This deposit is subject to charges for violation of Library rules and for loss of or damage to University property. The student, upon notice from the Business Manager, will be required to restore the deposit to the original amount any time it is reduced by fines or other charges. The payment must be made immediately upon request. Pending receipt of payment, no credit will be allowed on the work of that semester or term, and the student will be ineligible to re-enter the University.



General Property Deposits will be refunded only when a student ends his career at the University. No refund will be made to a student who plans to continue his education here, either at the close of the long session or summer term.

A property deposit which remains without call for refund for a period of four years from the date of last attendance at

the University shall be forfeited and shall become the property of the Student Property Deposit account. Such funds will be invested and the income therefrom will be used for scholarship purposes and for the support of a general Student Union program. This policy applies to deposits heretofore paid as well as to those paid in the future.



# SCHOLASTIC REGULATIONS

## General

Current regulations are applicable to every student enrolled, regardless of the date of his admission. Interpretations or explanations contrary to the regulations herein set forth shall not be binding upon the University.

## Student Responsibility

Each student is individually responsible for awareness of the current scholastic regulations of the University, the general and specific degree requirements in his major field, and those operational policies which apply to registration.

## Selecting Courses

Although every effort is made to advise students, the final selection of courses is the responsibility of the individual student. All required freshman numbered courses in the student's curriculum must be completed by the time the student is within 30 semester hours of graduation; otherwise no credit will be granted toward fulfilling degree requirements for the courses even though the courses must be completed. This loss of credit penalty may be waived by the appropriate academic Dean under exceptional circumstances. Inter-collegiate as well as intra-collegiate transfer students who lack required freshman numbered courses must register for one of more such courses each semester until all requirements have been completed. Transfer students with senior classification will receive credit for required freshman numbered courses provided the conditions as stated above are fulfilled.

## Change of Major

A student who wishes to change his major must obtain the signatures of the department chairmen losing and gaining him and the change form must be filed with the appropriate Academic Deans.

## Dropping Courses

The student should refer to the academic calendar in front of this catalog to identify periods during which adds, drops, and withdrawals may be accomplished. Such changes in registration are subject to the following conditions:

A student may withdraw from any course on approval of his academic advisor by initiating a formal drop procedure through the departmental office responsible for the course offering. Withdrawals completed prior to the end of the 12th week of a long

session or the end of the 4th week of a summer term will receive a grade of W. After the 12th week of a long session or the 4th week of a summer term, the student may not withdraw from a course unless he withdraws completely from the University in which case the grade of W will be given for all courses.

On the recommendation of the instructor concerned, approved by his Academic Dean, a student may at any time be required to drop a course because of neglect, excessive absence, or lack of effort.

## Official Withdrawal

Any student wishing to withdraw from the University does so by contacting the University Counseling Service, Room 103 W, Student Union Building. Except in extremely rare and special circumstances this should be done in person so as to insure against any errors in the withdrawal process. Upon completion of the appropriate paper work in the University Counseling Service the student is considered to be officially withdrawn.

## Unofficial Withdrawal

Withdrawal from the University without clearing with the University Counseling Service constitutes an unofficial withdrawal. In such cases the student may receive a grade of F in each course for which he was registered. Students who withdraw unofficially must comply with the regulations listed under Readmission.

## Late Registration

Any student who with proper permission registers in the fall or spring semester after the appointed days for registering in that semester will be required to pay a special charge of \$5.00 for the first late day and \$2.50 for each additional late day to the maximum of \$15.00 to defray the cost of the extra service required to effect his late registration.

Each class missed because of late registration will be counted as an absence, and classroom and laboratory work missed will be counted as zero unless the individual instructor grants the student permission to make up the work.

### Absences from Classes

Uniform and punctual attendance upon all exercises at which the student is due is required. Absences will be considered as non-performance of work.

When, in the judgment of the instructor, a student has been absent to such a degree as to impair his status relative to credit for the course, the instructor shall report the absences and the student to his Dean; and, upon recommendation from the instructor, the Dean may drop the student from the course.

It is the responsibility of every student to inform his Academic Dean or each instructor by telephone or any other means when absent over an extended period of time due to illness or any other valid reason.

### Amount of Work

In no case may a student register for more than twenty-one semester hours in a fall or spring semester or more than nine hours in a single summer term.

Seven semester hours is the maximum load for which a student may register in a summer term without written permission from his Dean.

## Classification

*Full-time Students* — Those who are registered for twelve or more credit hours.

*Part-time Students* — Those who are registered for less than twelve credit hours.

*Freshman Students* — Those having less than thirty hours of credit.

*Sophomore Students* — Those having thirty or more, but less than sixty semester hours.

*Junior Students* — Those having sixty or more, but less than ninety semester hours.

*Senior Students* — Those having ninety or more semester hours and until graduation.

## Examinations

A student absent from a test during the semester is graded zero on that test, unless for urgent reason he is given by the instructor the privilege of taking a postponed test at a time to be set by the instructor.

### Final Examinations

The Faculty has ruled that exemption from examinations may not be given.

In all examinations, account is taken of

the student's use of English and of the form of the paper in general, the grade being lowered because of deficiencies in these regards as well as in the subject-matter proper.

Examinations are three hours in length and at the end of three hours all papers are taken up. It is not the policy of the University to administer a second final examination in a course.

### Credit by Examination

Credit toward graduation at this institution may be earned by any of the following examinations, subject to approval of the appropriate academic departments and academic dean: a local Proficiency Examination prepared by the appropriate academic department, Advanced Placement Tests given by the College Entrance Examination Board, Achievement Tests or College Placement Tests developed by the College Entrance Examination Board and administered under conditions approved by the Board. Credit earned by these examinations will not appear on the student's transcript until after the student has completed the semester in which the test was taken or completed the first semester at U.T. El Paso. The decision as to which of these regulations applies depends upon the student's status and the test taken.

Credit awarded on the basis of examination will not carry a letter grade but will be indicated on the transcript by a CR and the appropriate number of hours.

In calculating the cumulative grade-point average for any purpose, including honors at graduation, hours of credit earned by examination shall not be counted.

Since these are examinations for credit, they are subject to the following conditions:

- a. Proficiency examinations may be required for placement purposes by various departments. The student should consult specific departmental requirements.
- b. In some instances, permission to take one of these exams must be obtained from the appropriate Deans and/or departments. It is the student's responsibility to secure such permission.
- c. No student is eligible who has registered for or has been given a grade other than W in the course or (2) who has earned credit in a course of higher level in the same academic subject.
- d. Credit thus earned is applicable toward a degree from this University only.

## Scholarship

### Grades and Grade Points

The grades used are: *A* (excellent), *B* (good), *C* (average), *D* (inferior but passing), *F* (failure), *W* (withdrawal from the course with a passing grade), *P* (in progress), and *I* (incomplete). *S* and *U* respectively are used in reporting pass and fail work by students taking courses on this basis.

A grade of *A* will be rated as four points per semester hour a grade of *B* as three points per semester hour, a grade of *C* as two points per semester hour, and *D* as one point per semester hour.

The grade point averaged is determined by multiplying the number of semester hours of *A* grades by four, the hours of *B* by three, the hours of *C* by two, and the hours of *D* by one. The total of these values is then divided by the sum of the semester hours of *A*, *B*, *C*, *D*, *F*.

In computing academic standing at the end of a semester or summer session, hours of *I*, *N*, *P*, *S* and *U* are not counted as hours attempted; however, a student can be placed on probation or suspended with grades of *I*, or *N* outstanding. See also "Incomplete Work."

### Courses Taken Pass/Fail

An undergraduate student in good standing may take a maximum of four elective courses as Pass/Fail with the following conditions:

1. Such courses may not be used for graduate credit.
2. Not more than two such courses may be taken in a given semester, nor more than one in a summer term of six weeks.
3. The student must indicate that he is taking the course on a Pass/Fail basis at the time of registration and may not change after the end of the regular period during which add-course petitions are approved.
4. To obtain credit in the course the student must meet the minimum standards and do all assigned work required of other students in the class for a passing grade.
5. Credits obtained as Pass/Fail may be used for elective credit only even though the student should change his major or degree plan.

Courses taken on a Pass/Fail basis are disregarded in determining a student's grade point average. However, credits earned on a Pass/Fail basis may be ap-

plied as elective credits to fulfill the total credit requirements for a degree at this University. There is no assurance that such credits will be counted as transfer credits by another institution.

### Incomplete Work

At the end of the semester a grade of *Incomplete* may be given in exceptional circumstances and with the permission of the instructor and the proper Dean. When the grade of *Incomplete* is given the work missed must be completed within one calendar year from the end of the semester in which the incomplete grade was assigned.

### Repetition of Course

Repetition of courses is strictly governed by U.T. El Paso policies. Courses can be repeated in the following three ways:

1. Repeat at U.T. El Paso classes taken at U.T. El Paso.
2. Repeat at U.T. El Paso classes taken at other institutions.
3. Repeat at other institutions classes taken at the same institution and then have the credit transferred to U.T. El Paso.

When a student repeats a course under conditions 1, 2 and 3 above, the grade used to compute the student's grade point average is the grade earned the last time the repeated course was taken; however, grades earned at other institutions affect only the average in transferred work, not the average at UT El Paso.

4. If a student completes at another institution a course which he has previously failed at U.T. El Paso, and if the credit is otherwise acceptable, the student will be deemed to have met the course requirements. However, grades earned in this manner will neither raise nor lower his grade point average at U.T. El Paso.

### Honors List

At the close of each semester the Registrar's Office will issue an honor list which will include the names of all full-time students who have a grade point average of at least 3.2 without any grades of *I* or *F*. (If an *I* is removed within two weeks after the end of the semester the last grade earned will be considered.) For this purpose 12 semester hours is deemed to

be full time.

In publishing the honor list the Colleges of Business, Education, Engineering, Liberal Arts, and Sciences will be listed separately.

Students whose grades are all A will be

given special mention.

### Semester Reports

Semester grade reports will be available to students at the end of each semester.



# Required Minimum Academic Performance

## Students' Responsibility

Each student is responsible for awareness of his academic status and for knowing whether he is eligible to re-enroll in the University. If it is determined that an ineligible student has enrolled, he will be dropped immediately.

## Minimum Requirements

The minimum academic performance which can be accepted is that which is consistent with progress toward a degree, i.e., achieving a cumulative grade point average (GPA) of 2.0 over the number of credit hours required. In the event that a student does not make significant progress toward achieving the minimum GPA he shall be placed on scholastic probation for not more than two semesters. Failure to exhibit an acceptable level of progress toward restoring the GPA while on scholastic probation shall result in enforced academic suspension.

A student exceeding the following grade point deficiencies shall be placed on scholastic probation.

	<i>Maximum Deficiencies</i>
Less than 25 attempted Credit hours	15 grade points
25 to 59 attempted credit hours	10 grade points
60 to 80 attempted credit hours	5 grade points
90 or more attempted credit hours	0 grade points

Attempted credit hours include hours attempted at other colleges and universities.

## Scholastic Probation and Enforced Academic Withdrawal\*

1. A student informed by notation on a semester grade report that he has been placed on scholastic probation may not register for more than 16 hours except by written permission of his academic Dean.
2. A student will be removed from scholastic probation upon restoring the grade points to the required level excepting that no student may remain on scholastic probation for more than two successive semesters or for a total of more than 24 credit

hours if he is a part-time student. Failure to meet these conditions will result in enforced academic suspension.

3. A student enrolled for only one course will not be dropped when his grade is below the minimum requirement. However the student must have his Academic Dean's approval to enroll in a subsequent semester of summer term.

*\*Does not pertain to Provisional Students.*

## Readmission of Students Dropped for Scholastic Reasons

A student ineligible for registration because of enforced academic suspension may, in view of exceptional circumstances contributing to his less than minimum performance, may submit a petition to his Dean for re-instatement. The petition must be in the form of a letter and must be accompanied by a transcript of the student's academic record. Each such application will be considered on its merits. A student so re-instated will be on such terms of Scholastic Probation as the Dean may require.

Under normal circumstance a student who is ineligible for registration because of enforced academic suspension is eligible for readmission on scholastic probation after the following time intervals have elapsed:

1. Dropped for the 1st and 2nd time: one full semester.
2. Dropped for the third time: Extended Suspension. A student on Extended Suspension is ineligible to re-enter the University for a period of two calendar years. After this period the student is eligible to enter the University on scholastic probation. If the scholastic probation is removed, the student will then have the option of (a) meeting remaining requirements for graduation or (b) meeting the requirements for graduation from courses attempted only after re-entry from Extended Suspension. If option (a) is chosen, the grade-point average will be computed according to rules in force at the time of his return. In either case, the entire academic record is to be maintained as a permanent part of the student's file. If option (b) is chosen, a notation will be made that only the latter portion was involved in computing requirements for graduation.



## General Requirements for Undergraduate Degrees

**Degree Plan** — Students in the College of Business, the College of Education, the College of Liberal Arts, the College of Science, and the School of Nursing should secure from their appropriate Dean by the beginning of their third year a plan for the completion of requirement for the degree.

No honorary degree will be conferred.

**Catalog Requirements** — A student may obtain a degree according to the course requirements of the catalog in force at the time of his admission to the University, or of a later catalog, subject to the restriction that all requirements must be completed within six years of the date of the catalog chosen and that a student is eligible to choose a catalog only from one of those years during which he enrolled and earned credit at this University. Requirements for teacher certification are subject to change on shorter notice, if necessary, to comply with standards adopted by The State Board of Education. A minimum of six advanced hours in the major field must have been completed not more than six years previous to the date of graduation. No more than six one-hour courses may be counted toward completion of the minimum total hours required for any undergraduate degree, except with specific approval by the appropriate academic dean.

Students entering The University of Texas at El Paso for the first time during a summer session will be subject to the requirements of the catalog for the next long session.

**Graduation** — Degrees will be conferred at the end of each semester and the summer session. Formal commencement exercises will be held at the end of the spring semester only. No candidate for a degree in the spring semester may be absent from commencement exercises, except with prior approval of the academic dean.

The Office of the Academic Dean will distribute diplomas to students who graduate. A student desiring to participate in the formal commencement at the end of the spring semester may do so if he notifies his dean two calendar months before the date of the formal commencement. A diploma will be dated and granted only as of the graduation date requested and indicated by the candidate on the official application. It is the responsibility of the graduate to obtain his diploma from the Office of the Academic Dean.

**Application for Diploma** — A student who intends to graduate at the end of one of the semesters of the regular session, or the summer session, must file an applica-

tion for a diploma with the student's Dean *not later* than the date here indicated for the appropriate semester or session: for the fall semester, October 30; for the spring semester, March 30; and for the summer session, July 20. An applicant for the bachelor's degree must be in good academic standing at the end of the semester or summer session in which he is a candidate for graduation.

**Personal Information Forms** — Each student must file a personal information form with the Placement Office by mid-semester of the semester in which he expects to graduate.

**Residence** — Work counting toward the degree must be completed in the University as follows: (1) a total of at least thirty semester hours, (2) twenty-four of the last thirty semester hours, and (3) six semester hours of advanced courses in the major subject.

**Advanced Courses** — These are junior-senior or upper division courses and are designated by 3 or 4 as the second digit of the course number. The student should refer to departmental and school requirements for specific conditions, if any, imposed on registration in upper division courses.

**Advanced Placement** — College credit and advanced placement are given for college level work completed in secondary schools on the basis of examination. Students who wish to take advantage of this opportunity should consult specific requirements as listed under departmental program descriptions. Ordinarily, examinations must be taken before the student has completed any college courses. Such examinations may not be taken to satisfy any part of the last 30 semester credit hours for which credit is received at the University.

**Political Science and History Required** — Six semester hours of Political Science 3110, 3111 and six semester hours of History 3101, 3102 are required by Texas State law for completion of any Degree.

**Minimum Grade Point Average** — A minimum grade point average of 2.0 is required for all course work in the required curriculum leading to the student's degree. When a student repeats a course, the grade used to compute the student's grade point average is the grade earned the last time the repeated course was taken. In calculating the student's overall grade point average for graduation, all college work,

## *The University of Texas at El Paso*

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whether transferred or taken at this University, must be included. A minimum grade point average of 2.0 on all required work attempted at The University of Texas at El Paso is necessary; transferred work may not be used to raise the grade average of work done at the University. A minimum grade point average of 2.0 is required in the major.

**Major Examinations** — At the discretion of the department concerned a major examination may be required in the major subject under the following conditions: (a) four hours written, or three hours written and one hour oral; (b) the head of the department fixes the time and place, and supervises the examination; (c) in case of failure the student may take another examination on a date determined by the head of the department.

**Second Degree** — No second bachelor's degree will be conferred until the candidate has completed at least twenty-four semester hours at The University of Texas at El Paso in addition to those counted toward the bachelor's degree requiring the higher number of semester hours of credit. These additional hours must include at least six advanced hours in the major subject of the second degree, and at least six

hours must have been earned after completion of requirements for the first bachelor's degree. Two bachelor's degrees may not be awarded to any candidate at the same commencement. Students working toward a second bachelor's degree will register as undergraduate students.

It is not possible for a student holding a B.A. degree from The University of Texas at El Paso to receive a second B.A. degree from U.T. El Paso.

**Military Service Associated Credit** — All such transfer credit is subject to evaluation by the Director of Admissions, and the appropriate Academic Dean. Credit may be given for the College Level Examination Program (CLEP) developed by the Education Testing Service and administered by the United States Armed Forces Institute. Credit may also be given for college-level USAFI correspondence courses. Credit given for the CLEP *General* examinations may be applied toward completion of free elective requirements only. Therefore, it is usually advantageous for the student to take the CLEP *Subject* examinations instead. Most credit granted for military service schools may be used to absolve elective requirements only.

## **Academic Honors at Graduation**

Honors will be awarded at graduation in the following categories for first degree only:

1. **Highest Honors** — Highest Honors will be awarded to students who attain a minimum grade average of 3.90. No transfer student shall be eligible for Highest Honors. No student with an "F" on his record shall be eligible for Highest Honors.

2. **High Honors** — High Honors will be awarded to students who attain a minimum grade average of 3.80, but who do not qualify for Highest Honors. A transfer student must have had 75 percent of his work at The University of Texas at El Paso to be eligible for High Honors.

3. **Honors** — Honors will be awarded to students who attain a minimum grade average of 3.50, but who do not qualify for High or Highest Honors. A transfer student must have had 50 percent of his work at The University of Texas at El Paso to be eligible for Honors.

No student shall be eligible for any category of Honors if he has disciplinary action on his record in the Registrar's Office.

In computing the minimum grade average, grades earned in work transferred from other institutions will be included; however, transferred work may not be used to raise the grade average above that earned at The University of Texas at El Paso.

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# GRADUATE SCHOOL

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THE UNIVERSITY OF TEXAS AT EL PASO.

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RUDOLPH GOMEZ, *Dean*

J. ROBERT FOSTER, *Assistant Dean*

WILLIAM RIVERA, *Assistant Dean*

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## THE GRADUATE SCHOOL

**The Graduate School.** — The Graduate School is essentially a body of professors and scholars designated as Members or Senior Members of the Graduate Faculty and of students duly admitted to pursue their studies beyond the baccalaureate degree. All members of the Graduate Faculty are expected to maintain a national reputation in their field of scholarship. The administrative head of the Graduate School is the Graduate Dean. In academic areas or departments offering graduate level courses, the Members of the Graduate Faculty constitute an individual Committee on Graduate Studies.

The Graduate School faculty and administration authorize all degrees past the baccalaureate degree awarded by the University.

Graduate work is divided into *areas* and departments. Areas differ from departments in that they may be broader in scope, involving courses and research in several departments. The candidate for an advanced degree presents work done in his chosen major department or area; but he is also usually expected to have done supporting work of advanced level (upper division or graduate) in one or more associated areas. There are three component parts to graduate study: Course work, independent study, and independent scholarly research leading to a report, thesis, or dissertation. No one of these component parts can be neglected by the graduate student, although the proportion of independent study to course work may vary according to the previous training of the individual student and the area chosen by him.

Master of Arts degrees are offered in Drama and Speech, Economics, Education, English, History, Political Science, Psychology, Sociology, and Spanish.

Master of Education degree with programs in Professional School Administration, Elementary and Secondary Supervision, Counseling, Elementary and Secondary Teaching (with or without Professional Certificate), and Health and Physical Education.

Master of Science degree in Biology, Chemistry, Engineering, Geology, Health and Physical Education, Mathematics, and Physics.

Master of Business Administration in Business Administration.

Doctor of Geological Sciences.

**Financial Assistance.** — Scholarships, assistantships, and loan funds are available. Graduate Scholarships are available to students of exceptional qualifications. Applications should be made to the Dean of the Graduate School.

Applications for scholarships are due on February 1, May 1, and October 1. The February 1 awards will be for the next academic year. The May 1 awards will be for the following summer and the October 1 awards will be for the following spring.

Assistantship awards ranging from \$5500 to \$7500 are handled by the departments. Other grants and student loans are administered by the Financial Aid and Placement Office.

### PROCEDURES AND REQUIREMENTS FOR ADMISSION

Applications for admission must be made in the Office of the Dean of the Graduate School where forms may be secured.

The following documentation must be presented to the Office of the Dean *before* the application for admission to a degree program is acted upon:

1. Completed application form;
2. A bachelor's degree from an accredited institution in the United States or proof of equivalent training at a foreign institution. Graduates of U.T. El Paso must supply two unofficial complete transcripts on which the degree is posted; graduates of other schools must provide two complete official transcripts on which the degree has been posted — one for the Office of the Registrar and one for the Office of the Dean;
3. Evidence of a satisfactory grade point average in upper division (junior and senior level) work, and in any graduate work already completed;
4. A satisfactory score on the Graduate Record Examination Aptitude Test (GRE); or the Graduate Management (GMAT) Admissions Test; for the Master of Business Administration degree; and the Test of English as a Foreign Language (TOEFL) for foreign applicants. All foreign students must take the advanced section of the Graduate Record Examination. Each applicant must have the official scores of required tests (GRE, GMAT; TOEFL) sent to the Office of the Graduate Dean. Student copies are not acceptable;
5. Evidence of adequate subject preparation for the proposed graduate major;
6. Recommendations by the committee on graduate studies of the proposed

major department for acceptance, conditional acceptance or rejection based on the information submitted.

The committee's recommendation will be transmitted to the student by the Graduate Dean.

The Graduate Dean reserves the right to examine any application and, at his own discretion, regardless of other criteria, instruct the Registrar to accept it.

**Deadline for Submission of Application.** — Individuals holding bachelor's degree from The University of Texas at El Paso should apply for admission at least thirty days prior to the beginning of the semester or summer session in which they plan to register. Those with degrees from other American universities or colleges should file their applications, along with official transcripts of all previous college or university work, at least sixty days in advance. Foreign students should apply much earlier. All foreign students must take the advanced section of the Graduate Record Examination.

Students from non-English-speaking foreign countries must make a satisfactory score on the Test of English as a Foreign Language (TOEFL) given by the Educational Testing Service.

**The Graduate Record Examinations Aptitude Test.** — The Aptitude Test of the Graduate Record Examinations is designed to test preparation and aptitude for graduate study, and it must be passed with a satisfactory score by every one seeking admission to the Graduate School. Foreign students are required and all other students are encouraged to take the advanced part of the test for their major. The test is taken at the applicant's own expense and is given six times a year, usually in October, December, January, February, April, and July.

**The Graduate Management Admissions Test.** — The GMAT is an aptitude test designed to measure certain mental capabilities important in the study of management at the graduate level, and it must be completed with a satisfactory score by all students seeking admission to the graduate program in Business. The test is taken at the applicant's own expense and is given four times a year, usually in November, January, March and July.

**Grade-Point Average.** — An applicant with a 3.00 average (on the scale of 4.00) on all work of upper division (junior and senior) and graduate level previously taken has satisfied the minimum requirements of the Graduate School in this regard. Some applications showing less than a 3.00 average may nevertheless be accepted

upon special recommendation of departmental Graduate Advisers.

**Acceptance by the Committee on Graduate Studies.** — Students meeting other requirements for admission may nevertheless be denied admission by the departmental committee on graduate studies in their proposed area of study when there are more qualified applicants than can be accommodated in the available facilities, or when there are more than can be adequately instructed by the available faculty.

**Conditional Admission.** — A student desiring to work towards an advanced degree in an area in which his undergraduate training is insufficient may be admitted with the understanding that he must complete course work to make up the deficiencies noted by his graduate adviser. Such make-up work will be *in addition* to the regular degree requirements.

When a student with less than minimum grade-point average or with a less than satisfactory GRE or GMAT Test score, is admitted on the recommendations of a graduate adviser, the first 12 semester hours the conditional student is to take will be assigned by the Graduate advisor. Frequently he will assign special conditions regarding the number of semester hours to be taken and specific grade-point average to be maintained. If these conditions are not met, the student will be barred from subsequent registration in the Graduate School. Only in the most exceptional cases will conditional students be allowed to drop an assigned course.

**Enrollment in Graduate Courses Without Admission to Graduate School.** — Individuals holding the baccalaureate degree may, by an arrangement of the Registrar, enroll in graduate courses (with permission of the instructor) even though they do not wish to enter the Graduate School or have been denied admission to it. However, students who have completed a baccalaureate degree and have subsequently registered as unclassified students will not be permitted to list any of the work taken prior to admission to the Graduate School in graduate programs without specific approval of the graduate studies committee of the department and the Graduate Dean. Such approval is rarely given.

#### GRADUATE SCHOOL ACADEMIC REGULATIONS

The successful applicant will be informed by mail about his admission. The student should then, at the earliest opportunity, meet with his Adviser. The student must have his course program approved *each*

semester by the official Graduate Adviser of his major department before he can register for courses.

**Grades and Grade-Point Average.** — Credit is given in the Graduate School for the grades *A*, *B*, and *C*. Every semester hour of *C*, however, must be balanced by one of *A*, because the degree candidate is required to present an overall grade-point average of 3.00 at the end of his program of Study. In the event that a graduate student making a *D* is allowed to continue, the *D* must be balanced by two *A*'s. An *F* must be balanced by three *A*'s. Only upper division and graduate level courses taken in *graduate status* at The University, or reserved in the senior year for graduate credit (except thesis and dissertation courses) are counted in the average. A grade of *A* in a Thesis course or in a specifically authorized seminar, conference or research course which involves a report in lieu of a thesis may not be used to offset a *C*.

In some courses the standard grading system is not practicable; such courses are not counted in the grade-point average.

A student may elect to take a pass-fail grade in a course, but this course cannot count as deficiency work or as a part of the minimum requirements for a degree.

The symbol *Inc.*, reported in cases where the student has not completed all the assignments in a course before its conclusions, is valid for one year. Before the end of this time the student must turn in the required work for a regular grade. Students will not be cleared for graduation until all incompletes have been eliminated from their record.

Master's degree candidates must maintain, within the overall grade-point average, a 3.00 average in all upper division and graduate courses in the major and in the minor, respectively. High grades in courses outside the major and minor will not serve to bring up these averages. On the other hand, high grades in the major and minor may raise the overall average, provided they are in upper division or graduate courses.

**Maximum Course Load.** — The maximum course load for a graduate student is fifteen semester hours, or six semester hours in a summer session; registration in excess of these maxima must have the special consent of the Dean and will be permitted only under exceptional circumstances. If the student is employed by The

University as a teaching assistant, research assistant, or student assistant, his course load must be correspondingly reduced. The student should consult his Graduate Adviser about his combined course and work load. Nine semester hours of Graduate work is normally considered to be a full-time course load.

**Adding and Dropping Courses, and Withdrawal from the University.** — Exact information can be obtained from the Registrar's Office.

**Continuation in the Graduate School.** — Registration in the Graduate School beyond the first semester (or summer session) is dependent on two main factors: (1) satisfactory progress in absolving any admission conditions that were imposed and (2) maintenance of a 3.00 grade-point average for all upper division and graduate courses taken in a given semester. Should a graduate student make less than a 3.00 grade-point average in a given semester or summer session, his continuance is in jeopardy. During the next semester or summer session in which he is registered he must be able to maintain a 3.00 grade-point average, or he will be automatically dismissed at the end of it.

The graduate student who has been dismissed may be readmitted for further graduate study only by petition of the Committee on Graduate Studies of his department or area. This petition will be considered, and approved or disapproved, by the Dean of the Graduate School.

**Residence.** — The minimum requirement for any degree is two semesters or the equivalent, which need not be consecutive.

A graduate student may register for certain courses without being resident (physically present) at The University. These include conference courses (with permission of the instructor) and thesis courses.

No student may receive advice and assistance from a member of the faculty in the preparation of his thesis without being registered (if necessary, for multiple semesters) for the appropriate thesis course. Registration for the Master's thesis course must have covered a longer period than one semester (or two summer terms).

**Extension.** — Work done in extension classes, up to a limit of six semester hours, upon recommendation of the departmental committee on graduate studies

<sup>1</sup> Credit for supervised teaching is not counted in determining combined course and work load.

and approval of the Dean, may be allowed for graduate credit, provided that (1) the courses and instructors are approved by the Graduate School and the department in which the student would have otherwise taken the work on campus and (2) the applicant, *before* taking the extension course, be accepted for admission to the Graduate School and approved by the Dean for the courses desired.

*Correspondence courses are not accepted for graduate credit.*

**Reservation of Work by Undergraduates for Graduate Credit.** — Ordinarily, undergraduates are barred from graduate courses. A student who has a bachelor's degree is not eligible to reserve courses for graduate credit. It is possible for undergraduate seniors to register in graduate courses in their last semester under the following conditions:

- (1) The undergraduate must lack not more than twelve semester hours (or six semester hours in a summer session) of work to complete all requirements for his (first) bachelor's degree and must have a grade average of at least 3.0 in his junior and senior courses.
- (2) These twelve hours (or less) must all be completed in the same semester or summer session in which he is taking the graduate courses.
- (3) Total registration for all work must not exceed fifteen semester hours (or six hours in a summer session).
- (4) All registration for graduate courses must be approved at the time of registration by the Graduate Adviser of the department and the Dean.

The undergraduate cannot count his work in graduate courses toward his bachelor's degree. It will be *reserved for credit* toward a graduate degree. A form for reserving courses, which needs the signature of the undergraduate dean and the official Graduate Adviser in the student's major area must be secured from the Graduate Dean's Office.

**Courses Counted for Another Degree.** — No course counted toward another degree may be counted toward a graduate degree, either directly or by substitution.

**Transfer of Credit.** — Ordinarily all work for the Master's Degree must be done at The University. Except as noted in the next paragraph, a maximum of up to six semester hours of graduate course work may be transferred from another institu-

tion on the approval by the committee on graduate studies in the student's major area and the Dean. In cases where such transfer is approved, the student must still meet the residence requirements of two full semesters or the equivalent. Courses for which a grade of "C" was earned may not be transferred to U. T. El Paso.

It is the policy of the University of Texas System that all academic institutions within The System may accept graduate credit or equivalent course level from each other, and the regular requirements on residency are adjusted accordingly.

**English Requirements.** — Students admitted to the Graduate School are expected to write papers and examinations in English. For admission to some areas of graduate study the student is required to pass an examination in English; in other areas his proficiency in written and spoken English will be checked in his courses and in his contacts with faculty members.

**Time Limits and Catalog Changes.** — All requirements for a master's degree must be completed *within one six-year period*. Work over six years old is lost and can be reinstated only by special permission of the Dean upon recommendation of the committee on graduate studies.

General and specific requirements for degrees in the Graduate School may be altered in successive catalogues, but the student is bound only by the requirements of the catalogue in force at the time of his admission, within a six-year limit. At his discretion he may choose to fulfill the requirements of a subsequent catalog.

**Graduation Dates.** — Degrees will be conferred at the end of each semester and at the end of the summer session. Formal commencement exercises are held only at the end of the spring semester. Those who wish to participate in the commencement ceremonies in June should so indicate by entering the appropriate date on the application for diploma and arranging for their cap and gown. *Students intending to graduate must pay a diploma fee before October 30, March 30, or July 30 at the Business Office.* The receipt given by the Business Office must be taken to the Office of the Graduate Dean for the ordering of the diploma. This fee is not refundable if the student does not graduate on the date he selects.

**Two Degrees at Same Level.** — The Graduate School discourages all students from working toward more than one graduate degree at the same level.

**Petition of Candidacy.** — At the end of the first semester of full-time study, or completion of the first 12 hours of graduate work, each student must submit to the Office of the Dean a Petition of Candidacy signed by the Departmental Graduate Adviser. The Petition shall show the courses taken and the courses required by the department *before graduation*. Copies of the Petition of Candidacy are available in the Office of the Dean.

### GENERAL REQUIREMENTS FOR ALL MASTERS DEGREES

**Prerequisites.** — Every Master of Arts, Master of Business Administration, Master of Education, and Master of Science program is based on the assumption that the students participating in it already possess a general college education up to the baccalaureate level. Accordingly the first prerequisite for the entering student is a baccalaureate degree from an accredited institution (or, for foreign and special students, proof of equivalent training). A second prerequisite is that the entering student must have taken at least twelve semester hours of *advanced* undergraduate courses in the area or school in which he proposes to pursue a graduate major. Some areas may require more semester hours of undergraduate preparation. If a student without adequate preparations still wishes to enter a given graduate program, his admission will be *conditional* only, *i.e.*, he will be obliged to take whatever courses of preparatory work which may be designated by his Graduate adviser, and these courses will be in addition to the thirty hours (or more) required for the master's degree itself.

**Entering Examination.** — The committee on graduate studies in the student's major area or department may, at its discretion, examine the student on his undergraduate preparation before his application to enter the program is approved.

**Requirements.** — For any master's degree at least thirty semester hours of upper division and/or graduate instruction, are required: *nine semester hours of upper division courses are the maximum allowable in any individual's program* and not more than six semester hours may be included in either the major or the minor. Eighteen to twenty-four semester hours, including the thesis, must be in the major area of instruction. The minor consists of a minimum of six hours in a supporting subject or subjects outside the major area. The relative number of hours in the major and minor fields, as well as the nature of the

supporting work, will be determined in consultation with the student's Graduate Adviser. Every proposed program of work needs the approval of the Dean.

**Thesis.** — The candidate for the master's degree writes his thesis under the direction of a supervising instructor, who is chairman of a supervisory committee appointed by the Dean. The thesis is subject to the approval of the committee and ultimately to the approval of the Dean. The researching and writing of the thesis involves six semester hours of credit, but with special permission of the supervising committee and the Dean nine semester hours of credit may be given to it. Course 3598 must precede Course 3599.

**Substitution for the Thesis.** — In certain instances substitutions for the formal thesis may be recommended to the Dean by the appropriate committee on graduate studies. Such substitutions may include internship reports (where the internship is approved as an essential part of the graduate program by the Dean) or reports prepared in certain graduate seminar- or conference-type courses. In every instance, such a substitution for the thesis must have the prior approval of the Graduate Dean. Reports should be comparable to the thesis in every respect except for evidence of original research. It is required that the report be:

- (1) from a *specifically authorized* seminar, conference, or research course which has the prior approval of the *Dean of the Graduate School*;
- (2) reviewed and accepted by a supervising committee appointed by the Dean's office;

Upon acceptance of the report by the official committee, the candidate must submit two copies, entirely comparable to a thesis in terms of format, quality of paper, typing, binding, etc. to the Office of the Graduate Dean.

**Final Examination.** — The candidate must, in addition to preparing a thesis, pass an oral or written examination (or both). The examining committee consisting of at least three members is appointed by The Graduate Dean, on recommendation of the graduate studies committee of the department or area, and when a thesis is written it will normally be the thesis committee. The committee will have one representative from the minor area. If there is no minor, one member of the Committee must be from another department.



### Thesis Requirements for the Graduate Degree

The thesis must be approved by a committee of not less than three. Two completed and bound copies of the thesis, suitably titled, neatly typed on quality bond paper in uniform large type, double-spaced, must be presented to the Dean of the Graduate School not less than ten days before commencement day, in the long session, and not less than five days before the end of the summer session. One of the bound copies of the thesis turned in to the Graduate Dean's Office must be the original copy — the other may be a duplicate. Both copies of the completed thesis turned in to the Graduate Dean's Office must bear original signatures of the members of the student's thesis committee. In order to obtain the six semester hours credit for the thesis, the student must register for course 3598 when he begins work on his thesis. Thereafter he must register for course 3599 each semester or term during which he is working on his thesis.

If a student has not completed his thesis work at the end of two years after the subject has been approved and recorded, the supervisor may require him to choose another subject. Credit in the thesis course will not be granted until the thesis is completed and approved. Information on thesis preparation may be obtained from the Graduate Dean's office.

### DOCTOR OF GEOLOGICAL SCIENCES

**Requirements for Admission** — Students aspiring to the doctorate in Geological Sciences fall into three categories:

A Provisional Doctoral Student is one who holds a Master's Degree from an accredited institution in one of the following areas: biology, chemistry, mathematics, physics, civil engineering, or metallurgical engineering, and has declared his/her intention to make up all deficiencies in his/her geological background. Students holding a Bachelor's Degree from an accredited institution in one of the above areas are encouraged to contact the Graduate Advisor to discuss procedures leading to acceptance as a Provisional Doctoral student.

A Doctoral Student is one who (1) holds a Master's Degree in Geological Sciences from an accredited institution, or (2) holds a Bachelor's Degree in Earth Sciences from an accredited institution and has no deficiencies in science courses required for the B.S. Degree in Geological Sciences at

U.T. El Paso and has completed 30 hours of post-bachelor's study in Geology, or (3) has been removed from the Provisional Doctoral Student category by removing any deficiencies, completing 18 graduate hours in Geological Sciences, and receiving recommendation for Doctoral Student status from his/her Advisory Committee.

A Doctoral Candidate is one who (1) has removed all academic deficiencies, (2) has satisfied the provisions of the Foreign Language requirement, (3) has completed at least three-fourths of the required credit hours in Geological Sciences and supporting fields, (4) has passed the prescribed Comprehensive Examination, and has been approved for Candidacy by the Graduate Dean, upon the recommendation of the Comprehensive Examination Committee.

**Course Requirements** — The Doctor of Geological Sciences Degree requires 60 semester hours of graduate study above the Bachelor's Degree or 30 semester hours of graduate study above the Master's Degree. A dissertation is required. Not more than one-fifth of the required graduate hours can be obtained from Special Problems courses.

Technical Sessions (Geology 1501), Advanced Physical Geology (Geology 3560) and Advanced Historical Geology (Geology 3561) are required courses.

A student must complete six hours of courses in a relevant supporting field, three hours of which must be at the graduate level.

**Internship** — Each Doctoral Candidate is required to have or to gain, practical, professional experience equivalent to at least nine months of work in the petroleum or mining industries, or with an applied branch of the Federal or State geological surveys, or with similar industries or agencies which use applied geology at a professional level. This requirement may be fulfilled by full-time employment for a period of nine months or during summer employment. The student's Doctoral Committee will evaluate the adequacy of the internship.

**Foreign Language Requirement** — Each Doctoral Candidate is required to possess a comprehensive knowledge of one language other than his native tongue. Proficiency in a foreign language must be demonstrated by (1) passing a comprehensive examination, or (2) completing four semesters of college courses in the

selected language, or (3) showing that the undergraduate degree was obtained in courses taught using a language other than English.

**Dissertation** — A doctoral dissertation dealing with an application-oriented problem is required. This dissertation must demonstrate the candidate's capacity for originality and independence in recognizing a practical, significant, geological problem, in carrying out an effective investigation, and in interpreting and reporting the results. The subject of the dissertation is to be selected in consultation with the dissertation advisor, and it must be approved by the student's Doctoral Committee and by the Graduate Dean. The dissertation advisor is to supervise the research work and to consult with other members of the Doctoral Committee on the progress of the work.

The candidate is required to defend his/her dissertation before the faculty of the university in an open meeting under the supervision of his Doctoral Committee.

Draft copies of the dissertation must be submitted to the Doctoral Committee six days before the defense and any suggested corrections must be made. Prior to Commencement, two copies of the final dissertation must be submitted to the Graduate Office, and two copies to the Graduate

Advisor.

**Committees** — For each Provisional Doctoral Student or Doctoral Student, the Graduate Advisor shall appoint an Advisory Committee consisting of three members of the graduate faculty.

For each Doctoral Candidate, a Doctoral Committee will consist of his/her dissertation advisor, the Graduate Advisor, two professors of geology, and one other scientist or engineer — all of whom would be members of the graduate faculty, and be approved by the Dean of the Graduate School.

The Graduate Advisor will appoint a Comprehensive Examination Committee to administer the written and oral Comprehensive Examination at least once each year.

**Examinations** — At least once each year a Comprehensive Examination Committee shall administer a Comprehensive Examination. The Examination will consist of a general coverage of Geological Sciences, which must be taken by all doctoral students at least once, and sections in a number of special fields, from which each student may select one.

The Comprehensive Examination will normally be taken after removal of all deficiencies and completion of most of the



course work. Any student who fails the Comprehensive Examination twice shall be barred from further consideration for Doctoral Candidacy.

The Graduate Record Examination in Geology must be taken by all incoming graduate students. The results of this examination must be available prior to the registration for his/her second semester.

**Time Limits and Catalog Changes** — All requirements for a Doctor of Geological Sciences Degree must be completed within one eight year period. Work more than

eight years old is lost and can be reinstated only by special permission of the Graduate Dean upon recommendation of the Departmental Committee on Graduate Studies. Further, all requirements for the Doctorate must be completed within five years after passing the Comprehensive Examination.

General and specific requirements for the Doctorate may be altered in successive catalogs, but the student is bound only by the requirements in force at the time of admission. Within an eight year limit, the student may choose to fulfill the requirements of any subsequent catalog.

### MASTER OF ARTS DEGREE

#### General Requirements

1. A thesis (six semester hours) plus twenty-four semester hours of course work. There must be a minimum of twenty-one hours, including the thesis, of graduate courses (those numbered 3500 and above). For non-theses programs, a minimum of thirty-six hours of course work is required. Only nine hours of 3300 and 3400 courses are permitted in a program, and no more than six hours may be included in either major or minor.
2. A major with a minimum of eighteen semester hours including the thesis. Major fields for the Master of Arts include Drama and Speech (including speech pathology and audiology), Economics, Education, English, History, Political Science, Psychology, Sociology and Spanish.
3. A minor of from six to twelve hours in a related field may be accepted or required by the department. A transfer student must complete at least three hours of the minor in residence.

### THE MASTER OF BUSINESS ADMINISTRATION DEGREE

#### Nature of the Program

The objective of the M.B.A. program is to prepare graduates for executive careers in business or other institutions that use business techniques and policies in management and administration. The program meets this objective by being broad in nature and aimed at general competence

for overall management and administration. The bulk of course work is devoted towards a broad understanding of the environment, controls and practices which are common to most institutions. The remaining courses are determined by the student's special area of interest or concern.

#### Basic Requirements for Admission to the M.B.A. Program:

1. A bachelor's degree from an accredited institution in the United States (or proof of equivalent training in a foreign institution).
2. A satisfactory grade-point average in upper division (junior and senior level) work and in any graduate work already completed.
3. A satisfactory score on the Graduate Management Admissions Test, the GMAT.
4. Acceptance by the Committee of Graduate Studies in the College of Business Administration.
5. Adequate subject matter preparation in Business Administration. Applicants must demonstrate sufficient knowledge in each area of the common body of knowledge of business. Such demonstration may be made by:
  - a. Having obtained an undergraduate degree in Business or Administration, or
  - b. Completion with a B or above, the courses listed below at this University or equivalent courses at other accredited institutions.

*The University of Texas at El Paso*

<i>Common body of Knowledge Area</i>	<i>Corresponding Courses at U.T. El Paso</i>	<i>Credit Hours</i>
The Legal Environment	Business Law 3301	3
The Economic Environment	Economics 3203-04	6
Financial Management	Finance 3310	3
Marketing Institutions	Marketing 3300	3
Accounting and Information Systems	Accounting 3309	3
Management Systems	Management 3300	3
Quantitative Methods	Statistics 3201	3

**Specific Requirements for the M.B.A. Degree**

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1. Completion of the required Business Core:

Accounting	3511	Accounting for Management
Economics	3511	Managerial Economics
Economics	3512	The Economic Environment
Finance	3511	Financial Management
Marketing	3511	Marketing Management
Management	3511	Organizational Management Seminar
Statistics	3511	Quantitative Methods in Business
General Business	3512	Seminar in Current Business Problems



2. Completion of an additional twelve elective hours. A student may elect to complete either (a) twelve hours of a field of specialization, not more than nine of which may be a junior or senior level course acceptable for graduate credit, or (b) complete six hours of thesis.  
Course work in the field of specialization is not restricted to courses offered by the College of Business Administration, but under any circumstances, elective courses must have a meaningful design that corresponds to the student's educational goals.
3. Each student must provide a satisfactory performance on a comprehensive written or written and oral examination which will be administered in the last semester of the student's program.

#### MASTER OF EDUCATION DEGREE

##### General requirements for all programs:

1. Thirty-six semester hours of course work.
2. There must be a minimum of twenty-seven hours of graduate courses (those listed 3500 and above). The other courses must be numbered 3400 or above as listed for Graduate credit.
3. A transfer student must complete at least three semester hours of the minor in residence.

Students who are employed in full-time teaching positions are limited to three semester hours of work each semester by the Texas Education Agency. With the written consent of the school superintendent, a student may take six semester hours of graduate credit for one semester a year.

##### TEACHER CERTIFICATION:

If a student wishes to work toward a graduate degree and at the same time meet the requirements for an initial teacher's certificate, he should consult with the Dean or Assistant Dean of the College of

Education in addition to the departmental graduate adviser.

##### Approved programs:

The following graduate programs have been approved by the Texas Education Agency and the State Board of Education for the Professional Certificate:

##### CURRICULUM AND INSTRUCTION:

Elementary Teaching  
Secondary Teaching

##### EDUCATIONAL ADMINISTRATION:

School Administration  
Educational Supervisor in Elementary School  
Educational Supervisor in Secondary School

##### EDUCATIONAL PSYCHOLOGY AND GUIDANCE:

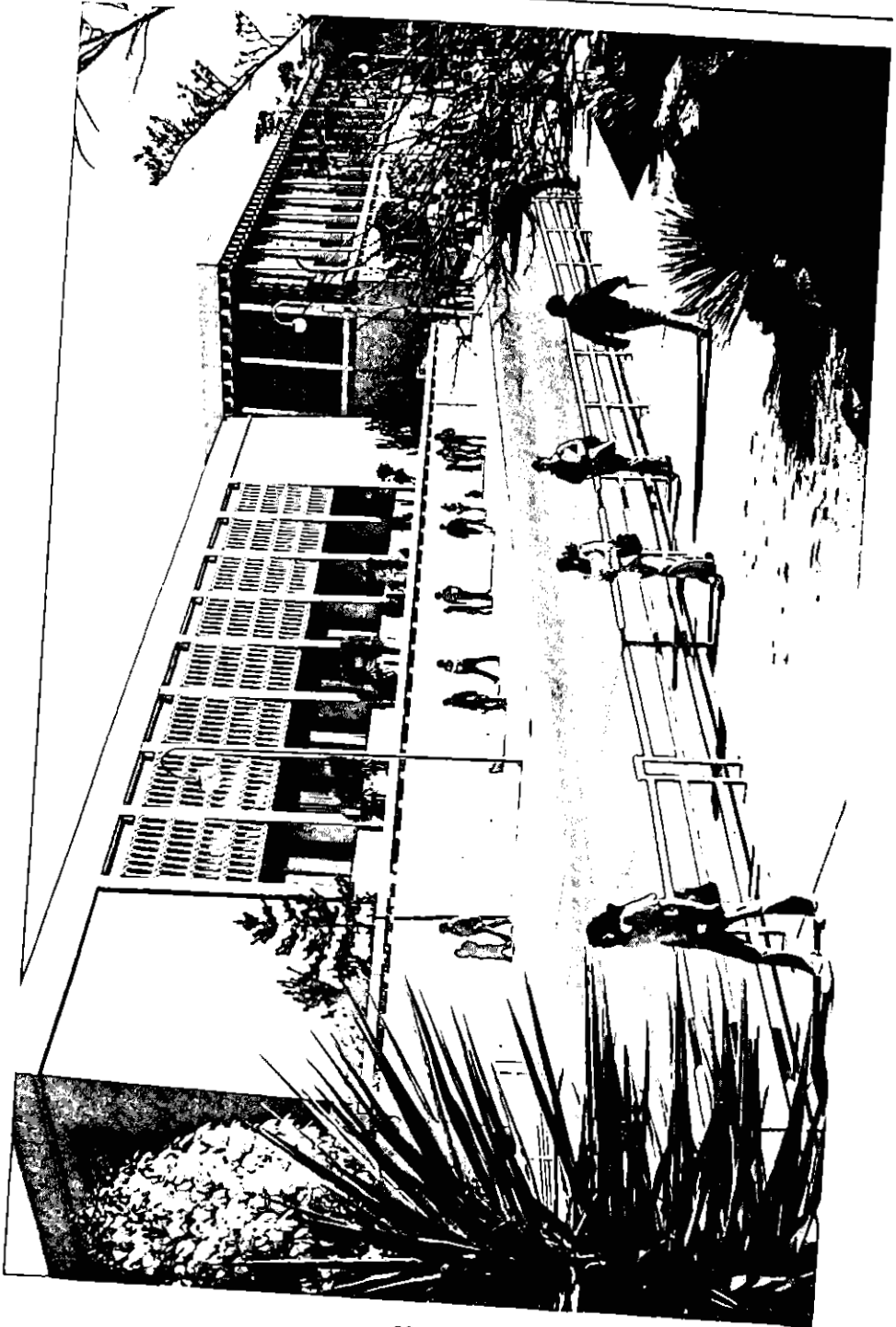
Counseling and Guidance  
Educational Diagnostician

##### HEALTH AND PHYSICAL EDUCATION

#### THE MASTER OF SCIENCE DEGREE

##### General Requirements

1. A thesis (six semester hours) plus twenty-four semester hours of course work. (Some departments have plans requiring thirty-six hours without a thesis.) Only nine hours of 3300 or 3400 courses are permitted in a program, and no more than six hours may be included in either major or minor.
2. A major with a minimum of eighteen semester hours including the thesis. Major fields for the Master of Science include biology, Chemistry, Engineering, Geology, Health and Physical Education, Mathematics, and Physics.
3. A minor of from six to twelve hours in a related field may be accepted or required by the department. A transfer student must complete at least three hours of the minor in residence.



# College of Business Administration

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THE UNIVERSITY OF TEXAS AT EL PASO

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THOMAS F. LEE, *Dean*



## College of Business Administration

### General Information

The College offers the *Bachelor of Business Administration (B.B.A.)* degree, with major options in Accounting, Economics, Finance, Management, Marketing, Office Management; and the *Master of Business Administration (M.B.A.)* degree.

#### *Course of Study:*

The course of study required for the B.B.A. degree is divided into three groups:

GENERAL FOUNDATION REQUIREMENTS	— 48 semester hours
BUSINESS CORE REQUIREMENTS	— 36 semester hours
MAJOR OPTION REQUIREMENTS	— 39 semester hours
Total	123 semester hours

#### *Student's Major Designation:*

1. All students entering the College will be designated as *Pre-Business Majors (PREB)* and will remain in this classification until they have completed all General Foundation Requirements.

2. During the semester in which a PREB major is completing the General Foundation requirements (or will complete these requirements with less than a full load in the next semester) the student must report to the Pre-Business adviser and change to one of the following major options:

ACCT	— ACCOUNTING	MGMT	— MANAGEMENT
BECO	— ECONOMICS	MKT	— MARKETING
FIN	— FINANCE	OFCM	— OFFICE MANAGEMENT

3. A student is eligible to enroll in Business Core and Business Option courses only after completion of the General Foundation Requirements and declaration of a major option.

#### *Other Degree Requirements:*

In addition to completing the required course of study, a student must meet all of the General Requirements for Undergraduate Degrees and earn a 2.0 grade point average in all courses attempted within the College of Business Administration.

#### *Transfer Credit:*

In general, the College will limit transfer credit for business courses taken at a lower division level to such courses that are offered at that level. In all cases, however, a transfer student must complete the minimum number of upper division hours required of a nontransfer student.



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# Bachelor of Business Administration

## GENERAL FOUNDATION REQUIREMENTS (48 Minimum Semester Hours)

### Min. Sem. Hrs.

- 6 — ECONOMICS 3203-3204.
- 12 — ENGLISH 3111-3112 and 6 hours from the following: 3211, 3212, 3213, 3214, 3215, 3216, 3269.
- 6 — POLITICAL SCIENCE 3110-3111.
- 6 — HISTORY 3101-3102.
- 6 — MATHEMATICS 3120, 3201.
- 6 — NATURAL SCIENCE: BIOLOGY, CHEMISTRY, GEOLOGY, PHYSICS.
- 3 — SOCIAL SCIENCE: PHILOSOPHY, PSYCHOLOGY, SOCIOLOGY, or ANTHROPOLOGY.
- 3 — SPEECH 3102.

## BUSINESS CORE REQUIREMENTS (36 Minimum Semester Hours)

- 9 — Accounting 3211, 3212, 3311
- 3 — General Business 3203
- 3 — Statistics 3201
- 3 — Business Law 3301
- 6 — Finance 3310 and either Finance 3320 or Economics 3320
- 3 — Management 3300
- 3 — Marketing 3300
- 3 — General Business 3203
- 3 — Office Management 3308
- 3 — Management 3400

## BUSINESS MAJOR OPTIONS\* (39 Minimum Semester Hours)

### ACCOUNTING OPTION

- 6 — ACCOUNTING 3321, 3322
- 12 — ACCOUNTING ELECTIVES
- 12 — NON-BUSINESS ELECTIVES
- 9 — FREE ELECTIVES

### ECONOMICS OPTION

- 6 — ECONOMICS 3302, 3303
- 12 — ECONOMICS ELECTIVES
- 12 — ADVANCED BUSINESS ELECTIVES
- 9 — NON-BUSINESS ELECTIVES

### FINANCE OPTION

- 12 — FINANCE
- 6 — ADVANCED BUSINESS ELECTIVES
- 12 — NON-BUSINESS ELECTIVES
- 9 — FREE ELECTIVES

### MANAGEMENT OPTION

- 6 — MANAGEMENT 3310, 3311
- 6 — ADVANCED MANAGEMENT ELECTIVES
- 6 — ADVANCED BUSINESS ELECTIVES
- 12 — NON-BUSINESS ELECTIVES
- 9 — FREE ELECTIVES

### MARKETING OPTION

- 9 — MARKETING 3308, 3401, 3409
- 9 — MARKETING 3302, 3303, 3304, 3305, 3309, or 3406
- 12 — NON-BUSINESS ELECTIVES
- 9 — FREE ELECTIVES

**OFFICE MANAGEMENT OPTION**

- 6 — OFFICE MANAGEMENT 3303, 3305
- 12 — ADVANCED OFFICE MANAGEMENT ELECTIVES
- 12 — NON-BUSINESS ELECTIVES
- 9 — FREE ELECTIVES

\* Students with educational goals which are not met by available options may submit their needs to the Department Chairman. A special program of study may be established with the approval of both the Chairman and the Dean of the College.

**BACHELOR OF BUSINESS ADMINISTRATION  
ARRANGEMENT OF COURSES**

<b>Freshman Year</b>	
<b>1st Semester</b>	<b>2nd Semester</b>
Natural Science ..... 3	Natural Science ..... 3
English 3111 ..... 3	English 3112 ..... 3
Pol. Science 3110 ..... 3	Pol. Science 3111 ..... 3
History 3101 ..... 3	History 3102 ..... 3
Speech 3102 ..... 3	Math 3120 ..... 3
Approved Elective <sup>1</sup>	Approved Elective <sup>1</sup>
15/18	15/18
<b>Sophomore Year</b>	
<b>1st Semester</b>	<b>2nd Semester</b>
Acct. 3211 ..... 3	Acct. 3212 <sup>2</sup> ..... 3
Math 3201 ..... 3	Genb 3203 ..... 3
Econ. 3203 ..... 3	Stat 3201 ..... 3
Soph. Eng. .... 3	Soph. Eng. .... 3
Soc. Science ..... 3	Econ. 3204 ..... 3
Approved Elective <sup>1</sup>	Approved Elective <sup>1</sup>
15/18	15/18
<b>Junior Year</b>	
<b>1st Semester</b>	<b>2nd Semester</b>
Ofcm 3308 ..... 3	Business Core and Option
Blaw 3301 ..... 3	Requirements (including
Acct. 3311 <sup>2</sup> ..... 3	electives) ..... 15/18
Business Core and	
Option Requirements ..... 6/9	
15/18	
<b>Senior Year</b>	
<b>1st Semester</b>	<b>2nd Semester</b>
Option requirements	Option requirements
(including electives) ..... 15/18	(including electives) ..... 12
	MGMT 3400 ..... 3
15/18	15

<sup>1</sup> OFCM 3101, 3102, 3103, and 3104 may be taken during Freshman and Sophomore years.  
<sup>2</sup> Students planning to major in Accounting should substitute ACCT 3221 for ACCT 3212 and ACCT 3327 for ACCT 3311.

### COURSE CLUSTERS UNDER THE BACHELOR OF BUSINESS ADMINISTRATION DEGREE

By careful use of the flexibility provided in the "elective" portion of options leading to the Bachelor of Business Administration degree, a student may cluster his electives around a selected industry or profession. These are all advising programs, and a student interested in one of these clusters must seek special counsel from the listed adviser.

**ACCOUNTING — Career Development Program.** This program is designed for the student who desires a career in accountancy and has a degree other than the B.B.A.

*Accounting Advisor:* MR. G. R. Bovard, C.P.A.

**ADVERTISING (Marketing Option) —** Enables the student to earn the B.B.A. degree and become knowledgeable about the techniques and practices of the primary advertising media.

*Business Adviser:* Mr. A. S. Gifford.

**MANAGEMENT SCIENCE (General Business Option) —** Enables the student to earn the B.B.A. degree with an understanding of modern management concepts and techniques in a quantitative and computer oriented business environment.

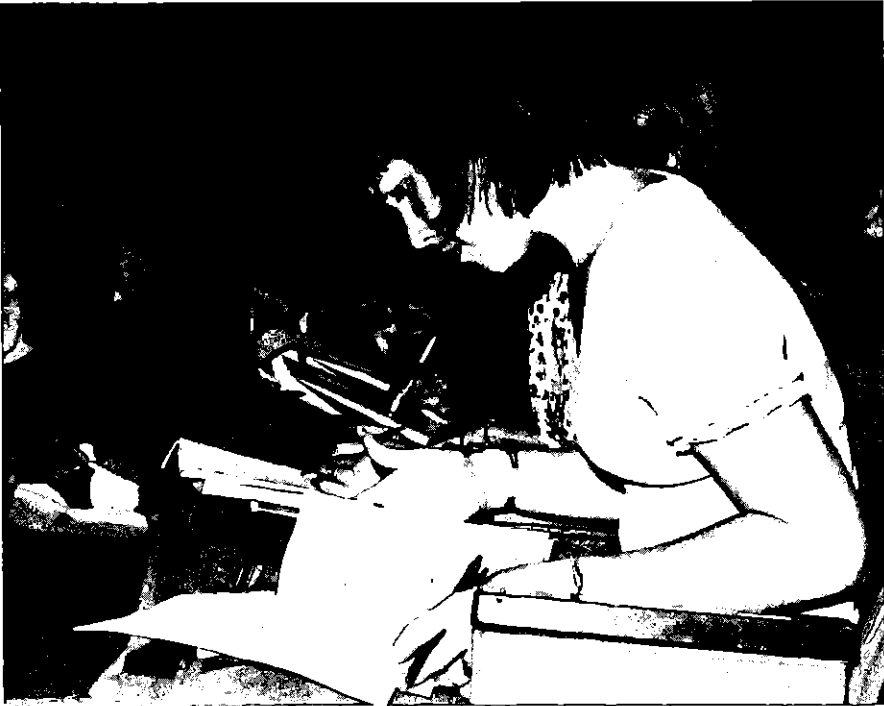
*Business Adviser:* Dr. Edward George.

**TEACHER CERTIFICATION (Office Management Option) —** Enables the student to earn the B.B.A. degree and to qualify for a secondary teaching certificate.

*Business Adviser:* Dr. Lola B. Dawkins.

**SECRETARY SCIENCE (Office Management Option) —** Enables students to attain a certificate of proficiency at a specific point in the curriculum.

*Business Adviser:* Dr. Lola B. Dawkins.



# ACCOUNTING

John Pate, *Chairman*  
Professors NOURALLAH, PATE;  
Associate Professors BOVARD, FLORES, SANDERS;  
Assistant Professors FLAHERTY, FLYNT.

- B.A. Degree** — Course requirements for the B.A. degree with a Business Administration major (Accounting Option) are as follows: Accounting 3211, 3221, 3321, 3322, 3323, 3327, 3404, and three additional hours of advanced accounting other than 3309.
- 3211 Principles of Financial Accounting (3-1)**  
A study of the concepts of Financial Accounting. The course is designed to impart to the student the inputs and outputs that produce financial statements. (Voluntary Lab)
- 3212 Principles of Managerial Accounting (3-1)**  
A study of the functional uses of accounting data with emphasis on the use of accounting data by management. For non-accounting majors, Accounting 3212 and 3221 may not both be counted for credit toward an accounting option but one may count as a free elective. *Prerequisite:* Accounting 3211. (Voluntary Lab)
- 3221 Accounting Methods and Procedures (3-1)**  
A study of the accounting cycle and its completion, the voucher system, cost accounting, and payroll accounting. For accounting majors, Accounting 3221 and 3212 may not both be counted for credit toward an accounting option but one may count as a free elective. *Prerequisite:* Accounting 3211. (Voluntary Lab)
- 3309 Survey of Accounting Principles, Techniques, and Concepts (3-0)**  
A non-technical approach to accounting with emphasis on the use and interpretation of financial statements, cost behavior and analysis of cost accounting reports, budgeting and variances from budgets. (Open only to non-B.B.A. students)
- 3321 Intermediate Accounting I (3-0)**  
An in-depth study of accounting principles, concepts, and alternate accounting methods. A critical review of financial statements with emphasis on the asset accounts and related nominal accounts. *Prerequisite:* Accounting 3221 or 3212.
- 3322 Intermediate Accounting II (3-0)**  
A study of current, non-current, and contingent liabilities and owners' equity accounts. Preparation of statement of changes in financial position. *Prerequisite:* Accounting 3321.
- 3311 Income Tax Planning and Control (3-0)**  
A study of the basic concepts of federal income tax that are applicable to all taxpayers with emphasis upon planning and control. For non-accounting majors, 3311 and 3327 may not both be counted for credit. *Prerequisite:* Accounting 3212 or 3221.
- 3323 Cost Accounting (3-0)**  
A study of cost accounting procedures with emphasis on the basic theory and procedures of allocating materials, labor, and manufacturing expenses in job order and process cost systems. Determination of standard costs, budgetary controls, variance analysis, and cost and profit analysis for management decision-making. *Prerequisite:* Accounting 3221 or 3212.
- 3326 Special Problems in Accounting (3-0)**  
A study of specialized procedures and unique methods of fund accounting for governmental units and private institutions, of consignment sales, installment sales, estates and trusts, receiverships and statements of affairs. *Prerequisite:* Accounting 3321.
- 3327 Federal Income Tax — Individuals (3-0)**  
A comprehensive explanation of the Internal Revenue Code and Regulations as they pertain to individuals. The tax principles are applied to problems and the preparation of the individual tax return. For accounting majors, Accounting 3327 and 3311 may not both be counted for credit. *Prerequisite:* Accounting 3221 or 3212.

- 3328 Federal Income Tax — Partnerships and Corporations (3-0)**  
A comprehensive explanation of the Internal Revenue Code and Regulations as they pertain to partnerships and corporations including problems and preparation of tax returns. Analysis of federal gift, estate, and inheritance tax structure. *Prerequisite:* Accounting 3327.
- 3399 Current Concepts in Accounting**  
Topic to be announced. This course may be repeated for additional credit as topics are changed. *Prerequisite:* Instructor's permission.
- For Undergraduates and Graduates**
- 3401 Advanced Accounting (3-0)**  
A study of special problems of partnership accounting; of home office and branch accounting; and of corporate mergers, acquisitions, liquidations, reorganizations, and international operations. *Prerequisite:* Accounting 3322.
- 3403 Accounting Systems (3-0)**  
Analysis of fundamental accounting systems. Emphasis on systems design; relationship of system and organization; objectives, policies, procedures, and plans. *Prerequisite:* Accounting 3322.
- 3404 Auditing Principles and Procedures (3-0)**  
A study of auditing reports, standards and procedures; verification of balance sheet and related nominal accounts in the framework of generally accepted accounting principles. *Prerequisites:* Accounting 3322 and 3323.
- 3497 C.P.A. Problem Review (3-0)**  
A study of past C.P.A. examinations and current topics. Cannot be used to satisfy the twenty-seven semester hour requirement for an accounting major. *Prerequisites:* Twenty-one semester hours of accounting or consent of instructor.
- For Graduate Students Only**
- 3510 Corporate Accounting Development (3-0)**  
Accounting principles and their development in relation to the accounting problems of the corporation. Emphasis is placed on the administrative use of accounting data in corporate affairs and on the analysis and interpretation of accounting data, including financial statements. *Prerequisite:* Accounting 3309 or equivalent.
- 3511 Accounting for Management (3-0)**  
A study of accounting as related to making business decisions. Readings, cases, and problems dealing with accounting concepts, budgeting and cost control, use of accounting data in planning operations and policy formulation, and tax planning in business policies. *Prerequisite:* Accounting 3309 or equivalent.
- 3512 Controllership (3-0)**  
A study of the major phases of controllership practice, including organizational status, objectives, functions, duties, and responsibilities, and the managerial utilization of accounting and statistical data for planning and control. *Prerequisite:* Accounting 3511.
- 3514 Managerial Tax Planning (3-0)**  
A study of special income tax problems of all taxpayers; directions toward tax planning, federal estate and gift taxes, losses, claims for refund. *Prerequisites:* Accounting 3327 and 3328.
- 3580 Directed Individual Study in Accounting (3-0)**  
Studies of topics not included in or going beyond the required course offerings. May be repeated for credit. *Prerequisite:* Consent of instructor.
- 3590 Accounting Seminar**  
A study of the development of accounting thought as a background for its application to current accounting problems. Influences of government and organizations of accountants. *Prerequisites:* Twenty-one semester hours of accounting or consent of instructor.
- 3597 Practice Review (3-0)**  
Inquiry into past C.P.A. examinations and current topics. Research and report required. *Prerequisites:* Twenty-one semester hours of accounting or consent of instructor.

# BUSINESS

L. PHILIPS BLANCHARD, *Chairman*

*Professors* BAYLOR, BLANCHARD, DAWKINS, DILLMAN, GOSTER, GEORGE, HARTRICK,

*Associate Professors* PALMORE, STENICKA;

*Assistant Professors* DAWSON, FREELAND, GIFFORD, MARTIN, POPP, SHEPPARD, SIPES, TOMPKINS, ZAVALETA;

**B.A. Degree** — Course requirements for the B.A. degree with a Business Administration major (*Business Option*) are as follows: Accounting 3309, Management 3300, Marketing 3300, Office Management 3308. (Business Communications), Business Law 3301, Statistics 3201, Finance 3310, General Business 3203, six hours of advanced Business electives, and six hours of free Business electives.

## BUSINESS LAW

- 3301 Business Law I (3-0)**  
Designed to introduce the student to the legal environment in which business decisions are made.
- 3304 Business Law II (3-0)**  
A continuation of Business Law 3301 with emphasis on the Uniform Commercial Code. *Prerequisite:* Business Law 3301.
- 3305 Real Estate Law (3-0)**  
Fundamentals of law as applied to real estate. Real estate contracts, sale, lease, sale-leaseback, mortgages, real estate syndications. Detailed analysis of real estate licensing act and other laws related to real estate transactions. Real estate laws involving real estate operations with other states. Relevant laws and contracts related to management of properties, loans, and financial transactions. *Prerequisite:* Consent of instructor.
- 3306 Insurance Law (3-0)**  
Solicitation and sale of insurance; persons and interests protected by insurance; selection and control of risks; disposition of claims. *Prerequisite:* Consent of instructor.
- 3400 Legal Aspects of the Management Process (3-0)**  
The nature of the partnership and corporation and their jurisprudential problems; the rights and powers of managers and the limits of their discretion; and the manager's duties and responsibilities to his organization, to investors, to creditors, to the state, and to the general public.
- 3401 C.P.A. Law Review (3-0)**  
A review of the legal subjects covered in the examination for Certified Public Accountants. *Prerequisite:* Business Law 3304 or permission of instructor.

## GENERAL BUSINESS

- 3203 Introduction to Computers (3-1)**  
An introductory course in computers designed to familiarize the student with the impact of the computer on the business and economic society. Emphasis is placed on the use of computers as a tool in Accounting, Economics, Finance, Management, Marketing, and Office Management.
- 3300 Business Applications of Computers (3-0)**  
An advanced study of current business applications of the computer as it applies to Accounting, Economics, Finance, Management, Marketing, and Office Management. COBOL will be the language used. *Prerequisite:* General Business 3203 and Statistics 3201, or consent of instructor.
- 3301 Social Responsibility of Business (3-0)**  
The student correlates the objectives of business firms with those of the society as a whole, analyzes the interrelationships of business resources, and examines the management process of marshalling and utilizing resources to attain desired objectives.

- 3304 Insurance Planning (3-0)**  
Insurance as it applies to the average citizen, with emphasis on general principles, types of policies available, fitting policies to needs, and cost to policyholders.
- 3310 Introduction to Real Estate (3-0)**  
Theory of supply and demand for real estate, the housing market structure, the equity and mortgage markets, the development and significance of private and governmental institutions financing real estate and the role of credit in real estate markets. *Prerequisite:* Consent of instructor.
- 3320 Principles of Appraising (3-0)**  
The theory and practice of property evaluation, cost estimation, investment earnings forecasts, principles and technology. *Prerequisite:* Consent of instructor.
- 3399 Current Concepts in Business (3-0)**  
Topic to be announced. This course may be repeated for credit as topics are changed. *Prerequisite:* Consent of instructor.
- 3401 Comparative Readings (3-0)**  
An independent study opportunity designed to augment a student's unique ability or to be used as a means of encouraging broadened thought through comparisons of business philosophies. Written reports based upon assigned readings are required.
- 3405 Seminar on Appraisal and Valuation (3-0)**  
A study of the tools and techniques commonly applied in problems of appraisal and valuation; case studies. *Prerequisites:* General Business 3320 or consent of the instructor.
- 3406 Real Estate Investment Analysis (3-0)**  
Current concepts of real estate investment. Methods of analysis and evaluation of the various categories of real estate by quantitative techniques and computer application. *Prerequisite:* General Business 3310.

#### For Graduate Students Only

- 3521 Seminar in Current Business Problems (3-0)**  
A seminar devoted to an investigation, analysis, and discussion of American business problems, trends, policies, and major issues. (To be taken in last semester.)
- 3540 Seminar in International Business (3-0)**  
The course introduces the student to the standard body of knowledge in the international business field and links the international business problems with the pressing intellectual, legal, social, economic and moral issues that the business and government leaders face today. Subjects include the study of environments of international business; forms of multinational business organizations; selection, training, and development of international manager, international management, and international marketing. Methods include lectures, case studies and seminar. Course meets three hours each week.
- 3550 Problems in Business Education (3-0)**  
Consideration of current problems in business education based upon the interests and needs of the student.
- 3597 Business Research and Report Writing (3-0)**  
Organization and preparation of reports of the types used in business. Techniques of collecting, interpreting, and presenting information useful to management.
- 3598-3599 Thesis**

#### MANAGEMENT

- 3300 Introduction to Management (3-0)**  
An introduction to the basic elements and theory of management including an examination of alternative managerial tools and the complex of internal and external forces impacting on managerial decisions.

- 3310 Introduction to Organization Behavior (3-0)**  
This course is designed to develop for the student a useful frame of reference for approaching human problems in the world of work. Topics include awareness of individual behavior, two-person interaction, the dynamics of group and inter-group behavior, and the effects of the total system on behavior observed within the organization. *Prerequisite:* Management 3300.
- 3311 Industrial Reactions (3-0)**  
Provides the student with a survey of policy, procedures, and current practices in the area of the personnel subsystem. Exposure is provided to current concepts dealing with selection, utilization, and retention of employees. Topics to be covered are employment, manpower development, managerial selection, compensation, and labor relations. *Prerequisite:* Management 3300.
- 3312 Behavioral Decisions in Organizations (3-0)**  
Develops a greater understanding of human behavior in organizations directly relating to managerial decision making and developing greater skill in decision making in human problem situations. *Prerequisite:* Management 3310.
- 3313 Management Techniques (3-0)**  
Provides the opportunity to put into practice the concepts explored in earlier courses. Through the case study method, insights will be gained into the challenges which management faces. The case studies help to show the interdisciplinary nature of management activity. *Prerequisite:* Management 3311.
- 3315 Collective Bargaining (3-0)**  
Analysis of bargaining procedures; study of basic institutional issues in bargaining, economic related administrative clauses, strike and lockout tactics, contract administration. Preparation, negotiation, and interpretation of labor contracts. *Prerequisite:* Management 3311.
- 3321 Production Management (3-0)**  
Study of basic quantitative procedures and techniques employed in operations management with emphasis on the development and understanding of analytical techniques and their contribution to managerial decision-making. Statistical, linear programming, and general quantitative analysis applied in case problems.
- 3322 Advanced Production Management (3-0)**  
An analytical approach to the management of physical resources. Study of new developments in mathematical and statistical bases for making rational decisions in operating management, linear programming, value analysis, problem-solving models. Production system simulation by computer. *Prerequisite:* Management 3321 and Statistics 3201.
- 3324 Operations Research (3-1)**  
Provides an understanding of the philosophy of operations research, to introduce the mathematical techniques employed in the solution of typical management problems, and to teach the student when and where the operations research methodology can be applied. Mathematical programming, game theory, and Monte Carlo simulation applied to problem situations. Computer programmed problem-solving. *Prerequisite:* Statistics 3201.
- 3331 Methods Analysis (3-0)**  
Methods improvement procedures, process analysis, principles of motion economy. Determination of time standards and their relation to incentive systems. Emphasis on human relations problems. Development and control of performance standards. *Prerequisite:* Management 3321.
- 3333 Production Control (3-0)**  
The control of time, quantity, and quality of operations. Routing, scheduling, dispatching, and control problems. System relationships in manufacturing, sales, and technical staff departments. *Prerequisite:* Management 3321.
- 3336 Purchasing, Stores and Inventory Control (3-0)**  
Objectives, principles, and methods in managing the function of material supply in industry. Special attention to problems met in planning materials, requirements, purchasing, receiving, storing and disbursing. *Prerequisite:* Management 3321.



- 3400 Business Policy and Management Laboratory**  
Integration of accounting, business law, finance, personnel and production management, and marketing background in the solution of top-management problems. Computer simulated business operation and administration. Student placement with cooperating firms to receive on-the-job training in Management. *Prerequisite:* Graduating Seniors only.

**For Undergraduates and Graduates**

- 3418 Management Laboratory (3-0)**  
Laboratory experience for management majors. Students will apply concepts from other management courses in live organizational settings. *Prerequisites:* Management 3300, 3310, 3311, and one Management elective.
- 3419 Management Laboratory (3-0)**  
Laboratory experience for management majors. Students will apply concepts from other management courses in live organizational settings. *Prerequisites:* Management 3300, 3310, 3311, and one Management elective.
- 3422 Operations Planning and Control (3-0)**  
An analytical study of modern concepts and techniques which have been developed to plan and control operations effectively. Analysis by quantitative techniques for managerial planning and decision-making. Computer applications in problem-solving and simulation. The objective of the course is to bring the range of concepts and techniques to a point of effective application. *Prerequisites:* Management 3321 and three hours of advanced Management.
- 3424 Production Management Seminar (3-0)**  
Current development in production engineering and management. Attention will be given to the identification, definition, and analysis of problem areas. Research of literature and investigation of modern methods. Designed to develop facility in analyzing management problems in manufacturing. *Prerequisites:* Management 3321 and three hours of advanced Management.

**For Graduate Students Only**

- 3511 Organizational Management Seminar**  
Study of the basic processes of organization and management. Study of structural elements, behavior within structure, and behavior among structures. The decision-system approach will be used.
- 3521 Organizational Behavior**  
Study of the models underlying behavior within the organization. Consideration of the interactional patterns of systems of communication and control. Special emphasis on motivation, loci of potential conflict and manifestations of, and relief from, organizational frustration.
- 3522 Advanced Personnel Theory**  
An investigation into the behavioral foundations of the instruments of modern personnel management. Building of appropriate testing, training, performance evaluation, interviewing and/or wage and salary instruments designed to correct organizational deficiencies will be stressed.
- 3523 Management Science Seminar**  
A discussion of management cases involving quantitative aspects, computer evaluation, and management information systems.

**MARKETING**

- 3300 Principles of Marketing (3-0)**  
A description and analysis of the ways in which goods move to points of consumption. Topics studied include functions, institutions, the marketing environment, markets, and government regulation.
- 3302 Principles of Retailing (3-0)**  
Analysis of retail store management including personal requirements and career opportunities with emphasis on modern methods in buying, receiving, pricing, merchandise and financial control, sales promotion and customer service. *Prerequisite:* Marketing 3300.

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- 3303 Promotion Strategies (3-0)**  
Introduction to fundamental economics and social aspects of promotion. Emphasis is given to media, budgeting, evaluation, regarding advertising and sales promotion strategy. *Prerequisite:* Marketing 3300.
- 3304 Distribution Logistics (3-0)**  
Provides a functional knowledge of transportation and distribution systems capable of introducing change or reacting to change in the economic system. Emphasis upon the functional analysis of carriers, distribution system alternatives, spatial arrangements of markets, and selection of physical movement channels in accordance with emerging regional and national programs. *Prerequisite:* Marketing 3300.
- 3305 International Marketing (3-0)**  
Emphasis is given international marketing from the viewpoint of the marketing manager who must recognize differences in market arrangements, and in legal, cultural, and economic factors in different countries. Areas covered include planning and organizing for international operations, interrelationships with other functions, product strategy, pricing promotion, channels and financial aspects of international marketing. *Prerequisite:* Marketing 3300.
- 3307 Professional Salesmanship (3-0)**  
Analysis of the concepts and personal attributes required for professional selling; preparation, modern methods of sales presentation, building of good-will; employer, employee, and competitor relationships. *Prerequisite:* Junior standing or approval of the Department Chairman.
- 3308 Consumer Behavior (3-0)**  
Analysis of psychological, sociological, and cultural aspects of human behavior that affect consumers' actions in the market place. Provides an understanding to facilitate marketing planning and strategy in reference to promotion, channels of distribution, product development, and pricing. *Prerequisite:* Marketing 3300.
- 3309 Marketing Channel Structures (3-0)**  
An examination of the decision variables confronting the management of vertical marketing channel structures which link production and consumption. Emphasis will be placed on application of behavioral and analytical techniques which aid decision making in an interorganizational context. *Prerequisite:* Marketing 3300.
- 3401 Marketing Research and Analysis (3-0)**  
Scientific methods of analysis and statistical techniques are employed in solving marketing problems. Emphasis on collection of information from internal and external sources; analysis, interpretation, and presentation of research findings. *Prerequisites:* Statistics 3201 and Marketing 3300.
- 3406 Sales Management (3-0)**  
The selection and administration of the sales force; determination of marketing policies; and the planning, coordination, and control of all promotional activities. *Prerequisite:* Marketing 3300.
- 3409 Marketing Management (3-0)**  
An integrating course in marketing, systemically oriented with emphasis on the marketing mix, and special attention to market analysis, marketing information, and sales forecasting. *Prerequisites:* Marketing 3300, and 9 additional hours of marketing courses.

**For Undergraduates and Graduates**

- 3498 Marketing Survey and Analysis (3-0)**  
A comprehensive approach embracing all business activities involved in moving goods from production to consumption. Breadth and depth are pursued with analytical emphasis upon marketing institutions, functions, regulations costs, efficiency, and contemporary marketing problems. Developing a philosophy of the role of marketing in the American economy is also emphasized.

- 3499 **Marketing Theory Seminar (3-0)**  
Concepts and theories advanced in the development of marketing institutions, channels, functions and marketing processes. Emphasis is given other disciplines and their contributions to marketing thought.

**For Graduate Students Only**

- 3511 **Marketing Management**  
Analysis of policy formulation by marketing management with special emphasis on the influence of internal and external environment factors that affect the competitive strategies of a marketing firm.
- 3521 **Marketing Analysis**  
A study of research designs, methods and analytical techniques applicable to those business activities involved in moving goods from producer to consumer.
- 3522 **Current Marketing Problems Seminar**  
A study of current marketing problems. Special emphasis on delineating the problems and the application of concepts, theory, and practices relevant to the solutions, including the contribution and interrelationships with other disciplines.

**OFFICE MANAGEMENT AND BUSINESS EDUCATION**

- 3101 **Typewriting I (3-2)**  
Fundamentals of touch typewriting; mastery of keyboard and techniques; development of speed and accuracy; page arrangement of business letters, tabulation, and manuscript writing.
- 3102 **Typewriting II (3-2)**  
Advanced instruction in applied typewriting with emphasis on increased speed, accuracy, and efficiency to meet business production standards; legal work and business forms. *Prerequisite:* Office Management 3101 or equivalent.
- 3103 **Shorthand I (3-2)**  
Principles of Gregg shorthand; reading, writing and elementary transcription. *Prerequisite:* Office Management 3101 or equivalent.
- 3104 **Shorthand II (3-2)**  
Gregg shorthand continued; skill and speed building; dictation and transcription of unpracticed material. *Prerequisite:* Office Management 3101 or equivalent.
- 3301 **Transcription (3-2)**  
Transcription of mailable business correspondence, vocabulary building, sustained dictation and transcription practice. *Prerequisite:* Office Management 3104 or equivalent. Offered Spring semester.
- 3302 **Office Problems and Procedures (3-2)**  
Processing of mail, filing and records management, procuring office supplies, receiving calls and callers, handling travel arrangements, preparing business reports, developing business reports, developing personal and professional qualities. *Prerequisite:* Office Management 3101 or equivalent. Offered Fall semester.
- 3303 **Office Management (3-0)**  
A study of the authority and responsibilities of the office manager. Comprehensive applications of modern management concepts and practices in the organization, operation, and control of office functions. Offered Fall semester.
- 3304 **Business Systems (3-0)**  
Methods of establishing, analyzing, standardizing, and controlling administrative systems and procedures including: work simplification, forms analysis, work-flow charting, layout and space analysis, office manuals. Offered Spring semester.
- 3305 **Administrative Services I (3-2)**  
Theory and practice in the selection and operation of dictation and transcription machines, duplicating and copying machines, calculators, proportional spacing and automatic typewriters. *Prerequisite:* Office Management 3101 or equivalent.

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- 3306 **Administrative Services II (3-2)**  
Theory and practice in the selection and operation of rotary and key-driven calculators, adding-listing machines, and desk computers. Applied business mathematics; solving business problems with calculators.
- 3307 **Office Internship (3-0)**  
Office work experience with business or industrial firms. Two-hour seminar per week during internship. *Prerequisite:* typewriting skill, 65 words per minute; shorthand dictation skill, 100 words per minute; permission of Director.
- 3308 **Business Communications (3-0)**  
Development of clear, persuasive writing skill through intensive application of communication principles. Classroom discussion is supplemented by supervised practice in the composition of business letters, memos, and reports.

**For Undergraduates and Graduates**

- 3497 **Business Report Writing (3-0)**  
Organization and preparation of reports of the types used in business. Techniques of collecting, interpreting, and presenting information useful to management.
- 3498 **Improving Instruction in Secretarial Subjects (3-0)**  
Modern methodology in teaching typewriting, shorthand, and office practice courses. The psychology of skill building and techniques of office production. Offered Fall semester.
- 3499 **Business Education Seminar (3-0)**  
Evaluation of methodology and materials used in teaching business subjects. The place of business education in general education. Offered Spring semester.
- 1450 to 6450 **Business Education Workshop (Hours vary)**  
Area of study will be designated.

**STATISTICS AND QUANTITATIVE ANALYSIS**

- 3201 **Fundamentals of Statistics (3-1)**  
Introduction to the foundations of descriptive statistics. Measures of location and variation, with emphasis on specific applications. Study of Index numbers. Introduction to foundations of probability. Time series, Correlation analysis. The course will cover also an introduction to electronic data programming with application emphasis to the related statistical problems studied. *Prerequisite:* Mathematics 3120 or equivalent.
- 3301 **Intermediate Statistics (3-1)**  
Probability and combinatorial analysis. Decision theory, mathematical expectations, tests of hypothesis, linear regression and analysis, correlation analysis, multiple linear regression. Time series and trend analysis, seasonal and cyclical movements. Probability distributions, sampling distribution, the "t" distribution, the binomial distribution, the Poisson distribution, chi-square distribution. Introduction to operations research and linear programming. *Prerequisite:* Statistics 3201.
- 3302 **Operations Analysis (3-0)**  
Introduction to philosophy, techniques, and business applications of modern mathematical sciences with emphasis on the managerial viewpoint. Foundations of mathematical operations for programming; analysis methods; price analysis and its determination; study of market elasticities with applications. *Prerequisite:* Statistics 3301.
- 3310 **Decision Theory (3-0)**  
The use of finite mathematical techniques in administrative decision-making. *Prerequisites:* Statistics 3201 and three hours of Economics, or consent of instructor.
- 3401 **Business Forecasting and Time Series (3-0)**  
Introduction to the contemporary theory of economic fluctuations, economic indicators; foundations of business forecasting; analysis of business indexes in current use. Business index number construction, methods of measuring business

trends and fluctuations, with applications to business forecasting. Serial and multiple correlation and business trends. Advanced study of time series. Application of forecasting methods to specific case studies. Role of business forecasting in managerial planning, principles and methods of forecasting and evaluation of the reliability of existing forecasting techniques. Short-term and long-term forecasting of industry, regional and national business trends. *Prerequisite:* Statistics 3301.

#### For Undergraduates and Graduates

- 3498 Statistical Survey Techniques (3-0)**  
Building of econometric models and advanced time series analysis in measuring trends and fluctuations in business and economics; mathematical programming and the analysis of business series; input-output analysis. Analysis of inter-industry relationships.
- 3499 Regional Analysis, Methods and Principles Seminar (3-0)**  
Quantitative and mathematical approach to the analysis of regional economies; construction of regional economic models; and methods of regional analysis. Some case studies and class projects for the El Paso area.

#### For Graduate Students Only

- 3511 Quantitative Methods in Business**  
Basic mathematical techniques employed in the solution of management problems, including probability theory and tests of hypotheses.



# ECONOMICS & FINANCE

PHILIP DURIEZ, *Chairman*

*Professors* FENLON, ZOOK; *Associate Professors* BRAND, DURIEZ, JAMES, NEILL;  
*Assistant Professors* ROTH, SCHAUER, TOLLEN.

## ECONOMICS

**B.A. Degree** — Specific requirements for the economic major are: Economics 3203, 3204, 3302, 3303, 3320, twelve additional hours of economics, Mathematics 3120, 3201; and a statistics course offered by either the College of Business or the Department of Mathematics.

*General Prerequisite:* Junior standing for all 3300 or 3400 level courses.

**3203 Principles of Economics (3-0)**

A survey of the basic principles of economics designed to give a broad understanding of the economy; primary attention is given to aggregate problems and issues considered of particular importance to the nation.

**3204 Principles of Economics (3-0)**

A continuation of basic economic principles designed to provide an analytical understanding of markets, prices and production.

**3302 National Income Analysis (3-0)**

A study of national income accounting and theory; emphasis is placed on the classification and analysis of conventional spending sectors and their effect on income and employment; a critical survey of policy applications that affect the level of income and employment. *Prerequisite:* Economics 3203.

**3303 Intermediate Economic Analysis (3-0)**

A study of cost, demand, and price theory; the concepts, assumptions, and policy implications of aspects of particular equilibrium and general equilibrium theory; a critical survey of various concepts of the scope, methods, and approaches to economics. *Prerequisite:* Economics 3204.

**3320 Money and Banking (3-0)**

A description of the history and present characteristics of the money and banking structure of the United States. Special emphasis is placed on monetary policy as it affects the level of economic activity. *Prerequisites:* Economics 3204. Economics 3320 and Finance 3320 may not both be counted for credit.

### For Undergraduates and Graduates

**3301 Economic History of the United States (3-0)**

Survey of American economic development from colonial time to present; analyses of factors which have shaped that development.

**3305 Business Cycles and Forecasting (3-0)**

History and description of the phases of the cycle, leading theories of economic fluctuations; prediction of industrial production, prices and profits; methods of alleviation and public policy. *Prerequisite:* Economics 3204.

**3330 Public Finance (3-0)**

Financial administration by agencies of local, state, and federal government; principles of taxation; sales, property, income, and inheritance taxes; analysis of government expenditures and public credit.

**3334 Regional Economics (3-0)**

Location theory, factors influencing regional growth, and techniques of analysis. Description of economic regions and analyses of interactions among economic regions.

**3335 Urban Economics (3-0)**

Investigation of economic forces in American urban and metropolitan areas. Topics examined include labor market analysis, the local public economy, urban economic growth, location theory, and land use analysis.

- 3340 Economics of Labor (3-0)**  
A study of the basic principles, historical background and characteristics of labor markets; theories of wages, wage structures, collective bargaining and the role of government in labor problems.
- 3351 Government and the Economy (3-0)**  
A study of the impact of government policy on the economy, emphasizing effects of governmental regulation on manufacturing and service industries, public utilities, and other segments of the economy.
- 3352 Economics of Transportation (3-0)**  
Theory of rate making; rate levels and economic characteristics of railroad, motor vehicle and air transportation. Analysis of government regulation and public policy.
- 3365 International Economics (3-0)**  
Principal theories of international trade; foreign exchange markets, international capital flows, barriers to trade, international economic institutions, and the economics of regional trade integration.
- 3366 Economics of Latin America (3-0)**  
Considers economic theory and current problems of monetary and fiscal policy, regional economic integration, land reform, export patterns, and industrialization. The emphasis is institutional rather than analytical.
- 3367 Economic Development (3-0)**  
A course concerned with problems of economic growth in the less developed countries. Consideration is given to patterns and problems of human and material resource utilization, capital formation, investment criteria, inflation, and the development of innovative techniques. Emphasis is placed on the application of analytical concepts to the problems of economic development.
- 3368 Economy of Mexico (3-0)**  
A survey of the growth and change of the Mexican economy. Emphasis is placed on the description and analysis of recent and current economic policy.
- 3372 Mathematical Economics (3-0)**  
Basic concepts and operations of mathematical logic and their application to economic analysis. *Prerequisite:* Economics 3204.
- 3373 Introduction to Econometrics (3-0)**  
An introductory course designed to acquaint the student with the basic concepts in model building, different types of economic models, problems in techniques of quantifying models and the use of such models for public and business policy. *Prerequisite:* Economics 3204.
- 3380 History of Economic Thought (3-0)**  
A study of the development of principal economic doctrines and schools of economic thought.
- 3385 Contemporary Economic Thought (3-0)**  
The development of economic analysis over the past three decades. Emphasis is given to the application of economic theory to the mixed capitalism of modern Western economies.
- 3390 Comparative Economic Systems (3-0)**  
Economic foundations of the capitalistic and other systems; economic attributes of fascism, socialism, communism, and capitalism.
- 3395 The Soviet Economy (3-0)**  
Analysis of the structure of the Soviet Economy including a survey of economic development since the revolution.
- 3399 Current Concepts in Economics (3-0)**  
Topic to be announced. This course may be repeated for additional credit as topics are changed. *Prerequisite:* Instructor's permission.

**3420 Monetary Theory (3-0)**

An analysis and critique of current monetary theories and their development from classical roots. Emphasis is placed on the relationship between the theories and their policy implications. *Prerequisite:* Finance 3320 or Economics 3320. Finance 3420 and Economics 3420 may not both be counted for credit.

**3441 Wage Determination(3-0)**

A study of collective bargaining, the theoretical aspects of wages and wage determination, and the relationship between wages, production, distribution, and employment, *Prerequisite:* Economics 3204.

**3480 Managerial Economics (3-0)**

The application of economic concepts and techniques to business problems. Emphasis on decision-making under uncertainty with consideration given to production, investment, pricing, research and development, and logistics problems. *Prerequisite:* Economics 3204 or consent of the department chairman.

**2495-6495 Selected Problems in Economics**

Special studies in areas for which a separate course is not organized. Supervised individual reading and research; writing of a substantial paper in the area chosen for study. Credit will vary according to the work performed, value being indicated by course numbers. *Prerequisite:* Consent of instructor and Department Chairman. May be repeated for credit.

**For Graduate Students Only**

**DEPARTMENTAL REQUIREMENTS  
FOR MASTER OF ARTS DEGREE IN ECONOMICS**

- I. Prerequisites for the graduate program are Economics 3302 (National Income Analysis), Economics 3303 (Intermediate Economic Analysis), Economics 3320 (Money and Banking), or their equivalents, and three hours of Statistics.
- II. Completion of Economics 3501 (Research Methodology), Economics 3502 (Microeconomic Theory), and Economics 3503 (Macroeconomic Theory), or their equivalents.
- III. Completion of one of the following plans:
  - Plan 1. The Student may elect a thirty semester hour program, at least twenty-one hours of which must be work in graduate courses, including the thesis, for which six hours of credit is allowed.
  - Plan 2. The student may elect a thirty-six hour program, including a minimum of twenty-one graduate hours in economics. The student must present a minimum of two suitably bound research papers, which may be drawn from previous graduate courses in economics, to a committee charged with the responsibility of conducting a final examination. The student must successfully complete Economics 3595 (Seminar in Applied Economic Research).
  - Plan 3. The student may elect a thirty-six hour interdisciplinary program, including a minimum of eighteen hours of graduate work in economics. The hours taken outside of economics will represent a logical, related program of study which will be approved by the graduate advisor. The student will have an option of writing a thesis or presenting two suitably bound research papers, which may be drawn from graduate courses in economics, to a committee charged with the responsibility for conducting a final examination.

*Prerequisite:* Twelve semester hours of advanced courses in Economics and a bachelor's degree.

**3501 Research Methodology**

Concentrated study of data gathering methods, research design and analytical and statistical techniques used in economics research.



- 3502 Microeconomic Theory**  
The determination of prices and output. The theory of markets ranging from perfect competition through monopolistic competition and oligopoly to monopoly. The theory of the firm and the industry. Welfare implications of price determination.
- 3503 Macroeconomic Theory**  
The analysis of the determination of total income in the economy and related problems. Strong emphasis is given the theory of income determination, studies in the demand and supply of money, and the relationship between government policy and economic activity.
- 3510 Economic History**  
A survey of the main trends in European industry and commerce since 1800, with attention to related developments outside Europe.
- 3511 Managerial Economics (Available for MBA Students)**  
An evaluative study of the theory of economic decision making in individual firms, groups of firms, and industries under market conditions ranging from competition to monopoly.
- 3512 The Economic Environment (Available for MBA Students)**  
An evaluative study of the determinants of levels of national income, employment, and prices.
- 3520 Monetary and Fiscal Policies and Problems**  
An analysis and critique of monetary and fiscal policies and practices designed to facilitate economic stability and economic progress. Emphasis is given development and application of techniques used for analysis of economic activity, in-depth studies of stabilization policies and their effects, and analysis of problems inherent in the economic system.
- 3530 Regional and Urban Economics**  
A survey course designed to acquaint the student with the theory, methodology, and problem areas of the field. Emphasis is given the theories of location, spatial organization, government policies towards stagnation or urban decay, and techniques of analysis.
- 3540 Labor Economics**  
A study of theory of wage determination, the structure and role of labor organizations and the interaction of labor, industry and government.
- 3550 Social Control of Business**  
Study of the two primary areas of public control of business: regulation of transportation and public utilities, including theories of rate-making, and antitrust laws and legal development.
- 3560 International Economics**  
Economic principles of the flow of goods, services, and capital funds across international borders. Analysis of existing national and international economic institutions influencing international trade and capital flows.
- 3565 Economic Development**  
A critical analysis of policies designed to achieve economic growth in less developed countries. Topics include monetary and fiscal measures, development of human resources, capital formation, investment allocation introduction of new technologies and coordination of domestic policies with the international economy.
- 3566 Latin American Economics**  
A study of the existing economic institutions in Latin America. Application of economics principles to Latin American economic problems and policy. The emphasis is institutional rather than analytical.
- 3570 Advanced Quantitative Methods in Economics**  
Correlation and regression analysis, auto correlation, elements of linear algebra, simultaneous equation problems will be treated in order to analyze linear models, index problems and treat mathematical programming and game theory. The purpose of the course is to master the quantitative methods necessary to understand current economic literature.

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**3580 Development of Economic Thought**

An interpretative survey of principal doctrines in the field of economic theory and policy since the middle of the 18th century.

**3595 Seminar in Applied Economic Research**

Performance of supervised research studies on selected economic problems. Emphasis is on practical, career oriented research.

**3598 Thesis Course**

**3599 Thesis Course**

**FINANCE**

**B.A. Degree** — Specific requirements for the finance major are: Economics 3203 and 3204; Finance 3310, 3315, 3320, fifteen additional hours of finance and Mathematics 3120, 3201.

**For Undergraduates**

**3310 Business Finance (3-0)**

Sources and applications of funds by corporations. Management and financing of current assets; the sources and uses of short, intermediate, and long-term funds. Study of capital budgeting, capital structure, dividend policy, and the problems peculiar to financing new business ventures.

**3320 Money and Banking (3-0)**

A description of the history and present characteristics of the money and banking structure of the United States. Special emphasis is placed on monetary policy as it affects the level of economic activity. *Prerequisite:* Economics 3204. Finance 3320 and Economics 3320 may not both be counted for credit.

**For Undergraduates and Graduates**

**3315 Investments (3-0)**

Introduction to the analysis of investment media, means of purchasing and selling securities, and personal investment decision-making. Emphasis is given to determinants of growth, safety, and income and to problems involved in achieving objectives.

**3325 Money and Capital Markets (3-0)**

Analyses of the instruments and institutions of the money and capital markets, with emphasis on the roles of these markets in the economy. *Prerequisite:* Economics 3320 or Finance 3320.

**3410 Managerial Finance (3-0)**

The development and utilization of financial plans, policies and practices in business enterprises. Particular emphasis is given to illustrative problems and cases. *Prerequisite:* Finance 3310.

**3415 Investment Management and Security Markets (3-0)**

A study of investment management policies for individuals and institutions and the operation of organized security exchanges and the over-the-counter market. *Prerequisite:* Finance 3315.

**3420 Monetary Theory (3-0)**

An analysis and critique of current monetary theories and their development from classical roots. Emphasis is placed on the relationship between the theories and their policy implications. *Prerequisite:* Finance 3320 or Economics 3320. Finance 3420 and Economics 3420 may not both be counted for credit.

**3425 International Finance (3-0)**

A study of international monetary problems, financing of the flow of goods and services among nations, and balance of payments considerations. *Prerequisite:* Economics 3320 or Finance 3320.

**3428 Central Banking (3-0)**

A study of the history, economic functions, operating techniques, and policies of *central banks*. Emphasis is given to concurrent problems of monetary policy and control. *Prerequisite*: Economics 3320 or Finance 3320.

**2495-6495 Selected Problems in Finance**

Special studies in areas for which a separate course is not organized. Supervised individual reading and research; writing of a substantial paper in the area chosen for study. Credit will vary according to the work performed, value being indicated by course numbers. *Prerequisite*: Consent of instructor and Department Chairman. *May be repeated for credit.*

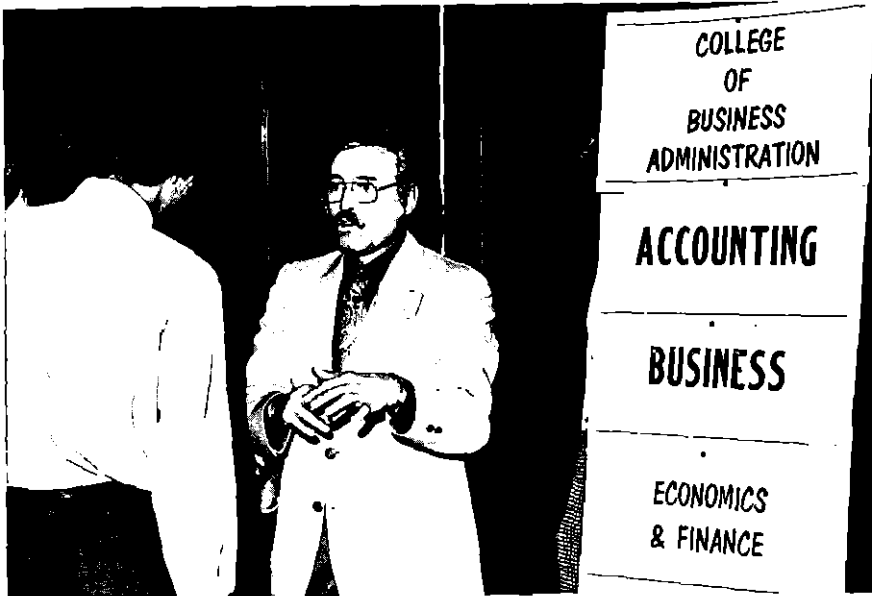
**For Graduate Students Only**

**3511 Financial Management**

A study of the financial manager in executive decision making, involving financial planning and analysis in the allocation of the financial resources of a firm; investment decision making, capital budgeting, and financial problems of growth.

**3515 Securities Analysis**

An in-depth study of the techniques of market and security analysis. Special emphasis is placed on the development of *portfolio theory*, application of the theory to real-world situations, and the evaluation of portfolio management. *Prerequisite*: Finance 3511 or consent of instructor.



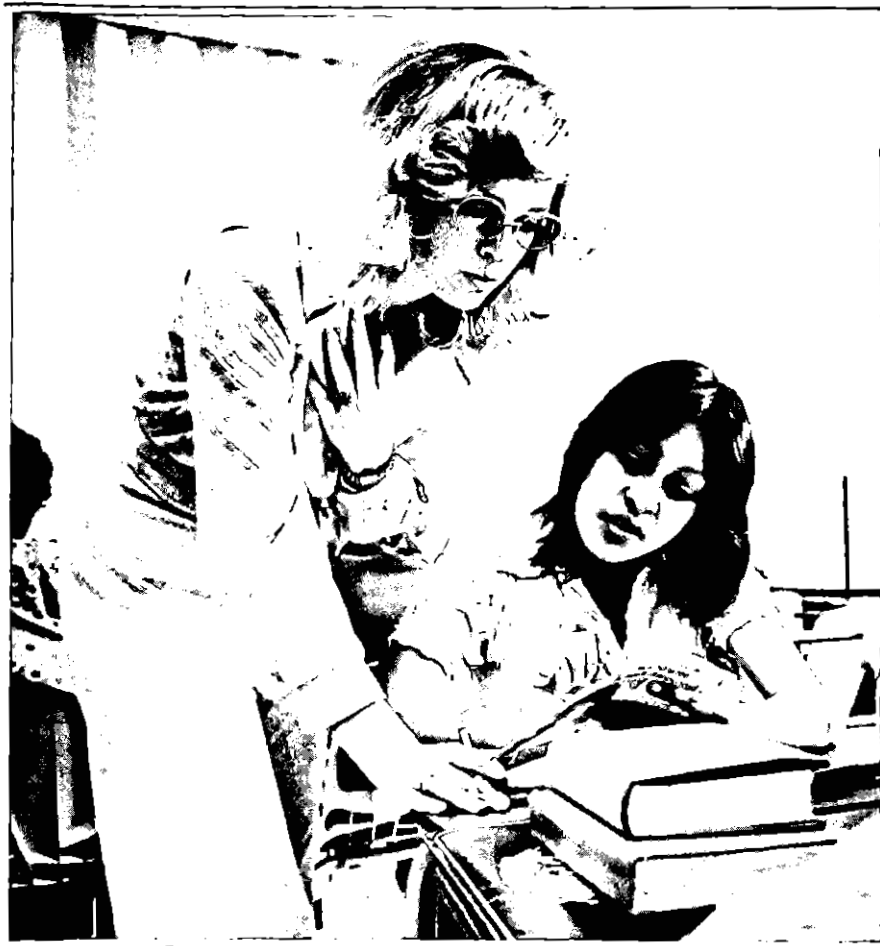


# College of Education

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THE UNIVERSITY OF TEXAS AT EL PASO

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NORMA G. HERNANDEZ, *Dean*  
JOE LARS KLINGSTEDT, *Assistant Dean*



## Teacher Education and Certification

Teacher education is one of the important purposes of The University of Texas at El Paso. Each teacher education program is concerned with the total education of the prospective teacher, *emphasizing preparation* for our American way of life, the development of moral and ethical character, and proficiency in the use of basic skills. All students are required to complete successfully a balanced program consisting of work in arts and science, academic specialization, and *professional development*. Each program represents the minimum course work which a student must complete to be eligible for degree and certification purposes.

The teacher certification laws of Texas, which became effective September 1, 1955, provided for two general types of certificates: the permanent provisional and the permanent professional. The permanent provisional certificate is based on a bachelor's degree and a prescribed state-approved certification program. The professional certificate is based on a minimum of an approved fifth or sixth year of graduate school work beyond the bachelor's degree.

Students interested in earning teachers' certificates should consult early with the Certification Officer in the College of Education.

The Texas Education Agency has approved specific programs in teacher certification for the various colleges of the State of Texas. Certificates can be obtained through a particular college only in those areas and fields so approved for that college. A student no longer can complete the elements of a particular program as set forth in State bulletins on teacher certification requirements and obtain a teaching certificate. These bulletins are now directed to colleges to guide the college in developing their certification programs. They are not directed to individual students or to individual applicants for teaching certificates.

The University of Texas at El Paso has approved provisional certificate programs at both the elementary and secondary school levels. In certain highly specialized fields, The University of Texas at El Paso has approved programs which will qualify the individual for teaching his special subject at both the elementary and the secondary school levels. These special area certificates carry what is known as an all-levels endorsement. The University of Texas at El Paso has approved all-levels programs in Art, Health and Physical Education, and Music. The student who wishes to earn the Bachelor of Arts degree with a major in some other field and who also wishes to qualify for a provisional certificate to teach at the secondary level should confer with the Dean of Education and the Dean of Liberal Arts. In the field of special education the University is approved for the provisional mentally retarded certificate.

The University of Texas at El Paso has approved *provisional certificate programs* as follows:

1. Elementary Education
1. Secondary Education.
3. All-Levels Programs.
4. Speech and Hearing Therapy.
5. School Librarian.

The University of Texas at El Paso has *professional certificate programs* in the following areas:

1. Elementary Teaching.
2. Secondary Teaching.
3. Superintendent
4. Mid-Management.
5. Educational Supervisor.
6. Educational Diagnostician.
7. Counseling.
8. Reading Specialist.

A student who expects to receive a teaching certificate upon graduation must file an application with the Certification Officer at the beginning of the semester in which he intends to graduate.

Direct questions concerning certificates to Certification Officer.

## All-Levels Teacher Programs

ART (Bachelor of Arts), HEALTH & PHYSICAL EDUCATION (Bachelor of Science in Education), and MUSIC (Bachelor of Music).

An all-levels teaching field may be selected from the following programs.

(For additional information consult with the head of the department concerned.)

### A R T

*Semester  
Hour*

**ACADEMIC FOUNDATIONS (60 semester hours)**

**ARTS & SCIENCES (36 semester hours)**

- 12 — ENGLISH 3111-12\* and 6 semester hours from 3210, 3211-3212, 3213-3214, 3215-3216, 3218
- 6 — HISTORY 3101, 3102.
- 6 — POLITICAL SCIENCE 3110, 3111.
- 12 — Twelve semester hours from two of the following:  
SCIENCE — MATHEMATICS — FOREIGN LANGUAGE

**DEGREE REQUIREMENTS AND ELECTIVES (24 semester hours)**

- 3 — SPEECH.\*
- 3 — PHILOSOPHY 3208.
- 3 — ECONOMICS 3203 or SOCIOLOGY 3101.
- 3 — DRAMA 3113 or MUSIC 3124.
- 12 — ELECTIVES.

**PROFESSIONAL DEVELOPMENT †**

- 18 — ED. P. 3301, 3310; ED. C. 3302, 3311, 3496, 3498.

**ACADEMIC SPECIALIZATION †**

- 51 — ART 3101, 3102, 3103, 3104, 3201, 3202, 3203, 3204, 3205, 3208, 3209, 3311, 3312, 3321, 3322, plus 6 advanced hours.  
A minimum total of 132 semester hours including 30 advanced hours.

†A grade point average of not less than 2.5 is required in both Professional Development and Academic Specialization areas.

\*A grade point average of not less than a 2.0 is required in both English 3111-12 and any three hours of speech. Any student declared deficient in English or Speech by the certifying committee or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average.

## HEALTH AND PHYSICAL EDUCATION

### ACADEMIC FOUNDATIONS (67 semester hours)

*Semester*

*Hours* ARTS & SCIENCES (33 semester hours)

- 12 — ENGLISH 3111-12\* and 6 semester hours from 3211-3212, 3213-3214, 3215-3216, 3210, 3218.
- 6 — HISTORY 3101, 3102.
- 6 — POLITICAL SCIENCE 3110, 3111.
- 3 — SPEECH.\*
- 3 — MATHEMATICS.
- 3 — SCIENCE or PHILOSOPHY or SOCIOLOGY or PSYCHOLOGY

### DEGREE REQUIREMENTS AND ELECTIVES (34 semester hours)

- 15 — HEALTH EDUCATION 3201, 3302, 3401, and six semester hours of physical education skills courses.
- 13 — BIOLOGY 3105-1107, 3106-1108, 4211-1212.
- 6 — ELECTIVES.

### PROFESSIONAL DEVELOPMENT (18 semester hours) †

- 12 — ED. P. 3301, 3310; ED. C 3311, and 3302 or 3306 or 3412.
- 6 — PHYSICAL EDUCATION 3496, 3498.

### ACADEMIC SPECIALIZATION (58 semester hours) †

- 34 — PHYSICAL EDUCATION 3103, 3205, 3206 (Men), 3207 (Men), 3215 (Women), 3316 (Women), 3303, 3304, 3305, 3311, 3312, 4301, and 3408 or 3414 or 3318.
- 24 — Second Teaching Field, listed under teaching fields: Secondary Education.  
A minimum total of 128 semester hours including 30 advanced hours.

### MUSIC EDUCATION (Bachelor of Music)

All music majors must declare a major performing medium.

Placement and Proficiency Auditions in piano, voice, and major instrument are required of all music majors. A private interview and a placement test are required in music theory to determine the level of study. Advanced Placement is possible.

Students are expected to avail themselves of pre-teaching experiences during their sophomore, junior and senior years with the select Boy Choir (ages 8 through 18), the "Monotone" Clinic, or other ensembles maintained on the campus.

Music Majors transferring from another institution must pass proficiency tests on their major and secondary instruments, piano, and conducting.

It is recommended that a student who has part-time employment reduce his academic load by 3 semester hours for each 10 hours per week he works.

For detailed requirements and course sequence for music majors and minors, consult the Music Department Handbook with the Department Chairman.

† A grade point average of not less than 2.5 is required in both Professional Development and Academic Specialization areas.

\*A grade point average of not less than a 2.0 is required in both English 3111-12 and any three hours of speech. Any student declared deficient in English or Speech by the certifying committee or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average.



**ACADEMIC FOUNDATIONS (62 semester hours)**

*Semester  
Hours*

- 12 — ENGLISH 3111-12\* and 6 semester hours from 3210, 3211-3212, 3213-3214, 3215-3216, 3218.
  - 6 — HISTORY 3101, 3102.
  - 6 — POLITICAL SCIENCE 3110, 3111.
  - 12 — Twelve semester hours from at least two of the following:  
SCIENCE — MATHEMATICS — FOREIGN LANGUAGES.
- DEGREE REQUIREMENTS AND ELECTIVES (24 semester hours)**
- 3 — FOREIGN LANGUAGE DICTION 3190 (Choral Plan only).
  - 3 — SPEECH 3101 or 3102.\*
  - 8 — MUSIC LITERATURE 2121-2122 and 4 hours from 2319, 2320, 2321, 2322
  - 3 — MUSIC THEORY 3113 (acoustics).
  - 9-12 — ELECTIVES
- PROFESSIONAL DEVELOPMENT (22 semester hours) †**
- 12 — Ed.P. 3301 and Ed.P. 3310; 3 semester hours from Ed.C. 3302, Ed.C. 3303, Ed.C. 3304, Ed.C. 3306 or Ed.C. 3404; and 3 semester hours from Ed.C. 3311, Ed.C. 3312 or Ed.P. 3420.
  - 10 — MUSIC EDUCATION 1201 (4 semester hours), 3496, 3498.

**ACADEMIC SPECIALIZATION †**

<i>C Plan</i>	<i>I Plan</i>	
17	17	(C — Choral Plan, 55; I — Instrumental Plan, 63)
17	17	— THEORY 1111, 1112, 3114; 1211, 1212, 3213, 3214; 2315; 2411 (Choral Plan), or 2412 (Instrument Plan).
12	12	— MUSIC EDUCATION 3331, 3333, 3336, 3433.
—	12	— MAJOR INSTRUMENT (Orchestra or Band Majors), including a minimum of 2 advanced semesters. Students are expected to study every semester in residence.
—	6	— PIANO.
—	2	— VOICE.
—	14	— LOW STRINGS, 2175, HIGH STRINGS 2176, REEDS 2167-2177, BRASSES 2168-2178, PERCUSSION 2179.
12	—	— MAJOR INSTRUMENT (Voice, Guitar, or Keyboard instruments), including a minimum of 2 advanced semesters. Students are expected to study every semester in residence.
8	—	— SECONDARY INSTRUMENT (Voice or Piano). Guitar Majors take Piano.
6	—	— Additional applied music, including Vocal Pedagogy 2493. (Guitar Majors take 6 hours of Voice in addition to 2493; Voice and Keyboard Majors include Guitar 2180.
—	—	— Participation for 8 semesters or each semester in residence in the ensemble of the major instrument. For exceptions, petition the Music Faculty in writing.
—	—	— Instrument Plan requires one year of Chorale or Chorus, and four semesters of Chamber Music.
—	—	— Keyboard Major requires four semesters of Chamber Music and Accompanying (3 of accompanying).

\*A grade point average of not less than a 2.0 is required in both English 3111-12 and Speech 3101 or 3102. Any student declared deficient in English or Speech by certifying committee or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average.

† A grade point average of not less than 2.5 is required in both Professional Development and Academic Specialization areas.

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- - - Qualified bandmen interested in preparing to direct orchestra must meet minimum participation requirements in orchestra, and vice versa.
- - - Recital participation and/or attendance is required every semester in residence and is considered laboratory for other music courses. Music Education Majors must present a partial recital.
- - - A minimum total semester hours of 139 (Choral Plan), or 147 (Instrumental Plan).

**SPEECH AND HEARING THERAPY CERTIFICATION**

(See Speech, Hearing, and Language Disorders; Department of Drama and Speech)



## Bachelor of Science in Education

(Program A or B must be selected and completed)

### REQUIREMENTS IN ACADEMIC FOUNDATIONS FOR ELEMENTARY EDUCATION, SECONDARY EDUCATION, AND SPECIAL EDUCATION

<i>Minimum Semester Hours</i>		
<i>Program A</i>	<i>Program B</i>	<b>ACADEMIC FOUNDATIONS:</b>
		<b>ARTS AND SCIENCES (36 semester hours)</b>
12	12	ENGLISH 3111-12 or LINGUISTICS 4101-02* and 6 semester hours from English 3211-12, 3213-14, 3215-16, 3210, 3218.
6	6	HISTORY 3101, 3102.
6	6	POLITICAL SCIENCE 3110, 3111.
12	—	Twelve semester hours from two of the following: SCIENCE — MATHEMATICS — FOREIGN LANGUAGES
—	6-14	FOREIGN LANGUAGE: Completion of 3201-02 or 3203-04.
—	6	MATHEMATICS.
		<b>DEGREE REQUIREMENTS AND ELECTIVES (30 semester hours)</b>
6	—	EDUCATION A 3101 or Ed. C 3437, Ed. P&G 3201.
3	3	SPEECH 3101, * 3103, *† or 3104*†.
6	—	Six semester hours from two of the following fields: Philosophy 3203 or 3206; Economics 3203; Sociology 3101 or 3102 or 3215.
6	12	LABORATORY SCIENCES from College of Science.
—	3	ECONOMICS.
—	3	PHILOSOPHY 3203 or 3206.
—	3	PSYCHOLOGY 3101.
3	—	MATHEMATICS.
6	6	ELECTIVES.

### ADMISSION TO THE PROGRAMS OF SECONDARY EDUCATION, ELEMENTARY EDUCATION, AND MENTAL RETARDATION

Before a student may be admitted to teacher education by having a degree plan made for the degree of bachelor of science in education, it will be necessary for him to satisfy College of Education admission requirements. Acceptable standards must be maintained throughout the college career of the student as well as at the time of admission to teacher education.

\*A grade point average of not less than 2.0 is required in both English 3111-12 or Linguistics 4101-4102 and Speech 3101. Any student declared deficient in English or Speech by the certifying committee or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average.

†Speech 3103 is recommended for the Elementary Education major. Speech 3104 is recommended for bilingual students wishing to improve their oral English.

## Bachelor of Science in Education

### ELEMENTARY EDUCATION

<i>Minimum Semester Hours</i>		
<i>Program A</i>	<i>Program B</i>	
66	66	<b>ACADEMIC FOUNDATIONS</b>
		<b>ACADEMIC SPECIALIZATION, complete Plan I or II.</b>
		<b>PLAN I:</b>
18	18	Teaching Subjects,* complete one teaching subject listed on page 104 under <i>Teaching Subjects, Elementary Education, Plan I.</i> (A minimum Grade Point Average of 2.5 is required for admissions to student teaching.)
18	18	Combination Subjects,† complete 18 semester hours from the following: Art Education 3311, Drama 4350, Linguistics 3308, English 3220, Mathematics 3302, Music Education 3334, Geography 3110, Physical Education 3205, Health Education 3302, Linguistics 3220, not more than 6 hours of mathematics and/or natural science and/or modern languages.
		<b>PLAN II:</b>
24	24	Teaching Subject,* complete one teaching subject listed on pages 104-105 under <i>Teaching Subjects, Elementary Education, Plan II.</i> (A minimum Grade Point Average of 2.5 is required for admissions to student teaching.)
12	12	Combination Subjects,‡ complete 12 semester hours from the following: Art Education 3311, Drama 4350, Linguistics 3220, 3308, Mathematics 3302, Music Education 3304, Geography 3110, Physical Education 3205, Health Education 3302, and not more than 6 hours of mathematics and/or natural science and/or modern languages.
		<b>PROFESSIONAL DEVELOPMENT</b>
18	18	Ed. P. 3301, 3420; Ed. C. 3302, 3306, 3496-97.
		<b>ELEMENTARY CONTENT</b>
12	12	From: Ed. C. 3303, 3304, 3404 or 3408, 3405 semester hours.
‡	‡	<b>ELECTIVES</b> to make a minimum of 132 semester hours.

\*Teaching subjects include courses in Academic Foundations.

†Combination Subjects may not include courses in Academic Foundations or Teaching subject.

‡Varies according to student's needs and capabilities.

NOTE: A grade point average of not less than 2.5 is required in Education classes in both Programs A and B.

## Bachelor of Science in Education

### SECONDARY EDUCATION

<i>Minimum Semester Hours</i>	
<i>Program A</i>	<i>Program B</i>
66	66
48	48

#### ACADEMIC FOUNDATIONS

#### ACADEMIC SPECIALIZATION, complete Plan I or II.

##### PLAN I:

Secondary Teaching Fields,\* complete two teaching fields listed under Teaching Fields, Secondary Education, Plan I. (A grade average of not less than 2.5 is required in each teaching field.)

##### PLAN II:

Secondary Composite Teaching Field,\* complete one composite teaching field under Composite Teaching Fields, Secondary Education, Plan II. (A grade average of not less than 2.5 is required in the composite teaching field.)

#### PROFESSIONAL DEVELOPMENT

18	18	Ed. P. 3310, Ed. C. 3311, Ed. C. 3312 or 3408, Ed. P. 3420, Ed. C. 3498-99.
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ELECTIVES to make a minimum of 132 semester hours.

#### BILINGUAL/BICULTURAL ENDORSEMENT

Baccalaureate degree with elementary teaching certificate, experience in approved Bilingual Programs, six semester hours of bilingual/bicultural education from Ed. C. 3434, 3435, 3581, plus language proficiency. See Advisor in the Department of Curriculum and Instruction.

#### MENTAL RETARDATION ENDORSEMENT

Complete all requirements in Program A or B in Elementary Education except for Electives in Academic Foundations.

Plus Ed. P. 3409, Ed. P. 3421, Ed. P. 3422, Ed. P. 3429.

Plus Electives to make a minimum of 132 semester hours.

NOTE: A grade point average of not less than 2.5 is required in Education classes in this program.

#### KINDERGARTEN ENDORSEMENT

Complete all requirements in Program A or B in Elementary Education except for Electives in Academic Foundations.

Ed. P. 3401, Ed. C. 3451, 3452 and 3491 (Ed. C. 3491 must be taken concurrently with Ed. C. 3496).

Electives to make a total of 132 semester hours.

\*Secondary teaching fields and secondary composite teaching fields may include courses in Academic Foundations.

†Varies according to student's needs and capabilities.

NOTE: A grade point average of not less than 2.5 is required in Education classes in both Programs A and B.

## LIBRARY SERVICES ENDORSEMENT

Completion of Provisional Elementary or Secondary Certification plus Library Services 3301, 3302, 3303, 3304, 3306 and 3495.

### Teaching Subjects: Elementary Education

Consult adviser in School of Education concerning selection of courses.

#### PLAN I

ART — Art 3101, 3102, 3103, 3104, 3311, 3312, 3321 .....	Total: 21 hours
BIOLOGICAL SCIENCES — Biology 3105-06, 1107-08, 3216, plus 9 advanced hours .....	Total: 20 hours
ECONOMICS — Economics 3203, 3204, 3302 or 3303, plus 9 advanced hours .....	Total: 18 hours
GEOLOGY — Geology 3103, 3104, 3205, 3305, 3405, and 3421 .....	Total: 18 hours
HEALTH AND PHYSICAL EDUCATION — P.E. 3205, 3318, 3103, 3206, or 3312, 3 semester hours of Skills Courses. H.E. 3201, 3302 .....	Total: 21 hours
HISTORY — Hist 3101, 3102, 3201 or 3202, plus 9 advanced hours .....	Total: 18 hours
MATHEMATICS — Mathematics 3101, 3120, 3201, plus 9 advanced hours .....	Total: 18 hours
POLITICAL SCIENCE — Political Science 3110, 3111, plus 12 hours of which 9 are advanced .....	Total: 18 hours
PSYCHOLOGY — Psychology 3101, 3201, plus at least 3 hours from 3103, 3202, 3206, 3224, plus at least 9 hours from: 3302, 3304, 3306, 3310, 3347 .....	Total: 18 hours
PHYSICS — Physics 3101, 3102, 4107, plus 9 hours from Physics 3331, 2343, 3470, 1-6475 .....	Total: 19 hours
READING — Ed. C 3404, 3408 and 3441, and 9 hours from the fol- lowing: 3423, 3424, 3425, 3426, 3449, 3450, 3480 .....	Total: 18 hours
SPEECH — Six hours of foundation courses in Speech; Speech 3210, 3333, plus 6 advanced hours in Speech .....	Total: 18 hours
SOCIOLOGY — Sociology 3101, 3102, 3304, plus 9 advanced hours .....	Total: 18 hours

#### PLAN II (24 semester hours in one subject.)

ART — Art 3101, 3102, 3103, 3104, 3311, 3312, 3321 .....	Total: 24 hours
BILINGUAL/BICULTURAL EDUCATION — Ed. C. 3333, 3434, 3435 Ed. P. 3402; Linguistics 3472; Sociology 3336 or History 3309; English 3310 or 3374; Spanish 3402; (See advisor for Language Proficiency requirements and combination subjects recom- mended.) .....	Total: 24 hours
BIOLOGICAL SCIENCES — Biology 3105--6, 1107-08, 3216, plus 13 advanced hours .....	Total: 24 hours
CHEMISTRY — Chemistry 3105-06, 2106, 4213, plus 12 advanced hours .....	Total: 24 hours
SPEECH — Nine hours of foundation courses in Speech; Speech 3210, 3333; plus 9 advanced hours in Speech .....	Total: 24 hours
ECONOMICS — 3203, 3204, 3302, or 3303; plus 15 advanced hours .....	Total: 24 hours
ENGLISH — English 3111-12, 3211-12; Linguistics 3307, English 3311-12, plus three additional hours of advanced English. (If the student was exempted from English 3111 by examina- tion, he would be required to take three hours of advanced English in addition to the above to complete the total 24 hours required) .....	Total: 24 hours

EDUCATION MAJORS

FRENCH — French 4101-02, 3201-02, 3357, plus nine advanced hours. Non-native speakers are advised to complete three hours of French 3108. ....	Total: 26 hours
GEOLOGY — Geology 3103, 3104, 3205, 3305, 3405, 3421 plus 6 advanced hours from Geology 3325, 3359, 3455, 3470, 3462, or 3466 .....	Total: 24 hours
GERMAN — German 4101-02, 3201-02, 3357, plus 9 advanced hours	Total: 26 hours
HEALTH AND PHYSICAL EDUCATION — P.E. 3103, 3205, 3318, 3206 or 3414, 3303, 3311, and 3 semester hours of skills courses H.E. 3201, 3302 .....	Total: 27 hours
HISTORY — History 3101, 3102, 3201, 3202, plus 12 advanced hours .....	Total: 24 hours
MATHEMATICS — Mathematics 4110, 4111, 3212, plus 13 hours of which 12 are advanced .....	Total: 24 hours
PHYSICS — Physics 3101, 3102, (or 4107, 4108) 4103, 4104, plus 12 hours from 3331, 3333, 2343, 3470, and 1-6475 .....	Total: 26 hours
POLITICAL SCIENCE — Political Science 3110, 3111, plus 18 hours of which 12 are advanced .....	Total: 24 hours
SOCIOLOGY — Sociology 3101, 3102, 3215 and 3304, and 12 advanced hours .....	Total: 24 hours
SPANISH — Spanish 3201-02, or 3203-04, 3357, 3402, plus three hours from Spanish Literature; plus three hours from Spanish American Literature. Non-native speakers are advised to complete three hours of Spanish 3108 .....	Total: 26 hours

## Teaching Fields: Secondary Education

Consult Adviser in School of Education concerning selection of courses.

<b>PLAN I</b> (24 semester hours in a field, 12 hours of which must be advanced)	
BIOLOGICAL SCIENCES — Biology 3105-06, 1107-08, 3214, 1215, 3216, 1217, 3318, 1319, 3320, 3321 plus 3 advanced hours .....	Total: 29 hours
CHEMISTRY — Chemistry 3105-06, 2106, 4213, 3324-1342, 3325-1325, plus 6 advanced hours from 3326-1326, 3428, 3432, 4411, 3465, 4470 .....	Total: 26 hours
DRAMA — Drama 3113; 3 hours of Drama 1111; 4 hours of Acting (Drama 4213, 4214); 4 hours of Directing (Drama 4325, 4425); 8 hours of Technical Theatre (Drama 4215, 4221, 4332, 4342); and 6 hours of History and Criticism (Drama 3357, 3358, 3440) .....	Total: 28 hours
ENGLISH — English 3211-3212, 6 hours; 3311-12 or 3213-14 or 3215-16, 6 hours; 3372 or 3374, 3 hours; 3320 or 3321, 3 hours; 3365, 3 hours; English 3419 or Linguistics 3307, 3 hours .....	Total: 24 hours
GEOLOGY — Geology 3103, 3104, 3205, 3110, 3305, 3405, 3421, plus 3 advanced hours from 3455, 3359, 3462, 3466, or 3470 .....	Total: 24 hours

\*NOTE: Courses 4101 and 4102 are prerequisite for 3201; credit for 4101-02 can be earned by completing the courses by examination. For teacher certification requirements the University Council on Teacher Education has established the following policy: specific course and hour requirements may be met by examinations for credit or other procedures used by Departments to recognize proficiency and permit advanced placement. If the student has to take 4101-02 the modern language teaching fields will total 35 hours.

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FRENCH — French 3201-02,* 3301, 3303, 3357, 3401, plus 9 advanced hours .....	*Total: 27 hours
GERMAN — German 3201-02,* 3301, 3303, 3357 and 3401 plus 9 advanced hours .....	*Total: 27 hours
PHYSICAL EDUCATION — PE 3103, 3206 or 3207 (Men), 3303, 3304, 3305, 3311, 3312, 3316 or 3411 (Women), six hours of skills courses. Total 27 hours, plus Biology 3105-1107, 3106-1108, 4211-1212. ....	Total: 27 hours
HEALTH & PHYSICAL EDUCATION — PE 3206 or 3207 (men), or 3316 (women) plus 3303, 3304, 3305, 3311, 3312, 6 semester hours skill courses, H.E. 3401 .....	Total: 27 hours
HEALTH EDUCATION** — H.E. 3101, 3201, 3202, 3301, 3303, 3307, 3401, 3402, 3403, plus Biology 3105-1107, 3106-1108, 4211-1212. ....	Total: 27 hours
HEALTH EDUCATION (for all levels majors in Physical Education) HE 3101, 3202, 3402, 3403, 3301, 3303, 3307, 3410 .....	Total: 24 hours
HISTORY — History 3101, 3102, 3201, 3202, plus 12 advanced hours .....	Total: 24 hours
JOURNALISM — 2 hours of Publications 1204; Journalism 3201, 3202, 4207, 3312, 3350; Journ. 3305, plus 3 advanced hours .....	Total: 24 hours
MATHEMATICS — Mathematics 4110, 4111, 3212, 3217 plus 12 advanced hours including Mathematics 3325 and 3341 .....	Total: 26 hours
PHYSICAL SCIENCE — Completion of the following three items: 1. Physics 4103-04 or 3101-02; 2. Chemistry 3105-06, 2106 or Chemistry 3103-04; 3. Twelve advanced semester hours from Physics and/or Chemistry and/or Physical Science .....	Total: 24 hours
PHYSICS — Physics 1101, 1102, 1201, 3115, 4216, 3217, plus 12 advanced hours .....	Total: 25 hours
POLITICAL SCIENCE — Political Science 3110, 3111, 6 additional hours, plus 12 advanced hours .....	Total: 24 hours
SOCIOLOGY — Sociology 3101, 3102, 3201, 3215, 3301, 3401, 6 semester hours of advanced courses in Sociology .....	
PSYCHOLOGY — Psychology 3101, 3103, 3321 or 3322, plus 3 semester hours of lower division Psychology; 3309 or 3310 or 3330 or 3348, plus nine semester hours of advanced Psychology excepting 3451, 3452, 3453 .....	Total: 24 hours
SPANISH — Spanish 3201-02 or 3203-04,* 3302 or 3304, 3301 or 3303, 3320 or 3322, 3357, 3400 or 3401, 3472, plus 3 advanced hours ....	*Total: 27 hours
SPEECH — In consultation with a departmental advisor, 9 hours of Speech Foundations courses plus 15 hours of which 12 are advanced .....	Total: 24 hours

**Composite Teaching Fields:  
Secondary Education**

**PLAN II** (48 semester hrs. in a composite field, 18 hrs. of which must be advanced)

**BUSINESS** — Office Management 3102, 3104, 3308, 3498, 3499; plus 9 hours from 3301, 3302, 3303, 3304, 3305, 3306; General Business 3203; Accounting 3211, 3212; Management 3300; Business Law 3301; plus 9 hours of elective courses from Accounting, General Business, Business Law, Marketing, Management, and Statistics, to make a total of 12 hours of advanced credit.

\*NOTE: Courses 4101 and 4102 are prerequisite for 3201, Courses 4103-04 are prerequisites; for 3203; credit for 4101 or 4104 can be earned by completing the courses or by examination. For teacher certification requirements the University Council on Teacher Education Certification has established the following policy: specific course and hour requirements may be met by examinations for credit or other procedures used by Departments to recognize proficiency and permit advanced placement. If the student has to take 4101-02 or 4103-04 the modern language teaching fields will total 35 hours.

\*\*NOTE: See course descriptions for Science prerequisites.



EDUCATION MAJORS

- †SCIENCE — Thirty hours from Biology 3105-06, 1107-08 (Chemistry 3106, 2106, 4213), Geology 3103-04, 3205; Physics 4103, 4104. Completion of one of the following:
- (1) Biology 3214,\*\* 1215, 3216, 1217, 3318, 1319, 3320, 3321, Biology — 3 advanced hours.
  - (2) Geology 3305, 3405, 3421, plus 9 advanced hours from: 3455, 3359, 3466, 3470;
  - (3) Physics: 18 advanced hours from 3331, 3333, 2343, 3325 (or 3326, 3470, and 1-6475 or other advanced physics courses;
  - (4) Chemistry 3321-1321, 3322-1322, 3351-1351 plus 6 additional advanced hours, or Chemistry 3324-1324, 3325-1325, 3326, 1326 plus 6 additional advanced hours
- Total: 48 hours
- †SOCIAL STUDIES — History 3101, 3102, 3201, 3202, plus twelve advanced hours; Political Science six advanced hours; Sociology 3101, 3102, plus three advanced hours; Economics 3203, plus three advanced hours; Geography 3110
- Total: 48 hours
- †SINGLE TEACHING FIELD: ENGLISH — *Prerequisite:* English 3111, 3112, 3211, 3212 under Academic Foundations. English 3215, 3216, 3311, 3312, 3220, 3455 (Literature), 3455 (Composition).  
Complete 6 semester hours advanced Literature, 3 semester hours advanced Linguistics, History 3353, 3354, Ed. C. 3408, Speech 3205, 3307. Either Drama 3113 or Speech 3334
- Total: 48 hours  
Above Foundations



\*\*Chemistry 3105-06, 2106 prerequisite.

†Discuss employment opportunities with College of Education Adviser in this composite teaching field.

## College of Education

### CURRICULUM AND INSTRUCTION

HILMAR E. WAGNER, *Chairman*

*Professors* BURMEISTER, BURNS, EKWALL, WAGNER;

*Associate Professors* EDWARDS, HERNANDEZ, KIES, KLINGSTEDT, MILSON,  
NATALICIO, SCARBROUGH;

*Assistant Professors* AHO, BALL, BARKER, BOLEY, DAVIS, LOWRANCE, MUNN,  
STEVENS, SELIG;

*Lecturer* LAWRENCE

*Adjunct Assistant Professors* BARBA, SOLIS.

#### ELEMENTARY EDUCATION

*General Prerequisite* for 3300 and 3400 courses: Junior standing  
(completion of 60 semester hours)

##### *For Undergraduate Credit Only*

- 3302 **The Curriculum and Modern Media in the Elementary School (3-0)**  
*An introduction to the curriculum in the elementary school; consideration of the function of modern media in curriculum development and application.*
- 3303 **Social Studies in the Elementary School (3-0)**  
*Content, materials, and methods of teaching social studies in the elementary school. Prerequisite: Ed. P. 3301.*
- 3304 **Science in the Elementary School (3-0)**  
*The content and strategies for teaching the recently developed elementary science curriculum programs will be emphasized. Research in the area of science in the elementary school and implications for teaching will be the focus of the course. Prerequisite: Ed. P. 3301.*
- 3305 **Children's Literature in the Elementary School (3-0)**  
*Children's literature and the administration of the recreational reading program in relation to the content subjects in the elementary school. Special reading may be done at the level in which the student is most interested. Prerequisite: P.&G. 3301.*
- 3306 **Language Arts Materials and Methods in the Elementary School (3-0)**  
*Materials and methods of teaching language arts in the elementary school. Prerequisite: Ed. P. 3301 and Ed. C. 3302.*
- 3307 **Social Foundations of Elementary Education (3-0)**  
*Structure and functioning of society as a background for the study and evaluation of elementary education; the contribution of sociological principles and findings to the improvement of educational practices.*
- 3309 **Instructional Problems in Elementary Education (3-0)**  
*An analysis of the types of curricular patterns, principles of curriculum development, evolving trends, and teaching methods in each of the major curricular areas found in the modern elementary school. Special attention is given to materials and procedures in the language arts area. Prerequisite: Six semester hours of advanced credit in elementary education.*
- 3405 **Methods for Elementary School Mathematics**  
*Content, materials and methods of teaching mathematics in the elementary school.*
- 3407 **Classroom Management in the Elementary School (3-0)**  
*The use of records and group techniques to improve human relations in the classroom.*

- 3496 Professional Laboratory Experience in the Elementary School (1.5-10)**  
 A minimum of 120 clock hours of laboratory observation and teaching in an elementary school classroom, and a minimum of one and one-half hours per week in on-campus seminar.  
*Prerequisite:* a grade point average of at least 2.0 in English 3111-12 and in Speech 3101 or 3103 or 3104, and permission for admission to student teaching:
1. for elementary education students: a grade point average of at least 2.5 in Ed. P. 3301, Ed. C. 3302, 3306, and in nine semester hours from Ed. C. 3303, 3304, and 3405, and a grade point average of at least 2.5 in at least three-fourths of the selected teaching subject. To be taken concurrently with Ed. C. 3497.
  2. for elementary-kindergarten students: prerequisites as for elementary education students (above). To be taken concurrently with Ed. C. 3491.
  3. for elementary education students who desire to include experiences in a special education classroom as part of their student teaching, prerequisites as in (1) above, and a grade point average of at least 2.5 in Ed. P. 3409, 3421, and 3422. To be taken concurrently with Ed. C. 3497.
  4. for all-levels Art students: a grade point average of at least 2.5 in Ed. P. 3301, Ed. C. 3302, Art Ed. 3311, and in at least thirty-three additional semester hours of Art and Art Education, as specified in the University Bulletin. To be taken concurrently with Ed. C. 3498.
  5. for Speech and Hearing Therapy students: a grade point average of at least 2.5 in Ed. P. 3409 and twelve additional advanced hours of Education, and in at least three-fourths of the specialization area as specified in Plan II, Department of Drama and Speech section of the University Bulletin, and at least 50 hours of clinical practice in the University clinic. To be taken concurrently with Ed. C. 3498.
- The maximum University course load is student teaching (six semester hours), plus two other courses for a total load of not more than thirteen semester hours. It is recommended that a student who has part-time employment reduce his academic load by three semester hours for each ten hours per week he works.
- 3497 Professional Laboratory Experience in the Elementary School (1.5-10)**  
 A minimum of 120 clock hours of laboratory observation and teaching experience in an elementary school classroom and a minimum of one and one-half hours per week in on-campus seminar. To be taken concurrently with Ed. C. 3496 by Elementary and Elementary-Special Education students.

## SECONDARY EDUCATION

- 3311 Introduction to the Secondary Curriculum (3-0)**  
 An introduction to the development of the curriculum in the secondary school.
- 3312 Methodology and Technological Applications for Secondary Education (3-0)**  
 Consideration of instructional techniques with emphasis on team teaching, laboratory methods, programming, and test development with applications from recent research. *Prerequisite:* Ed. P. 3310 and Ed. C. 3311.
- 3313 Social Foundations of Secondary Education (3-0)**  
 Structure and functioning of society as a background for the study and evaluation of secondary education; the contribution of sociological principles and findings to the improvement of educational practices.
- 3315 Instructional Problems in Secondary Education (3-0)**  
 Methods and materials used in secondary teaching; particular emphasis on analysis and development of courses of study and their use in secondary education. *Prerequisite:* Six semester hours of advanced credit in secondary education.
- 3318 Current Events in Relation to Classroom Use in the Secondary School (3-0)**  
 Particular attention given to selection, organization, and use of current event materials in the secondary school classroom.

- 3467 Teaching Secondary School Mathematics (3-0)**  
Secondary school mathematics will be surveyed and the latest curriculum programs will be examined. Skills in analysis and discovery, inquiry and deductive teaching will be emphasized.
- 3468 Teaching Secondary School Science (3-0)**  
The materials and methods used in teaching natural and physical science in the secondary school will be examined. Emphasis will be placed on developing skills in the use of inquiry, process approach, and discovery in teaching science.
- 3498 Professional Laboratory Experiences in the Secondary School (1.5-10)**  
A minimum of 120 clock hours of laboratory observation and teaching experience in a secondary school classroom and a minimum of one and one-half hours per week in on-campus seminar.  
*Prerequisites:* A grade point average of at least 2.0 in English 3111-12 and in Speech 3101 or 3103 or 3104; and permission for admission to student teaching.  
1. for secondary education students: a grade point average of at least 2.5 in Ed. P. 3310, Ed. C. 3311, 3312, and in at least three-fourths of each teaching field. To be taken concurrently with Ed. C. 3499.  
2. for all-levels Art students: a grade point average of at least 2.5 in Ed. P. 3310, Ed. C. 3311, Art Ed. 3312, and in at least thirty-three additional semester hours of Art and Art Education as specified in the University Bulletin. To be taken concurrently with Ed. C. 3496.  
3. For Speech, Hearing and Language Disorder students: Prerequisites as for Ed. C. 3496. To be taken concurrently with Ed. C. 3496.  
The maximum University course load is student teaching (six semester hours) plus two other courses for a total load of not more than thirteen semester hours. It is recommended that a student who has part-time employment reduce his academic load by three semester hours for each ten hours per week he works.
- 3499 Professional Laboratory Experience in the Secondary School (1.5-10)**  
A minimum of 120 clock hours of laboratory observation and teaching experience in a secondary school classroom and a minimum of one and one-half hours per week in on-campus seminars. To be taken concurrently with Ed. C. 3498 by Secondary Education students.

**GENERAL (Elementary or Secondary Education)**

- 3101 Introduction to Education (3-0)**  
The relationship of American public schools to social and economic changes, also problems in the development of the curriculum, instructional practices, school organization, and administration. Open to all students.
- 3316 Selection, Evaluation and Utilization of Instructional Media and Materials (3-0)**  
Provide students with a knowledge of media and materials of instruction; principles of effective instructional uses of a variety of media; experience in the selection and evaluation of specific media; identification of evaluation criteria for materials with reference to learning goals.
- 3333 Education and the Mexican American (3-0)**  
Analysis of the achievement and behavior of the Mexican American in school, to include examination of curricular and organizational approaches designed to overcome group disadvantages.
- 3412 Classroom Integration of Instructional Equipment and Materials (3-0)**  
Provide a knowledge of instructional equipment and related materials; implement the "systems approach to instruction" contributions of the audio-visual/instructional technology field to classroom instruction.
- 3413 Educational Television and Radio: Preparation and Presentation of In-School Programs (3-0)**  
A survey course at the elementary and secondary level in the public school applications of television, including techniques of teaching by closed circuit TV. Production of in-school radio programs for presentation on commercial and educational stations.

- 3414 Preparation of Inexpensive Instructional Media (3-0)**  
Experience and practice in the preparation of materials and media for visualizing instruction; and ability to adapt from mass media prepared materials; mastery of visual reproduction and duplication techniques using specialized equipment; ability to prepare recorded audio materials. Students will secure designated materials required in the course.
- 3437 History and Philosophy of Education (3-0)**  
A survey of educational ideas and practices in the history of western civilization.
- 1450 to 6450 Educational Workshop**  
(Area of study will be designated. May be repeated for credit when topic changes.)
- 1455 to 6455 Workshop in the Teaching of English**  
(Same as English 1455 to 6455.) May be repeated for credit by studying a new topic.

## Bilingual Bicultural Education

- 3333 Education and the Mexican American (3-0)**  
Analysis of the achievement and behavior of the Mexican American in school, to include examination of curricular and organizational approaches designed to overcome group disadvantages.
- 3434 Teaching Spanish as a Vernacular**  
Development of skills in teaching Spanish and regional dialects, emphasizing techniques for teaching language skills in Spanish.
- 3435 Bilingual/Bicultural Classroom Instruction, K-6**  
Development of skills in teaching literacy in Spanish in the content areas where a specialized vocabulary is required, emphasizing techniques for teaching concepts in the content areas for a given level.

## Kindergarten Education

- 3451 Curriculum of Early Childhood Education**  
A survey of learning experiences and activities suitable and effective for young children. Objectives, development, implementation, and evaluation of the curriculum for early childhood education. Analysis of successful kindergarten programs and survey of nursery school curriculum as a background for kindergarten curriculum development.
- 3452 Language Development for Young Children**  
A study of communications, oral, visual and non-verbal, with particular attention to problems of this region. Techniques for helping and encouraging children to develop effective communications with others. A study of meanings experienced by young children. Specific study of the Southwest Cooperative Educational Laboratory's Oral Language Program and other new developments in communications among young children. Techniques for teaching children to listen, observe, and speak clearly and with comprehension.
- 3491 Professional Laboratory Experience in the Kindergarten (1.5-10)**  
A minimum of 120 clock hours of laboratory observation in a kindergarten classroom, and a minimum of one and one-half hours per week in on-campus seminar.  
*Prerequisites:* A grade point average of at least 2.5 in Ed. P. 3401, Ed. C. 3451, or Ed. C. 3452 and permission for admission to student teaching and either:  
(1) concurrent registration for Ed. C. 3496, or  
(2) Provisional Elementary Certificate.

## Library Services

Basic courses in Library Services have been designed (1) to provide a foundation for the student who plans to take further work at an institution offering a degree in this field, (2) to provide sufficient training to equip a teacher or prospective teacher for work in a school library under supervision of a professional librarian, and (3) to provide knowledge which will enable the classroom teacher to make broad, effective use of the school library.

### *Sponsored by the College of Education*

- 3301 Survey of School Library Services: Cataloging and Classification (3-0)**  
Introduction to the principles and functions of the dictionary catalog: to descriptive cataloging according to the Anglo-American cataloging rules; to the use of Dewey Decimal Classification, Sears subject headings and ALA rules for filing catalog cards. Practice in the application of the principles of cataloging and classification to special types of materials.
- 3302 Survey of School Library Services: Organization and Operation (3.0)**  
Introduction to the management and operations of library and media centers; objectives and current trends in Library services; consideration of problems of budget planning, personnel, facility needs; sources of Federal, State and local funds available for operating media programs, and a study of the practical methods of acquisition, processing, circulation, and inventory of materials for the Center.
- 3303 Books and Other Media Selections for Elementary School Libraries (3.0)**  
Principles of selection, evaluation, and use of books and nonprint media for elementary grades (K-6). Emphasis is on wide reading and examination of materials for both curriculum enrichment and recreational reading. Instruction in the use of standard selection aids.
- 3304 Books and Other Media Selections for Secondary School Libraries (3-0)**  
Principles of selection, evaluation, and use of materials for the secondary grades (7-12), with emphasis on wide reading and examination of materials. Study of the needs, abilities, and reading interests of adolescents. Practice in the use of bibliographic aids as guides to selection.
- 3306 The Teacher and the School Library (3-0)**  
Designed to meet needs both of the teacher who may work in the library and the teacher or prospective teachers who wants to use the school library with maximum effectiveness in teaching. Provision made for specialization in elementary or secondary schools.
- 3495 School Library Observation and Practice (1.5-10)**  
A minimum of 140 clock hours of laboratory observation and practice in public school libraries, and a minimum of one and one-half hours per week in on-campus seminar. The student, in conference with the supervisor of library practice, selects either elementary school or secondary school library for major emphasis, and spends 100 hours there. The remaining 40 hours is spent at the other level. *Prerequisite:* Library Services 3301, 3302, six additional hours, and permission.

## READING

- 3404 Developmental Reading in the Elementary School (3-0)**  
Developmental reading growth, curriculum, methods, and materials in the elementary school with special attention to the Spanish speaking child.

- 3408 Reading and Study in the Content Areas (3-0)**  
Methods and materials for developing maturity in reading and study skills, especially in the content areas. Special emphasis is given to the development of interest, the matching of students to proper materials, instructional techniques for integrating the teaching skills with the teaching of content, and the development of flexibility of reading rate.
- 3423 Teaching Critical-Creative Reading (3-0)**  
Methods and materials for developing higher level cognitive and affective reading behaviors among students from K-12. Teaching strategies which provide for the development of critical-creative readers in both reading and content area subjects will be designed. *Prerequisite:* Ed. C. 3404 or 3408.
- 3424 Reading Laboratory Experience (Elementary) (3-0)**  
Laboratory experience for the application of concepts, media, and evaluation in reading in the elementary school. *Prerequisite:* Ed. C. 3404 or 3408, and 3441.
- 3425 Reading Laboratory Experience (Secondary) (3-0)**  
Laboratory experience for the application of concepts, media, and evaluation in reading in the secondary school. *Prerequisite:* Ed. C. 3404 or 3408, and 3441.
- 3426 Seminar in Reading (3-0)**  
In-depth discussions of theories, materials, and research on topics in reading of the student's choice. *Prerequisite:* Ed. C. 3404 or 3408.
- 3440 Bilingual/Bicultural Reading**  
Emphasis on the development of oral language skills requisite for reading in English and in Spanish; fundamentals for teaching reading in Spanish. Taught in English.
- 3441 The Diagnostic Teaching of Reading (3-0)**  
A study of standardized and informal materials and techniques for diagnosing the reading strengths and weaknesses of individuals and groups, techniques and materials for building specific reading abilities, and methods of individualizing instruction and grouping according to student needs and interests. *Prerequisite:* Ed. C. 3404 or 3408; may not be taken for credit by those who have taken Ed. C. 3541.
- 3449 Analysis and Evaluation of Reading Materials (3-0)**  
An examination of classroom reading materials representative of various facets and philosophies in the teaching of reading. A major emphasis will be focused upon the development of criteria for the selection of materials appropriate for specific individuals and groups of children. *Prerequisite:* Ed. C. 3404 or 3408.
- 3480 Linguistic Approaches to Reading Instruction in the Elementary School (3-0)**  
Basic linguistic concepts will be explored as they relate to language development and reading instruction in the elementary school. Linguistically oriented reading programs will be examined with considerations given to their appropriateness for children of various language backgrounds, including Spanish-English. *Prerequisite:* Ed. C. 3404 or 3408; may not be taken for credit by those who have taken Ed. C. 3580.

#### For Graduate Students Only

**DEPARTMENTAL REQUIREMENTS FOR THE MASTER OF EDUCATION DEGREE.** — Students who are working toward the Master of Education Degree in Curriculum and Instruction may select one of six plans. At least twelve semester hours must be taken in the Department of Curriculum and Instruction.

#### ELEMENTARY TEACHING:

1. Requirements for the program in Elementary Teaching for students who wish to qualify for the Professional Certificate.\*

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- a. **Specialization Area:** Twelve semester hours of credit in courses numbered 3500 and above in one of the following elementary subjects: Biological Sciences, Chemistry, English, French, Geology, Political Science, Health and Physical Education, History, Music, Physics, Reading, Sociology, Spanish, Speech, and Speech Pathology. At least eighteen semester hours of undergraduate credit are required in the selected elementary subject.
  - b. **Professional Core:** Nine semester hours: Educ. P. 3500 and Educ. C. 3501 and Educ. C. 3513.
  - c. **Supporting Area:** Six semester hours.
  - d. **Electives:** Nine semester hours approved by the Graduate Advisor for the Department of Curriculum and Instruction, of which at least six must be in Curriculum and Instruction.
2. Requirements for the program in Elementary Teaching for students who do not wish to qualify for the Professional Certificate.
    - a. **Specialization Area:** Twelve semester hours of advanced or graduate credit in one of the following subjects: Art, Biological Sciences, Chemistry, Economics, English, French, Geology, Political Science, Health and Physical Education, History, Mathematics, Music, Physics, Reading, Spanish, Speech, and Sociology. At least eighteen semester hours of undergraduate credit are required in the selected elementary subject.
    - b. **Professional Core:** Nine semester hours: Educ. P. 3500 and Educ. C. 3501 and Educ. C. 3513.
    - c. **Supporting Area:** Six semester hours.
    - d. **Electives:** Nine semester hours approved by the Graduate Adviser of the Department of Curriculum and Instruction, of which at least six must be in Curriculum and Instruction.

**SECONDARY TEACHING:**

3. Requirements for the program in Secondary Teaching for students who wish to qualify for the Professional Certificate.\*
  - a. **Specialization Area:** Twelve semester hours of credit in courses numbered 3500 and above in one of the following secondary subjects: Biological Sciences, Business, Chemistry, English, French, Political Science, Health and Physical Education, History, Music, Physics, Spanish, Speech, and Speech Pathology. At least twenty-four semester hours of undergraduate credit are required in the selected secondary teaching field.
  - b. **Professional Core:** Nine semester hours: Educ. P. 3500 and Educ. C. 3501 and Educ. C. 3511.
  - c. **Supporting Area:** Six semester hours.
  - d. **Electives:** Nine semester hours approved by the graduate adviser of the Department of Curriculum and Instruction, of which at least six must be in Curriculum and Instruction.
4. Requirements for the program in Secondary Teaching for students who do not wish to qualify for the Professional Certificate.
  - a. **Specialization Area:** Twelve semester hours of advanced or graduate credit in one of the following fields: Art, Biological Sciences, Business, Chemistry, Drama, English, French, Geology, Political Science, Health and Physical Education, History, Mathematics, Music, Physics, Spanish, and Speech. At least twenty-four semester hours of undergraduate credit are required in the selected secondary teaching field.
  - b. **Professional Core:** Nine semester hours: Educ. P. 3500 and Educ. C. 3501 and Educ. C. 3511.
  - c. **Supporting Area:** Six semester hours.
  - d. **Electives:** Nine semester hours approved by the Graduate Adviser of the Department of Curriculum and Instruction, of which at least six must be in Curriculum and Instruction.



**Curriculum Specialist**

5. Requirements for the program in Curriculum Specialization are as follows:
- Specialization Area:** 12 graduate semester hours in one of the specialization areas in Curriculum and Instruction (e.g., Curriculum Design, Reading, Bilingual-Bicultural Education, etc.).
  - Professional Core:** Ed. P. 3500, Ed. C. 3501, Ed. C. 3540, and either Ed. C. 3511 or Ed. C. 3513.
  - Minor:** Six semester hours from courses approved for graduate credit outside of the Department of Curriculum and Instruction.
  - Electives:** Six semester hours from courses approved for graduate credit, three of which must be in Education.
6. Students whose needs are not met by any of the alternatives listed above may plan special programs provided the General Requirements for the degree of Master of Education are met.

\*The applicant should hold, or be eligible for, the appropriate provisional certificate before admission into this program.

**3501 Educational Research Methods (3-0)**

A study of methods, techniques, designs of educational research including execution of simple research projects. The course involves both theory and practice. *Prerequisite:* Ed. P. 3500.

**3502 Problems in Education — Seminar (3-0)**

A course emphasizing educational research in both the elementary and secondary school fields. The student is allowed to make a choice of the field in which to carry on educational research. *Prerequisite:* Twelve semester hours of graduate courses in Education.

**3503 Problems in Education — Seminar (3-0)**

*Prerequisite:* Ed. C. 3502.

**3506 Remedial Reading (3-0)**

Examination and appraisal of significant researchers in the field of remedial reading. Attention given to the analysis and diagnosis of individual cases of reading retardation, and to corrective and remedial procedures. *Prerequisite:* Ed. C. 3404 or 3408.

**3507 Educational Sociology (3-0)**

A survey of the field of educational sociology and its application to problems in modern education.

**3508 Instructional Problems (Elementary) — Seminar (3-0)**

Study of teaching problems arising in the classroom. Students will choose their own problems and those with allied interests will be grouped together to facilitate individual research. The instructor will guide this research. (May be repeated for credit when topic varies.)

**3509 Instructional Problems (Secondary) — Seminar (3-0)**

Same as Ed. C. 3508, except the problems are at the secondary level. (May be repeated for credit when topic varies.)

**3510 Comparative Education (3-0)**

A comparison study of Educational systems of representative European, Latin American, and Afro-Asian countries.

**3511 Curriculum Construction and Organization of Secondary Subject Matter — Seminar (3-0)**

The study of recent curriculum developments in secondary schools, with emphasis on new curricula in subject areas. The purposes and processes of secondary school curriculum. The development of curriculum guides. Each student will thoroughly investigate one curriculum area.

**3512 Curriculum Problems in Science Education — Seminar (3-0)**

The student is permitted to devote his attention exclusively to a pertinent curriculum problem in science education either in the elementary or secondary school field.

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- 3513 **The Curriculum in the Elementary School (3-0)**  
Particular attention given to selection and organization of materials in reference to curriculum development in the elementary school.
- 1514-6514 **Current Topics in Science Education**  
A course designed to provide inservice teachers the opportunity to develop the competencies necessary to effectively deal with curricular changes in science; includes science concepts of a specific program, teaching strategies, structure of the specified program, and the demonstrated ability to integrate content and teaching strategies. (May be repeated for credit when topic varies.)
- 3515 **Clinical Reading Laboratory Experience (3-0)**  
Actual laboratory experience for application of concepts, media and evaluation, to meet reading disadvantages in the elementary grades. *Prerequisite:* Ed. C. 3441 or 3541 or 3534. (May be repeated for credit when topic varies.)
- 3523 **Educational Trends — Seminar (3-0)**  
A critical consideration of selected trends in education.
- 3527 **Psychology of Reading (3-0)**  
Study of the reading process in such areas as language development, the psychology of learning, sensory, perceptual, and neurological factors, special problems of the culturally different child, emphasis on the study and evaluation of research literature and intensive study in individual topics of interest. *Prerequisite:* Ed. C. 3404 or Ed. C. 3408.
- 3531 **Bilingual/Bicultural Curriculum Design and Development (3-0)**  
Identification of principles, problems and issues affecting bilingual curriculum. Examination of rationales and philosophies of various models of bilingual education programs. *Prerequisites:* Ed. C. 3333, 3435, 3302, or 3311.
- 3534 **Clinical Diagnosis of Reading Difficulties (3-0)**  
Comprehensive study and clinical practice in the diagnosis of specific, limiting, and complex cases of reading disability. *Experiences in administering and interpreting batteries of diagnostic tests and in the analysis and synthesis of findings for case studies.* *Prerequisite:* Ed. C. 3404 or Ed. C. 3408.
- 3535 **Construction and Use of Classroom Evaluation Instruments**  
A study leading to skill in constructing and using norm-referenced and criterion-referenced achievement measures for summative and formative evaluation.
- 3537 **Independent Graduate Studies**  
(Area of study will be approved by professor sponsoring the students' work)\*
- 3538 **Introduction to the Junior College**  
The Junior College and its role in preparing students for job entry and for senior college admission. The philosophy, organization, development of programs, special problems, and the emerging role of the private and public junior college. *Prerequisite:* 18 semester hours of advanced education courses.
- 3539 **Competency-Based Curricula (3-0)**  
An advanced, intensive study of the criteria for and functional relationships between interactive elements in behavior modification and new curricular designs identifiable as individually guided learning situation. Special emphasis is given to performance criteria, criterion-referenced tests and feedback mechanisms as they relate to learning packages. *Prerequisites:* Twelve semester hours advanced credit in Curriculum and Instruction.
- 3540 **Philosophies of Education**  
An in-depth study of major philosophies of education and their impact on education in the United States.
- 3541 **The Diagnostic Teaching of Reading (3-0)**  
A study of standardized and informal materials and techniques for diagnosing the reading strengths and weaknesses of individuals and groups, techniques and methods of individualizing instruction and grouping according to student needs and interests. *Prerequisite:* Ed. C. 3404 or 3408; may not be taken for credit for those who have taken Ed. C. 3441.
- 3542 **Problems in Reading — Seminar (3-0)**  
A course emphasizing educational research in reading. The student is allowed to make a choice of the field in reading in which to carry on educational research. *Prerequisite:* Ed. C. 3404 or 3408, and Ed. P. 3500, Ed. C. 3501, or consent of the instructor. (May be repeated for credit when topic varies.)

- 3543 **Problems in Reading — Seminar (3-0)**  
*Prerequisite:* Ed. C. 3542 or Ed. C. 3502 and 6 semester hours in reading.
- 3544 **Trends in Early Childhood Education**  
 A survey of research related to philosophies, objectives, and practices in pre-school education, including analysis through comparison and contrast of pre-school programs plus implications for designing such programs based on research and evaluation. *Prerequisites:* Six semester hours of 3400 level early childhood education courses and permission of instructor.
- 3545 **Seminar in Early Childhood Curriculum**  
 A curriculum development program for the early childhood teacher which includes program design, activity planning, examination and construction of materials, and teaching and evaluation techniques. *Prerequisites:* Texas Kindergarten endorsement or equivalent as approved by instructor.
- 3546 **Teaching Reading in Spanish (3-0)**  
*Prerequisites:* Ed. C. 3440. Emphasis on fundamentals principles for teaching reading in Spanish to Spanish-dominant Children. Examination of classroom reading materials representative of various bilingual reading programs and development of criteria for the selection of materials appropriate for various types of bilingual reading classes.
- 3548 **Practicum in Instruction in Elementary and Secondary Schools (1.5-10)**  
 Designed to be concurrent with the first year of public school level teaching. Includes observation by the university instructor of the classroom teaching of the student and seminars designed to relate the classroom instructional situation to the corresponding educational theory. May be repeated once for credit. *Prerequisite:* A grade point average of at least 2.5 in each teaching field and in all education courses, and permission.
- 3549 **Seminar in Student Teacher Supervision (3-0)**  
 Analysis of research and theory related to supervisory behavior in student teaching as related to the best practice in outstanding student teaching centers. Designed specifically for public school teachers who serve as supervising teachers in the student teaching program of the University, but open to others. *Prerequisite:* Permission of the instructor.
- 3550 **Graduate Workshop in Education (3-0) (Area of study will be designated)**  
 (May be repeated for credit when topic varies.)
- 3551 **Seminar in Reading (3-0)**  
 An in-depth exploration of ways of developing higher level cognitive, affective, and psychomotor abilities of students through the use of printed materials and other media. Individual and/or group creative projects and research findings will be shared. *Prerequisite:* Ed. C. 3408 or 3404.
- 3552 **Oral Language Assessment (3-0)**  
*Prerequisites:* Six hours from the following: Linguistics 3471 (topic: Language acquisition) Ling. 3471 (topic: Bilingualism); Linguistics 3472 Analysis of oral language tests and procedures and their application to the bilingual classroom.
- 3553 **Teaching Content in Spanish (3-0)**  
*Prerequisites:* Ed. C. 3434, or Spanish 3402, or Language Proficiency. Analysis and evaluation of Spanish curriculum materials in the content areas. Emphasis on the development of methods for teaching content in Spanish using specialized language at various levels.
- 3580 **Linguistics and Its Application to Elementary Reading Instruction (3-0)**  
 Various types of linguistic systems will be described and related to elementary reading instruction. Earlier European and American schools of linguistics and more recent Transformationalist linguistic reading programs and evaluated for use with children of various language backgrounds, including Spanish-English. *Prerequisite:* Ed. C. 3404 or 3408. (May not be taken for credit by those who have taken 3480.)



## EDUCATIONAL ADMINISTRATION AND SUPERVISION

GARY D. BROOKS, *Chairman*  
*Professor BARBER;*  
*Associate Professor G. BROOKS*

### DEGREE PROGRAMS

Departmental Requirements for the Master of Education Degree — students who are working toward the Master of Education Degree in Educational Administration and Supervision may select from three Options.

#### I. Educational Administration:

1. Education courses:
  - a. Ed. A. 3524, Ed. A. 3527, Ed. A. 3530, Ed. A. 3535, Ed. C. 3511, Ed. C. 3513.
  - b. Nine hours from:  
Ed. A. 3502, Ed. A. 3526, Ed. A. 3528, Ed. A. 3532, Ed. P. 3500.
2. a. Bus. 3450, Soc. 3575.  
b. Three hours from  
Bus. 3312, Bus. 3315, Eco. 3335, Soc. 3301, Soc. 3304, Soc. 3349, Psy. 3306, Psy. 3310, Psy. 3421, Pol. Sci. 3550.

#### II. Elementary Supervision:

1. Education courses: Ed. A. 3524, 3528, 3535, 3502, Ed. C. 3513, 3508; Ed. P. 3500, 3514, or 3538, plus six hours of 3500 electives in education.
2. Six hours credit from one of the following minors: Art, Biological Sciences, Business Administration, Chemistry, Drama, Speech, Economics, English, French, Geology, Political Science, Health and Physical Education, History, Mathematics, Music, Philosophy, Physics, Psychology, Sociology, Spanish.

#### III. Secondary Supervision:

1. Education Courses:
  - a. Ed. A. 3524, 3532, 3535, 3502; Ed. C. 3511, 3509; Ed. P. 3500, 3517, or 3538.
  - b. Six hours credit from one of the minors listed above under Elementary Supervision, plus six hours of 3500 electives in Education.

### CERTIFICATION PROGRAMS

#### I. Mid-Managements Credentials:

1. a. Masters Degree  
b. Provisional Elementary, Secondary, or All-Levels Certification  
c. 2 years teaching experience
2. Education courses: Ed. A. 3502, 3524, 3526, 3527, 3528, 3530, 3532, 3534, 3535; Ed. C. 3511, 3513; Ed. P. 3500.
3. a. Bus. 3450, Soc. 3575.  
b. 3 Hours from:  
Bus. 3312, 3315; Eco. 3335; Soc. 3301, 3304, 3349; Psy. 3306, 3310, 3421; Pol. Sci. 3550.

#### II. Superintendency Credentials:

1. A. Masters Degree  
b. Provisional Elementary, Secondary, or All-Levels Certification.
2. Education courses: Ed. A. 3502, 3524, 3525, 3526, 3527, 3528, 3529, 3530, 3531, 3532, 3533, 3534, 3535; Ed. C. 3511, 3513; Ed. P. 3500, 3519.
3. a. Bus. 3450, Soc. 3575.  
b. 3 Hours from:  
Bus. 3312, 3315; Eco. 3335; Soc. 3301, 3304, 3349; Psy. 3306, 3310, 3421; Pol. Sci. 3550.

**For Graduate Students Only**

*Prerequisite: Twelve semester hours of advanced courses in Education and a Bachelor's degree.*

- 3502 **Problems in Educational Supervision — Seminar (3-0)**  
A course emphasizing research in the Educational Supervision field. The student is allowed to make a choice of the field in which to carry on educational research. *Prerequisite:* Twelve semester hours of graduate courses in Education or permission of professor.
- 3524 **Public School Supervision (3-0)**  
The study of leadership for instructional improvement. The roles of supervisor, principal, other administrators, and teachers in improvement of teaching and learning in elementary and secondary schools. Study of group dynamics, the change process, observational techniques, interaction analysis, and teacher-supervisor interviews.
- 3525 **The Administration of Teaching Personnel (3-0)**  
A course in ethics of the various relationships between teachers and other school employees and the numerous "outside groups, interests, individuals, and officials."
- 3526 **Public School Finance (3-0)**  
Consideration is given to such matters as public school revenue, budget making and administration, accounting procedures and records, and school bonds.
- 3527 **Administration of Special, Career, Compensatory, Reading and Vocational Education Programs**  
This course emphasizes the requisite knowledges about Special, Career, Compensatory, Reading, and Vocational Education Programs for exercising effective administrative leadership in these areas. *Prerequisite:* Graduate standing.
- 3528 **Organization and Administration of the Elementary School (3-0)**  
Problems confronting the elementary school principal will be studied. For example, teacher schedules, classroom schedules, teachers' meetings, organization of the staff, supervision, curriculum development, and related problems will be considered.
- 3529 **The School Plant (3-0)**  
Specialized study of all facets of the school plant planning and maintenance.
- 3530 **Public School Law (3-0)**  
A study of the constitutional provisions, legislation, court decisions, and regulations governing the public schools with special reference to Texas.
- 3531 **Principles of Public School Relations (3-0)**  
Principles, techniques, and methods used in school public relations. Relationships include the school board and the public, the superintendent in the public relations program, school personnel and the public, the public relations of professional organizations.
- 3532 **Organization and Administration of the Secondary School (3-0)**  
The study of problems pertaining to teachers' meetings, organization of the staff, supervision, curriculum development, and related problems.
- 3533 **Field Experience and Internship in Educational Administration (1-4)**  
On-the-job training in public school administration for superintendency trainees. *Prerequisite:* Master's degree and enrollment in the superintendency training program.
- 3534 **Field Experience and Practicum in Educational Administration (1-4)**  
On-the-job practicum training experience in public school administration for mid-management trainees. *Prerequisite:* Master's degree and enrollment in mid-management training program.
- 3535 **Fundamentals of Public School Administration (3-0)**  
Basic administrative concepts and processes; organization of public school administration; roles of the superintendent and other central office personnel; relationship of the local school district to the Texas Education Agency, federal educational agencies and other educational institutions.
- 3550 **Graduate Workshop in Educational Administration and Supervision (3-0)**  
(Area of study will be designated)

## EDUCATIONAL PSYCHOLOGY AND GUIDANCE

EVERETT E. DAVIS, *Chairman*

*Professors* DAY, C. WALKER;

*Associate Professors* B. BROOKS, DAVIS, J. R. WALKER;

*Assistant Professors* LANDRUM, PAULSON, PLATA, PRESTWOOD, SLETTEDAHL.

### For Undergraduate Credit Only

- 3201 Introduction to Educational Psychology (3-0)**  
A study of the learning process with attention given to growth and development, conditions of effective learning, adjustment, and individual differences and evaluation. Open to all students.
- 3301 Psychology of the Elementary School Child (3-0)**  
A study of the phases of the development and behavior of the child in the elementary school. Also provision for observation of the elementary school child as an individual and as a member of a group. *Recommended prerequisite:* Ed. P.&G. 3201 or Psychology 3101.
- 3308 Psychological Foundations of Elementary Education (3-0)**  
Introductory course in applications of psychological principles and knowledge to elementary education practices.
- 3310 Psychology of the Secondary School Student (3-0)**  
A study of the phases of development and behavior of the adolescent. Also, provision for observation of the adolescent as an individual and as a member of a group. *Recommended prerequisite:* Ed. P.&G. 3201 or Psychology 3101.
- 3314 Psychological Foundations of Secondary Education (3-0)**  
Introductory course in applications of psychological principles and knowledge to secondary educational practices. (This course may not be counted for credit in addition to Ed. P.&G. 3201 and/or 3308 and/or 3420.)

### For Undergraduates and Graduates

*Prerequisite* for courses listed below: Six semester hours of Education or permission of department chairman

- 3400 Elementary Educational Statistics (3-0)**  
A study of the basic statistical concepts as applied to research in education. Topics include descriptive and inferential statistics. Consideration is given to measures of central tendencies, variables, correlations, elementary statistical inference through two-way analysis of variance.
- 3401 Psychology of the Kindergarten Child**  
A study of child development through the pre-school years. Survey of characteristics of four and five-year-old children and of individual differences among them. Observation and research concerning young children at play. Research concerning processes of learning, interaction, natural and effective, for young children, and the development of the child's self-concept.
- 3402 Bilingual/Bicultural Factors in Learning (3-0)**  
Emphasis will be given to the study of factors influencing the learning of bilingual and/or ethnic minority children. Included will be such factors as: cultural values, parental level of schooling, visibility, socioeconomic status, language spoken in the home, school curriculum biases, teacher attitude, self-concept of learner, physiological needs, and need for acceptance.
- 3420 Introduction to Guidance (3-0)**  
A study of the educational, social, and psychological foundations of guidance in schools, colleges, and industry. The historical development of the guidance movement, the philosophy and scope of guidance and the role of the teacher and counselor in their relationships to the total program.
- 3409 The Education of Exceptional Children (3-0)**  
Consideration given to the philosophy, problems, treatment and methods of providing appropriate education and training for exceptional children.

- 3421 Psychology of Mental Retardation (3-0)**  
Consideration of basic psychological problems and research pertaining to mentally retarded children with emphasis on the study of the social, emotional, physical, and learning characteristics of mentally retarded children.
- 3422 Curriculum, Materials, and Methods of Teaching the Mentally Retarded (3-0)**  
Basic organization of programs for educating the mentally retarded at the primary, intermediate, and secondary setting. Curriculum development, principles of teaching, and instructional materials, methods, and records pertaining to the education of the mentally retarded.
- 3429 Observation, Teaching, and Field Work with Mentally Retarded — Seminar (1-2)**  
*Prerequisite:* Ed. P. &G. 3409, 3421, and 3422 or permission of the chairman of the department.
- 1450-6450 Workshop in Educational Psychology and Guidance (3-0)**  
(Area of study will be designated.) May be repeated for credit when topic changes.

#### EDUCATIONAL PSYCHOLOGY AND GUIDANCE PROGRAMS

**DEPARTMENTAL REQUIREMENTS For the Master of Education Degree**  
Students who are working toward the Master of Education Degree in Guidance and Counseling may select one of two plans.

**Plan I.** This plan may be selected if the student has concentrated his previous work in education and is working toward a Texas Professional Counselor's Certificate.

**Plan II.** This plan may be selected if the student has concentrated his previous work in Psychology or Sociology. Other areas may be used with the permission of the Graduate Advisor. This plan does not lead to the Professional Counselor's Certificate.

General course requirements are: Ed. P. 3500, 3502, 3518, 3519, 3520, 3522, 3535, 3539 plus six hours of elective graduate courses in Educational Psychology (3500 level) and six hours credit from a minor in a related field (psychology or sociology recommended). Those students seeking the Texas Professional Counselor's Certificate will be required to take Ed. P. 3517 or Ed. P. 3538 in addition to the above 24 hours of specified course requirements. Ed. P. 3420 must be taken as a deficiency course if not completed at the undergraduate level.

#### SPECIAL PROGRAMS:

Students whose needs are not met by any of the alternatives listed above may plan special programs provided the General Requirements for the degree of Master of Education are met.

#### For Graduate Students Only

*Prerequisite:* Twelve semester hours of advanced courses in Education or the equivalent and a bachelor's degree.

- 3500 Introduction to Statistics (3-0)**  
Study of fundamental statistical concepts, to include probability distributions, sampling distribution and certain non-parametric procedures. Introduction of experimental design and applied statistical research procedures. Graduate standing.
- 3502 Problems in Counseling — Seminar (3-0)**  
A course emphasizing educational research in both the elementary and secondary school fields. The student is allowed to make a choice of the field in which to carry on educational research. *Prerequisite:* Ed. P.&G. 3500.
- 3505 The Construction and use of Achievement Examinations — Seminary (3-0)**  
Covers the theory of testing and provides practical experience in both critical analysis and construction of tests for classroom use. The student will be allowed to devote his attention exclusively either in the elementary school level or to the secondary.



- 3508 **Workshop in Guidance and Counseling — Seminar (3-0)**  
 Study of current issues and problems in guidance and counseling. Students will choose their problems and those with allied interests will be grouped together to facilitate individual research. Instructor will supervise this research.
- 3514 **Guidance in The Elementary School (3-0)**  
 The purpose and scope for guidance at the elementary level with emphasis placed upon the function of guidance in relation to children's needs and development, the work of guidance personnel, and teachers roles in relation to prevention of problems, techniques and skills of diagnosis and counseling which can be used by counselors, experienced teachers and beginning elementary teachers.
- 3516 **The Psychology of Individual Differences (3-0)**  
 The study of individual differences in intelligence, school achievement, vocational aptitudes, personality, interests and attitudes; study of varieties of group differences; and study of methods used in studying human differences.
- 3517 **Psychology of Personality Development (3-0)**  
 Study of mental hygiene, and the nature and development of personality, and personality theory and assessment.
- 3518 **Techniques of Counseling (3-0)**  
 A study of the basic principles of counseling (interviewing). Emphasis on types of interviews, content and processes in counseling, counselor leads, practices in the various techniques of counseling, and specific types of vocational, educational, personal and counseling problems. *Prerequisite:* Twelve hours of graduate work including Ed. P.&G. 3539.
- 3519 **Organization and Administration of Guidance Services (3-0)**  
 A study of problems of supervision, organization and administration of guidance services. Problems of staffing, finances, effective interpersonal relationships, community participation, in-service education, and evaluation of the guidance program.
- 3520 **Socio-Economic Information in Guidance — Seminar (3-0)**  
 Educational, occupational, and social information and its use in counseling and guidance.
- 3521 **Independent Study of Special Education — Seminar (3-0)**  
 This course offers opportunities for study in any one of the following special education areas: orthopedic handicaps, visual handicaps, auditory handicaps, giftedness, mental retardation.
- 3522 **Supervised Practice in Counseling — Seminar (3-0)**  
 Actual practice under supervision in applying the principles, tools, and techniques used in the guidance program. Students will be assigned to guidance workers in this area and supervised and instructed by an instructor in the Department of Ed. P.&G. of The University of Texas at El Paso. *Prerequisite:* Ed. P.&G. 3518 and permission of graduate advisor.
- 3524 **Differential Diagnosis (3-0)**  
 Diagnostic interpretation of various standardized tests and other procedures commonly used in a school setting. Emphasis will be placed on applying data to correct learning problems, disabilities, and the development of potentials. *Prerequisites:* Ed. P.&G. 3500, 3535, 3536.
- 3535 **Principles of Psychological Testing (3-0)**  
 Study, evaluation, and use of educational and psychological tests used in the study and guidance of students.
- 1536 to 6536 **Individual Mental Testing for General and Special Abilities (3-0)**  
 The administration, observation, demonstration and critical evaluation of testing procedures. Preparation of reports, both professional and individual, is stressed. Basic tests will be the Standard-Binet Intelligence Scale, and two of the Wechsler tests (WAIS, WISC, WPPSI). If taken for more than three semester hours credit, the tests administered will include three of the following: Pictorial Test of Intelligence, Columbia Mental Maturity Scale, Goodenough-Harris Drawing Test, Arthur Point Scale of Performance Tests, Modern Language Aptitude Test, Musical Aptitude Profile, Illinois Test of Psycholinguistic Abilities, and tests of mechanical aptitude. *Prerequisite:* Ed. P.&G. 3500 and 3535.

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- 3537 **Independent Graduate Study — Seminar (3-0)**  
*Prerequisite:* Permission of the Graduate Advisor.
- 3538 **Mental Hygiene in Education (3-0)**  
Psychological principles, theories, and practices examined and applied to the individual school, family, and community mental health problems. Implications of school practices for mental health.
- 3539 **Group Guidance Techniques (3-0)**  
A study of the principles, theory, process and dynamics in small group guidance and counseling as applied to human relations.
- 3540 **Educational Psychology — Seminar: Theories of Learning (3-0)**  
Discussion of types of learning theory, behavioristic, cognitive, and functional. Student reports and discussion of primary source material — Thorndike, Tolman, Watson, Skinner, Guthrie, Robinson, Ausbel, mathematical learning theory, information learning theory, and neurophysiology of learning. Discussion of the relation of psychoanalytic, phenomenological, Piagetian, and Brunerian approaches to learning theory.
- 3541 **Theories of Counseling (3-0)**  
A study of the various counseling theories and their application to the counseling process.
- 3542 **Computer Methods in Education and the Behavioral Sciences (3-0)**  
Application of computers to various problems in education and the behavioral sciences with emphasis on data processing machines, programming languages, and utilization of existing program libraries for data analysis. *Prerequisites:* Ed. P. &G. 3500 or the equivalent.
- 3550 **Workshop in Educational Psychology and Guidance**  
(Area of study will be designated.)
- 3570 **Advanced Statistics (3-0)**  
Review of experimental design. Study of tests of hypothesis, linear regression and analysis, correlation analysis, multiple variate analysis. Introduction to research operation related to computers. *Prerequisite:* Ed. P.&G. 3400 or 3500.
- 3598-99 **Thesis Course for Master's Degree (3-0)**  
*Prerequisite:* Twelve semester hours of advanced courses in Ed. P.&G., and permission of the graduate adviser.
- 6523 **Internship in Counseling (6-0)**  
Supervised experiences in counseling at selected agencies and institutions. *Prerequisite:* Permission of graduate advisor and Ed. P.&G. 3522.

## HEALTH &amp; PHYSICAL EDUCATION

JAMES G. MASON, *Chairman*

*Professors* HARDIN, HARRIS, MASON'

*Associate Professors* COLLINS, B. KELLY;

*Assistant Professors* CRAIGO, CLARDON, N. KELLY, LOPER, POTEET;

*Instructor* MOORE.

## HEALTH EDUCATION

## For Undergraduates

*General prerequisite:* Junior standing for all 3300 or 3400 level courses.

- 3101 **Health Science Information (3-0)**  
Open to all students. Scientific information essential to the understanding of individual and community health problems with major consideration of the latest research related to such areas as cancer, heart disease, narcotics, smoking, obesity, physiological aspects of exercise.
- 3201 **First Aid and Safety Education (3-0)**  
Theory, demonstrations and practices in techniques of first aid and safety. Required of physical education majors. Open to all students. American Red Cross First Aid Certification may be earned.
- 3202 **Nutrition Education (3-0)**  
The normal nutritional needs of the school-age child and his family will be analyzed. Extensive studies will be made of factors affecting food choice and meal patterns: the scientific bases for nutrient components of an adequate diet and its practical application; and local, national and world nutritional problems.
- 3402 **Field Experiences in Health Education (3-0)**  
Observation and participation in educational activities of public health agencies including official and voluntary. Planning and supervision done jointly with University staff members and agency representatives. *Prerequisite:* H.E. 3301.
- 3403 **Fundamentals of Family Life and Sex Education (3-0)**  
Basic knowledge, attitudes and issues regarding psychosocial, historical and comparative cultural aspects of human sexuality from conception to senility. Consideration will be given to adjustment needs and problems of children and adults in contemporary American society and to sex education programs in the schools. *Prerequisite:* H.E. 3401.

## For Undergraduates and Graduates

- 3301 **Community Hygiene (3-0)**  
Consideration of health and people as a group and with the social and governmental agencies which are concerned with environmental control and health protection. Three hours of lecture per week and special field trips. *Prerequisite:* Junior standing or permission of the chairman of the department.
- 3302 **Elementary School Health Education (3-0)**  
Major problems in the organization and administration of elementary school health programs will be analyzed. *Prerequisite:* Junior standing or permission of the chairman of the department.
- 3303 **Modern Problems in Health Education (3-0)**  
A study of the normal functioning of every integral part of the human body. Care and prevention of communicable diseases will be discussed and the value of the new drugs in the treatment of such. This course will try to give the individual a concept in the modern method for a healthful life. *Prerequisite:* Junior standing or permission of the chairman of the department.

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- 3307 **Methods and Materials in Health Education (3-0)**  
The scope of Health Education in the secondary school. Problems in administering the school health education program. *Teaching aids and methods* for the teacher responsible for health instruction. The teacher's part in the health protection of children. *Prerequisite:* Junior standing or permission of the chairman of the department.
- 3401 **Health Education in the Secondary School (3-0)**  
*Responsibilities* of school for health instruction; adolescent health problems, and their relationship to instruction; social implications of individual and group health. *Prerequisite:* Junior standing.
- 3404 **Public Health Administration I**  
Administrative considerations of public health agencies; introduction to the application of basic statistical principles related to medical and public health problems.
- 3405 **Public Health Administration II**  
The study of the incident and prevalence of disease in man, and the principles and current status of comprehensive health planning.

**PHYSICAL EDUCATION**

**For Undergraduates**

- 1101 **Activity Course (0-3)**  
Activity Course. Co-educational. May be repeated for credit. Open to all students.

**SKILLS COURSES FOR PHYSICAL EDUCATION TEACHING FIELD**

*Men and Women*

<b>REQUIRED SKILLS COURSES</b> (Select Twelve)	<b>ELECTIVE SKILLS COURSES</b> (Select Six)
1201 Conditioning	Archery
1202 Football	Bowling
1203 Modern Creative Dance	
1204 Basketball	Badminton
1205 Track	Gymnastics II
1206 Softball	Handball
Volleyball	Folkdance
Swimming	Swimming II (Sr. life saving)
Wrestling	Fencing
Field Hockey	Social dance
Gymnastics I	Judo
Tennis	Karate
Basic Dance	Golf
Soccer	Rifle-Pistol shooting
	Self-Defense

Students must complete twelve required skills courses and any six of the elective skills courses (total 18 courses). Each skills course is worth one-third credit. Each Skills course will be one-half semester (eight weeks) in length. The all-levels major in health and physical education must earn a total of six credits in skills courses.

**PHYSICAL EDUCATION**

**For Undergraduates**

- 1207 **Modern Dance and Tap Dance (1-0)**  
Basic skills and techniques of tap dance and modern dance with emphasis on using these movements creatively.

- 1208 **Ballet for Gymnastics/Rhythmical Gymnastics (1-0)**  
An introduction to modified ballet movements used in gymnastics with emphasis on floor exercise, balance beam, and rhythmical gymnastics with or without hand apparatus.
- 1209 **Folk and Ethnic Dance (1-0)**  
An introduction to and performance of folk and ethnic dances of the world; their origins and involvements, music and costuming.
- 1210 **Social Dance and Square Dance (1-0)**  
Basic skills and techniques of social and square dance with the emphasis on their traditional application.
- 1211 **Creative Dance/Notation/Accompaniment (1-0)**  
An introduction to creative dance with emphasis on original movement, various forms of movement notation will be taught with emphasis on mastering simple labanotation.
- 3103 **Introduction to Physical Education (3-0)**  
Historical and philosophical aspects of physical education internationally and nationally, and the current relationship of physical education to present day education. Orientation to programs in school, college, and community. Field experiences in public schools will be required.
- 3205 **Methods and Materials for Elementary Schools (3-0)**  
Materials, class management and instructional techniques in the physical education program for the elementary school. A major emphasis will be on movement exploration and basic movement skills leading through progressions and variations to skill acquisition in dance, major and minor games, gymnastics, and individual sports. Field experiences in public schools will be required.
- 3206 **Techniques of Coaching, Softball (women), Football (men), Basketball (coeducational) (3-0)**  
Coaching methods and problems. Fundamentals of varsity team play; comparison of systems; strategy; training, conditioning; selection of individuals for positions; responsibilities of the coach; and public relations. *Prerequisite:* Sophomore standing.
- 3207 **Coaching of Volleyball (women), Baseball (men), Track and Field (coeducational) (3-0)**  
*Prerequisite:* Sophomore standing.
- 3208 **Recreation Leadership (3-0)**  
Philosophy, principles, methods, practical experiences, and professional preparation for leadership in the field of recreation.
- 3209 **Coaching Field Hockey, Wrestling, Tennis**  
Coaching methods and problems; fundamentals of varsity team play; strategy; training, conditioning; selection of individuals for positions; responsibilities of the coach; and public relations. *Prerequisite:* Sophomore standing.
- 3210 **Coaching Gymnastics, Soccer and Swimming**  
Coaching methods and problems. Fundamentals of varsity team play; strategy; training, conditioning; selection of individual for positions; responsibilities of the coach; and public relations. *Prerequisite:* *Sophomore standing.*
- 3215 **Historical and Cultural Aspects of Dance (2-1)**  
A practical survey of the emergence of dance on the American scene in the 20th century, with consideration of dance as an expressive art in education.
- 3304 **Current Methods and Materials in Physical Education in Secondary Schools (3-0)**  
A course designed to develop methods, teaching techniques, and materials for the teaching of physical education in the secondary schools with major emphasis on teaching team sports. Field experiences in the public schools will be required. *Prerequisite:* Must have completed four team sports skills.
- 3305 **Current Methods and Materials in Physical Education in Secondary Schools (3-0)**  
Major emphasis on teaching dual and individual sports. Field experience will be required. *Prerequisite:* Must have completed four individual sports skills.

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- 3316 Techniques, Methods and Materials of Instruction in Dance (1-2)**  
A class in dance materials in tap and modern dance. *Prerequisite:* Junior standing or permission of instructor.
- 3317 Fundamentals of Creative Dance Technique and Composition (3-0)**  
The elements and process of dance composition and practice in individual and group choreography and evaluation.
- 3318 Physical Education for the Pre-school, Kindergarten Child, and Primary Grade Child (3-0)**  
A course designed to introduce future teachers of this age group to the types of activities suitable for the pre-school, kindergarten child and Primary Grade Child. The course will include movement education (basic rhythms), creative dance, singing games, low organized activities, and water confidence.
- 3319 Pre-Student Teaching in Dance (1-0)**  
A course designed to give the student during her junior year the opportunity to observe dance teaching in the public schools prior to student teaching. Student will be assigned to a cooperating dance teacher, will observe her methods at specified times and will compile a record of such experiences. *Prerequisite:* P.E. 1207, 1208, 1209, 1210, 1211, or to be completed concurrently.
- 3408 Sports Officiating (3-0)**  
Learn and interpret the rules and playing regulations, the mechanics of officiating and the psychological aspects of officiating. *Prerequisite:* Junior standing or permission of the chairman of the department.
- 3409 Sports Activities, Injuries, Training, and Emergency Care (3-0)**  
The recognition and prevention of injuries in sports activities as well as the emergency care provisions for the usual physical education and playground injuries are emphasized. *Prerequisite:* Senior standing.
- 3411 Methods and Materials in Teaching Folk, Social, Square and Ethnic Dance (1-0)**  
A study of methods, curricular materials and evaluation procedures as related to the teaching of dance in the public schools. *Prerequisites:* P.E. 1209, P.E. 1210. May be taken concurrently with P.E. 3316.
- 3412 Dance Production (1-0)**  
An advanced course in dance covering the following aspects of dance production: choreography, lighting, make up, programming, accompaniment, sound systems, costuming and set design. *Prerequisites:* P.E. 3316, 3411.
- 3496 Professional Laboratory Experience in the Elementary School (3-0)**  
A minimum of ten hours a week for one semester of laboratory observation and teaching experience in an elementary school program of health and physical education. *Prerequisite:* A grade point average of at least 2.0 in both English 3111-12 and any 3 hours of Speech, of at least 2.5 in health and physical education courses; 2.0 over-all; Ed. C. 3301-02; P. E. 3205; senior standing and permission of college supervisor of student teaching. Student must file a student teaching application with their college supervisor during the preceding semester. Must have completed a minimum of 15 skill courses.
- 3498 Professional Laboratory Experience in the Secondary School (3-0)**  
A minimum of ten hours a week for one semester of laboratory observation and teaching experience in the health and physical education program in the secondary school. *Prerequisite:* A grade point average of at least 2.0 in English 3111-12 and any 3 hours of Speech, of at least 2.5 in health and physical education courses; 2.0 over-all; Ed. C. 3310-11; P.E. 3304; senior standing and permission of college supervisor of student teaching. Student must file a student teaching application with their college supervisor during the semester preceding. Must have completed a minimum of 15 skill courses.
- For Dance Concentration**  
*Prerequisites:* P.E. 1207, 1208, 1209, 1210, 1211, 3215, 3316, 3319, 3411, 3412, and senior standing.

**6498 Student Teaching in the Secondary School (2-20)**

Directed and closely supervised performance in the full range of duties of a secondary school year, conducted in cooperating schools. Accompanying directed study and evaluative seminars. Required in the professional development sequence for approved programs in secondary education. Consumes a four-hour daily block of time, M-F, in addition to seminar. *Prerequisite:* A grade point average of at least 2.0 in both English 3101-02 and Speech 3101; of at least 2.5 in health and physical education courses; 2.0 over-all; Ed. C. 3310, 3311, 3312, 3420; P.E. 3304; senior standing and permission of college supervisor of student teaching. Student must file a student teaching application with their college supervisor during the spring semester preceding the taking of the course.

**HEALTH AND PHYSICAL EDUCATION PROGRAMS****DEPARTMENTAL REQUIREMENTS FOR MASTER OF SCIENCE DEGREE**

Candidates for the M.S. degree will be required to take a minimum of twenty-four semester hours of graduate courses, including thesis. Six semester hours of advanced or graduate course work must be taken in an area outside the College of Education. A total of at least thirty semester hours of graduate and upper division undergraduate courses will be completed before the M.S. degree is awarded. Ed. 3500, PE 3502, and PE 3505 are required.

An oral examination over the thesis will be given before the M.S. degree is awarded.

**DEPARTMENTAL REQUIREMENTS FOR MASTER OF EDUCATION DEGREE**

Candidates for the M.Ed. will be required to complete a total of thirty-six hours of course work of which at least twenty-seven must be 3500 level and must include Ed.P. 3500, PE 3502, and PE 3505 plus a 3500 level health education course, six semester hours of the advanced or graduate course work must be taken as a minor area outside the College of Education.

A comprehensive examination will be required during the last semester of attendance, and a research paper of acceptable quality must be submitted to the graduate committee before the M.Ed. degree will be awarded.

Only nine hours of advanced courses (3300 and 3400 courses) can be counted toward the degree.

The Masters of Science degree in Health and Physical Education is slanted towards the needs of the student wishing to pursue research and to continue his professional education beyond the masters degree level.

The Masters of Education degree in Health and Physical Education is primarily directed toward the student teaching Health and Physical Education in the elementary or secondary school.

**For Undergraduates and Graduates****3303 Measurement in Health and Physical Education (3-0)**

A study of tests, both in health and physical education, their purpose, use, scoring and interpretation. *Prerequisite:* Junior standing or permission of the instructor.

**3311 Organization and Administration of Physical Education (3-0)**

The place of a diversified physical education program in the total education program, with emphasis on the administrative problems underlying a functional program.

**3312 Kinesiology (3-0)**

Analysis of movements, specialized skills, and motor coordination in terms of the mechanics of skeletal and muscular movement. *Prerequisite:* Biology 4211, Lab 1212, and Junior standing.

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- 4301 Exercise Physiology (3-0)**  
Physiological adaptations of circulatory, respiratory, excretory, digestive, endocrine and muscular systems to exercise and the relationships of these adaptations to physical education and athletics. *Prerequisite:* Biology 4211 and 4212.
- 3410 Health and Physical Education Seminar (3-0)**  
Seminar covering selected areas of health and physical education. This course may be substituted for a deficiency in the advanced physical education requirements for the physical education teaching fields. *Prerequisite:* Senior standing and permission from chairman of the department.
- 3414 Special Physical Education (2-1)**  
Development of an understanding of the atypical child and programs of physical education adapted to his needs. The nature of physical, mental, emotional, and social disabilities will be discussed with application of corrective, developmental, and remedial physical activities. Practical laboratory experiences will be provided. *Prerequisite:* Junior standing.

FOR GRADUATE STUDENTS ONLY

*Prerequisite:* Twelve semester hours of advanced courses in Health and Physical Education and a bachelor's degree.

- 3501 History and Philosophy of Physical Education**  
A study of the historical development of physical education and the influence of other cultures on American physical education. The influence of various schools of philosophy on physical education.
- 3502 Critical Analysis of Professional Literature (3-0)**  
Designed for advanced student in the field of health, physical education, recreation and safety. Major emphasis will be placed upon health and physical education. Thorough study and consideration will be given to the literature in the field which is likely to have the greatest influence on programs, procedures and practices in health, physical education, recreation and safety in the school and community.
- 3503 Supervision of Health and Physical Education (3-0)**  
The purpose of this course is to present and discuss the responsibilities of the supervisor of health and physical education in the school and community. Observation, techniques, standards of judging instruction, the supervisory conferences, cooperative supervision, basic foundation of curriculum construction and lesson planning. Emphasis is placed on the common problems met by the supervisor in health and physical education in elementary and secondary schools.
- 3504 Curriculum Construction in Health Education (3-0)**  
The study of curriculum construction with respect to the establishment of basic curriculum philosophies, the application of educational principles, the acquisition of materials, and the comprehension of the sequence of content as recommended by the Texas Education Agency. Health education curriculum will be studied at all public school levels.
- 3505 Research Methods (3-0)**  
Designed to familiarize the student with the basic forms of research employed in health and physical education. Emphasis will be given to: experimental research, descriptive research, casual research, historical research, and philosophical research with direction given to library techniques.
- 3506 Scientific Basis of Physical Education (3-0)**  
Designed to approach at an advanced level the kinesiological, mechanical, physiological and psychological aspects of physical education. *Prerequisite:* P.E. 3312 or equivalent.
- 3507 Program Planning and Administration of Physical Education (3-0)**  
Program building including criteria for the selection of activities and progression, and other factors affecting course of study construction such as facilities, equipment, budget, laws, policies, and professional responsibilities. *Prerequisite:* P.E. 3311 or Ed. C. 3535.



- 3508 **Sociological and Psychological Foundations of Physical Activity and Sport**  
The study of socio-psychological processes, principles, and factors affecting man's behavior in physical activity and sport. Investigation is made of current socio-psychological problems with implications for physical education and athletic coaching.
- 3509 **Advanced Topics in Health and Physical Education**  
This course will emphasize individual problems in the field of health and physical education. The course may be repeated once for credit.
- 3510 **Seminar: The Teaching of Family Life and Sex Education**  
The purpose of this course is to improve teacher understanding and to investigate and develop curriculum methods and materials at various grade levels. Particular emphasis to the needs of school children pertaining to their sexuality as it relates to total growth will be given. Programs, problems, trends and basic issues will be considered.
- 3511 **Evaluation in School Health Instruction**  
Principles of objective test construction; the place and behavior and attitude scales, check lists, questionnaires, surveys, and inventories in the evaluation of health instruction. Includes criticism of several commercially prepared tests and construction and standardization of a test. *Prerequisite:* P.E. 3303, Ed. C. 3312 or equivalent.
- 3513 **Seminar: Problems in Content and Method in Health Instruction (3-0)**  
A course for experienced teachers that emphasizes flexibility and change in content and method to meet the needs, interests and abilities of students. Highlights environmental and age differences of students that challenge the teacher's skill to teach effectively. *Prerequisite:* Twelve advanced hours of physical education, teaching experience, or permission of graduate advisor.
- 3514 **Current Issues in School Health Education**  
Individual identification and study of current issues in school health education. Extensive reading and critical analysis of literature required.
- 3515 **Curriculum in Physical Education**  
Analysis of criteria and procedures for curriculum construction in physical education; development of written guides for programs in elementary and secondary schools, colleges and universities.
- 3516 **Facilities Planning in Health, Physical Education and Recreation (3-0)**  
Principles, standards and designs utilized in planning, construction and maintenance of indoor and outdoor facilities. To prepare students to serve as physical education, recreation and athletic program consultants to facility planning committees.
- 3517 **Administration of Recreation Programs (3-0)**  
Organization and Administration of recreation programs in communities and educational institutions. Analysis of planning programs, legal problems, public relations, personnel administration, areas and facilities and finance and business procedures.
- 3518 **Problems in the Organization and Administration of Athletics (3-0)**  
Problems in managing the affairs of athletic programs: including intramural sports, interscholastic and intercollegiate athletics. Consideration will be given to policies, contest management, facilities and equipment, finances and budgets, scheduling, safety, public relations and legal liability.
- 3519 **Physical Education in the Elementary School**  
A study of the organization, administration and curricular content of elementary school physical education with emphasis on the various teaching approaches involved.
- 3550 **Workshop in Problems in Health and Physical Education**
- 3551 **Advanced Workshop in Problems in Health and Physical Education**
- 3598-3599 Thesis



# College of Engineering

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THE UNIVERSITY OF TEXAS AT EL PASO

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RAY W. GUARD, *Dean*



## GENERAL INFORMATION

The College of Engineering at U.T. El Paso now has over thirty women studying to enter the field of engineering. Each year more high school graduates join this group since there are many job opportunities in industry for young women with a degree in Civil, Electrical, Mechanical, Industrial, or Metallurgical Engineering.

The UTEP Student section of the Society of Women Engineers received its charter in March of 1969. Since that time this section has twice been named "Best Student Section in the United States" and once Honorable Mention for this Honor. Through association in this organization, women students encourage each other, visit area high schools to inform the students of the opportunities available for women engineers, and arrange technical tours of industry so they may know what is now being done in the industrial world.

If you are interested in a career in Engineering, join others with similar interests here at the University of Texas at El Paso.

## ACCREDITATION

The Bachelor of Science Degrees offered in Civil, Electrical, Mechanical and Metallurgical Engineering are accredited by the Engineers' Council for Professional Development (E.C.P.D.). The degree in Industrial Engineering is a new degree and accreditation will be requested within the next two years.

## UNDERGRADUATE STUDY IN ENGINEERING

Sufficient courses are offered at U.T. El Paso for a student to complete at least two years of work toward other Engineering degrees, including Chemical Engineering, Architectural Engineering, and Architecture. Information regarding these introductory programs can be obtained from the office of the Dean of Engineering.

## MATHEMATICS AND ENGLISH PREPARATION

Mathematics 4110 and English 3110 are not counted for credit toward any Engineering degree. Students needing these courses are urged to complete them during the Summer Term before entering the regular Freshman program.

## HONORS PROGRAM

Students entering the Upper Division Program with an overall GPA in excess of 3.00 are eligible to design a course plan of study in the Honors Program tailored to their special needs or interests; the selection and arrangement of courses can be planned by the student in consultation with his advisor and department chairman.

## MASTER OF SCIENCE DEGREE IN ENGINEERING

Various programs are described in the Graduate Bulletin which cover the graduate work in each of the departments in the college.

## TRANSFERRING STUDENTS

A student may transfer from another ECPD accredited program an amount of course work up to 66 credits in which grades of "C" or better have been obtained. This is the **maximum amount of transfer credit** which can be applied toward an Engineering degree at U.T. El Paso except under exceptional circumstances. Credit for Upper Division courses will be given only on the basis of a departmental competency examination. Transfer students may be required to take specified courses which the department feels they must have in order to establish the quality of their degree. The acceptance of credits from programs not accredited by ECPD will be more restrictive than the above.

## Lower Division Program College of Engineering

1. An engineering student enrolling in the University for the first time will enter the department of his choice in the Lower Division Program.
2. In order to enroll in Upper Division courses the student must have a 2.00 GPA for the hours designated by his department for the Lower Division Program and must have a "C" or better in certain courses as specified.

3. A student who does not meet the requirements under 2, above, must repeat courses in which "D" or "F" grades were received.
4. A student may take up to 9 hours of Upper Division courses during his last semester in the Lower Division with the approval of his advisor.
5. Any student who has not met the GPA requirement after taking 90 hours will be requested to transfer out of the College of Engineering.
6. If a student transfers within the College, the curriculum of the new department applies and decisions regarding substitutions are the responsibility of the department chairman.

**Common Freshman Year**

1st Semester

Engr. Orient. ....2-3 Cr.  
 Gen. Chem. 3105+ ..... 3 Cr.  
  
 English 3111\*+ ..... 3 Cr.  
 Math 4111+ ..... 4 Cr.  
 Pol. Sci. or Hist.\*\* ..... 3 Cr.

15-16 Cr.

2nd Semester

Computer Prog. or Engr. Design ... 2-3 Cr.  
 Gen. Chem. & Lab. or  
 Physics & Lab .....4-5 Cr.  
 English 3112\*+ ..... 3 Cr.  
 Math 3212+ ..... 3 Cr.  
 Pol. Sci. of Hist.\*\* ..... 3 Cr.

15-17 Cr.



- \* Foreign Students should expect to take Linguistics 4112 and 4113.
- \*\* Students in Civil and Mechanical Engineering may substitute ME 3103 and move the Pol. Sci. and Hist. to the following semester.

Note: Students in the College of Engineering are required to obtain a "C" or better in each of the following courses if taken, play any other courses as specified by the Department.  
 Chem. 3105, 3106, 2106 — Math 4111, 3212, 3217, 3326 — Engl. 3111, 3112 —  
 CE 2202, 3215, 3234, 3238 — EE 3220 — Met 3105 — ME 3104 (Shown +)

**BACHELOR OF SCIENCE IN CIVIL ENGINEERING**

(Environmental and Structural Program)

The Civil Engineering Program at the undergraduate level is broad based and provides courses in the major divisions of Civil Engineering, while at the same time it offers an opportunity for specialization through junior and senior electives. These electives in (1) Environmental Studies and (2) Structures-Design permit more in-depth study and serve as a base for engineering practice or graduate study.

1975-76

**Course Arrangement**

**Freshman Year**

See Common Program

**Sophomore Year — 1st Semester**

CE 3215† Engineering Mechanics I . . . . .	3
Hi. 3102 History of U. S. Since 1865 . . . . .	3
Ma. 3217† Analytical Geometry and Calculus . . . . .	3
Phy. 3222 Electricity and Magnetism . . . . .	3
P.S. 3110 American Government . . . . .	3
or Hist. 3101	

15

**Sophomore Year — 2nd Semester**

CE 3238† Engineering Mechanics II . . . . .	3
CE 3234† Mechanics of Materials I . . . . .	3
ME 3275 Thermodynamics I . . . . .	3
Ma. 3326† Differential Equations . . . . .	3
P.S. 3111. American Government . . . . .	3
or Hist. 3102	

15

**Junior Year — 1st Semester**

CE 3313 Engineering Measurements . . . . .	3
CE 3343 Structural Analysis I . . . . .	3
Met 3203 Materials Science . . . . .	3
Ge. 3321 Geology for Engineers . . . . .	3
Electives . . . . .	5

17

**Junior Year — 2nd Semester**

CE 3326 Engineering Economy . . . . .	3
ME 4354 Fluid Mechanics . . . . .	4
CE 3448 Soil Mechanics . . . . .	3
CE 1236 Materials Laboratory . . . . .	1
Electives . . . . .	7

18

**Senior Year — 1st Semester**

CE 3435 Structural Design I . . . . .	3
CE 3441 Water Treatment . . . . .	3
EE 4277 Basic Electrical Engineering . . . . .	4
CE 1495 Senior Professional Orientation . . . . .	1
Electives . . . . .	7

18

**Senior Year — 2nd Semester**

CE 4456 Hydraulic Engineering . . . . .	4
CE 3442 Waste Treatment . . . . .	3
CE 1453 Water and Waste Laboratory . . . . .	1
CE 3461 Structural Design II . . . . .	3
Electives . . . . .	7

18

**Total Semester Credit Hours . . . 133**

- Notes: 1. \*Biology 3105-1107, 3240 or Phys. 3120-1121 may be substituted for chemistry 3106-2106
2. Environmental Program students should substitute Science elective approved by advisor in place of Met. 3203
- Students in consultation with their advisors, should elect 26 hours of courses including:

- 6 hours of Humanities or Social Sciences
- 3 hours of Math
- 4 hours of Science
- 6-9 hours of CE courses
- 4-7 hours of additional electives approved by their advisor

4. †Means Grade of C required

### BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

The Electrical Engineering curriculum is designed to give students a fundamental background essential to modern Electrical Engineering practice. It prepares students for responsible engineering positions in administration, design, development, operation, research, and sales in the fields of Communication, Computer, Electric Power and Electronic Engineering.

1975-76

#### Course Arrangement

##### Freshman Year

See Common Program

<b>Sophomore Year — 1st Semester</b>		<b>Sophomore Year — 2nd Semester</b>	
C.E. 3215† Engineering Mechanics I . . . . .	3	E.E. 3251 Networks I . . . . .	3
Ma. 3217† Analytical Geometry and Calculus . . . . .	3	E.E. 1209 Basic Elect. Eng. Lab . . . . .	1
Ph. 3222 Electricity and Magnetism . . . . .	3	Ma. 3326† Differential Equations . . . . .	3
E.E. 3220† Introduction to Engineering Computation . . . . .	3	P.S. 3111 American Government or Hist. 3102 . . . . .	3
Hist 3101 History of U.S. to 1865 or P.S. 3110 . . . . .	3	C.E. 3238† Engineering Mechanics II . . . . .	3
	15	Ph. 3221 Heat, Wave Motion, and Optics . . . . .	3
			16
<b>Junior Year — 1st Semester</b>		<b>Junior Year — 2nd Semester</b>	
E.E. 2310 Elect. Eng. Lab. I . . . . .	2	E.E. 2311 Elect. Eng. Lab II . . . . .	2
E.E. 3339 Electronics I . . . . .	3	E.E. 3321 Electromagnetic Field Theory . . . . .	3
E.E. 3352 Networks II . . . . .	3	E. E. 3340 Electronics II . . . . .	3
Approved Elective* . . . . .	3	Met. 3309 Phys. of Materials . . . . .	3
Met 3308 Classical Stat. Thermodynamics . . . . .	3	Approved Elective* . . . . .	6
Ph. 3325 Intro to Modern Physics . . . . .	3		
	17		17
<b>Senior Year — Two Semesters</b>		<b>Senior Year — Two Semesters</b>	
E.E. 1495 Senior Professional Orientation I	1	E.E. 3464 Systems & Controls . . . . .	3
E.E. 2412 Senior Project Lab . . . . .	2	E.E. 3486 Energy Conversion . . . . .	3
E.E. 3441 Communication Systems . . . . .	3	C.E. 3326 Engineering Economy . . . . .	3
E.E. 3447 Electromagnetic Energy Transmission & Radiation . . . . .	3	Approved Electives . . . . .	15
			33
		<b>Total Semester Credit Hours . . . . .</b>	<b>129</b>

**BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING**

The industrial Engineering curriculum is designed to enable the graduate to enter industry or to pursue advanced studies with a broad background including the areas of Management of Human Resources, Plant Design and Operations Research. The program includes several courses that require the design and development of solutions to problems provided by local industry.

1975-76

**Course Arrangement**

**Freshman Year**

See Common Program

<i>Sem.</i> <i>Hrs.</i>		<i>Sem.</i> <i>Hrs.</i>
<b>Sophomore Year — 1st Semester</b>		
CE 3215+ Engineering Mechanics I . . . . .	3	
ME 3236 Manufacturing Processes . . . . .	3	
Ma. 3217 Analytical Geometry and Calculus . . . . .	3	
*Science Elective . . . . .	4	
Psyc 3101 Introduction to Psych . . . . .	3	
16		
<b>Sophomore Year — 2nd Semester</b>		
CE 3238+ Engineering Mechanics II . . . . .	3	
Econ. 3204 Principles of Economics . . . . .	3	
ME 3275+ Thermodynamics I . . . . .	3	
M.A. 3326+ Differential equations . . . . .	3	
Mgmt 3310 Introduction to Organization Behavior . . . . .	3	
P.S. 3110 American Government or Hist 3101 . . . . .	3	
18		
* Science Elective: Geo 4101, Bio 3105 & Bio 1107, Chem 3106 & Chem 2106		
<b>Junior Year — 1st Semester</b>		
Phys 3222 Elect. & Magnetism . . . . .	3	
Phys 1121 Physics Lab . . . . .	1	
CE 3234+ Mechanics of Materials I . . . . .	3	
Acct 3309 Survey of Accounting . . . . .	3	
Ma 3330 Probability . . . . .	3	
IE 4377 Methods & Human Factors Analysis . . . . .	4	
17		
<b>Junior Year — 2nd Semester</b>		
EE 4277 Basic Electrical Engr. . . . .	4	
CE 3326 Engineering Economy . . . . .	3	
IE 3389 Deterministic Operations Research . . . . .	3	
Ma 3480 Introduction to Math Stat. . . . .	3	
P.S. 3111 American Government or Hist 3102 . . . . .	3	
16		
<b>Senior Year — 1st Semester</b>		
ME 4354 Fluid Mechanics . . . . .	4	
IE 3492 Probabilistic Operations Research . . . . .	3	
IE 4491 Production and Inventory Control . . . . .	4	
Approved Electives . . . . .	6	
17		
<b>Senior Year — 2nd Semester</b>		
IE 3484 Industrial Layout . . . . .	3	
IE 3485 Statistical Quality Control and Reliability . . . . .	3	
ME 4466 Senior Design . . . . .	4	
IE 3493 Engineers and Managing . . . . .	3	
Approved Electives . . . . .	3	
16		
<b>Total Semester Credit Hours . . . 132</b>		

+Grade of "C" or better required



## BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

The Mechanical Engineering curriculum is designed to enable the graduate to enter industry or to pursue advanced studies with a broad background in the fundamentals of the Thermal Sciences, Fluid Mechanics, and Mechanical Design. The solutions of typical engineering problems are developed through a cooperative effort on the part of the department and various industrial concerns.

1975-75

### Course Arrangement

#### Freshman Year

#### See Common Program

<i>Sem.</i> <i>Hrs.</i>		<i>Sem.</i> <i>Hrs.</i>
<b>Sophomore Year — 1st Semester</b>		
CE 3215+Engineering Mechanics I . . . . . 3		
Ma 3217+Analytical Geometry and Calculus . . . . . 3		
*Science Elective . . . . . 4		
Met 3203 Materials Science . . . . . 3		
PS 3110 American Government, or Hist 3101 . . . . . 3		
16		
<b>Sophomore Year — 2nd Semester</b>		
CE 3238+Engineering Mechanics II . . . . . 3		
ME 3205 Basic Measurements and Instrumentation . . . . . 3		
ME 3275+ Thermodynamics I . . . . . 3		
Ma 3326+Differential Equations . . . . . 3		
PS 3111 American Government or Hist 3102 . . . . . 3		
15		
*Science Elective: Geo 4101, Bio 3105 & Bio 1107, Chem 3106 & Chem 2106		
<b>Junior Year — 1st Semester</b>		
Phys 3222 Elect & Magnetism . . . . . 3		
Phys 1121 Physics Laboratory . . . . . 1		
ME 4354 Fluid Mechanics . . . . . 4		
ME 3363 Kinematics of Mechanisms . . . . 3		
ME 3376 Thermodynamics II . . . . . 3		
Humanities Elective . . . . . 3		
17		
<b>Junior Year — 2nd Semester</b>		
EE 4277 Basic Electrical Engr. . . . . 4		
ME 4351 Heat Transfer . . . . . 4		
ME 3367 Dynamics of Machinery or ME 3455 Gas Dynamics . . . . . 3		
ME 3236 Manufacturing Processes . . . . 3		
CE 3234+Mechanics of Materials I . . . . 3		
17		
<b>Senior Year — 1st Semester</b>		
** Phys Elective . . . . . 3		
ME 3441 Engineering Analysis . . . . . 3		
ME 3464 Senior Analysis . . . . . 3		
CE 3326 Engineering Economy . . . . . 3		
*Math Elective . . . . . 3		
15		
<b>Senior Year — 2nd Semester</b>		
Humanities Elective . . . . . 3		
ME 4466 Senior Design . . . . . 4		
Approved Electives . . . . . 6		
ME 4465 Dynamic Response . . . . . 4		
17		

\* Math Elective — either Ma 3335 or Ma 3436

\*\* Phys Elective to be selected from Phys 3323, 3351, 3325 or 3448

+ Grade of "C" or better required

**Total Semester Credit Hours . . . 129**

**BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING**

The Department of Metallurgical Engineering program is designed to provide an industrially oriented education leading to the Professional Degree. Career options are in Mineral-based industries (primary metal, chemical and allied products, petroleum refining, and corrosion engineering), and Metals-based industries (durable goods manufacturing, non-durable goods, transportation, communications and utilities, and construction).

1975-76

**Course Arrangement**

**Freshman Year**

See Common Program

<i>Sem.</i> <i>Hrs.</i>		<i>Sem.</i> <i>Hrs.</i>
<b>Sophomore Year — 1st Semester</b>		
	GE 3215+ Mechanics I . . . . . 3	<b>Sophomore Year — 2nd Semester</b>
	Met 3203 Materials Selection . . . . . 3	CE 3234+ Mechanics & Materials I . . . . . 3
	Met 1203 Materials Selection Lab . . . . . 1	Met 3206 Rate Proc in Metallurgy . . . . . 3
	Met 3205 Energetics in Metallurgy . . . . . 3	Ma 3326+ Differential Equations . . . . . 3
	Ma 3217+ Calculus . . . . . 3	Phy 3222 Electricity & Magnetism . . . . . 3
	ME 3103 Graphical Fundamentals . . . . . 3	Engl 3269 Technical Writing . . . . . 3
16		16
<b>Junior Year — 1st Semester</b>		
	Hi 3101 Hist of U.S. to 1865 or P.S. 3110 . . . . . 3	<b>Junior Year — 2nd Semester</b>
	Met 3304 Process Metallurgy I . . . . . 3	Hi 3102 Hist of U.S. from 1865 or P.S. 3111 . . . . . 3
	Met 3306 Physical Metallurgy I . . . . . 3	Met 3305 Process Metallurgy II . . . . . 3
	Ch 4351 Physical Chemistry . . . . . 4	Met 5307 Physical Metallurgy II . . . . . 5
	3XXX Humanity or Soc Sci Elective . . . . . 3	Ma 33XX Junior or Senior Level Math . . . . . 3
16		17
<b>Senior Year — 1st Semester</b>		
	Met 4402 Mineral Dressing . . . . . 4	<b>Senior — 2nd Semester</b>
	Met 3412 Microscopy . . . . . 3	Met 3404 Electro-Metallurgy . . . . . 3
	Met 3409 Corrosion & Prevention . . . . . 3	Met 3410 Chemical Reactor Design . . . . . 3
	Met 4415 Mechanical Metallurgy . . . . . 4	Met 4405 Materials Fabrication . . . . . 4
	Met 3415 Ferrous & Non-Ferrous Processes . . . . . 3	Met 3309 Physics of Materials . . . . . 3
	Met 4495 Senior Professional Orientation I 18	Met 3413 X-Ray . . . . . 3
18		16

**Total Semester Credit Hours . . . 127 Hrs.**

+ Grade of "C" or better required

## CIVIL ENGINEERING

HERBERT H. BARTEL, JR., *Chairman*

*Professors* APPLEGATE, BARTEL, HASSLER, HENDERSON;

*Associate Professors* COLTHARP, OEY, ROZENDAL, TARQUIN, YOUNG

*Adjunct Lecturer* SHOULTS

### For Undergraduates

*General prerequisite:* Junior standing for all 300 or 400 level courses.

- 2103 **Introduction to Civil Engineering (2-0)**  
A general introduction to the fields of Civil Engineering; the responsibilities and duties of the professional Civil Engineer; and a preparation for the study of Civil Engineering.
- 3170 **Honors Seminar (3-0)**  
Selected topics in Engineering or individual research for qualified freshman students. *Prerequisite:* Permission of Instructor.
- 3201 **Pollution and Natural Resources (3-2)**  
Study of man's environment and its demands upon our resources. Emphasis will be on pollutants and their effect upon air, water and food resources. Open to all students.
- 2202 **Engineering Problem Analysis (1-3)**  
Studies to include the techniques and tools of problem analysis. *Prerequisite:* Mathematics 4111 and 3212.
- 3313 **Engineering Measurements (2-3)**  
Theory and practice of surveying measurements with emphasis on precision, errors, and significant figures, the use of the *level, transit, and engineer's tape*. *Prerequisites:* Mathematics 4111 and Mechanical Engineering 3103, and a knowledge of Fortran.
- 3314 **Route Surveying (2-3)**  
Theory of simple, compound, reverse, and spiral curves, and computation of earth work. *Prerequisite:* CE 3213.
- 3215 **Engineering Mechanics I (3-0)**  
Forces in space, equilibrium of particles and rigid bodies, friction, centroids, centers of gravity. *Prerequisite:* Mathematics 3212 concurrently.
- 3234 **Mechanics of Materials I (3-0)**  
Study of stress, strain, torsion, shear, moment, flexure, combined stresses and column action. *Prerequisite:* Civil Engineering 3215.
- 1236 **Engineering Materials Laboratory (0-3)**  
Laboratory practice in the manufacture and testing of concrete, steel, wood, and plastic specimens; instrumentation work in the measurement of stresses and strains. *Prerequisite:* CE 3234.
- 3238 **Engineering Mechanics II(3-0)**  
Principles of dynamics and their application to engineering problems; work and energy, impulse and momentum and kinetics and kinematics of particles and rigid bodies. *Prerequisite:* Civil Engineering 3215.
- 3326 **Engineering Economy (3-0)**  
Application of economics to engineering and industrial problems which require a knowledge of engineering for their solution. *Prerequisite:* Junior standing a knowledge of Fortran, or approval of instructor.
- 3343 **Structural Analysis I (3-0)**  
A study of framed structures, trusses, girders, beams including applications of static and moving loads and bridges. *Prerequisite:* Civil Engineering 3234.
- 4390 **Introduction to Air Pollution (3-3)**  
Classification of air pollutants and their effects on man, animals, plants and the environment; meteorological aspects of air pollution; sources of air pollution; plume characteristics; units of measurement; physical properties of dusts, gases,

- and aerosols. *Prerequisite:* Junior standing in Engineering or Sciences and approval of instructor.
- 2396 **Air Pollution Laboratory (1-3)**  
Sampling and analytical technique; atmospheric sampling equipment for dusts, aerosols, and gases; meteorological instruments; quantitative field measurements of air pollutants; air quality survey. *Prerequisite:* Junior standing in Engineering or Science and approval of instructor.
- 3435 **Structural Design I (3-0)**  
Reinforced concrete theory; design of beams, columns, slabs, footings and retaining walls using current design specifications. *Prerequisite:* CE 3343.
- 3440 **Transportation Engineering (3-0)**  
Study of planning, economics, finance, location, design and administration of transportation systems. *Prerequisite:* CE 3213 and 3448 or concurrent enrollment.
- 3441 **Water Treatment (3-0)**  
Principles of water treatment and the application of these to the design and operation of municipal and industrial water treatment plants. *Prerequisite:* Chemistry 3105, and ME 4354.
- 3442 **Waste Treatment (3-0)**  
Principles of waste treatment and disposal and the application of these to the design and operation of waste treatment plants. *Prerequisite:* Chemistry 3105, and ME 4354.
- 3446 **Engineering Law (3-0)**  
A study of the law of contracts, sales, negotiable instruments, insurance, property, torts, agency and business organizations. *Prerequisite:* Senior standing in engineering and permission of the instructor.
- 3448 **Soil Mechanics (2-3)**  
Physical and mechanical properties of soils; specific gravity, grain size distribution, plasticity, shrinkage, permeability, compressibility, consolidation and shear. *Prerequisite:* Civil Engineering 3234, Mechanical Engineering 4354, and Geology 3321.
- 3449 **Foundation Engineering (3-0)**  
Study of properties of subsurface materials, exploration methods, durability of construction materials used in foundations, construction methods and types of foundations, selection of foundations and basis for design. *Prerequisite:* CE 3448.
- 3450 **Engineering Hydrology (3-0)**  
Study of the hydrologic cycle, precipitation, flood frequency, storm characteristics, net rain, surface drainage, and flood runoff. *Prerequisite:* Senior standing and permission of instructor.
- 3451 **Public Health Engineering (3-0)**  
Principles of public health and the application of engineering methods to public health. *Prerequisite:* Senior standing in engineering or science.
- 1453 **Water and Waste Laboratory (0-3)**  
Laboratory analysis of water and wastes. *Prerequisite:* Concurrent enrollment in CE 3441 or 3442.
- 4460 **Structural Analysis II (3-3)**  
Analysis of statically indeterminate structures including continuous beams and frames. *Prerequisite:* Civil Engineering 3343 and Senior standing.
- 3461 **Structural Design II (3-0)**  
Design of steel structures including the application of plastic design methods using current design specifications. *Prerequisite:* CE 3343.
- 4456 **Hydraulic Engineering (3-3)**  
Principles of hydrology and hydraulics applied to the design of hydraulic projects. *Prerequisite:* Mechanical Engineering 4354.
- 4470 **Mechanics of Materials II (3-3)**  
Analysis of problems dealing with energy methods, curved bars, torsion of non-circular sections, fatigue, stress concentration, stress and strain, and experimental methods of stress determination. *Prerequisite:* Civil Engineering 3234 and Senior standing.

**1471-3471 Engineering Problems — Seminar (3-0)**

Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. *Prerequisite:* Senior standing and consent of the head of the department. Can be repeated for credit.

**1495 Senior Professional Orientation (1-0)**

Introduction to the Engineering profession with emphasis on job placement, professional ethics and an engineering field examination. Required of all students prior to graduation.

**For Graduate Students Only****Departmental Requirements for Master of Science Degree**

The Graduate Program in Civil Engineering covers the areas of (1) Structures-Design and (2) Environmental Studies. Research is underway in the Department in these areas. Courses are also offered in other divisions of Civil Engineering and may be chosen as electives. Plan 1 requires twenty-four hours of course work plus a six-hour thesis. Plan 2 requires thirty-six hours of course work without a thesis. All but nine hours of work must be done in 0500 (Graduate Courses). All students are encouraged to include in their program six hours of course work outside of their major field.

*Prerequisite:* Twelve semester hours of advanced courses in Engineering and a Bachelor's Degree.

**3501 Free Surface Flow (3-0)**

Open channel hydraulics: Energy concepts, resistance, transitions, spillways, energy dissipation, solutions of gradually varied flow, stable channels, steep channels, steady and unsteady flow conditions. *Prerequisite:* Civil Engineering 4456 or approval of instructor.

**3502 Ground Water Hydrology (3-0)**

Ground water occurrence and flow of fluid through porous media such as seepage and hydraulics of wells. *Prerequisite:* Approval of the instructor.

**4505 Advanced Structural Analysis (3-3)**

Theory of finite element approximation, numerical solutions of a variety of problems in structural mechanics including beam-columns, grid beams and plates on linear and nonlinear foundations; matrix structural analysis. May be repeated for credit. *Prerequisite:* Civil Engineering 3343 or approval of instructor.

**3506 Advanced Soil Mechanics I (3-0)**

Application of soil mechanics to stability of slopes, retaining walls, and foundations, frost action in soil. Introduction to seepage. *Prerequisite:* Approval of instructor.

**4507 Aerial Photographic Interpretation (3-3)**

A study of the applications of the science of aerial photographic interpretations as it pertains to the field of engineering, including the recognition of soil types and classes, engineering materials surveys, route location, and the delineation of watersheds and estimates of runoff and seepage. *Prerequisite:* Approval of instructor.

**4508 Bioengineering Processes (3-3)**

Description of biochemical processes involved in complex pollution problems. Energetics of aerobic and anaerobic processes, enzymes, metabolic reactions, synthesis, and theory of biological waste treatment. May be repeated for credit. *Prerequisite:* Approval of instructor.

**4509 Analysis of Water and Wastes (2-6)**

Analysis of physical, chemical, and biological properties of water and wastes; evaluation of processes involved in complex pollution problems. *Prerequisite:* Approval of instructor.

**3512 Plastic Design of Structures (3-0)**

Fundamental principles of plastic design, plastic hinges, method of analysis of structures for ultimate load. Plastic design for axial and shearing forces. Stability problems in plastic design. Design of continuous structures. *Prerequisite:* Civil Engineering 3461 or approval of instructor.

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- 4516 **Radiological Health Engineering (3-3)**  
Principles of Radiological Health. Analysis of radiation hazards; ionizing effects of radiation; principles of detection, etc. *Prerequisite:* Approval of instructor.
- 3517 **Similitude and Statistical Methods (3-0)**  
Dimension and model theory and its use in analyzing physical experiments. Applications of probability and statistical analysis. *Prerequisite:* Approval of instructor.
- 4518 **Photogrammetry (3-3)**  
Theory and application of engineering measurements by aerial photogrammetry. *Prerequisite:* Approval of instructor.
- 3520 **Advanced Soil Mechanics II (3-0)**  
Physical and mechanical properties of soils; specific gravity, grain size distribution, plasticity, shrinkage, permeability, compressibility, consolidation and shear. *Prerequisite:* C.E. 3234, ME 4354, and C.E. 3448.
- 3521 **Industrial Hygiene and Toxicology**  
Techniques of industrial toxicology; mechanisms by which toxic gases, vapors, and dusts produce disease in experimental animals and in man. *Prerequisite:* Consent of the instructor.
- 4522 **Advanced Waste Treatment (3-3)**  
Advanced problems relating to the treatment of water, sewage, industrial and radioactive wastes. *Prerequisite:* CE 3442 and approval of instructor.
- 3524 **Stream Pollution (3-0)**  
Kinetics and mechanisms of stream pollution: growth and decay, the oxygen balance, and stream microbiology. *Prerequisite:* Approval of instructor.
- 3525 **Design of Structures for Dynamic Loads (3-3)**  
Behavior of structural members under dynamic loads. Vibration theory, particular reference to structures, design of structural systems to dynamic loads, wind loads, and earthquakes. *Prerequisite:* Approval of instructor.
- 3526 **Air Pollution Control (3-0)**  
Effects of air pollution, classification of wastes, meteorological factors; sampling and analysis; abatement; statistical analysis.
- 4527 **Contemporary Topics in Surveying (3-3)**  
Selected topics of current interest in modern surveying. May be repeated for credit when topic varies. *Prerequisite:* Approval of instructor.
- 3528 **Contemporary Topics in Urban Engineering (3-0)**  
Selected topics of current interest in urban engineering. May be repeated for credit when topic varies. *Prerequisite:* Approval of instructor.
- 3529 **Contemporary Topics in Structures (3-0)**  
Selected topics of current interests in structural engineering. May be repeated for credit when topic varies. *Prerequisite:* Approval of instructor.
- 3530 **Surface Water Hydrology (3-0)**  
Rainfall frequency and duration studies and related runoff. Hydrologic routing, simulations and hydrograph analysis. *Prerequisite:* Approval of instructor.
- 3531 **Contemporary Topics in Water/Air Resources (3-0)**  
Selected topics of current interest in urban engineering. May be repeated for credit when topic varies. *Prerequisite:* Approval of instructor.
- 4532 **Modern Methods of Engineering Computations (3-3)**  
Methods of iterations, approximations, and numerical procedures used in solution of complex problems and optimizations such as occur in Engineering Design and Scientific Analysis. *Prerequisite:* Approval of instructor.
- 3533 **Plates and Shells (3-3)**  
The theory and design of plates and shell structures by the membrane and bending stress theories. *Prerequisite:* Approval of instructor.

**1595-3595 Graduate Seminar (3-0)**

Conferences, discussions and/or research, individual or collective, on advanced phases of engineering problems conducted under the direct supervision of a faculty member. Variable credit, and may be repeated for credit to total six credits. *Prerequisite:* Approval of the instructor.

**3598-99 Thesis Course for the Master's Degree**



## ELECTRICAL ENGINEERING

*Professor Emeritus* CLYDE R. NICHOLS

*Professors* AUSTIN, LAMBERT, SMITH; *Adjunct Professors* HOLT;

*Associate Professors* GIBSON, PIERLUISSI, TAYLOR, SCHRODER;

*Assistant Professors* McDONALD, MITCHELL; *Instructor* IZQUIERDO

### For Undergraduates

*General Prerequisite:* Junior standing for all 300 or 400 level courses.

- 3105 Introduction to Engineering Technology (3-0)**  
A study of the Man Made World with an emphasis on information systems and how they are developed and their effect upon society. Includes an introduction to decision making, modeling, feedback, and logical design. An introductory course open to all students.
- 1209 Basic Electrical Engineering Laboratory**  
Basic laboratory study of the digital computer in network theory, the analog computer and its components, and basic laboratory procedures and instrument usage. *Prerequisite:* EE 3251 or concurrently and EE 3220.
- 3220 Introduction to Engineering Computation (2-3)**  
A study of the Fortran language with applications to Electrical Engineering problems. Computer organization and basic numerical methods. *Prerequisite:* Mathematics 3212 or concurrently.
- 3251 Networks I (3-0)**  
*Theory and analysis* of electrical networks including basic fields and circuits concepts, Kirchoff's laws, mesh and nodal analysis, classical and Laplace transform solutions of network equations, and an introduction to the sinusoidal steady state. *Prerequisite:* Mathematics 3326 or concurrently and Electrical Engineering 3220.
- 4277 Basic Electrical Engineering (3-3)**  
*Principles* of electric circuits, transformers, generators and motors, including motor applications with the protection and static and automatic feedback control thereof. Not intended for Electrical Engineering majors. *Prerequisite:* Sophomore standing.
- 4278 Electronics for Engineers and Scientists (3-3)**  
Measuring, recording, processing, and interpreting electrical signals produced by various types of transducers. Emphasis on measurement of non-electrical quantities by electronic instrumentation. Not intended for Electrical Engineering majors. *Prerequisite:* Sophomore standing.
- 2310 Electrical Engineering Laboratory I (1-4)**  
Introduction to experimentation and basic laboratory procedures including the measurement of electrical quantities and the use of basic electrical and electronic laboratory instruments. *Prerequisite:* Electrical Engineering 3251.
- 2311 Electrical Engineering Laboratory II (1-4)**  
Measurement theory, statistics of experimental measurements, experimental data analysis, experiment design, and the laboratory investigation of various electrical devices and systems. *Prerequisite:* Electrical Engineering 2310.
- 3321 Electromagnetic Field Theory (3-0)**  
Fundamentals of static electric and magnetic fields, time-varying fields and Maxwell's equations, motion of charged particles in electromagnetic fields. *Prerequisites:* Electrical Engineering 3251.
- 3339 Electronics I (3-0)**  
Electronic properties of materials, terminal characteristics of semiconductor and vacuum tube devices, graphical methods, two-port network analysis, small-signal equivalent circuits, frequency response methods, root-locus analysis. *Prerequisite:* Electrical Engineering 3251 and Mathematics 3326.



- 3340 Electronics II (3-0)**  
Application of the concepts and methods developed in Electronics I to large- and small-signal tuned amplifiers and broad-band amplifiers. Concepts of wave-shaping, waveform generation, and switching are developed. *Prerequisite:* Electrical Engineering 3339 or Physics 4339 and permission of the instructor.
- 3352 Networks II (3-0)**  
Continuation of theory and analysis of electrical networks. Includes sinusoidal steady state analysis, frequency plots, Fourier analysis, network theorems, two-port networks, and state-space application to networks. *Prerequisite:* Electrical Engineering 3251.

#### For Undergraduates and Graduates

*Prerequisite for graduate credit.* At least twelve semester hours of undergraduate credit in Engineering.012

- 3369 Switching Theory and Logical Design Fall Semester (3-0)**  
Analysis and synthesis of combinational and sequential switching circuits. Topics include map and tabular minimization of combinational circuits, multiple-output circuits, incompletely specified functions, pulse mode and fundamental mode sequential circuits. Emphasis is on logical circuit design. *Prerequisite:* Junior standing in Engineering or elementary knowledge of electronics.
- 3372 Digital Computers Fall Semester (3-0)**  
Assembler language programming and computer architecture. Some software concepts. *Prerequisite:* EE 3220 or Math 3320 or CE 2502 or equivalent.
- 2412 Senior Project Laboratory (1-4)**  
Laboratory development of special projects concerned with various electrical systems. Small group or individual semester projects are stressed. *Prerequisite:* Electrical Engineering 2311.
- 3441 Communication Systems (3-0)**  
Advanced topics in communications, including frequency analysis of signals, modulation, noise, information transmission, and statistical methods in system analysis. *Prerequisite:* Electrical Engineering 3340.
- 3442 Solid State Device Applications Spring Semester (2-3)**  
Application of solid-state electronics in circuits and systems. Emphasis on the design of analog and digital integrated circuits. *Prerequisite:* Electrical Engineering 3340.
- 3447 Electromagnetic Energy Transmission and Radiation (3-0)**  
Derivation and application of the general transmission-line equations, propagation and reflection of plane waves, analysis of waveguide transmission systems, electromagnetic radiation and simple antenna systems. *Prerequisite:* Electrical Engineering 3321.
- 3464 Systems and Controls (3-0)**  
Continuous systems; transfer functions, characteristics, stability, methods of design. Discrete systems: z-transforms, relation to continuous systems, characteristics, stability and methods of design. *Prerequisite:* CE 3238 and EE 3352.
- 1471-3471 Engineering Problems — Seminar (1, 2, 3-0)**  
Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. *Prerequisite:* Senior standing or consent of the head of the department. May be repeated for credit.
- 3473 Minicomputers — Spring Semester (3-0)**  
Minicomputer architecture, introduction to interfacing, assembler language programming, and real-time operating systems. *Prerequisite:* EE 3372 or assembler language programming experience.

- 3475 Numerical Methods for Electrical Engineers (3-0)**  
A study of the numerical techniques used in solving problems in electrical engineering. Numerical integration, matrix inversion, and solution of ordinary differential equations are considered via application to signal, system, and network analysis. *Prerequisite:* Mathematics 3326, basic knowledge of Fortran or permission of the instructor.
- 3480 Microwave Communications (3-0)**  
Primarily a terminal undergraduate course concerning high frequency energy generation and transmission. Topics include microwave oscillators, principles of solid state microwave devices, propagation of radio waves in the atmosphere and the ionosphere, and atmospheric absorption of radio wave energy. *Prerequisite:* Electrical Engineering 3447 or equivalent.
- 3482 Antenna Engineering (3-0)**  
A broad introduction to antenna engineering with emphasis on design principles and applications, includes radiation fundamentals used in modern array systems, reflectors and frequency independent antennas, together with the associated measurements of their characteristics. *Prerequisite:* EE 3447 or concurrently.
- 3484 Probabilistic Methods in Engineering and Science (3-0)**  
Problems involving discrete and continuous random variables, distribution functions, moments, and statistical dependence. Emphasis to be on formulation of physical problems. *Prerequisite:* Senior standing in engineering or permission of the instructor.
- 3485 Energy Conversion (3-0)**  
Theory and performance characteristics of electro-mechanical energy conversion equipment to include transformers and both d-c and a-c generators and motors and the control devices employed therewith. *Prerequisite:* Electrical Engineering 3352.
- 3486 Power System Analysis Fall Semester (3-0)**  
A study of the characteristics of transmission lines and their current and voltage relations; generalized circuit constants; representations of power systems; load flow studies; faults on lines and machines; and stability problems. *Prerequisite:* Electrical Engineering 3485 or permission of instructor.
- 3487 Computational Techniques for Power Systems Analysis — Spring Semester (3-0)**  
The solution of complex networks using computationally efficient algorithms. Modeling and simulation of power system components under dynamic conditions. The use of the minicomputer in analysis and control of power systems. Examples using University and departmental computer facilities. *Prerequisite:* EE 3485 or permission of instructor.
- 3495 Special Topics in Electrical Engineering (3-0)**  
Selected topics of current interest in Electrical Engineering. May be repeated for credit when topic varies. *Prerequisite:* Approval of instructor.
- 1495 Senior Professional Orientation (1-0)**  
Introduction to the Engineering profession with emphasis on job placement, professional ethics and an engineering field examination. Required of all students prior to graduation.

**For Graduate Students Only**

**DEPARTMENTAL REQUIREMENTS FOR MASTER OF SCIENCE DEGREE —**

Plan 1 requires twenty-four of course work plus a six-hour thesis. Plan 2 requires thirty-six hours of course work without a thesis. An undesignated degree is offered that covers the areas of Civil, Electrical, Mechanical, and Metallurgical Engineering. Special emphasis in the *Electrical Engineering Department* is placed on interdisciplinary programs in *Atmosphere Processes* and in *Systems Studies*. All but nine hours of the work must be done in 0500 (Graduate) courses. All students are encouraged to include in their program six hours of course work outside their major field.

*Prerequisite:* Twelve semester hours of advanced courses in Engineering and a Bachelor's Degree.

- 3501 **Operational Methods of Circuit Analysis (3-0)**  
Elements of functions of a complex variable, followed by application of Fourier and Laplace transform techniques to the problems of signal transmission through lumped and distributed parameter systems.
- 3502 **Linear Systems Analysis (3-0)**  
Analysis of generalized linear systems through a state space approach. Topics include linear algebra, continuous and discrete operational calculus, solution methods, controllability and observability and an introduction to non-linear solutions and stability methods.
- 3503 **Decision Analysis (3-0)**  
The application of systems analysis and decision theory to large scale problems under conditions of uncertainty. Treatment of uncertainty through subjective probability and attitude toward risk by the use of utility theory.
- 3506 **Antenna Theory (3-0)**  
Fundamental theory of point sources; the antenna as an aperture; methods of analyzing and calculating characteristics of various types of antennas; self and mutual impedances of antennas; array of linear antennas; antenna measurement technique. *Prerequisite:* Electrical Engineering 3447 or consent of the instructor.
- 3507 **Modern Control Theory I (3-0)**  
State Space techniques (continuous case); controllability and observability, Lyapunov's second method; Pontryagin's principle of optimality and dynamic programming; the method of steepest descent; and other optimization techniques. *Prerequisite:* Electrical Engineering 3464 or consent of the instructor.
- 3511 **Physical Electronics (3-0)**  
Fundamental electronic processes in solids, liquids, and gases; statistical mechanics and introductory quantum mechanics; gaseous and plasma electronics.
- 3514 **Advanced Topics in Electrical Engineering**  
A course covering one or more advanced topics in electrical engineering. The subject will vary from year to year and may be selected, for example, from one of the following fields: nonlinear system analysis; analog and digital computing systems and components; systems engineering; applications of new types of magnetic, dielectric and semiconductor materials to engineering devices; pulse systems and techniques. May be repeated for credit.
- 3515 **Advanced Electromagnetic Theory (3-0)**  
Theorems and concepts of uniqueness, equivalence, induction, reciprocity and Green's functions. Application of plane, cylindrical, and spherical wave functions to resonators, waveguide, radiators, apertures, and scattering. *Prerequisite:* Electrical Engineering 3447 or consent of the instructor.
- 3518 **Power System Analysis I (3-0)**  
Equivalent circuits and characteristics of multi-winding transformers, grounding and mutual coupling. Load flow studies. Analysis of balanced and unbalanced conditions in multiphase systems. Sequence impedances of equipment. *Prerequisite:* Electrical Engineering 3516.
- 3519 **Power System Analysis II (3-0)**  
Problem relating to power limits; steady-state stability; acceleration equations, and transient stability. Methods of improving stability. *Prerequisite:* Electrical Engineering 3518.
- 3520 **Concepts of Optimization I (3-0)**  
Presentation of the concepts and applications of deterministic operations research. This will include classical optimization techniques and mathematical programming procedures. Computer usage of these for optimization is stressed.
- 3521 **Concepts of Optimization II (3-0)**  
Advanced deterministic mathematical programming techniques, stochastic programming approaches, and probabilistic operations research models in inventory and queueing. *Prerequisite:* EE 3520.

- 3523 **Random Processes in Physical Systems (3-0)**  
General concepts of stochastic processes, correlation and power spectra, optimum filter techniques, normal random processes, statistical estimation. *Prerequisite:* Electrical Engineering 3484 or consent of the instructor.
- 3524 **Statistical Communication Theory (3-0)**  
Measurement problems, modulation by random processes, detection of signals and estimation of signal parameters. *Prerequisite:* Electrical Engineering 3523.
- 3527 **Modern Control Theory II (3-0)**  
Properties of optimal systems; the minimum time, minimum fuel, and minimum energy problems; and application of optimization techniques to system design. *Prerequisite:* Electrical Engineering 3507.
- 3541 **Atmospheric Infrared Radiation (3-0)**  
The fundamental theory of atmospheric radiation including thermal laws, radiation transfer, molecular absorption, band-models, spectroscopy and scattering, with particular emphasis on the infrared electromagnetic region. Application to satellite measurements are covered by referring to the recent literature. *Prerequisite:* Electrical Engineering 3447 or consent of instructor.
- 3543 **Microwave Engineering (3-0)**  
An introduction to the fundamentals of microwave engineering topics includes waveguide transmission, impedance transformation and matching, passive microwave elements, resonant cavities, microwave networks and periodic structures. *Prerequisite:* EE 3447 or consent of instructor.
- 3545 **Atmospheric Structure and Dynamics (3-0)**  
Development of stress tensor; kinematics of fluids; conservation of mass, momentum, and energy; continuity, Navier-Stokes, and energy equations. Development of change in state, turbulent, and Coriolis effects; linearized approximations and non-linear prognostic equations.
- 3546 **Atmospheric Radiation Processes (3-0)**  
The theory of radiative transfer including gaseous absorption and emission, aerosol extinction, atmospheric fluxes and heating rates, airglow and other atmospheric radiative phenomena. Applications are made to remote sensing of planetary atmospheres. *Prerequisite:* EE 3545.
- 3547 **Propagation of Waves in the Atmosphere (3-0)**  
Characteristics of electromagnetic and hydromagnetic wave propagation in the atmosphere are developed. Observed changes in wave characteristics are related to techniques and applications of remote sensing. *Prerequisite:* EE 3545.
- 3550 **Computing Methods for Engineering Research (3-0)**  
Experiments using numerical techniques to solve problems in systems of equations approximation and probability and statistics found in engineering research and development. *Prerequisite:* Knowledge of Fortran or permission of instructor.
- 3582 **Environmental Diagnostics by Radiowaves (3-0)**  
A study of environmental effects on radio wave propagation. Topics include electron-layer production, the geomagnetic field, magneto-ionic theory, frequency predictions and scattering of radio waves from ionized media. *Prerequisite:* EE 3447 or consent of instructor.
- 1595-3595 **Graduate Seminar (1, 2, 3,-0)**  
Conferences, discussions and/or research, individual or collective, on advanced phases of engineering problems conducted under the direct supervision of a faculty member. Variable credit, and may be repeated for credit to total 6 credits. *Prerequisite:* Permission of the instructor.
- 3598-99 **Thesis Course for the Master's Degree**

## MECHANICAL AND INDUSTRIAL ENGINEERING

JOHN M. LEVOSKY, *Chairman*

*Professors* COLEMAN, EDWARDS, LEVOSKY, WHITACRE;

*Associate Professors* BHADURI, BLANK, CRAVER, DOWDY, FILLO;

*Associate Professor* HAWKINS

### MECHANICAL ENGINEERING

#### For Undergraduates

*General Prerequisite:* Junior standing for all 300 or 400 level courses.

- 3103 **Graphical Fundamentals in Engineering Design (2-4)**  
Freehand projection, fundamentals of multiview projections, auxiliaries, sections, detailed drawings, dimensioning and pictorials. Preliminary investigation of elementary engineering design problems.
- 3104 **Freshman Design (2-3)**  
Role of the engineer; engineering problems solutions; engineering design methods; elementary digital computer programming; design project.
- 3205 **Basic Measurements and Instrumentation (2-3)**  
The theory and fundamentals of physical measurements, study of characteristics of dynamics signals, study of basic detector-transducer elements and applied mechanical measurements. *Prerequisite:* Ma 3217 or concurrently.
- 3236 **Manufacturing Processes (3-0)**  
Theory and practice of production as a system; power, material, choice of process. *Prerequisite:* Ma 3217 or concurrently.
- 3275 **Thermodynamics I (3-0)**  
Principles of thermodynamics of single and multi-phase systems of pure substances. *Prerequisite:* Ma 3212.
- 4351 **Heat Transfer (3-3)**  
Introduction to heat transfer by conduction, convection and radiation; steady and transient states, steady periodic states. Heat transfer in engineering apparatus; graphical and numerical methods; electrical and fluid analogies. *Prerequisites:* ME 3275 & ME 4354.
- 4354 **Fluid Mechanics (3-3)**  
Fluid properties and definitions, fluid statics, fluid flow concepts and basic equations, ideal fluid flow, dimensional analysis and dynamic similitude, viscous effects; fluid resistance, introduction to laminar and turbulent boundary layers, flow through pipes and open channels, compressible flow, fluid measurement and control. *Prerequisite:* ME 3275, Ma 3326.
- 3363 **Kinematics of Mechanisms (2-3)**  
Analysis of displacement, velocity and acceleration in basic mechanisms for control, transmission and conversion of motion and force. *Prerequisite:* CE 3238.
- 3367 **Dynamics of Machinery (3-0)**  
Kinetics, equations of motion, critical speeds and balancing, forces in machines, three dimensional rotation, mechanism synthesis. *Prerequisite:* ME 3363.
- 3376 **Thermodynamics II (3-0)**  
Continuation of ME 3275. Application of principles to cycles and reactive systems; energy relationships and equilibrium requirements. *Prerequisite:* ME 3275.

#### For Undergraduates and Graduates

*Prerequisite for graduate credit:* At least twelve hours of undergraduate credit in Engineering.

- 3411 **Automatic Controls (3-0)**  
A study of classical control theory including transfer function, stability and time response, error analysis and sensitivity functions, root locus, Nyquist diagrams and Bode Plots; the analog computer as a simulation tool particularly as pertains

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- to non-linear control systems. Also, an introduction to modern control theory is presented. *Prerequisite:* Senior standing or consent of instructor.
- 3412 **Fluid Power and Control Systems (3-0)**  
Fundamentals of fluid power system design; fluid power transmissions; basic circuit and control components; fluid power circuits and circuit design. *Prerequisite:* ME 4354 or consent of instructor.
- 3441 **Engineering Analysis (3-0)**  
Application of mathematical principles to the analysis of engineering problems; emphasis on analytical description of the system, use of vector algebra, differential and integral calculus, complex variables, graphical and numerical methods. *Prerequisite:* Ma 3326.
- 3455 **Gas Dynamics (3-0)**  
A study of the flow of compressible fluids. One dimensional steady flow, supersonic flow, normal and oblique shock, and flow with heating and cooling, measurement of fluid properties and flow parameters. *Prerequisite:* ME 4354 and 3376.
- 3464 **Senior Analysis (2-3)**  
The application of mechanics, materials science and probability theory in the analysis of members within practical limitations of dimensions, cost, etc.; photo-elastic and strain gage approaches to stress analysis. *Prerequisite:* CE 3234.
- 4465 **Dynamic Response (3-3)**  
Fundamentals of vibration theory and system response. Single and multiple degrees of freedom, damping, isolation. *Prerequisite:* Ma 3326, CE 3238.
- 4466 **Senior Design (2-6)**  
Feasibility studies, preliminary and detailed projects furnished by industry handled on a team basis and usually terminating in working models. *Prerequisite:* Senior standing or permission of instructor.
- 3471 **Engineering Problems — Seminar (0-9)**  
Original investigation of special problems in the student's field, the problem to be selected by the student with approval of the head of the department. *Prerequisite:* Senior standing and consent of the head of the department. May be repeated for credit.
- 3487 **Aerodynamics (3-0)**  
Introduction to the aerodynamics of flight vehicles. One dimensional flow of a perfect gas, shock and expansion waves, converging-diverging nozzles; subsonic, supersonic, and hypersonic flows. Evaluation of aerodynamic loads on flight vehicles, including aerodynamics and characteristics of various types of power plants for a wide range of Mach numbers. *Prerequisite:* ME 4354 & ME 3376 or permission.
- 3488 **Aerospace Structures (3-0)**  
Analysis of thin skin structures, box-beam theory, shear flow, shear center, unsymmetrical beam loading. *Prerequisite:* CE 3234.
- 3490 **Turbomachinery (3-0)**  
Thermodynamics of fluid through turbomachines; systems characteristics of turbines, compressors, pumps, blowers, fluid couplings and fluid torque converters; dynamic similitude in pumps, compressors and turbines; cavitation problems in hydraulic machinery. *Prerequisite:* Senior standing and permission of instructor.
- 3491 **Noise Control (3-0)**  
Wave equations microphones, frequency analysis, psychoacoustics, noise pollution and control. *Prerequisite:* Senior standing and permission of instructor.
- 1495 **Senior Professional Orientation (1-0)**  
Introduction to the Engineering profession with emphasis on job placement, professional ethics and an engineering field examination. Required of all students prior to graduation.

**INDUSTRIAL ENGINEERING  
For Undergraduates**

- 4377 **Methods and Human Factors Analysis (3-3)**  
A study of work methods and time study analysis with human capabilities and limitations considered in the design of man-machine systems. A semester project is an integral part of the course. *Prerequisite:* Junior standing or consent of instructor.

**For Undergraduated and Graduates**

- 3471 **Undergraduate Seminar (0-9)**  
Investigation of a special problem of interest to the student and a faculty member. Approval by the head of the department is required. *Prerequisite:* Senior standing and consent of the head of the department. May be requested for credit.
- 3484 **Industrial Layout (2-3)**  
The design, selection and layout of buildings and equipment for proper utilization in manufacturing. *Prerequisite:* Senior standing or consent of instructor.
- 3485 **Statistical Quality Control and Reliability (3-0)**  
The statistical design of systems for prescribed quality levels and prevention of defects. *Prerequisite:* Ma 3330 or equivalent.
- 3389 **Deterministic Operations Research (3-0)**  
An introduction to deterministic optimization models. These include the concepts of operations research modeling, classical optimization, linear and dynamic programming, network analysis. Current topics in deterministic modeling are included. *Prerequisite:* Ma 3217.
- 3492 **Probabilistic Operations Research (3-0)**  
An introduction to probabilistic optimization including queueing theory, Monte Carlo techniques of simulation, project scheduling and basic Markov processes. Current topics in probabilistic modeling are included. A project is an integral part of the course. *Prerequisite:* IE 3389 and Ma 3330 or equivalent.
- 3493 **Engineers and Managing (3-0)**  
This course is designed to investigate industrial organizations, supervision, compensation of personnel, labor unions and group interaction from the engineering project management viewpoint. *Prerequisite:* Management 3310.
- 1595-3595 **Graduate Seminar**  
Conferences, discussion and/or research, individual or collective on current and/or advanced IE problems conducted under the supervision of a Graduate faculty member. *Prerequisite:* Permission of the instructor.
- 4491 **Production and Inventory Control (4-0)**  
A study of the principles and theory used in the design and maintenance of production operations and inventory systems. These include forecasting techniques, inventory models, production control models and assembly line balancing. *Prerequisite:* IE 3389 and Ma 3480 or equivalent.
- 1495 **Senior Professional Orientation (1-0)**  
Introduction to the Engineering profession with emphasis on job placement, professional ethics and an engineering field examination. Required of all students prior to graduation.

**For Graduate Students Only**

**DEPARTMENTAL REQUIREMENTS FOR MASTER OF SCIENCE DEGREE—**

Plan 1 requires twenty-four of course work plus a six-hour thesis. Plan 2 requires thirty-six hours of course work without a thesis. An undesignated degree is offered that covers the areas of Civil, Electrical, Mechanical, and Metallurgical Engineering. Special emphasis in the *Mechanical and Industrial Engineering Department* is placed on interdisciplinary programs in *Structures and Design* and in *Atmospheric Processes*. All but nine hours of the work must be done in 0500 (Graduate courses). All students are encouraged to include in their program six hours of course work outside their major field.

### Mechanical Engineering

*Prerequisite:* Twelve semester hours of advanced courses in Engineering and a Bachelor's Degree.

- 3501 **Experimental Stress Analysis (2-3)**  
Modern techniques for determining state of stress and strain experimentally. The laboratory provides the opportunity to gain practice in the use of these devices and their ancillary equipment. *Prerequisite:* Civil Engineering 3234 or consent of the instructor.
- 3502 **Advanced Mechanics of Materials I (3-0)**  
Elastic strain energy, theories of failure, beams on continuous elastic supports, thick-walled cylinders, laminated cylinders, autofrettage. *Prerequisite:* CE 3234 or consent of the instructor.
- 3503 **Advanced Heat Transfer I — Conduction (3-0)**  
Conduction in various coordinate systems: steady and transient-state cases with various boundary conditions; analytical, numerical and graphical solutions. *Prerequisite:* Mathematics 3326 or consent of the instructor.
- 3504 **Advanced Heat Transfer II — Convection and Radiation (3-0)**  
Thermal boundary-layer theory; forced convection in laminar and turbulent flows; free convection. Thermal radiation; emissivity and absorptivity of materials; geometric factors. *Prerequisite:* Mechanical Engineering 4354 or consent of the instructor.
- 3506 **Advanced Fluid Mechanics I (3-0)**  
Survey of the principal concepts of fluid mechanics, statics, continuity, momentum and energy relations for continuum fluids, kinematics of fluid motion, governing equations for motion of non-viscous fluid, vorticity and circulation, Kelvin's theorem, Helmholtz theorem, Crocco's theorem, stream function, potential flow, conformal transformation, theory of lift, wave phenomena in fluids. *Prerequisite:* Mechanical engineering 4354 or consent of the instructor.
- 3507 **Advanced Fluid Mechanics II (3-0)**  
Viscous and turbulent flows. Viscosity and dissipation phenomena, the Navier-Stokes and energy equations; creep flow at low Reynolds numbers, laminar boundary layers, laminar stability, transition and turbulence, turbulent boundary layers, jets, wakes, and separated flows, thermal boundary layers, compressible boundary layers, dissociation and ionization. *Prerequisite:* Mechanical Engineering 4354 or consent of the instructor.
- 4508 **Advanced Mechanical Design (3-3)**  
Study of the method of optimum design for mechanical systems. Evolution of Optimum design, approximation for explicit design; Mathematical functions in design, evaluation of the effects of manufacturing errors on product performance, optimum choice for method of analysis, statistical consideration for factor of safety; adequate design, optimum design, design equations; normal redundant and incompatible specifications; loose limits and loose specifications; problems with more than one primary design equation.
- 3509 **Structural Dynamics (3-0)**  
Continuation of Mechanical Engineering 4365 with emphasis on multiple-degree-of-freedom systems and their response to disturbances. Normal mode theory, matrix representation of problem; Laplace transform, electrical analogue and mobility techniques of solution. Vibration measurements and analysis. *Prerequisite:* Mechanical Engineering 4365 or consent of the instructor.
- 3510 **Advanced Thermodynamics (3-0)**  
General thermodynamic relations, equations of state, advanced treatment of second law, equilibrium availability and selected topics. *Prerequisite:* Mechanical Engineering 3376 or consent of the instructor.
- 3511 **Environmental Engineering (3-0)**  
Thermal and humidity load analysis. Human comfort and tolerances. Environmental control methods: heating, refrigeration, humidification and drying; atmosphere and pollution control. System component characteristics; system analysis and design. Automatic controls. *Prerequisite:* Mechanical Engineering 3376 or consent of the instructor.



- 3512 Analysis of Multivariable Processes (3-0)**  
Study of the mathematical structures and couplings describing the dynamics of observable processes using vector space methods with geometrical interpretations. Mapping of vector equations into corresponding matrix equations. Description of process changes by transformation matrices. Identification of process parameters and observable vectors in changing reference frames in the presence of measurement uncertainties. *Prerequisite:* Consent of the instructor.
- 3513 Advanced Fluid Mechanics III (3-0)**  
Compressible flow, energy, continuity and momentum principles applied to compressible fluid flows, one, two, and three dimensional subsonic, supersonic and hypersonic flow, normal and oblique shocks, method of characteristics, mixed flows: hodograph method, compressible laminar and turbulent boundary layers. *Prerequisite:* ME 3455, or consent of the instructor.
- 3514 Mechanics and Thermodynamics of Propulsion (3-0)**  
Thermochemistry and mechanics of combustion; viscous flow heat transfer, thermodynamics of aircraft jet engines, aerothermodynamics of internal flows; axial flow and centrifugal compressors, flow turbines; kinetics of combustion processes, equilibrium and finite-rate processes, design consideration for aircraft propulsion systems. *Prerequisite:* Consent of instructor.
- 3515 Tensor Analysis (3-0)**  
Tensors as generalization of vectors; operations and transformation; tensors in differential geometry, Euclidian, Riemannian and affine spaces. Invariant theories; Cartesian tensor; stress, strain and strain-rate tensors, tensor calculus, field equations, simple constitutive equations, applications in fluid mechanics, elasticity, plasticity, electromagnetic theory, dynamics, magneto-hydrodynamics, etc. *Prerequisite:* Consent of instructor.
- 3517 Transport Phenomena (3-0)**  
A unified treatment of some aspects of heat, mass, and momentum transport, rate and conversion equation, the kinetic theory explanation of molecular transport phenomena, introduction to turbulence, mass, momentum and energy transfer in laminar, turbulent and rarefied flow fields, interphase transport and macroscopic balances for multicomponent systems. *Prerequisite:* Consent of instructor.
- 3518 Advanced Dynamics (3-0)**  
Velocity and acceleration analysis. Motion of a point in space. Rotating coordinate systems. Balancing of masses. Generalized coordinates. Work and Energy. Impulse and Momentum. *Prerequisite:* Civil Engineering 3238 or equivalent.
- 3519 Dynamics of Flight (3-0)**  
Aerodynamic forces and moments of aircraft and missiles. Static stability and control. Equations of motion for flight vehicles.
- 3577 Thermal Systems (3-0)**  
Engineering application of thermodynamics to thermal systems. Power, air conditioning, refrigeration systems; performance criteria and economic consideration. *Prerequisite:* ME 3275.
- 1595-3595 Graduate Seminar**  
Conferences, discussions and/or research, individual or collective, on advanced phases of engineering problems conducted under the direct supervision of a faculty member. Variable credit, and may be repeated for credit to total 6 credits. *Prerequisite:* Permission of the instructor.
- 3598-99 Thesis Course for the Master's Degree  
Industrial Engineering**
- 3493 Engineers and Managing (3-0)**  
This course is designed to investigate industrial organizations, supervision, compensation of personnel, labor unions and group interaction from the engineering project management viewpoint. *Prerequisite:* Management 3310.
- 1595-3595 Graduate Seminar**  
Conferences, discussion and/or research, individual or collective on current and/or advanced IE problems conducted under the supervision of a Graduate faculty member. *Prerequisite:* Permission of the instructor.

## METALLURGICAL ENGINEERING

D. P. KEDZIE, *Chairman*

*Professors* RINTELEN (Emeritus), EHRLINGER (Emeritus),  
ABERNETHY, GUARD, KEDZIE, RIZZO.

*Associate Professor* ROSER;

### For Undergraduates

*General Prerequisite:* Junior standing for all 300 or 400 level courses.

- 3101 Introduction to Metallurgy I (2-3)**  
An elementary course in the extraction of metal from ores, and the industrial application of metals and alloys. Open to all students.
- 3203 Materials Selection (3-0)**  
A solid state study concerned with the physical and mechanical properties of metals, plastics, and ceramics. *Prerequisite:* Sophomore standing.
- 1203 Materials Selection Laboratory (0-3)**  
Practical experience in materials selection problems including failure analysis and laboratory techniques for materials evaluation.
- 3205 Energetics in Metallurgical Engineering (3-0)**  
A study of rate laws, order of reactions, steady state, catalysis, rate determining steps, and the energetics and kinetics of metallurgical processes. *Prerequisite:* Metallurgy 3106.
- 3206 Rate Processes in Metallurgical Engineering (3-0)**  
A study of rate laws, order of reactions, steady state, catalysis, rate determining steps, and the energetics and kinetics of metallurgical processes. *Prerequisite:* Metallurgy 3101.
- 3207 Engineering of Non-metallic Materials (3-0)**  
A study of the fundamentals on nomenclature and basic reactions of the emphasis on polymeric materials and ceramics as they are related to Metallurgical Engineering.
- 3304 Process Metallurgy I (3-0)**  
Application of the basic concept and methods of metallurgical engineering to the metals process industry with an emphasis on non-ferrous processes. Typical topics are reactions in blast and reverberatory furnaces, furnace design, atmosphere control, electrolytic processes, grinding, flotation and sintering. *Prerequisites:* Metallurgy 3206 and Math 3326.
- 3305 Process Metallurgy II (3-0)**  
Application of the basic concepts and methods of metallurgical engineering to the melting practices corresponding to the B.O.F., the open hearth, electro slag and electric methods; powder metallurgy and materials handling. *Prerequisite:* Metallurgy 3304.
- 3306 Physical Metallurgy I (3-0)**  
Application of the basic concepts and methods of metallurgical engineering to physical metallurgy. Topics will include crystallography; dislocation theory; diffusion in metals and alloys; recovery, recrystallization, and grain growth and equilibrium in alloys. *Prerequisite:* Metallurgy 3206.
- 5307 Physical Metallurgy II (3-6)**  
Application of the concepts and methods of metallurgical engineering to physical metallurgy. Topics will include solidification, TTT and Pearlitic transformations, precipitation on hardening, martensitic reactions, gas-solid, solid-solid reactions and dispersion hardening. *Prerequisite:* Metallurgy 3306.
- 3308 Classical and Statistical Thermodynamics (3-0)**  
A study of the laws of thermodynamics from the classical and statistical approach. Distributions, chemical equilibrium, direct energy conversion and other engineering applications will be included. *Prerequisite:* Math 3326 or permission of instructor.

- 3309 Physics of Materials (3-0)**  
Study of electronic phenomena in solids including conduction, semi-conductor physics, electron emission, and magnetic processes. *Prerequisite:* Junior standing and Phys 3222 and either Phys 3431 or ME 3275.
- 4402 Mineral Dressing (3-3)**  
The principles governing the process employed in the liberation and separation of the minerals, ore dressing, ore testing, flow sheets, and mill design. *Prerequisite:* Met 3206 or permission from the instructor.
- 3404 Electro-Metallurgy (2-3)**  
The principles of electro-winning and the electro-plating of non-ferrous metals  
*Prerequisite:* Senior standing.
- 4405 Materials Fabrication (3-3)**  
A study of fabrication methods for ferrous and non-ferrous materials. *Prerequisite:* Met 3203 or permission of instructor.
- 3409 Corrosion (3-0)**  
A study of corrosion, passivity, and protection of metals and alloys. *Prerequisite:* Metallurgy 3206.
- 3410 Chemical Reactor Design (3-0)**  
The application of thermodynamics, transport phenomena, and chemical kinetics to the design of industrial chemical reactors. *Prerequisite:* Metallurgy 3205.
- 3412 Microscopy (2-3)**  
An introduction to light microscopy, electron microscopy, and the scanning electron microscope. The discussion and interpretation of results will be stressed. *Prerequisite:* Met 5307 or permission of the instructor.
- 3413 X-Ray (2-3)**  
An introduction to X-ray diffraction, spectroscopy analysis, and interpretation of results obtained will be stressed. *Prerequisite:* Met 5307 or permission of instructor.
- 3414 Ferrous and Non-Ferrous Processes (3-0)**  
The metallurgy and fabrication of iron, steel and related alloys, and the smelting and refining of non-ferrous materials. One-third of the course is devoted to the calculations pertaining to the subject. *Prerequisite:* Met 3305 or permission of instructor.
- 4415 Mechanical Metallurgy (3-3)**  
A study of elastic and plastic deformation of metals, mechanical testing, the fundamentals of metalmaking, non-destructive testing techniques and relating subjects. *Prerequisite:* Metallurgy 3203.
- 1471-3471 Special Engineering Problems — Seminar (1, 2, 3-0)**  
Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. *Prerequisite:* Senior standing and consent of the head of the department. May be repeated for credit up to 6 hours.
- 1495 Senior Professional Orientation (1-0)**  
Introduction to the Engineering profession with emphasis on job placement, professional ethics and an engineering field examination. Required of all students prior to graduation.

#### For Graduate Students Only

#### DEPARTMENTAL REQUIREMENTS FOR MASTER OF SCIENCE DEGREE —

Plan 1 requires twenty-four of course work plus a six-hour thesis. Plan 2 requires thirty-six hours of course work without a thesis. An undesignated degree is offered that covers the areas of Civil, Electrical, Mechanical, and Metallurgical Engineering. A unified program in Metallurgical Engineering allows the student to enter material processing or material using industries. All but nine hours of the courses must be done in X5XXX (Graduate) course.

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*Prerequisite:* Twelve semester hours of advanced courses in Engineering and a Bachelor's Degree.

- 3541 **Metallurgical Analytical Procedures (2-3) Offered Fall Semester)**  
A survey and application of the principal concepts and techniques used to analyze metallurgical variables using tools such as the TGA, the Potentiostat, the SEM, the micorprobe and computer processed data.
- 3542 **Advanced Topics in Process Metallurgy (3-0) (Offered Spring Semester)**  
An in-depth study concerning selected topics such as *electro-winning and refining*, electroplating, corrosion, and oxidation, hydrometallurgy and pyrometallurgy.
- 3543 **Utilization of Materials (3-0) (Offered Spring Semester)**  
Contemporary topics in the utilization of materials. *Special applications of new materials* and an in-depth study of certain of the theoretical concepts will be made. May be repeated twice for credit when the topic varies.
- 3544 **Concepts of Process Simulation (3-0) (Offered Summer Session)**  
Advanced programming techniques, statistics, design of experiments, process simulation and data analysis on topics of current interest.
- 3545 **Advanced Topics in Fabrication Procedures (3-0) (Offered Fall Semester)**  
Topics may include welding, power metallurgy, casting, forming, heat treatment, high energy rate forming, composite materials and the effects that fabrication have on mechanical and physical properties. May be repeated twice for credit when topic varies.
- 1595-3595 **Graduate Seminar**  
Conferences, discussions and/or research, individual or collective, on advanced phases of engineering problems conducted under the direct supervision of a faculty member. Variable credit, and may be repeated for credit to total 6 credits.  
*Prerequisite:* Permission of the instructor.
- 3598-3599 **Thesis Course for the Master's Degree.**

\*Twenty-seven hours of approved electives are required. Nine hours of electives must be in Humanities and Social Sciences. Six hours of electives must be in Mathematics. Twelve hours of electives must be technical courses and should normally be chosen from three and four hundred level courses. At least six hours of technical electives must be in Electrical Engineering. All technical electives must be in Engineering and the Biological or Physical Sciences.

# College of Liberal Arts

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THE UNIVERSITY OF TEXAS AT EL PASO

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RAY SMALL, *Dean*

MARY FRANCES BAKER HERNANDEZ,  
*Assistant Dean*



## Bachelor of Arts Degree

The College of Liberal Arts has revised the requirements for the B.A. degree, in the belief that the arbitrary requirement of a list of specified courses may well be obsolete. The new plan, adopted by the faculty of the College after long study, is designed to offer the student a large measure of freedom in the choice of courses and at the same time to maintain a unifying pattern for the education of all undergraduate Liberal Arts students.

1. Complete a minimum of 123 semester hours, including at least 36 hours at the advanced level (300-400). Twenty-four of the last 30 hours required for the degree must be taken in residence.
2. Complete 30-38 semester hours of *Required Courses*, as follows:

*Min. Sem. Hrs.*

- 6 English Composition 3111-3112; Linguistic 4101-4102.
- 6 Any combination from English 3211, 3212, 3213, 3214, 3215, 3216, 3218; History 3201, 3202; French 3301, 3302, German 3301, 3303; Spanish 3301, 3302, 3303; Russian 3321, 3323.
- 6 History 3101-3102.
- 6 Political Science 3110-3111.

6-14 Complete sophomore year of a modern foreign language offered by the Department of Modern Languages. See paragraph 5, next page.

Credit counted under *Required Courses* may not also be used to satisfy *Elective Block* requirements.

Unless a student completes English 3110 by advanced placement, he must take the course each time he enrolls until he passes it; thereafter, unless a student completes English 3111 by advanced placement, he must take the course each time he enrolls until he passes it. Unless a student completes English 3112 by advanced placement, he must thereafter take the course each time he enrolls until he passes it.

3. Complete a major prescribed by an academic department in the College of Liberal Arts or in the College of Science of at least 24 semester hours, of which at least 12 semester hours must be at the advanced (300-400) level. A major may also be completed in Business Administration (Accounting and Business options), Economics or Finance. Variations from these general requirements are listed under each department's Course Descriptions (following page 92 of this catalog). Nine of the advanced hours must be completed in residence within three years prior to the date of graduation. One-hour courses may not be counted toward the minimum 24 hours required in the major, with the exception that the Dean of the College of Liberal Arts may approve certain one-hour courses taught in the School of Science. No course taken on a Pass-Fail basis may be counted for the major, even though the student changes majors after having taken the course. A completed degree plan must include a minimum grade average of C (2.0) in the major. If a course is repeated, the last grade earned is used in computing this average.

4. Complete the following *Blocks of Electives*:

*Min. Sem. Hrs*

- 6 Block A Fine Arts
- 12 Block B Social Sciences
- 15 Block C Humanities
- 12 Block D Natural Sciences and Mathematics

If the major is listed in Blocks B, C, or D, six hours of the course work required for the major may be counted toward satisfaction of that Block. This restriction applies

to only one major if the student completes a double major. If the major is one of the fine arts, however, no more than three hours in the major may be used to satisfy Block A. No student may present courses from only one subject matter area to fulfill all requirements of Block B, C, or D. A course taken to meet the requirements of one Block cannot also be counted to satisfy requirements in another Block. With certain exceptions, one-hour courses cannot be used to satisfy Elective Blocks. Blocks of Electives are defined as follows:

Block A — Fine Arts: Art, Drama, Music

Block B — Social Sciences: Anthropology, Economics, Political Science, Psychology, Sociology, Social Work

Block C — Humanities: English, Foreign Languages, History, Philosophy, Speech

Block D — Natural Sciences and Mathematics: Biology, Chemistry, Geology, Mathematics, Physics

Geography courses which are chiefly social, cultural, or economic will normally be counted in Block B. Physical geography and geomorphology, taught in the Department of Geological Sciences, will ordinarily be counted in Block D. Substitutions recommended in Block B by the student's major advisor, primarily from Linguistics, Mass Communication, and Speech Pathology, may be approved by the Dean of Liberal Arts.

Students who have completed at least two high school units in any subject, with superior grades, are encouraged to take appropriate College Entrance Examination Board tests. Credit thus earned may be applied toward completion of *Required Courses*, *Elective Block* requirements, or *Free Electives*. If taken in high school, the CEEB tests are called "Achievement Tests"; if taken at the University Counseling Service, they are called "College Placement Tests." The latter should be completed during the first summer session or semester of enrollment at U.T.El Paso.

5. Complete the sophomore year (language courses numbered 3201-02 or 3203-04) of a foreign language offered in the Department of Modern Languages. With the Dean's approval, credit earned by examination for advanced standing may be used to meet this requirement. No more than six hours of this general language requirement may be counted under Block C. A student who has for at least two years attended a high school where instruction is not conducted in English, and who has graduated from that school or another in the same foreign country, may petition the Dean of Liberal Arts for exemption from foreign language study.
6. Complete additional courses as prescribed by the department of the major.
7. Complete *Free Electives* as needed to bring the total semester hours of credit to at least 123. Any undergraduate course offered by an academic department in any College of the University may be counted as a *Free Elective*, provided that the credit cannot also be used in meeting any other requirement. Courses taken in the department of the major which are not needed to meet the requirements of the major may be counted as *Free Electives*. *Free Electives* of advanced (300-400) level, with the exception of most one-hour courses, are applied toward satisfaction of the requirement of 36 hours of advanced hours.
8. Not more than six hours of credit in one-hour courses, excluding certain laboratory courses in the College of Science, can be counted toward a degree.
9. Graduate (500 level) courses cannot be used to meet any requirement for the Bachelor of Arts degree; such courses must be reserved for graduate credit and may only be taken by undergraduates with the prior approval of the Dean of the Graduate School.

### **TEACHER CERTIFICATION WITH B.A. DEGREE**

The bachelor of Arts *All Levels Teaching Program* in Art and the Bachelor of Music *All Levels Teaching Program in Music* are outlined in the *College of Education Section* of this catalog. Students who plan to teach other subjects in public high schools and who wish to earn a Bachelor of Arts degree should confer with the Dean of the College of Liberal Arts. Completion of the baccalaureate degree satisfies Academic Foundations requirements for teacher certification. If the major subject is one of the Teaching Fields listed under Plan I on pages 92 and 93, the B.A. major provides one Field. Plan I also requires a second Teaching Field of 24 semester hours, including 12 hours of 300-400 level courses. This credit may be counted toward satisfaction of the appropriate Elective Blocks or as Free Electives. For some students a Composite Teaching Field in Science, Social Studies or English, outlined under Plan II on page 94, is a more appropriate choice. Teacher certification under either plan also requires completion of 18 semester hours of 300-400 level courses in Education, including Education 3498-3499, Professional Laboratory Experiences. (Application must be filed with the Director of Field Experiences during the spring semester preceding the year when the courses will be taken.) Education courses required for teacher certification may be counted as Electives and toward satisfaction of the general requirement of 36 advanced hours.

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### **PRE-LAW**

Students who plan to satisfy requirements for admission to a school of law, or who have questions concerning any other matter relating to pre-legal studies, are urged to consult any of the Pre-Law Advisers, Dr. L. Philips Blanchard, Dr. Joseph B. Graves, Dr. Ernest A. Guinn, or Dr. Yasuhide Kawashima.

### **ALLIED HEALTH PROGRAMS**

Students who plan to satisfy requirements for admission to a school of medicine, a school of dentistry, or a school of veterinary medicine, or a school of medical technology are requested to consult with the Health Professions Adviser, Dr. Gordon W. Roberstad.

### **SOVIET AND EAST EUROPEAN STUDIES**

The Soviet and East European Studies Program is an optional plan available to Political Science or History majors and is designed to prepare students for a career in American business, education and government agencies dealing with the Soviet and East European area or for advanced study in Soviet and East European fields at the graduate level.

Specific requirements for all students in the program are Russian 3301, 3303; Political Science 3324, 3338; History 3332, or 3333 and 3373 or 3374; Economics 3395; Geography 3110; English 3385 or 3386. All students must satisfy the general requirements of the Bachelor of Arts degree. Departmental requirements for Political Science majors are listed on page 222; those for History majors, see page 185.

Professor Z. Anthony Kruszewski is the advisor for Soviet and East European Studies.



**PROGRAM IN BLACK STUDIES**

The Black Studies program is designed to provide knowledge of the Afro-American's history, culture and heritage, and of his role in politics in the Anglo-American society.

All courses listed in the program are open to any student having the academic prerequisites. Credit earned may be counted (1) toward a departmental major, where appropriate; (2) to complete Blocks of Electives; or (3) as Free Electives.

ANTHROPOLOGY 3302 Comparative Social Systems

ANTHROPOLOGY 3317 People of Africa

ANTHROPOLOGY 3320 Afro-American Culture

ART 1101 Comparative Ethnic Art

BIBLE 3210 Religion in Africa

ENGLISH 3315 Literature of the Black American

ENGLISH 3375 Folklore of the Black American

HISTORY 3313 The Afro-American in U.S. History

HISTORY 3336 Islamic Civilization, to 1250

HISTORY 3337 Islamic Civilization, Since 1250

HISTORY 3339 The Near East and North Africa Since 1800

POLITICAL SCIENCE 3320 Political Socialization and Political Culture

POLITICAL SCIENCE 3435 Contemporary Political Thought

SOCIOLOGY 3327 Minority Groups in the U.S.

SOCIOLOGY 3336 Comparative Cultures

SOCIOLOGY 3352 Sociology of Poverty

SOCIAL WORK 3275 Social Welfare as a Social Institution

BACHELOR OF ARTS

CHICANO STUDIES

CARINA G. RAMIREZ, *Director*

The University offers in a number of departments various courses classified as Chicano Studies. These courses are designed to provide interested students with knowledge about the Chicano, his origins, history, social evolution, heritage, and contributions to the changing character of American society.

The program in Chicano Studies is also designed to prepare students for careers in Chicano community programs, teaching Chicano children or for advanced study in a Chicano Studies field at the graduate level, as well as preparing students for a career in a more traditional area of learning.

All courses listed in the program are open to any student having the academic prerequisites. Credit may be counted (1) toward a departmental major in another field, where appropriate; (2) toward an interdisciplinary major with a second major field of concentration as specified by an academic department; (3) to complete Blocks of Electives; (4) as *Free Electives*.

Chicano Studies is an interdisciplinary program which may be begun in the Freshman or Sophomore year. Students desiring to pursue this program should consult with the Chicano Studies Director to determine a program most suitable to their interests and future needs.

In addition to meeting the general requirements for the Bachelor of Arts degree, including a departmental specialization, the student majoring in Chicano Studies must earn 24 hours of credit in Core Courses, 6 hours of which must be sophomore-level courses and 12 hours of which must be advanced. With the approval of the Director, and for good reason, related courses may be substituted for core courses. Philosophy 3109 is a required course for all Chicano Studies Majors.

The Chicano Studies degree program also requires completion of a departmental major of at least 24 semester hours. Courses taken in this major, as well as those chosen for completion of Elective Blocks and Free Electives, should include as many of the Related Courses as possible. In effect, this plan combines the two majors into a comprehensive program with an extended area of expertise.

**CORE COURSES**

(See current schedule of classes for course offerings and prerequisites.)

**ANTHROPOLOGY**

3205 Chicanos and their Culture

3374 Folklore of the Mexican American (Same as English 3374)

**DRAMA**

3335 Chicano Theatre and Drama

**EDUCATIONAL CURRICULUM AND INSTRUCTION**

3333 Education and the Mexican American

3434 Teaching Spanish as a Vernacular

3440 Bilingual/Bicultural Reading

3450 Education Workshop — Chicano Education (When topic is appropriate)

**EDUCATIONAL PSYCHOLOGY AND GUIDANCE**

3401 Psychology of the Bilingual Child

**ENGLISH**

- 3301 Literary Studies (When topic is appropriate)  
 3310 Literature of the Mexican American  
 3374 Chicano Folklore

**HISTORY**

- 3309 The Chicano  
 3342 The Spanish Borderlands & the Southwest (1492-1821)  
 3327 American Attitudes Toward the Indian, Black, and Chicano: An Historical Perspective.  
 3390 Special Topics (when topic is appropriate)

**LINGUISTICS**

- 3309 The Structure of Spanish (same as Spanish 3309)  
 3472 Contrastive Linguistics, Spanish/English (same as Spanish 3472)  
 3473 Spanish Language in the Americas (same as Spanish 3473)  
 3494 The History of the Spanish Language (same as Spanish 3494)

**MUSIC**

- 3325 Music of the Border

**PHILOSOPHY**

- 3109 Introduction to Chicano Thought  
 3213 Chicanos and American Thought  
 3452 Problems in Philosophy (when topic is appropriate)

**POLITICAL SCIENCE**

- 3321 Chicanos and American Politics  
 3410 Readings in Political Science (When topic is appropriate)

**PSYCHOLOGY**

- 3203 Social Psychology of the Chiano

**SOCIOLOGY**

- 3258 Chicanos in the Southwest  
 3259 Chicanos and American Society  
 3410 Spanish-speaking People of the Southwest

**SPANISH**

- 3309 The Structure of Spanish (same as Linguistics 3309)  
 3325 Comparative Mexican and Chicano Literature  
 3400 Teaching Spanish in the Southwest  
 3462 The New World Chronicles  
 3472 Contrastive Linguistics, Spanish/English (same as Linguistics 3472)  
 3473 Contrastive Linguistics, Spanish/English (same as Linguistics 3473)  
 3493 The History of the Spanish Language (same as Linguistics 3494)

**SPEECH**

- 3345 Rhetoric of Chicano Affairs.

**RELATED COURSES****ANTHROPOLOGY**

- 3210 Southwestern Archaeology  
 3211 Southwestern Ethnology  
 3305 Mesoamerican Prehistory  
 3313 Indians of Mesoamerica

**ART**

- 3310 History of Latin American Art

**ECONOMICS**

- 3366 Economics of Latin America  
 3368 Economy of Mexico

**ENGLISH**

3371 Life and Literature of the Southwest

**HISTORY**

3205 Latin America: The Colonial Period

3316 Southwest Frontier

3317 History of Texas since 1821

3343 Spanish-Indian Relations of Mexico and the Southwest

3346 The United States and Latin America

3348 Mexico in the Colonial Period, to 1821

3349 Mexico since 1821

3350 History of the Mexican Revolution, 1910-1940

**LINGUISTICS**

4112 Linguistics for Bilinguals (Substitutes English 3111)

4113 Linguistics for Bilinguals (Substitutes English 3112)

3308 Methods of Teaching English as a Second Language

**MUSIC**

3126 The Music of Mexico

**PHILOSOPHY**

3212 Latin American Philosophy

**POLITICAL SCIENCE**

3333 Problems in Latin American Politics

3347 Foreign Relations of Latin American States

3410 Readings (*When topic is appropriate*)

3433 Latin American Political Thought

3444 The Political System of Mexico

**SOCIOLOGY**

3327 Minority Groups in the United States

3336 Comparative Cultures

3352 Sociology of Poverty

3360 Institutions and Cultures of Latin America

**SPANISH**

3301 Spanish Literature Before 1700

3302 Spanish American Literature Through Modernism

3304 Spanish American Literature Since Modernism

3308 Business Spanish

3320 Spanish Civilization

3322 Latin American Culture

3402 Spanish for Teachers

3405 Hispanic Culture for Teachers

3424 The Literary History of Mexico

3425 The Novel of the Mexican Revolution

3451 Latin American Philosophy

3460 The Regional and Historical Novel of Latin America

**BACHELOR OF ARTS**  
**LATIN AMERICAN STUDIES**  
**ROBERT L. PETERSON, Director**  
**Center for Inter-American Studies**

The Latin American Studies Program is an interdisciplinary major consisting of seven interrelated fields designed to prepare students for appropriate employment in business, government, education or for advanced study in a Latin American area at the graduate level. The program is administered by the Center for Inter-American Studies which in addition to the regular academic program provides lectures, special seminars and other Latin American resource opportunities. (For a complete description of Center activities see page 30 of this bulletin).

Students electing the Latin American major must satisfy the general requirements for the B.A. degree. In order to provide flexibility and relevancy in the program the student may select one of the five following options. No single course may be used to satisfy more than one course requirement. Fluency in Spanish (or English in the case of native speakers of Spanish), rather than a given number of credit hours, is the desired language objective. However, students for whom Spanish is not their native language must complete Spanish 3322 or 3357. Native Spanish speaking students must complete six hours of Sophomore English courses from the following: English 3211, 3212, 3213, 3214, 3218, 3215 or 3216.

**BUSINESS-ECONOMICS OPTION**

ACCOUNTING	6 hours of accounting courses.
BUSINESS	Finance 3310; Management 3300; Marketing 3300. 9 hours of Business electives of which 6 must be at the advanced (3300-3400) level.
ECONOMICS	6 hours of advanced Economics electives relevant to Latin America. 6 hours of advanced courses from the Behavioral Science Option (3300-3400) level. <i>NOTE: All elective courses under this option must be approved in advance by a Center advisor.</i> <b>TOTAL HOURS — 36</b>

**BEHAVIORAL SCIENCE OPTION**

POLITICAL SCIENCE	15 hours of advanced courses (3300-3400) in Latin American politics. <i>or</i>
ECONOMICS	15 hours of advanced courses in courses relevant to the understanding of Latin American economics. (These courses must be approved in advance by the Director of the Center for Inter-American Studies.)
SOCIOLOGY	3360 Institutions and Cultures of Latin America. 3312 Measurement and inference in Social Research or Psychology 3103 Statistical Methods.
GENERAL BUSINESS	3203 Introduction to Computers.

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**GEOGRAPHY** 3212 Geography of Latin America.  
6 hours of advanced courses (3300-3400) from the Humanities or Spanish-Linguistics Option. The student may also satisfy this requirement by six additional hours of courses in statistics or computer programming.  
TOTAL HOURS — 33

**HUMANITIES OPTION**

**HISTORY** 15 hours of advanced courses (3300-3400) in Latin American history.  
**PHILOSOPHY** 3212 Latin American Philosophy.  
**ART** 3310 History of Latin American Art.  
**MUSIC** 3126 The Music of Mexico.  
6 hours of advanced courses (3300-3400) from the Behavioral Sciences or Spanish-Linguistic Option.  
TOTAL HOURS — 30

**SPANISH-LINGUISTICS OPTION**

**SPANISH** 15 hours of advanced courses (3300-3400) in Latin American content courses.  
**LINGUISTICS** 6 hours of courses in the linguistics of Spanish.  
9 hours of advanced courses (3300-3400) from the Humanities or Behavioral Science Options.  
TOTAL HOURS — 30

**CHICANO STUDIES OPTION**

- (1) Chicano Studies — Fulfillment of all requirements for Chicano Studies Majors.
- (2) Fulfillment of requirements for one of the above Latin American Studies Option.

## **Bachelor of Music**

*Major Areas:* (1) Music Education, Choral and Instrumental (see All-Levels Teacher Program). (2) Performance: Orchestra and Band Instruments, Keyboard Instruments, Voice or Ballet. (3) Theory and Composition.

All music majors must declare a major performing medium.

*Placement and Proficiency Auditions* in piano, voice, and major instruments are required of all music majors. A private interview and a placement test are required in music theory to determine the level of study. Advanced placement is possible.

Music Majors transferring from another institution must pass proficiency tests on their major and secondary instruments, piano, and conducting.

For detailed requirements and course sequence for music majors and minors, consult the Music Department Handbook with the Department Chairman.

### **GENERAL REQUIREMENTS FOR ALL MAJORS IN PERFORMANCE AND IN THEORY AND COMPOSITION**

*Semester  
Hours  
Minimum*

12 — ENGLISH.

12 — MUSIC LITERATURE AND HISTORY (exception: Ballet majors take 3124, 2121, 2122, and History of Ballet 2243 and 2344).

- 3 — SPEECH (Not required of Theory-Composition and Keyboard Instrument Majors; Ballet Majors also take Drama 3213).
- 6 — HISTORY 3101, 3102.
- 6 — POLITICAL SCIENCE 3110, 3111.
- 8 to 24 — THEORY 2111, 2112; 1111, 1112, 3113, 3114; 1211, 1212, 3213, 3214; 2315; 2411 or 2412 (Ballet Majors, 8 semester hours only; Theory-Composition Majors, 17 additional hours; Keyboard Majors, 5 additional hours; Orchestra-Band Instrument and Voice Majors, 2 additional hours.)
- 6 — MUSIC EDUCATION 3331, and 3333 or 3435 (exception: Theory-Composition requires only 3331 or 3333; Ballet Major requires 3331 and 3435; Vocal Performance Major requires Vocal Pedagogy 2493 in addition).
- 8 — FOREIGN LANGUAGE 4101, 4102 (required only of Performance Majors in Voice and Ballet; Ballet Majors, French recommended. In addition, Diction 3190 required of Vocal Performance Majors).

**APPLIED MUSIC:**

- A. 40 — for Theory-Composition Majors: 16 semester hours of major instrument; 14 semester hours of class lessons in orchestra and band instruments; Vocal Pedagogy 2493 or Voice Class 2173; minimum proficiency of Piano 2272 must be achieved; final composition project.
- B. 38 — for Keyboard Performance Majors: 32 semester hours of the 4161 or the 4191 sequence on the major instrument (4462 or 4492 must be completed); 4 semester hours, or equivalent, of Chamber Music and Accompanying (3 of Accompanying; Voice, 4 hours; Piano Pedagogy 2494).
- C. 40 — for Orchestra-Band Instrument Performance Majors: 32 semester hours of the 4161 or 4191 sequence on the major instrument (4462 or 4492 must be completed); Proficiency of Class Piano 2272 required; 4 semester hours of Chamber Music. (Exception: Not required of Guitar Majors.)
- D. 36 — for Vocal Performance Majors: 24 semester hours of the 3161 or 3191 sequence (must complete 3462 or 3492); 4 semester hours of Music Theater Workshop; 8 semester hours, or equivalent, of Piano.
- E. 37 — for Ballet Performance Majors: Ballet Technique 3141-42; 1241, 1242, 3241, 3242, 3341, 3342; 3441-42; Choreography 3444; 8 semester hours, or equivalent of piano.

Participation for 8 semesters or each semester in residence in the ensemble of the major instrument (Ballet Majors add 2 semesters of Chorus). For exceptions, petition the Music Faculty in writing.

Qualified bandsmen interested in preparing to direct orchestra must meet minimum participation requirements in orchestra, and vice-versa.

Recital participation and/or attendance is required every semester in residence, and is considered laboratory for other music courses. Performance Majors must present a full graduation recital approved by the Music Faculty.

**ELECTIVES:** To make a minimum total of 123 semester hours for Performance Majors, including 30 advanced hours. (Ballet Majors take 21 semester hours of electives [Art 3105, 3106 are recommended], to total 129 semester hours.)

**NOTE:** Requirements of the Music Education Plan are listed under All-Levels Teacher Programs.

## Bachelor of Fine Arts

Fields in which a student may major or minor:

Art History (Major or Minor)

### MAJOR

#### Area I, Two-dimensional

Painting  
Printmaking

#### Area II, Three-dimensional

Ceramics  
Metals  
Sculpture

### MINOR

Painting  
Printmaking

Crafts  
Ceramics  
Art Education  
Enamels  
Sculpture

#### Basic Requirements in Liberal Arts Area:

6 hrs. Freshman Composition

6 hrs. History 3101 and 3102:

6 hrs. Political Science 3110 and 3111

3 hrs. Block A — Fine Arts:

6 hrs. Block B — Social Sciences:

9 hrs. Block C — Humanities:

6 hrs. Block D — Natural Sciences:

English 3111 and 3112, or  
Linguistics 4111 and 4112

History of U.S. to 1865 and  
History of U.S. since 1865

Drama 3113 or Music 3113

Anthropology, Economics, Political Science,  
Psychology, or Sociology\*

English, Foreign Languages, History,  
Philosophy, or Speech\*

Biology, Chemistry, Geology, Mathematics  
or Physics\*

\*No student may present courses from only one subject matter area to fulfill all requirements of Blocks B, C, or D.

42 hrs. Liberal Arts Area

#### Basic Requirements in Fine Arts — Art Area:

12 hrs. Basic Studies:

9 hrs. Art History:

24 hrs. Major Area:

18 hrs. Minor Area:

18 hrs. Drawing Area:

6 hrs. Opp. Dimensional Area:

6 hrs. Art Electives:

93 hrs. Fine Arts Area — Art\*\*

42 hrs. Liberal Arts Area

135 hrs. Minimum Total for a B.F.A. in Art

Art 3101 Design I, Art 3102 Drawing I  
Art 3103 Design II, Art 3104 Drawing II

Art 3105 Art History Western World I

Art 3106 Art History Western World II

Art 3209 History of Contemporary Art

e.g. Painting I through VIII

e.g. Printmaking I through VI

Life Drawing I through IV and

Adv. Drawing Techniques I and II

2 out of 3 in Ceramics, Metals, or

Sculpture

Art hours outside Major and Minor

\*\*Senior candidates for a B.F.A. will be required to have a graduating exhibition.

The Art Department reserves the right to require additional art hours if a student shows inadequate progress in his area.



## ART

CLARK H. GARNSEY, *Chairman*  
 Professors GARNSEY, HARRISON, MASSEY  
 Associate Professor ARNOLD, COOGLER

*Assistant Professors* BISHOP, JANZEN, MUNZ;

**B.A. Degree** — Art courses required for a Major in Art are: Art 3101, 3102, 3103, 3104, 3105, 3106, plus three (3) 3200 number courses in one area and two (2) 3200 number courses in the other area plus additional hours to make a total of twelve (12) advanced hours in Art.

**B.F.A. Degree** — A professional degree in Art; 93 hrs., Arts area, 42 hrs., Liberal Arts. See Bachelor of Fine Arts Degree plan on preceding pages.

**B.A. Degree with Teacher Certification** (see page 150) — Art Majors are required to meet with the Department Head upon accumulating 60 semester hours credit to outline their remaining major program.

**All-Levels Teacher Certification Program** — See page 150.

See Graduate Sections for courses that are approved for credit in the Master's degree programs.

The Art Department reserves the right to retain student work.

Senior candidates for the B.F.A. Degree, will be required to have a graduating exhibition.

An overall grade point average of 2.5 in the arts will be required for graduation.

**Area I, Two-dimensional**

Painting I — VIII

Printmaking I — VIII

Life Drawing I — IV

Advanced Drawing — VIII

Advanced Drawing — I-VIII

**Area II, Three-dimensional**

Sculpture I — VIII

Metals I — VIII

Ceramics I — VIII

Enamels I — VI

Crafts I — VI

### For Undergraduates

*General prerequisite:* Junior standing for all 3300 or 3400 level courses.

**3100 Art Appreciation (3-0)**

A course, with slides and text, designed to give the general university student an understanding of the great historic styles in the Arts. May be used by art majors as elective credit only.

### ART EDUCATION

**3311 Practicum and Theory for the Elementary Self-Contained Classroom Teacher (2-4)**

An intensive examination of basic art materials and their application in aiding creative and esthetic growth in the Elementary school child. *Prerequisite or concurrently:* Ed Psych. & Guid. 3301.

**3312 Methodology and Theory for Secondary School Art Education Specialists (2-4)**

A study of the literature, materials and theory of Secondary School Art Education. *Prerequisite:* Education 3310.

**3321 Methodology, Materials and Theory for Elementary School Art Education Specialist (2-4)**

A survey of materials, methodology and research related to the teaching of Elementary School Art Education. *Prerequisite:* Art 3311 Offered fall and 1st summer/summer term.

**3322 Advanced Theory of American Public Secondary School Art Education (3-0)**

An intensive survey of the Sociological, Psychological, Philosophical and Historical foundations of American public school Art Education. *Prerequisite:* Art 3312 Offered spring and 2nd summer term.

**BASIC STUDIES**

- 3101 **Basic Design I**  
Problems in color mixing, utilizing various color theories and color scales. Special projects stressing color relationships. 6 hours in studio per week.
- 3103 **Basic Design II**  
Compositional color structure; emphasis upon varied media and materials, and upon two-dimensional color problems. *Prerequisite:* Design I. 6 hours in studio per week.
- 3102 **Basic Drawing I**  
Stress upon achieving mastery of basic drawing skills including study of proportion, scale, light and shade rendering, and control of illusion of space. Experimentation of drawing media. Suggested: Take concurrently with Design I. 6 hours in studio per week.
- 3104 **Basic Drawing II**  
Compositional factors in drawing, to include a continuation of *basic skill studies*, directing these skills toward achieving two-dimensional structure. Stress of shape factors. Suggested: Take concurrently with Design II. *Prerequisite:* Drawing I. 6 hours in studio per week.

**CERAMICS**

- 3204 **Ceramics I (\$8)**  
Exploring the design principles in the clay media, with major emphasis on hand building in stoneware; an introduction to potter's wheel techniques and glaze theory and application. *Prerequisites:* Basic Design I and II, Basic Drawing I and II. 6 hours in studio per week.
- 3214 **Ceramics II (\$8)**  
Stressing wheel production for perfection of the throwing techniques. Emphasis toward increasing the student's proficiency, control, and esthetic development. Kiln firing. *Prerequisite:* Ceramics I, or permission of instructor. 6 hours in studio per week.
- 3304 **Ceramics III (\$8)**  
Emphasis on the chemistry and formulation of glazes used at varying temperatures; triaxial blending, empirical formulas. Special decorating techniques. *Prerequisite:* Ceramics II, or permission of the instructor. 6 hours in studio per week.
- 3314 **Ceramics IV (\$8)**  
Exploration of clay from the non-utilitarian aspect, stressing sculptural relationship of joined forms, both thrown and hand built. Research into clay and clay bodies. *Prerequisite:* Ceramics II, or permission of instructor. 6 hours in studio per week.
- 3324 **Ceramics V (\$8)**  
Stress placed on utilitarian forms and techniques of production; slip-casting, jiggering, and moulding; added experience in clay body formulation for specific design problems. *Prerequisite:* Ceramics IV, or permission of instructor. 6 hours in studio per week.
- 3404 **Ceramics VI (\$10) (Formerly Art 3405)**  
Emphasis placed on the studio aspect of production, including kiln materials, kiln construction, potter's wheels; problems involved with studio function. *Prerequisite:* Ceramics V or permission of instructor. 6 hours in studio per week.
- 3414 **Special Problems in Ceramics (\$10)**  
Stress of individual direction and achievement. *Prerequisite:* 4 courses in ceramics or permission of instructor. May be repeated for credit if problems vary. Minimum of 6 hours in studio per week.
- 3504 **Graduate Problems in Ceramics (\$10) (Formerly 3502)**  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in ceramics.

## CRAFTS

- 3206 **Crafts I (\$8)**  
A course involving explorations of techniques in leather, wood, weaving, elementary problems in metal not requiring complicated tools or equipment, plastics, basketry, etc. *Prerequisites:* Art 3101, 3102, 3103, 3104. 6 hours in studio per week.
- 3216 **Crafts II (\$8)**  
A continuation of the above with more advanced problems; geared to those who will be involved in community craft programs, etc. *Prerequisites:* Art 3206. 6 hours in studio per week.
- 3306 **Crafts III (\$8)**  
Continuation of Art 3216. *Prerequisite:* Art 3216. 6 hours in studio per week.
- 3316 **Crafts IV (\$8)**  
Continuation of Art 3306. *Prerequisite:* Art 3306. 6 hours in studio per week.
- 3406 **Crafts V (\$10)**  
Continuation of Art 3316. *Prerequisite:* Art 3316. 6 hours in studio per week.
- 3416 **Special Problems in Crafts (10)**  
Stress of individual direction and achievement. *Prerequisite:* 4 courses in Crafts. May be repeated for credit if problems vary. A minimum of 6 hours in studio per week.
- 3506 **Graduate Problems in Crafts (\$10)**  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in crafts.

## ENAMELS

- 3215 **Enamels I (\$8)**  
Basic techniques in enameling. Experimentation in firing and application of enamel to non-ferrous metals. Execution of designs to jewelry and hollow ware forms. *Prerequisites:* Metals I and II, Painting I. 6 hours in studio per week.
- 3217 **Enamels II (\$8)**  
Continuation of Enamels I. *Prerequisite:* Enamels I. 6 hours in studio per week.
- 3315 **Enamels III (\$8)**  
Advanced techniques in Enameling. Thorough exploration of processes on various metallic surfaces and combination of materials. *Prerequisite:* Enamels II. 6 hours in studio per week.
- 3327 **Enamels V (\$8)**  
Investigation of contemporary methods of industrial enameling. Techniques and materials, experimentation with means of adapting these methods to studio work. Exploration of enameling as an architectural design material in sculpture and murals. *Prerequisite:* Enamels IV, Advanced Design II, Painting II, Sculpture II, or permission of the instructor. 6 hours in studio per week.
- 3415 **Enamels VI (\$10)**  
Continuation of Enamels V. *Prerequisite:* Enamels V, or permission of the instructor. 6 hours in studio per week.
- 3417 **Special Problems in Enameling (\$10)**  
Advanced problems with exploration of design theories and construction of tools and furnaces for an enameling studio. *Prerequisite:* Enamels VI or permission of the instructor. A minimum of 6 hours in studio per week. May be repeated for graduate credit if problems vary.
- 3517 **Graduate Problems in Enamels (\$10) (Formerly 3502)**  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in Enamels.

### HISTORY OF ART

#### Basic Studies:

- 3105 **Art History of the Western World I (3-0)**  
A critical and analytical study of the great historical works of art in the western world in architecture, sculpture, painting and the minor arts, from prehistoric period to the Renaissance.
- 3106 **Art History of the Western World II (3-0)**  
A critical and analytical study of the great historical works of art in the western world in architecture, sculpture, painting and the minor arts, from Renaissance to the present.
- 1101 **History of Ethnic Art (1-0)**  
A comparative survey of the visual arts of the black peoples, involving Africa, India, the Pacific Regions, and the influences these areas have had on the arts of the Americas.
- 3209 **History of Contemporary Art (3-0)**  
A course investigating in depth the causes and forms of architecture, painting, sculpture and the minor arts from 1789 to the present. *Prerequisite:* Sophomore standing.
- 3309 **History of American Art (3-0) (Formerly Art 3317)**  
A study of the principle monuments of architecture, painting, sculpture, and the minor arts of the United States from the 1600's to the present. Various European and native influences will be emphasized. *Prerequisites:* Junior standing.
- 3310 **History of Latin-American Art (3-0)**  
A study of architecture, painting, sculpture and the minor arts of Latin America from 1492 to the present, with emphasis in the arts of Mexico. *Prerequisite:* Junior standing.
- 3409 **Research Problems in Art History (3-0) (Formerly 3402)**  
A course for the advanced student which will allow him to explore various phases of *Art History* beyond the regular offerings. Seminars and papers will be required. May be repeated for credit if problems vary. *Prerequisite:* Art History 3106, 3107.
- 3509 **Graduate Problems in Art History (3-0) (Formerly 3502)**  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in Art History.

### LIFE DRAWING

- 3208 **Life Drawing I (\$8)**  
Fundamentals of drawing the human figure with strong emphasis upon anatomical structural studies. *Prerequisites:* Basic Design I and II, Basic Drawing I and II. 6 hours in studio per week.
- 3218 **Life Drawing II (\$8)**  
Study of the human figure with emphasis upon the rendering of form by use of light and shade, and contour line. *Prerequisite:* Life Drawing I. 6 hours in studio per week.
- 3308 **Life Drawing III (\$8)**  
Continuation of Life Drawing II, with variation of media. *Prerequisites:* Life Drawing I, II, or permission of the instructor. 6 hours in studio per week.
- 3318 **Life Drawing IV (\$8)**  
Emphasis upon esthetic factors in interpreting the human form, with group study composition stressed. *Prerequisites:* Life Drawing I, II, III, or permission of the instructor. 6 hours in studio per week.

### ADVANCED DRAWING

- 3410 **Advanced Drawing I (\$10)**  
Investigation and study of traditional and modern drawing media, with the purpose of exploiting the expressive qualities of these media. *Prerequisites:* Life Drawing I and II. 6 hours in studio per week.

- 3420 **Advanced Drawing II** (\$10)  
Continuation of Advanced Drawing I. *Prerequisite:* Advanced Drawing I. 6 hours in studio per week.
- 3510 **Graduate Problems in Advanced Drawing** (\$10) (Formerly 3502)  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in drawing.

## METALS

- 3203 **Metals I** (\$8)  
A basic course in jewelry design and construction. The fundamentals of working in metals and materials; basic aspects of casting. *Prerequisites:* Basic Drawing I and II, Basic Design I and II. 6 hours in studio per week.
- 3213 **Metals II** (\$8)  
Continuation of Metals I, with emphasis on techniques and materials. *Prerequisite:* Metals I. 6 hours in studio per week.
- 3303 **Metals III** (\$8)  
A basic course in jewelry construction, using casting techniques. Special emphasis on lost wax methods and experimenting in various metallic alloys, other than gold and silver. *Prerequisite:* Metals II. 6 hours in studio per week.
- 3313 **Metals IV** (\$8)  
Continuation of Metals III. *Prerequisite:* Metals III. 6 hours in studio per week.
- 3323 **Metals V** (\$8)  
A basic course in silversmithing. The design and construction of simple hollow and flatware forms. Methods of finishing and coloring. The application of casting techniques to silversmithing. *Prerequisite:* Metals IV. 6 hours in studio per week.
- 3403 **Metals VI** (\$10) (Formerly Art 3407)  
Continuation of Metals V. *Prerequisite:* Metals V. 6 hours in studio per week.
- 3413 **Special Problems in Metals** (\$10)  
Advanced techniques in jewelry design and construction. Methods of gem cutting, identification, and setting. Advanced techniques in silversmithing. Exploration of design theories and construction of tools and devices for hollow ware and flatware production. *Prerequisite:* Metals VI and permission of instructor. Minimum of 6 hours in studio per week. May be repeated for credit if problems vary.
- 3503 **Graduate Problems in Metals** (\$10) (Formerly 3502)  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in Metals.

## PAINTING

- 3201 **Painting I**  
Painting in oil, with concentration upon learning paint characteristics and the handling of painting tools. *Prerequisite:* Art 3101 and 3103. 6 hours in studio per week.
- 3231 **Painting II** (\$4)  
Painting in varied media, with concentration upon learning the inherent characteristics and the handling of painting tools. *Prerequisite:* Painting I. 6 hours in studio per week.
- 3301 **Painting III** (\$4)  
Development of visual structure in painting with emphasis upon studies of color structure systems. *Prerequisite:* Painting II. 6 hours in studio per week.
- 3331 **Painting IV** (\$4)  
Concentration on specific problems involving form, color, structure with emphasis upon clear expression of artistic intent. *Prerequisite:* Painting III. 6 hours in studio per week.
- 3341 **Painting V** (\$4)  
Investigation on depth of materials and techniques of painting, to include study of all major areas of painting media and their development. *Prerequisite:* Painting IV. 6 hours in studio per week.

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- 3401 **Painting VI (\$6) (Formerly Art 3406)**  
Continuation of Painting V. *Prerequisite:* Painting V. 6 hours in studio per week.
- 3431 **Special Problems in Painting (\$6)**  
Stress of individual direction and achievement. *Prerequisite:* a minimum of 4 courses in painting. May be repeated for credit if problems vary. A minimum of 6 hours in studio per week.
- 3501 **Graduate Problems in Painting (\$6) (Formerly Art 3502)**  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in painting.

**PRINTMAKING**

- 3205 **Printmaking I (\$4)**  
An examination of the various printmaking techniques — etching, engraving, drypoint, aquatint, and the execution of original works in these media. *Prerequisite:* Art 3101 and 3103. 6 hours in studio per week.
- 3225 **Printmaking II (\$4)**  
Continuation of Printmaking I, with emphasis upon execution of original works. *Prerequisite:* Printmaking I. 6 hours in studio per week.
- 3305 **Printmaking III (\$4)**  
Concentrated work in printmaking media including collography, serigraphy, and various relief processes and the planographic processes. *Prerequisite:* Printmaking II. 6 hours in studio per week.
- 3325 **Printmaking IV (\$4)**  
*Concentrated work in printmaking media including collography, serigraphy, and various relief processes and the planographic processes. Prerequisite:* Printmaking III. 6 hours in studio per week.
- 3335 **Printmaking V (\$4)**  
A continuation of Printmaking IV, with emphasis on lithography. *Prerequisite:* Printmaking IV. 6 hours in studio per week.
- 3405 **Printmaking VI (\$6) (Formerly Art 3409)**  
Special problems in printmaking. *Prerequisite:* 4 courses in printmaking. A minimum of 6 hours in studio per week.
- 3425 **Special Problems in Printmaking (\$6)**  
Stress of individual direction and achievement. *Prerequisite:* 4 courses in printmaking. A minimum of 6 hours in studio per week. May be repeated for credit if problems vary.
- 3505 **Graduate Problems in Printmaking (\$6) (Formerly Art 3502)**  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in printmaking.

**SCULPTURE**

- 3202 **Sculpture I (\$8)**  
Basic fundamentals of working from the figure in clay, plaster, and related materials. *Prerequisite:* Art 3101 and 3103. 6 hours in studio per week.
- 3232 **Sculpture II (\$8)**  
Continued work with fundamental techniques. Introduction to mould-making and simple casting in plaster, plastic, cement, etc. *Prerequisite:* Sculpture I. 6 hours in studio per week.
- 3302 **Sculpture III (\$8)**  
Experimentation with welding, plastics, and bronze and aluminum casting. *Prerequisite:* Sculpture II. 6 hours in studio per week.
- 3332 **Sculpture IV (\$8)**  
Experimentation in individual directions with a few problems related to practical application of sculpture to our environment. *Prerequisite:* Sculpture III. 6 hours in studio per week.

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- 3342 **Sculpture V** (\$8)  
Continued individual investigation into advanced sculpture involving contemporary techniques and materials. *Prerequisite:* Sculpture IV. 6 hours in studio per week.
- 3402 **Sculpture VI** (\$10) (Formerly Art 3408)  
Emphasis on advanced sculptural design with individual investigation and criticism. *Prerequisite:* Sculpture V. 6 hours in studio per week.
- 3432 **Special Problems in Sculpture** (\$10)  
Stress of individual direction and achievement. *Prerequisite:* 4 courses in sculpture. A minimum of 6 hours in studio per week. May be repeated for credit if problems vary.
- 3502 **Graduate Problems in Sculpture** (\$10) (Formerly Art 3502)  
Stress of individual direction and achievement. *Prerequisite:* Graduate standing in sculpture.

## CRIMINAL JUSTICE

JOSEPH B. GRAVES, JR., *Director*  
Professor JOSPEH B. GRAVES, JR.  
Assistant Professor ERNEST A. GUINN, JR.

The Criminal Justice Program offers an interdisciplinary major that is designed to prepare students for a professional career in Criminal Justice.

### B.S. Degree in Criminal Justice

1. Complete a minimum of 126 semester hours, including at least 36 hours at the advanced level (3300-3400).
2. Complete 81 semester hours of academic core courses as follows.

#### Semester Hours

#### Course

- |    |   |
|----|---|
| 9  | English Composition 3111, 3112, 3269  |
| 6  | History 3101, 3102  |
| 15 | Political Science 3110, 3111, 3250, 3328, 3329  |
| 18 | Sociology 3101, 3102, 3258, 3327, 3333, 3348  |
| 6  | Psychology 3101, 3212   |
| 3  | Speech 3101   |
| 12 | Natural Science and/or Mathematics<br>Mathematics, Physics, Biology, Chemistry, Geology |
| 8  | Foreign Language: French, German, Spanish, Russian, Italian, Japanese, Portuguese       |
| 4  | Physical Education Activities   |
3. Complete 15 semester hours of electives approved by the Director of the Criminal Justice Program. At least 3 hours must be at the advanced level.
  4. Complete a minimum of 30 semester hours in Criminal Justice, including the following required courses in Criminal Justice: 3101, 3200, 3201, 3205, 3302, 3303, 3304.
  5. Complete additional courses prescribed by the Director of the Criminal Justice Program.

### For Undergraduates

General Prerequisite: Junior standing for all 3300 or 3400 level courses.

#### Basic Courses (Required for all majors.)

- 3101 Introduction of Criminal Justice (3-0)**  
Development and philosophy of criminal justice in a democratic society, introduction to agencies involved in the administration of criminal justice.
- 3200 Legal Aspects of Law Enforcement (3-0)**  
History and philosophy of modern criminal law, including the structure, definition and application of statutes and leading case law; the elements of crimes and penalties; general provisions of the Penal Code.
- 3201 Criminal Investigation (3-0)**  
Introduction to the fundamentals of criminal investigation, including theory and history, conduct at crime scene, collection and preservation of evidence.
- 3205 Criminal Procedures and Evidence (3-0)**  
Introduction to the rules governing the admissibility of evidence and types of evidence; criminal procedure in various courts; review of the Texas Code of



Criminal Procedure, including laws of arrest, search and seizure, and leading case law in each topic.

- 3302 Police Organization and Administration (3-0)**  
Principles of organization and management as applied to law enforcement agencies, introduction to concepts of organizational behavior.
- 3303 Police Role in Crime and Delinquency (3-0)**  
Introduction to deviant behavior and current criminological theories with emphasis on synthesis and police applications; crime prevention and the phenomena of crime.
- 3304 Police-Community Relations (3-0)**  
The role of the individual officer in achieving and maintaining public support; human relations, public information, relationships with violators and complainants.
- In addition to the basic courses required of all majors, a major must select at least 3 courses from the following:**
- 3305 Penology: The American Correctional System (3-0)**  
Analysis and evaluation of contemporary correctional systems, discussion of recent research concerning the correctional institution and the various field sciences. *Prerequisite:* Sociology 3348, Criminology or consent of instructor.
- 3306 Probation and Parole (3-0)**  
Development, organization, operation and result of systems, discussion of probation and parole as substitutions for incarceration; methods of selection; prediction scales, *Prerequisite:* Sociology 3348, Criminology or consent of instructor.
- 3307 Criminalistics (3-0)**  
This course covers the study of general criminalistics, with particular attention given to scientific crime detection methods; the crime scene search, and methods and devices used in the examination of evidence.
- 3308 Juvenile Procedures (3-0)**  
The organization, functions, and jurisdiction of juvenile agencies, the processing and detention of juveniles, case disposition; juvenile statutes and court procedures.
- 3309 Correctional Counseling (3-0)**  
Methods used by correctional officers in rehabilitating criminal offenders. *Prerequisite:* 6 hours of Psychology.
- 3400 Selected Topics in Criminal Justice (3-0)**  
This course covers the problems related to the management and operation of law enforcement agencies; the special problems of industrial, mercantile, and military security organizations. This course may be repeated for credit when the topics vary.
- 3401 Readings in Criminal Justice (3-0)**  
This course is designed for the advanced student who is capable of independent study. Existing regulations, both formal and informal, which govern practitioners in the area of criminal justice will be examined. This course may be repeated for credit when the topics vary.
- 3410 Internship in Criminal Justice (3-0)**  
A program in which the student is assigned two days (or 16-20 hours) each week to a criminal justice agency. A weekly seminar is also required. Designed to provide the student with an opportunity to apply academic training in practical situations. *Prerequisite:* Consent of the Director of the Criminal Justice Program.
- 3425 Moot Court (3-0)**  
Substantive and procedural problems encountered in a criminal court proceeding. Focus will be on the role of the law enforcement and correctional officer in the judicial process. *Prerequisite:* Criminal Justice 3200, 3205, or consent of the instructor.

## DRAMA & SPEECH

H. N. WILLIAMS, *Chairman*  
Professors LEECH, WILLIAMS, WINGATE  
Associate Professors PEROZZI, WOOD;  
Associate Professors ETHERIDGE, PEROZZI, WOOD;  
Assistant Professors MICULKA, MIDDLETON, RONKE, TUCKER;  
Adjunct Assistant Professors DALZELL, KNOTT, DAWSON, Di SALLE

### FOR UNDERGRADUATES

**B.A. Degree:** Majors in Drama must take the following courses:

- (1) **Drama 3113: Introduction to Theatre**
- (2) **Speech 3103: Voice and Articulation and 1103: Lab.**
- (3) **Drama 3110, 3210, 3310 and 3410.**
- (4) **In addition, majors must take 19 additional hours of drama (Speech 1101, 3205, 3290 and/or 3491 may be included), 12 of which must be advanced hours (3300-3400 level).**

**B.A. Degree:** Majors in Speech must take a total of 30 hours of which 15 hours are at the advanced level (3300-3400). Majors must include Speech 3101 and a choice of one from each of the following pairs: 3103 or 3205; 3221 or 3222; 3220 or 3206, to make a total of 12 hours.

**B.A. Degree:** Majors in Speech Hearing, and Language Disorders must enroll under one of the following plans:

**PLAN I:** Non-state certification program

- (1) SHLD 3110, 3210, 3312, 3313, 3314, 3315, 3316, 3409, 3410, and 3441.
- (2) A minimum of 125 hours of clinical practicum (may be taken in conjunction with SHLD 3441.)
- (3) One of the following clusters:
  - a. 3313, 3314, 3315, and 3316.
  - b. 3317, 3465, 3467, plus 3 advanced hours selected by advisor.
  - c. 3465, 3467, plus 6 advanced hours selected by advisor.

**PLAN II:** Texas Certification in Speech and Hearing Therapy Program.

- (1) SHLD 3110, 3210, 3312, 3313, 3314, 3315, 3409, 3410, and 3441.
- (2) Education Psychology & Guidance 3409.  
Education Curriculum and Instruction 3496 and 3498.
- (3) 12 additional hours in upper division education courses (3300-3400).
- (4) 200 hours of clinical practicum (100 hours obtained in conjunction with Education 3496 and 3498; and 100 hours may be in conjunction with SHLD 3441.)

### For Undergraduates and Graduates

#### DRAMA

**1111 Basic Theatre Practice (0-4)**

The laboratory for Drama 3113. Practical laboratory experience in all phases of production of major plays for public presentation. May be taken four semesters for credit.

**3110, 3210, 3310, 3410 (0-12) Theatre Co. & Production Process**

This sequence of courses through which the major performances of the theatre season will be produced. All students who plan to participate as actors or technicians in the major season should enroll at the appropriate level; each course is prerequisite to the one that follows. Entering freshmen drama majors must take Drama 3110 in their first semester. Offered each semester.

**3213 Acting I 2-4)**

A lecture-laboratory course in which a student may develop his ability to analyze a character and create a role.

- 3413 **Acting II (2-4)**  
Detailed study of characterization and styles of acting through assignment of individual roles and group rehearsal of scenes. *Prerequisite:* Drama 4213.
- 3215 **Summer Theatre Workshop (2-4)**  
A lecture-laboratory course in all phases of drama and theatre, which emphasis on the techniques and procedures of summer theatre operation. Registration in the course enrolls the student in the summer repertory group. May be repeated for credit. Offered in the summer only.
- 3220 **Visual Style in the Performing Arts (2-4)**  
A survey of period and national styles of theatre architecture, scenery, costumes, furniture, and accessories used in Western performing arts from the earliest times to the present. The course is designed to appeal equally to students of art, dance, drama, and opera.
- 3221 **Stagecraft (2-4)**  
Introduction to and practice in stage methodology. Includes basic instruction in stage design and structure.
- 3225 **Directing I (2-4)**  
Analysis of the role of the director in contemporary theatre production. Students will be required to plan and produce a one-act play for presentation.
- 3326 **Directing II (2-4)**  
Study of techniques of direction in various styles, modes, and periods, together with analysis of the problems of the producer and theatre manager. *Prerequisite:* Drama 4225.
- 3290 **Introduction to the Art of the Motion Picture (3-0)**  
The historical evolution of motion pictures, and the techniques of the medium. Significant motion pictures from different films illustrating various techniques and genres are shown and discussed.
- 3332 **Design I (2-4)**  
A lecture-laboratory course designed to develop skill in science drafting and mechanical perspective, together with knowledge of construction materials and scene-shifting methods. *Prerequisite:* Drama 4221; Stagecraft.
- 3332 **Design II (2-4)**  
A lecture-laboratory course designed to develop skill in scienc rendering together with knowledge of period scenery, ornament, and interior decoration as used in all the performing arts. *Prerequisite:* Drama 4221; Stagecraft.
- 3340 **A History of Costume (2-4)**  
A study of costume from the earliest times to the present and its use on the stage. Practical experience in designing and executing costumes for actual production.
- 3342 **Lighting (2-4)**  
A history of lighting and an analysis of contemporary lighting techniques. Practice in designing and executing the lighting for major productions.
- 3350 **Creative Drama (2-4)**  
Methods of developing original dramatizations with children and of creating plays from children's literature.
- 3357 **The Early Theatre (3-0)**  
Study of theatre art from earliest times to 1642. Discussion of plays, playwrights, actors, costumes, and scenic arts of each historical period.
- 3358 **The Modern Theatre (3-0)**  
Study of theatre art from 1642 to the present.
- 3418 **Playwriting (3-0)**  
Principles of writing for stage presentation.
- 3440 **Seminar in Drama and Theatre**  
Independent research, production projects, and writing guided by a senior faculty member through weekly class meetings, and through special laboratory work in the theatre.

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**3491 Motion Pictures to Inform and Persuade**

The uses and techniques of the documentary film. The use of both fiction and non-fiction film as instruments to influence public opinion. Persuasion theory and film theory are applied in analysis of films shown in class. Offered second semester.

**SPEECH**

**1101 Choral Reading (0-2)**

A course for the study and oral interpretation of literature and drama, with emphasis on group performances. May be taken four times for credit.

**1103 Speech Laboratory (0-4)**

The laboratory for Speech 3103. Practice in the production of English sounds through the use of recording equipment and special instruction. May not be counted in addition to Speech 3104 or 1104. May be taken twice for credit.

**1104 Bilingual Laboratory (0-2)**

The laboratory for students who are enrolled in Speech 3104, and for students who have received the grade of P (In Progress) in Speech 3104. Practice in the production of English sounds through the use of recording equipment and special instruction. Students who have already taken Speech 3104 and have received a grade of P may, with permission of the department chairman, take Speech 1104 in conjunction with a bilingual section of Speech 3101.

**3101 Public Speaking (3-0)**

Study and practice of the inventing, arranging, phrasing, and presenting of ideas to audiences.

**3102 Business and Professional Communication. (3-0)**

A course designed to train business majors and other in the theory and practice of interpersonal communications. Emphasis is on communications problems arising in small groups such as might be found in the business and professional world.

**3103 Voice and Articulation (3-4)**

A course designed to improve the student's speech, to study phonemic concepts and the phonetic alphabet, and to examine major dialects of English, including stage speech. The required laboratory for this course is Speech 1103; Speech Laboratory.

**3104 Speech for the Bilingual Student (3-4)**

A course designed for the bilingual student who wishes to improve his communication. It includes a study of the sound system, the stress pattern, the timing, and the melody of American English. Laboratory periods are required in preparation for an oral proficiency examination which is administered at the end of each semester. The results of this examination are determined by a faculty panel. The required laboratory is Speech 1104.

**3205 Oral Interpretation (3-2)**

Study and practice of the techniques of oral interpretation of literature. The required laboratory for this course is Speech 1101: Choral Reading.

**3206 Introduction to Speech Communication (3-0)**

A critical examination of verbal and non-verbal behavior as constituents of the human communication process. Comparison and contrast of the structures and content elements of personal, interpersonal, and public discourse. Emphasis on speaking and listening as the coordination of perception and expression.

**3220 Introduction to Rhetoric and Public Address (3-0)**

Emphasis on understanding basic concepts of persuasion theory drawn from classical sources and recent findings in speech and social psychology. Model speeches are analyzed. Some attention is given to historical development of rhetorical theory. Lecture and class discussion; not a practice course in public speaking.

**3221 Argumentation (3-0)**

Understanding and using the techniques of logical appeal: analysis of propositions, discovery of arguments, use of evidence and inference, refutation, detection of fallacies and stratagems. Exercises include team preparation of briefs, presentation of several speeches, analysis and refutation of other students'

- on analysis of and adaptation to audiences, manipulation of emotional and motivational states of the audience, and enhancing the persuader's image. Main concern is with public speaking, but application of persuasive techniques in other forms of communication is discussed. Preparation and presentation of a variety of speeches.
- 3290 Introduction to the Art of the Motion Picture (3-0)**  
The historical evolution of motion pictures, and the techniques of the medium. Significant motion pictures from different periods and films illustrating various techniques and genres are shown and discussed.
- 3305 Oral Interpretation: Problems and Projects (3-0)**  
Independent preparation and performance of long and complex programs of oral interpretation. Examination in depth of the esthetic principles of interpretation. *Prerequisite:* Speech 3205.
- 3307 Small Group Communication (3-0)**  
An examination of small group interaction behavior based on research in sociology, psychology, and speech communication. Emphasis on (1) task or decision oriented group work and (2) self-identity or therapeutic oriented group dynamics. Use of the class as a laboratory experience. Examination of group psychotherapy and psychodrama.
- 3308 Organizational and Institutional Communications (3-0)**  
An examination of theory combined with a laboratory approach designed to develop an understanding and proficiency in small group and interpersonal communication within an organizational decision-making context. Emphasis on (1) the discovery of communication barriers, (2) the interviewing techniques and (3) the cybernetic function of the PERT system (Program Evaluation and Review Technique). Direct applications of the material to professional needs, e.g., in business, counseling, or teaching.
- 3316 Semantics (3-0)**  
Study of the ways in which vocal, verbal, gestural, and pictorial symbols achieve meaning for listeners and speakers. Emphasis on general semantics, and on problems in communication.
- 3326 Speech and the Democratic Process (3-0)**  
Study of public speaking in the deliberative assembly, the forensic situation, and the election campaign. Practice in deliberative address. Offered second semester.
- 3333 Speech for the Elementary Teacher (3-0)**  
A course designed to improve the speech of elementary teachers. Includes practice in voice improvement, articulation, story telling, choral speaking, oral interpretation, and discussion. Develops methods of incorporating speech into the elementary curriculum.
- 3334 Speech Education for the Secondary Teacher (3-0)**  
A methods course designed for teachers speech in the secondary school. Emphasis is placed on the development of an effective speech program.
- 3411 Classical Rhetorical Theory (3-0)**  
Study of the evolution of theories of persuasion from pre-Socratic Greece through the Roman empire. Analysis of the contributions to persuasion theory made by Aristotle, Cicero, Quintilian, and other major classical rhetoricians. Offered first semester.
- 3414 Contemporary Rhetorical Theory (3-0)**  
Study of the contributions to theories of persuasion produced by recent research in speech and social psychology.
- 3415 Speech Criticism (3-0)**  
Application of various systems of rhetorical theory to criticism of significant public addresses. Offered first semester.
- 3420 Seminar in Rhetoric and Public Address**  
Independent research, production projects, and writing guided by a senior faculty member through weekly meetings of the entire group of scholars. May be taken only once for credit. Offered second semester.

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speeches.

- 3222 **Persuasion (3-0)**  
Understanding and using the techniques of persuasion, with particular emphasis
- 3421 **Classical Oratory (3-0)**  
A study of orators, issues, and speaking arenas of ancient Greece and Rome, with special emphasis on the rhetorical tradition. Offered first semester.
- 3422 **British Oratory (3-0)**  
Study of orators, issues, and speaking arenas in Great Britain. Offered second semester of alternate years, beginning in 1972-73.
- 3423 **American Oratory (3-0)**  
Study of orators issues, and speaking arenas of the United States of America. Offered first semester of alternate years, beginning in 1972-73.
- 3430 **Seminar in General Speech**  
Independent research, production projects, and writing guided by a senior faculty member through weekly meetings of the entire group of scholars. May be taken only once for credit. Offered first semester.
- 3431 **Problems of Bilingual Phonology**  
Comparative studies in the communicative skills of bilingual speakers from diverse cultures. The course includes actual experience in teaching the parameters of English phonology.
- 3450 **Individual Instruction**  
Instruction of students individually or in small groups in a significant area of rhetorical theory, communication theory, public address, or speech education which is not covered by regular catalog offerings. May be repeated for credit when content varies.
- 3491 **Motion Pictures to Inform and Persuade (3-0)**  
The uses and techniques of the documentary film. The use of both fiction and non-fiction films as instruments to influence public opinion. Persuasion theory and film theory are applied in analysis of films shown in class. Offered second semester.



- 3393 Introduction to Film Production**  
 Basic theory and practice in planning, shooting, and editing films. Emphasis is on creative use of techniques and options in the medium. Most work is with super-8mm stock. *Prerequisite:* Speech/Drama 3290 or 3491, or Journalism 3404, or permission of instructor.
- 3494 Production of Persuasive Films**  
 Application of persuasion theory and film theory to class projects in design and production of persuasive films. *Prerequisite:* Drama/Speech 3490, or Speech 3393, or permission of instructor.

**SPEECH, HEARING, AND LANGUAGE DISORDERS**

- 3110 Phonetics**  
 An introductory course dealing with the fundamental principles of production and recognition of American English sounds. Application to regional dialects, foreign dialects, acting, broadcasting and speech correction. Practice in the use of IPA symbols. Not open to students who enrolled in or have received credit for Linguistics 3110.
- 3210 Survey of Speech, Hearing & Language Disorders (3-0)**  
 A survey of disorders associated with the five parameters of communication—audition, articulation, voice, rhythm, and language. Course will also include discussion of the professional aspects of speech and language pathology and audiology.
- 3312 Anatomy and Physiology of Speech and Hearing Mechanisms(3-0)**  
 A study of the anatomical and physiological bases of speech. Emphasis is placed upon the neurological aspects of speech, as well as upon the speech mechanism. Offered second semester.
- 3313 Speech Therapy (3-0)**  
 Discussion of Therapeutic techniques related to disorders of articulation, voice, and rhythm. *Prerequisite:* SHLD 3210.
- 3314 Language Therapy (3-0)**  
 Discussion of therapy techniques related to disorders of language. *Prerequisite:* SHLD 3210.
- 3315 Language Development (3-0)**  
 Theory and chronology of speech and language acquisition. Psycholinguistic considerations. Distinction between linguistic difference and linguistic defects.
- 3316 Diagnostic Procedures (3-0)**  
 Study of the diagnostic techniques and specific tests utilized in the evaluation of disorders of communications.
- 3317 Instrumentation and Materials (3-0)**  
 Utilization of the instruments and materials common to the habilitation or rehabilitation of disorders of communication.
- 3409 Audiology (3-0)**  
 Basic orientation to audiology. Physics of sound, anatomy of the hearing mechanism, pathology of hearing disorders. Pure tone audimetry; air and bone conduction. Offered first semester.
- 3410 Auditory and Visual Communication**  
 A study of the methods and techniques utilized in the aural rehabilitation or habilitation of the acoustically handicapped. Offered second semester.
- 3411 Speech for the Deaf I**  
 Study of the methods and techniques utilized in helping the pre-school deaf child develop speech.
- 3412 Speech for the Deaf II**  
 Study of the methods and techniques utilized in improving the speech of the deaf child on the primary level. *Prerequisite:* SHLD 3411.
- 3413 Language for the Deaf I**  
 Study of the methods and techniques utilized in helping the pre-school deaf child develop language.

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- 3414 **Language for the Deaf II**  
Study of the methods and techniques utilized in language development on the primary and advanced level. *Prerequisite:* SHLD 3413.
- 3416 **Dactylogy (3-0)**  
The use of sign language and finger spelling in teaching, counseling, and communicating with the manually deaf.
- 3441 **Clinical Practicum in Speech Pathology and Audiology**  
May be taken three times for credit.
- 3465 **Advanced Audiometrics**  
Measurement of hearing acuity with emphasis on Speech Audiometry, hearing aid evaluation, and calibration of instruments. *Prerequisite:* SHLD 3409 and permission of instructor.
- 3467 **Hearing Conservation**  
A study of the methods utilized in industry in Hearing Conservation and measurement of sound levels. *Prerequisite:* SHLD 3409 and permission of instructor.

**SPEECH/ENGLISH**

- 6111 **Communication Skills (6-0)**  
Instruction and guided practice in the preparation of both oral and written compositions, and in study techniques. Taught jointly by the Department of English and the Department of Drama and Speech. To be taken in place of Speech 3101 and English 3111.

**PROGRAM IN CHICANO STUDIES**

- 3335 **Chicano Theatre and Drama**  
Study of theatre arts in South, Central and North America, with particular emphasis on the work of Indian, Mexican, Latin American dramatists and on North American dramatists concerned with Mexican American culture. Discussion of plays, playwrights, actors, costumes, and scenic arts in Mexican American history, *Prerequisite:* Drama 3113, or permission of the department chairman.
- 3345 **The Rhetoric of Chicano Affairs**  
Study of theories of persuasion of rhetoric, orators, issues, and speaking arenas of Mexico and the Southwestern United States, with particular emphasis on the contribution of rhetoric and oratory to Mexican American culture. *Prerequisite:* Speech 3220 or permission of the department chairman.

**For Graduate Students Only**

**M.A. Degree Prerequisites:**

- A. Drama: twelve advanced semester hours (3300, 3400) of undergraduate credit in Drama.
- B. Speech: twelve advanced semester hours (3300, 3400) of undergraduate credit in Speech.
- C. Drama and Speech: six advanced semester hours (3300, 3400) of undergraduate credit in Drama and six advanced semester hours (3300, 3400) of undergraduate credit in Speech.
- D. Speech Pathology or Audiology: twelve advanced semester hours (3300, 3400) of undergraduate credit in disorders of communication.

**M.A. Degree Requirements:**

1. Each candidate for the M.A. degree will be required to make a satisfactory score on a comprehensive examination; at the discretion of the department chairman, a portion of the examination may be a drama and speech performance, or a laboratory demonstration in speech pathology.



2. For majors in Speech or in Drama:
  - A. Majors in Speech must take a minimum of eighteen semester hours in Speech. For majors in Speech electing to do a thesis, six hours of credit (Speech 3598-99: Thesis) may be counted toward a required minimum of thirty hours of total course work, of which at least twenty-one hours must be in courses numbered 3500-99. Majors in Speech electing a non-thesis option must take a minimum of thirty-six hours of total course work, of which at least twenty-seven hours must be in courses numbered 3500-3599.
  - B. Majors in Drama must take a minimum of eighteen semester hours in Drama included in a total of thirty semester hours, of which at least twenty-one hours must be in courses numbered 3500-3599. Students in Drama must do either a research or a production thesis, for which they will receive six hours credit (Drama 3598-99: Thesis) toward these minimum requirements.
3. Majors in combined Drama and Speech must take a minimum of nine semester hours in Speech and nine semester hours in Drama, plus Drama/Speech 3598-99: Thesis. They must take a minimum of thirty semester hours of total course work, of which at least twenty-one hours are in courses numbered 3500-3599.
4. For majors in Speech Pathology or Audiology, 35 semester hours credit or 30 hours with thesis option, a minimum of 24 semester hours of graduate courses in Speech Pathology or Audiology, and a maximum of 9 hours of graduate credit selected in consultation with a departmental advisor. Moreover, each student will complete a clinical internship under the supervision of a faculty member who holds the American Speech and Hearing Association Certificate of Clinical Competence in Speech Pathology of Audiology. The internship will involve a minimum of one hundred and fifty (150) clock hours of supervised clinical practice.

**DRAMA/SPEECH**

3501 Introduction to Graduate Study

3598-99 Thesis

**DRAMA**

3518 **Bibliography, Scholarly Methods, and Aesthetic Principles of Drama and theatre**

Designed to equip the student with effective technique for scholarly research and writing in the field of theatre and drama.

3519 **Graduate Reading**

(May be taken more than once, with a change in area of emphasis). The study of selected topics in the field of Drama and Theatre which may be repeated when the topic changes.

3520 **Contemporary Production**

3522 **Seminar in Design**

3523 **Drama in Human Affairs I**

Drama and theatre from their beginning to the Renaissance as reflections of the history of Western thought.

3524 **Drama in Human Affairs II**

Drama and theatre since the Renaissance as reflections of the history of Western thought.

3525 **Problems in Creative Dramatics and Children's Theatre**

3527 **Seminar in Performance**

(may be taken more than once with a change in area of emphasis).

3528 **Problems in Directing**

3529 **Seminar in Play writing**

(May be taken more than once with a change in area of emphasis). Those taking the course will be expected to make substantial progress toward the completion of a three-act play.

3530 **Seminar in Theatre Technology**

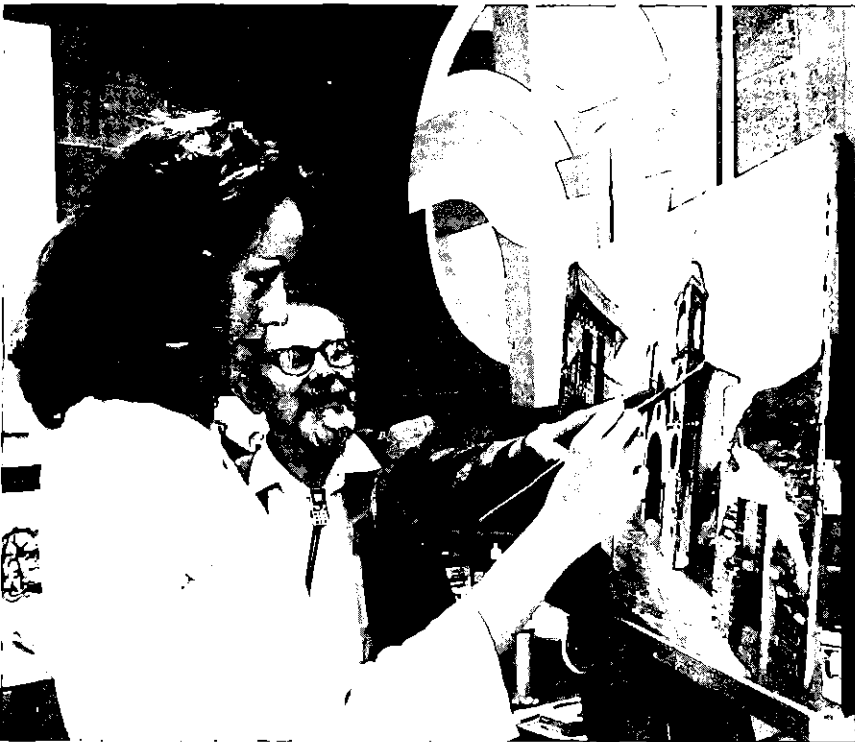
**SPEECH**

- 3530 Rhetoric of the Deliberative Assembly**  
Study of the functions and methods of persuasion in formal and semi-formal groups such as legislatures.
- 3531 Seminar in the Classical Rhetorical Tradition**  
Study of both theory and practice of persuasion and verbal communication during the classical Greek and Roman periods. May be taken more than once with a change in area of emphasis.
- 3532 Seminar in Contemporary Problems in Rhetoric and Public Address**  
Study of the contributions to understanding of persuasion and communication by modern, humanistic theorists, such as Kenneth Burke, I. A. Richards, and Marshall McLuhan. Application of such theory to a variety of contemporary communication events. May be taken more than once with a change in area of emphasis.
- 3541 Speech Education I**  
Develops a perspective on aims and methods for teaching a variety of courses in communication and public speaking at the high school and lower division college levels.
- 3542 Speech Education II**  
Specialized areas of study in history and theory of speech education. Content may vary from a discovery of functional teaching methods drawn from an historical survey of speech education to special training for the prospective director of debate and other extra-curricular events at the high school or college levels.
- 3543 Communication Theory**  
Study of recent non-traditional contributions to theories of human communication. Investigates the application of models, the implications of recent developments in social psychology, and the results of experimental research.
- 3544 Philosophy and Psychology of Language**  
Study of the development and continued evolution of language from the philosophical and psychological study point.
- 3550 Directed Study**  
Investigation of a significant area in rhetorical theory, communication theory, or public address, by individual students or small groups. Instructor will direct research and hold discussions in the area and will evaluate papers or other reports of research submitted by students. May be repeated for credit when content varies.
- 3590 Critical Analysis of Motion Pictures**  
Various functions of the motion pictures medium, such as artistic expression, mass entertainment, and communication to differing limited target audiences. Elements, syntax, and creative options in the medium. Standards for evaluation and analysis of motion pictures. Potential utilization of motion pictures in different academic disciplines.
- 3591 Film as a Medium for Social Influence**  
Use of films for mass persuasion and reinforcement in differing societies. Use of films as specific persuasive messages adapted to distinct target audiences. Application of rhetorical and psychological theory, communication models, and film theory in analysis of specific techniques used in filmic persuasion. Detailed analysis of significant persuasive films. *Prerequisite:* Speech/Drama 3491, or permission of instructor.

**SPEECH PATHOLOGY/AUDIOLOGY**

- 3561 Seminar in Speech Pathology**  
(May be taken more than one time with a change in area of emphasis). Discussion of research methods. Investigation of various topics related to normal and/or deviant aspects of speech and language.
- 3562 Disorders of Language**  
Standardization, reliability, and validity of language tests. Advanced techniques in diagnosis and remediation of language disorders of children.

- 3563 **Organic Speech and Voice Disorders**  
Evaluation and clinical management of voice disorders that are organic in nature or organically based.
- 3564 **Neurological Disorders of Communication**  
Basic Neurophysiology related to communication disorders in adult and childhood aphonia, cerebral palsy, and mental retardation.
- 3565 **Advanced Audiology**  
Assessment of auditory function by special techniques with emphasis on Speech audiometry, evaluation of hearing aids and calibration of equipment.
- 3566 **Medical Audiology**  
Differential diagnosis as related to the site of lesion and medical implications.
- 3567 **Conservation of Hearing**  
Preventive, public school and industrial hearing conservation problems.
- 3568 **Seminar in Audiology**  
(May be taken more than once with a change in area of emphasis). Group discussion study of selected areas in clinical or industrial audiology or audio prostology.
- 3569 **Advanced Clinical Practicum**  
Clinical practice at off-campus facilities.
- 3570 **Clinical Management**  
Organization and administration of facilities rendering clinical services to the speech, hearing and language impaired.
- 3572 **Problems and Projects in Speech Pathology and Audiology**  
(May be taken more than once with a change in area of emphasis). Special projects under staff supervision dealing with specific problems or projects.



## ENGLISH

JAMES K. P. MORTENSEN, *Chairman*

*Professors* BRADY, BURLINGAME, COLTHARP, LEACH, PAST, SMALL,  
STAFFORD, TAYLOR, WEST, WHITE;

*Associate Professors* CARR, COLLINGWOOD, DAY, FUGATE, HERNANDEZ,  
MORTENSEN, QUARM, RICHESON;

*Assistant Professors* ANTONE, BLEDSOE, BOLEY, CORN, DICK, EHMANN, ESCH,  
ETHERIDGE, GALLAGHER, GLADSTEIN, HAYES, JOHNSON, JUSTICE,  
KISKA, LACEY, MARCHINO, POTTS, STANDIFORD, C. WALKER,  
R. WALKER, D. WHITE;

*Instructors* GILL, MANSFIELD, MARSHALL, SERRANO;

*Graduate Advisor* WALTER F. TAYLOR, JR.

*Undergraduate Advisor* MIMI R. GLADSTEIN

*Professors Emeritus* C. L. SONNICHSEN, JOSEPH H. JAMES

**B.A. Degree — Literature Option:** After completing the Freshman English requirement, the English major is required to take English 3211 and 3212 and History 3354 and 3355. (The History courses should be taken in order and concurrently with English 3211 and 3212.)

After completing the Sophomore English requirement, the English major must take 24 hours in advanced-level English courses (English 3419, 3 hours in English Literature before 1800, 3 hours in English Literature since 1800, 3 hours in American Literature, 3 hours in Shakespeare, 3 hours in Major Authors, and 6 elective hours in advanced-level English courses). Of the 24 hours, 6 hours must be in 3400-level courses, and 3 hours must be in a fiction or drama genre course. For a list of courses that satisfy the various block requirements and the genre requirement, the student should see the Undergraduate Advisor. A comprehensive English Major Examination is required of all English majors who cannot present, at the time of their graduation, a grade average of "C" in all their English courses. Consult the English Department Chairman for details.

**B.A. Degree — Creative Writing Option:** This major is primarily directed toward students interested in pursuing careers in professional writing and editorial activities, or in teaching creative writing at the secondary or college level.

After completing the Freshman English requirement, the English major concentrating in creative writing takes English 3211 and 3212 (without History 3354 and 3355). The major consists of 30 additional hours in advanced-level English Courses as follows: 18 hours from among English 3361, 3362, 3365, 3367, 3368, 3369, 3370, 3420, and 3440, (when taught as a special topic in Creative Writing); and 12 hours from among English 3320, 3343, 3344, 3353, 3381, 3382, 3414, 3419, 3421, 3422, 3425, 3440, 3447, 3448, 3449. Consult the English Undergraduate Advisor for details of the program.

Requirements for all undergraduate degrees from The University of Texas at El Paso include successful completion of English 3112. Course work toward this goal consists of a three-step program to develop college-level competence in composition, rhetoric, and research procedures. This program is designed to provide the student with the skills in language and communication which he will need during the remainder of his academic career and for professional achievement in his selected field following the completion of his undergraduate degree. While all students are advised to take the entire program, *qualified* entering students may receive advanced credit in English by one of the following means:

1. **SAT (or ACT).**

An SAT Verbal score of 550 or higher (or an ACT English score of 22 or higher) entitles a student to have English 3110 waived. The student does not receive credit for the course.

2. **English Department Qualifying Examination**

During Freshman Orientation and registration periods, the English Department administers and evaluates this examination for placement out of English 3110.

Past experience has demonstrated that students with an SAT Verbal score of 450 or better (or an ACT English score of 19 or higher) usually, but not necessarily, perform successfully on this examination. Students who pass the examination receive three hours of credit (without letter grade) for English 3110. They are eligible to register for English 3111.

3. **SAT (or ACT) and College Entrance Examination Board Achievement Test in Composition.**

An SAT Verbal score of 550 or higher (or an ACT English score of 22 or higher) and a score of at least 550 or the College Entrance Examination Board Achievement Test in Composition (or a score of 550 or higher on the College Placement Test administered by the University Counseling Service) entitle a student to receive six hours of credit (without letter grade) for English 3110 and 3111.

Entering freshman should apply to take the College Placement Test at the University Counseling Service, 103 Union West, on the campus up to and through the registration period. However, applicants are strongly advised to make application at least two weeks prior to registration.

4. **SAT (or ACT) and College Entrance Examination Board Advanced Placement Examination.**

An SAT Verbal score of 550 or higher (or an ACT English score of 22 or higher) and a grade of 3 on the College Entrance Examination Board Advanced Placement Examination, entitle a student to receive nine hours of credit (without letter grade) for English 3110, 3111, 3112.

Because institutions of higher learning have varying policies regarding the evaluation of transfer and advanced placement credits, students planning to transfer to other universities or colleges before completing their degrees should be counseled on the availability of accepting advanced placement credit.

**In order that the English Department may confirm College Board scores and schedule examinations, students applying for advanced placement should make written application at least two weeks before their participation in Freshman Orientation. They should write to: Chairman, English Department, UTEP, El Paso, Texas 79968.**

2121 **Introduction to College Study**

Instruction and individual help in developing reading speed and comprehension, fluency in writing, methods of textbooks study, note taking skills and proficiency in studying and taking examinations.

3110 **Basic English Composition (3-0)**

Study in language fundamentals; practice in organizing and writing paragraphs with emphasis on sentence structure, diction, vocabulary, spelling and other areas of writing. (Linguistics 4111 may be substituted by foreign non-native English speakers).

3111 **Expository English Composition (3-0)**

Practice in composition with emphasis on rhetorical and writing principles for the different expository modes; emphasis on style and variety in sentences, paragraphs, and essays; stress on reading comprehension and outlining. (Linguistics 4112 may be substituted by foreign non-native English speakers.) *Prerequisite:* English 3110 or placement by examination.

3112 **Research and Critical Writing**

Study and practice in the use of library facilities and research and documentation techniques; emphasis on research papers and on critical essays. (Linguistics 4113 may be substituted by foreign non-native English speakers.) *Prerequisite:* English 3111 or 6111.

6111 **Written and Oral Communication (6-0)**

Practice in written and oral communication; practice in organizing expository prose; practice in arranging and presenting ideas orally; practice in reading techniques and other study skills. Counts for both English 3111 and Speech 3101. *Prerequisite:* English 3110 or placement by examination.

3211 **English Literature (3-0)**

English literature from the beginning to Samuel Johnson. Required of all English majors. *Prerequisite:* English 3112.

3212 **English Literature (3-0)**

English literature from Samuel Johnson to the present. Required of all English majors. *Prerequisite:* English 3211.

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- 3213 Appreciation and Analysis of the Novel and Short Story (3-0)**  
Attention to contemporary works as well as to the historical development of the genres. *Prerequisite:* English 3112.
- 3214 Appreciation and Analysis of Drama (3-0)**  
Study of the nature and variety of drama through examination of the contemporary theatre and its historical development. *Prerequisite:* English 3112.
- 3215 World Literature in Ancient, Medieval, and Early Renaissance Times (3-0)**  
The works of such writers as Lao Tzu, Homer, Aeschylus, Sophocles, Euripedes, Vergil, St. Augustine, Dante, Boccaccio, Chaucer, Montaigne, Cervantes, and Shakespeare. All foreign literatures are read in modern translations. *Prerequisite:* English 3112.
- 3216 World Literature from the Early Renaissance to the Present (3-0)**  
The works of such writers as Milton, Racine, Voltaire, Goethe, Byron, Poe, Hawthorne, Melville, Flaubert, Dostoevsky, Turgenev, Tolstoy, Chekhov, Ibsen, Baudelaire, Lorca, Joyce, Mann, Kafka, and Proust. All foreign literatures are read in modern translations. *Prerequisite:* English 3112.
- 3218 Appreciation and Analysis of Poetry (3-0)**  
Study of the nature and forms of poetry through examination of modern poetry and its historical antecedents. *Prerequisite:* English 3112.
- 3269 Technical Writing (3-0)**  
Written and oral reports: assembling material, organizing, writing, and revising. *Prerequisite:* English 3112.
- All 3300 courses require as prerequisite completion of six hours of sophomore English or Junior standing.
- The following symbols indicate when an upper level course is taught: I: Even Fall; II: Odd Spring; III: Odd Summer; IV: Odd Fall; V: Even Spring; VI: Even Summer.
- 3301 Literary Studies (3-0)**  
A study of special literary subjects of interest to non-English majors. Topic varies with the instructor. May be repeated once for credit when subject changes. *Prerequisite:* Six hours of sophomore English or junior standing.
- 3310 Literature of the Mexican American (3-0) (I, II, VI)**  
Study of the Mexican American culture in the United States as reflected in literature. *Prerequisite:* Six hours sophomore English or Junior standing.
- 3311 American Literature to 1860 (3-0) (I, II, III, IV, V, VI)**  
Representative writers from the Colonial period to 1860, with emphasis on major figures such as Poe, Emerson, Thoreau, Hawthorne, and Melville. *Prerequisite:* Six hours sophomore English or Junior standing.
- 3312 American Literature Since 1860 (3-0) (I, II, III, IV, V, VI)**  
Representative writers from the Civil War to the present, with emphasis on major figures from Whitman to the present. *Prerequisite:* Six hours sophomore English or Junior standing.
- 3315 Literature of the Black American (3-0) (V)**  
Study of the Black American in the United States as reflected in literature. *Prerequisite:* Six hours sophomore English or Junior standing.
- 3316 Medieval English Literature (3-0) (I, III)**  
Medieval English literature in translation from 1066 to Chaucer: romances, visions, satires, and the morality play. *Prerequisite:* Six hours sophomore English or Junior standing.
- 3319 Renaissance Prose and Poetry (3-0) (III, V)**  
The study of major non-dramatic prose and poetry of the 16th century from More through Drayton with special emphasis on the period of Spenser. *Prerequisite:* Six hours sophomore English or Junior standing.
- 3320 Shakespeare's Major Plays (3-0) (I, II, III, IV, V, VI)**  
Detailed study of the major plays, such as *Hamlet*, *Macbeth*, *Romeo and Juliet*, *The Tempest* and others. *Prerequisite:* Six hours sophomore English or junior standing.

- 3321 **Representative Shakespearean Plays (3-0) (I, II, III, IV, V, VI)**  
Detailed study of Shakespeare's other well-known plays such as *Taming of the Shrew*, *Richard II*, *King Lear*, and others. *Prerequisite*: Six hours sophomore English or junior standing.
- 3323 **Seventeenth-Century Prose and Poetry (3-0) (IV, VI,)**  
Major poetic movements in the seventeenth century in the works of Donne, Jonson, the Cavalier Poets, Milton, and Dryden. A study of the prose works of Bacon, Browne, Dryden, Hobbs, and others. *Prerequisite*: Six hours sophomore English or junior standing.
- 3329 **Early Neo-Classicism (3-0) (IV, VI)**  
The background of the English classical period in the writers of the Restoration. *Prerequisite*: Six hours sophomore English or Junior standing.
- 3330 **The Neo-Classical Age (3-0) (V, VI)**  
Pope through Johnson exclusive of the pre-romantics. *Prerequisite*: Six hours sophomore English or junior standing.
- 3333 **Romantic Literature (3-0) (I, III, IV)**  
A study of the major poets and prose writers. Special emphasis is given to Burns, Blake, Wordsworth Coleridge, Lamb, Hazlitt, Byron, Shelley, Keats, Landor, Hunt, and DeQuincey. *Prerequisite*: Six hours sophomore English or junior standing.
- 3337 **Victorian Literature (3-0) (II, V, VI)**  
A study of the major poets and prose writers. Special emphasis is given to Tennyson, Browning, Macaulay, Carlyle, Arnold, Newman, Ruskin, Pater, Stevenson, Rossetti, Meredith, Morris, Swinburne, Hardy, Hopkins, Housman, and the early Yeats. *Prerequisite*: Six hours of sophomore English or junior standing.
- 3343 **Early Twentieth Century Poetry (3-0) (I)**  
The most important poets, British and American, of the early twentieth century. Special emphasis is given Eliot, Yeats, Frost, Graves, D. H. Lawrence, Pound, W. C. Williams, Stevens, and Dylan Thomas. *Prerequisite*: Six hours of Sophomore English or junior standing.
- 3344 **Contemporary Poetry (3-0) (III)**  
The most important poets, British and American, of the later twentieth century. Special emphasis is given such poets as Auden, Ted Hughes, Plath, Sexton, William Stafford, Bly, Berryman, Roethke, Wright, Wilbur, and Creeley. *Prerequisite*: Six hours of sophomore English or junior standing.
- 3353 **The Short Story (3-0) (II, VI)**  
The development of the short story from earliest times; typical specimens from the short-story literature of England, America, Russia, France, and other countries. *Prerequisite*: Six hours sophomore English of junior standing.
- 3361 **Creative Writing (3-0) (I, II, III, IV, V, VI)**  
Basic techniques of imaginative writing applicable to fiction, poetry, and nonfiction. For students interested in perfecting their powers of written expression and/or critical abilities. Emphasis is on contemporary communication at various reader levels with particular attention to viewpoint and style. The course includes a survey of character portrayal and an introduction to plotting techniques. *Prerequisite*: Six hours of sophomore English; or concurrent enrollment in English 3211 or 3212 for Creative Writing Option majors.
- 3362 **Creative Writing: Contemporary Nonfiction Writing and Editing (3-0) (I, IV)**  
Study and practice in the techniques of contemporary nonfiction. Scope includes communication on various levels of readership from scholarly to popular, analysis of periodical article types and their structure, and techniques of biographical writing. Covers illustrative material and copyright problems. Attention is given to the use of fictional techniques in nonfiction. *Prerequisite*: Six hours of sophomore English; or concurrent enrollment in English 3211 or 3212 for Creative Writing Option majors.

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- 3365 **Advanced Composition (3-0) (I, III, IV, VI)**  
Study of classical and contemporary rhetorical theory with emphasis upon the aims and modes of contemporary discourse; practice in techniques of invention, organization, and style as applied to written composition. *Prerequisite:* English 3112. Open to freshman exempted from English 3112. Creative Writing Option majors may enroll during their sophomore year.
- 3367 **Creative Writing: Fiction Techniques (3-0) (I, IV, VI)**  
Study and practice in the techniques of contemporary fiction writing, emphasizing such matters as point of view, tone, characterization, plot, setting, and diction, with assignments requiring the resolution of fiction writing problems. *Prerequisite:* English 3361.
- 3368 **Creative Writing: Commercial Fiction (3-0) (II, III, V)**  
Emphasis on writing contemporary fiction for commercial publication. Attention is given to the techniques necessary for the freelance writer to meet the requirements at various levels of the ever-changing literary marketplace. *Prerequisite:* English 3361.
- 3369 **Television and Screenplay Writing (3-0) (II, V, VI)**  
Basic techniques for conceiving and writing the contemporary television and screenplay, with assignments devoted to resolving specific problems. *Prerequisite:* English 3361.
- 3370 **Creative Writing: Poetry Techniques (3-0) (I, III, IV)**  
Study and practice in writing traditional and contemporary forms of poetry, with attention to basic elements such as imagery and symbolism. *Prerequisite:* English 3361.
- 3371 **Life and Literature of the Southwest (3-) (IV)**  
The social background of the Southwest and its reflection in literature. *Prerequisite:* Six hours sophomore English or junior standing.
- 3372 **Folklore (3-0) (I, III, IV, VI)**  
The types and characteristics of folk literature with particular emphasis on the folklore of the Southwest and Mexico. *Prerequisite:* Six hours sophomore English or junior standing.
- 3373 **Life and Literature of the South (3-0) (I, III, IV, VI)**  
Literature of the Old and New South, especially as it reflects the institutions and traditions of the region. *Prerequisite:* Six hours sophomore English or junior standing.
- 3374 **Folklore of the Mexican American (3-0) (II, V, VI)**  
Study of the Mexican American culture in the United States as reflected in folklore. *Prerequisite:* Six hours sophomore English or junior standing.
- 3375 **Folklore of the Black American (3-0) (II)**  
Study of the Black American in the United States as reflected in folklore. *Prerequisite:* Six hours of sophomore English or junior standing.
- 3385 **Nineteenth Century Russian Literature in Translation (3-0) (I, IV)**  
Prose fiction beginning with Pushkin and extending through the Golden Age of the nineteenth century, with special emphasis on Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy, Chekhov, Andreyev, and Gorky. *Prerequisite:* Six hours sophomore English or junior standing.
- 3382 **Twentieth Century Russian Literature in Translation (3-0) (II, V)**  
Emphasis on prose fiction from the 1917 Revolution to the present day. Covers such writers as Blok, Babel, Sholokhov, Bulgakov, Paternak, Yevtushenko, and Solzhenitsyn. *Prerequisite:* Six hours of sophomore English or junior standing.
- 3386 **Background Readings (3-0) (I, II, IV, V)**  
A course of variable content that will provide readings of foreign literatures in translation, as background support for significant portions of English and American literature. May be repeated once for credit when the topic varies. *Prerequisite:* Six hours sophomore English or junior standing.
- All 3400 courses require six hours of 3300 level literature courses.**
- 3411 **Milton (3-0) (II, III, V, VI)**  
An introduction to the work and times of John Milton. *Prerequisite:* Six hours of advanced course in English.



- 3413 **Chaucer (3-0) (I, III, IV, VI)**  
A survey of the life and works of Geoffrey Chaucer with emphasis on *The Canterbury Tales*. *Prerequisite*: Six hours of advanced courses in English.
- 3414 **Literary Criticism (3-0) (I, III, IV, VI)**  
The development of literary theory as seen in the major critics from Plato to the present. *Prerequisite*: Six hours of advanced courses in English.
- 3415 **Elizabethan and Jacobean Drama (3-0) (I, III)**  
Development of the comedy, the tragedy, and the chronicle history from earlier types of the drama in England. Plays of Lyly, Marlowe, Greene, Beaumont and Fletcher, Dekker, Jonson, Middleton, Webster, and their contemporaries related to the literary fashions of the times. *Prerequisite*: Six hours advanced English.
- 3419 **The History of the English Language (3-0) (I, II, III, IV, V, VI)**  
The development of the English language from Old through Middle to Modern English, with selected readings in the original. *Prerequisite*: Six hours of advanced courses in English.
- 3420 **Workshop in Creative Writing (3-0)**  
Intensified practice in and perfection of one or more of the techniques of mature creative writing. The scope of the course will vary with the instructor. May be repeated once for credit. *Prerequisite*: English 3367 or 3368 or 3370.
- 3421 **The American Novel (3-0) (II, V)**  
The representative American novels and novelists from 1787 to the present. *Prerequisite*: Six hours advanced English.
- 3422 **The American Drama (3-0) (VI)**  
Drama from the Colonial and Revolutionary periods to modern times. Special attention is given to the works of Bird, Boker, Fitch, Crothers, Anderson, Hellman, O'Neil, Williams, and Miller. *Prerequisite*: Six hours advanced English.
- 3425 **British Drama since 1880 (3-0) (IV)**  
Historical Study of dramatic theory and practice in England in the modern era, through reading of representative plays. *Prerequisite*: Six hours sophomore English.
- 3440 **Advanced Literary Studies (3-0) (I, II, IV, V)**  
Pro-Seminar open to English majors, the topic to vary with the professor in charge. May be repeated once for credit. *Prerequisite*: A 3.0 average in nine hours of advanced courses in English or consent of the instructor. When taught as a special topic in Creative Writing, the *Prerequisite* is English 3367 or 3368 or 3370.
- 3447 **The English Novel Through the Eighteenth Century (3-0) (I, III, IV)**  
Prose fiction in England from the Middle Ages through the eighteenth century, particular attention being given to the novels of Richardson, Fielding, Smollett, Walpole, Burney, Jane Austen, and Scott. *Prerequisite*: Six hours advanced English.
- 3448 **The English Novel: Nineteenth Century (3-0) (II, V, VI)**  
A continuation of English 3447, with study of typical works of Dickens, Thackeray, the Brontes, George Eliot, Hardy, and Meredith. *Prerequisite*: Six hours advanced English.
- 3449 **The English Novel: Twentieth Century (3-0) (II, III, V)**  
The important English novelists of the twentieth century, with special study devoted to the works of Conrad, Bennett, Lawrence, Joyce, Forster, Waugh, Woolf, Graham Greene, Henry Green, Cary, and William Golding. *Prerequisite*: Six hours advanced English.
- 3455 **Workshop in the Teaching of English (3-0) (I, II, IV, V)**  
May be repeated for credit when the subject varies. *Prerequisite*: Permission of the department head. May be counted as English or as Education 3455.
- 3480 **Old English Language and Literature (3-0) (IV, VI)**  
A concentrated study of Old English, with selected readings from Anglo-Saxon literature with the aid of translations.

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- 3490 **Directed Study (3-0) (I, II, III, IV, V, VI)**  
Individual directed study on an approved topic, to be taught at the consent of the professor and with the approval of the Departmental Chairman. For English majors only. May not be used for graduate credit. *Prerequisite:* Six hours of advanced courses in English.

The following linguistic courses may be taken for English credit.

- 3220 **Introduction to Linguistics (3-0)**  
Introduction to modern language studies with emphasis on contemporary as opposed to historical linguistics. *Prerequisite:* English 3112.
- 3307 **The Structure of the English Language (3-0)**  
Investigation of Modern English: a study of modern analyses of the language. *Prerequisite:* Six hours sophomore English. *Recommended prerequisite:* English 3220 or Speech 3110.
- 3308 **Methods of Teaching English as a Foreign Language (3-0)**  
Modern foreign-language teaching techniques with particular attention to the problems of the learner of English. Theories of language learning and testing, and the practical use of language laboratory equipment. *Prerequisite:* Six hours sophomore English.
- 3395 **Linguistics in the Classroom (3-0)**  
A study of the use of linguistic theory in the teaching of English. Meets the requirements for English 3307 for undergraduate secondary education majors. *Prerequisite:* Six hours sophomore English.
- 3471 **Studies in English as Language (3-0)**  
Subject is chosen by the professor in charge. May be repeated for credit when the topic varies. *Prerequisite:* Six advanced hours in English. *Recommended prerequisite:* English 3220 or English 3307, or permission of instructor.
- 3472 **Contrastive Linguistics, Spanish, English (3-0)**  
A contrastive study of the phonological, morphological and syntactical systems of Spanish and English. *Prerequisite:* Six hours of advanced courses in English, plus one of the following: Speech 3110, English 3220, Spanish 3400, or permission of the instructor.

**FOR GRADUATE STUDENTS ONLY**

**M.A. DEGREE PREREQUISITES: LITERATURE OPTION.** Eighteen semester hours of advanced courses in English and a Bachelor's degree. Foreign students must supply a satisfactory grade in a special proficiency test in the English language before being allowed to register (write Graduate Advisor, Department of English, for details.)

**M.A. Degree Requirements — English and American Literature Option:**

- (A) Thirty-six semester hours of course work and Research Option A, and an oral examination; or  
(B) Thirty semester hours of course work and Research Option B, and an oral examination.
- The required hours of coursework must include English 3500, and four courses from among English courses numbered 3501-3506, and four courses from among English courses numbered 3551-3556.
- Research Options —
  - English 1597 (Non-thesis): One research paper from among the papers submitted in the English courses numbered 3500, 3551-3556. The paper is to be reviewed by a committee composed of two professors chosen by the student and one professor appointed by the Director of Graduate Studies. The paper must then be revised as per instructions of the committee.
  - English 3598-99 (Thesis): The student submits the names of his selected thesis director and first reader at the time he makes his thesis proposal to the Graduate Studies Committee; a second reader will be appointed by the Director of Graduate Studies.

## 4. Oral Examination

A defense of the revised research paper (Research Option A), or of the thesis (Research Option B), made before the Research Option Committee and one examiner appointed from outside the English Department by the Graduate Dean. In all cases a majority vote will constitute acceptance of the revised seminar paper or of the thesis.

**Electives:** English 3550 (which may be repeated when the topic varies); additional period course; additional seminars (which may be repeated when the topic varies); graduate courses in other fields, as approved by the Graduate Advisor.

**Undergraduate Credit Hours.** Generally, undergraduate credit hours may not be used to satisfy graduate requirements. Exceptions must be approved by the Director of Graduate Studies, and in no case are to exceed six hours maximum.

**M.A. DEGREE PREREQUISITES: — CREATIVE WRITING OPTION.**

Candidates will present undergraduate major in creative writing or its equivalent as approved by the Creative Writing Committee.

**M.A. Degree Requirements — Creative Writing Option**

1. Thirty semester hours of course work and English 3598-99, and an oral examination.
2. The thirty hours of course work must include English 3500; 6 hours in creative writing courses (3566 or 3567, as well as 3568); 15 hours in literature courses (6 hours in English courses numbered 3501-3506, and 6 hours in English courses numbered 3551-3556, and 3 additional hours in literature); 6 elective hours (see below).
3. Creative Writing thesis: English 3598-99. The creative writing option requires the completion of an original imaginative work. The student submits the names of his selected thesis director and first reader (ordinarily both members of the creative writing committee) at the time he makes his thesis proposal to the Graduate Studies Committee; a second reader will be appointed by the Director of Graduate Studies.
4. Oral Examination.  
A defense of the creative thesis made before the thesis committee and one examiner appointed from outside the English Department by the Graduate Dean. In all cases a majority vote will constitute acceptance of the creative work.

**Electives:** Additional creative writing work in 3568 when topic varies; 3550 (may be repeated when topic varies); additional period courses; additional seminar courses (may be repeated when topic varies); other graduate courses in English or other fields, as approved by the Graduate Advisor.

**Undergraduate Credit Hours:** Generally, undergraduate credit hours may not be used to satisfy graduate requirements. Exceptions must be approved by the Director of Graduate Studies, and in no case are to exceed six hours maximum.

**GENERAL COURSES**

3500 Critical Approaches, Scholarly Methods, and Bibliography

3510 Rhetorical Composition in College: Theory, Logic, Philosophy, and Methodology (3-0) (I, IV)

A course designed to equip the advanced student of college rhetoric and composition with necessary theoretical, logical, philosophical, and methodological principles for working with the processes of composition and the principles of rhetoric (as the latter are applicable to the discipline of English).

1597 Master of Arts Research Paper (Research Option A)

3598-99 Master of Arts Thesis (Research Option B)

**LITERATURE**

3501 English Literature to 1485

3502 English Literature 1485-1660

3503 English Literature 1660-1832

3504 English Literature 1832-Present

3505 American Literature to 1860

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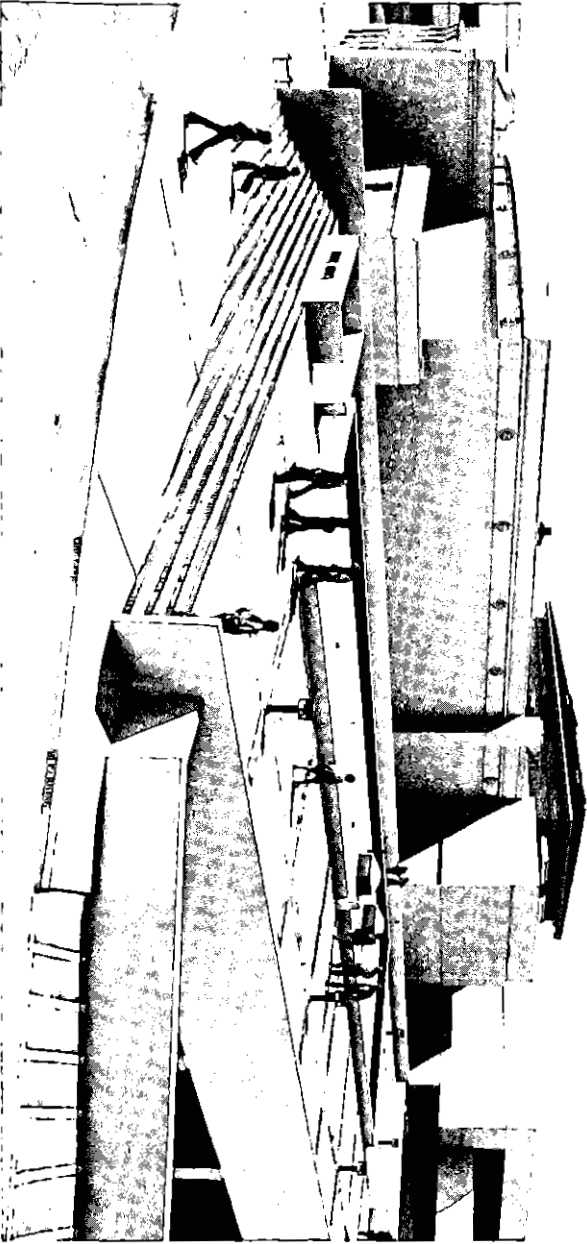
- 3506 **American Literature since 1860**
- 3550 **Seminar: Special Topics**
- 3551 **Seminar: Studies in English Literature to 1485**
- 3552 **Seminar: Studies in English Literature 1485-1660**
- 3553 **Seminar: Studies in English Literature 1660-1832**
- 3554 **Seminar: Studies in English Literature 1832-Present**
- 3555 **Seminar: Studies in American Literature to 1860**
- 3556 **Seminar: Studies in American Literature since 1860**

**CREATIVE WRITING**

- 3566 **Advanced Fiction Writing (3-0)**  
Intensive study and practice in the various forms and approaches of the genre.
- 3567 **Advanced Poetry Writing (3-0)**  
Intensive study and practice in the various forms and approaches within the genre.
- 3568 **Creative Writing Seminar\* (3-0)**  
Intensive practice and study of one or more of the techniques of imaginative writing.  
*Prerequisite:* English 3566 or 3567.

**LINGUISTICS**

- 3508 **Second Language Teaching — English (3-0)**  
A study of the principles underlying modern second-language teaching, and their application, with particular reference to English as a second language. Includes use of audio-visual equipment.
- 3509 **English Linguistics (3-0)**  
The structure of modern English from the viewpoint of a number of recent grammatical models.
- 3519 **English Historical Linguistics (3-0)**  
A study of the changing structures of English through the ages. The focus is on the language, not the literature.
- 3570 **Studies in Languages (3-0)**  
Topic to be discussed will be selected. May be repeated for credit when topic varies.
- 3571 **Tagmemics (3-0)**  
A study of the tagmemic approach to language analysis, with particular reference to English.
- 3572 **Transformational — Generative Grammar (3-0)**  
The use of the transformational — generative model of language description, with special emphasis given to its use in the analysis of English.
- 3573 **Dialectology (3-0)**  
The phonology, vocabulary, and syntax of the dialects of English, with particular emphasis given to American English.
- 3598 **Problems in Language Instruction (3-0)**  
A course designed for language teachers involving study of psychological, linguistic and methodological aspects of language instruction and testing, especially with reference to English. May be repeated for credit when topic varies. (Same as Spanish 3589)



## HISTORY

KENNETH B. SHOVER, *Chairman*

*Professors Emeritus* STRICKLAND, WALLER;

*Professors* BAILEY, FULLER, JACKSON, KNIGHT, McNEELY, SHOVER, TIMMONS;

*Associate Professors* CLARK, CLYMER, CREIGHTON, KAWASHIMA;

*Assistant Professors* BROADDUS, HACKETT, KUZIRIAN, SCHALK;

*Instructors* HAYES, MARTINEZ

### For Undergraduates

**B.A. Degree** — Specific course requirements for History major are: History 3101-3102, 3201-3202, and twenty-one advanced hours, of which no more than twelve hours should be taken in any one field of History. The four fields are: Field I. The United States Field II. Asia, Russia, and Africa. Field III. Hispanic America. Field IV. Europe, except Russia.

**Soviet and East European studies option:** Specific requirements for all students in the Program. Russian 3301, 3303; Political Science 3324, 3338; History 3332, or 3333 and 3373 or 3374; Economics 3395; Geography 3110; English 3385 or 3386. The History major must include 3332-3333 and 3373-3374. The remaining additional advanced hours of history courses should be selected in consultation with Professor Z. Anthony Kruszewski, advisor for Soviet and East European Studies.

**Honors Courses** — Qualified students interested in Honors Courses should consult the chairman of the department. Honors courses which have been offered include: History 3101, 3102, 3201, 3202, and 3381.

**3101 History of the United States, to 1865 (3-0)**

Survey of American history through the Civil War, emphasizing the European background, the colonial contribution, the American Revolution, the republican government, growth of democracy, the background and course of the Civil War.

**3102 History of the United States, since 1865 (3-0)**

Reconstruction, rise of big business, clash of economic interests, struggle for reform, imperialism and world power status, Progressivism, World War I, the Twenties, the New Deal, World War II, post-war America.

*Prerequisites for 3200 courses in History: Sophomore standing recommended but not required.*

**3201 Western Civilization, to 1648 (3-0)**

An analysis of "Western" man from the pre-Greek Near East to the seventeenth century and the emergence of revolutionary new ideas on man and the universe. (Readings will vary among sections but will be similar in quantity.)

**3202 Western Civilization, since 1648 (3-0)**

An analysis of the "West" from the scientific revolution of the seventeenth century to present world-wide social, political and revolutionary conflict, concentrating especially on the origins and nature of the problems plaguing mankind. (Readings will vary among sections but will be similar in quantity.)

**3205 Latin America — The Colonial Period (3-0)**

A general survey, emphasizing the Indian Civilizations, the Spanish Colonial empire, and the revolutions for independence.

**3206 Latin America — Reform and Revolution (3-0)**

A continuation of History 3205, emphasizing the national histories of the ABC countries and Mexico.

### For Undergraduate and Graduates

*General Prerequisites:* Appropriate class standing. Twelve semester hours of History, or six hours of History and six hours of other social sciences.

### FIELD I: THE UNITED STATES

- 3301 Colonial America, to 1763 (3-0)**  
Background of European exploration and colonization, settlement and development of the English colonies. British imperial policy, and the Anglo-French conflict in North America.
- 3302 The American Revolution and the New Nation, 1763-1815 (3-0)**  
The breakdown of the Anglo-American political system, the development of American political principles, the War for Independence and social readjustment, the creation of new governments, the rise of political parties, the Federalist and Jeffersonian administration, the War of 1812, and the emergence of national character.
- 3304 The Age of Jackson and Lincoln, 1815-1860 (3-0)**  
Political, economic, social, and sectional aspects of the Jacksonian era. The Old South and slavery, the North and reform, Manifest Destiny, nativism, and the disruption of the political party system.
- 3305 The Civil War Era, 1860-1877 (3-0)**  
Civil War and Reconstruction: Election of Lincoln, outbreak of war, Union and Confederacy, military problems, nations at war, Reconstruction conflicts, triumph of Radicalism, Compromise of 1876.
- 3306 The Rise of Modern America, 1876-1900 (3-0)**  
The legacy of Reconstruction, growth of industry, organized labor, the rise of the city, passing of the frontier, the eclipse of agrarianism, protest and reform, the acquisition of a colonial empire.
- 3307 The Twentieth Century: From Roosevelt to Roosevelt (3-0)**  
The United States as a world power, foreign policies, domestic problems, the Progressive Era, World War I, the Twenties, the Great Depression.
- 3308 Contemporary America, 1933 to the present (3-0)**  
The New Deal at home and abroad, intellectual trends in the Thirties, World War II, post-war domestic problems, the Cold War, the United States as leader of the Free World.
- 3309 The Chicano (3-0)**  
A survey of Mexican-Americans in the southwestern U.S. since the Treaty of Guadalupe Hidalgo, with emphasis on interactions between Mexican- and Anglo-American cultures.
- 3310 American Legal History (3-0)**  
A study of the growth of American Law from colonial times to the present. Particular emphasis on the operation of the law in a broad social context. Strongly recommended for pre-law students.
- 3311 History of American Foreign Relations, to 1914 (3-0)**  
Ideas, philosophies, and emotions underlying American foreign relations, with emphasis on the diplomacy of the American revolution, the War of 1812, territorial expansion including the Mexican-American War, the Civil War, and American imperialism.
- 3312 History of American Foreign Relations, since 1914 (3-0)**  
An overview of American foreign relations in the twentieth century with emphasis on underlying ideas, philosophies, and emotions that affect American diplomacy. United States relations with Latin America, Asia, and Europe are considered with special emphasis given to colonialism, the diplomacy of World War I, World War II, and the Indochina conflict.
- 3313 The Afro-American in United States History, 1619 to the present (3-0)**  
The African heritage of the black man, the origins of slavery, the Afro-American's response to slavery, the Abolitionist Movement, the Freedman in the post-slavery period, the Freedman and the New South, the Afro-American in the age of industrialism, the Harlem Renaissance, protest movements, and towards the new future.
- 3314 American Thought: From Puritan to Pragmatist (3-0)**  
Analysis of main trends in pre-twentieth century American thought, with emphasis on Puritanism, the Enlightenment, Transcendentalism, and the impact of Darwin.

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- 3315 **Twentieth Century American Thought (3-0)**  
Major figures and movements dominating the American intellectual scene since the 1890's. Emphasis on philosophical, religious, scientific and social thought.
- 3316 **Southwest Frontier (3-0)**  
A study of the nineteenth-century American Southwest, the arid frontier, and the area of the international boundary. May not be counted as credit toward the Master of Arts degree. Note: History majors may count this course in either Field I or Field III.
- 3317 **History of Texas, since 1821 (3-0)**  
Spanish and Mexican Texas, Anglo-American colonization, the Texas Revolution, the Republic, statehood, Civil War and Reconstruction, railroad and industrial growth; political, social, and economic trends in the twentieth century. May not be counted as credit toward the Master of Arts degree. Note: History majors may count this course in either Field I or Field III.
- 3319 **The Old South (3-0)**  
A history of the economic, social, and cultural development of the South to the Civil War.
- 3320 **The New South (3-0)**  
A history of the American South since 1876, emphasizing the social, economic, and political adjustments in the late 19th century, and the vast changes in Southern society since World War I.
- 3321 **The Great West, to 1840 (3-0)**  
The frontier as central to nation-building; westward movement as imperial expansion; introduction to the North American Indian; comparison of Spanish, English, French, Russian and finally American frontiers in present U.S.; patterns of social development as the frontier moved from the Atlantic Coast to the Mississippi River, with emphasis on cultural interactions.
- 3322 **The Great West, since 1840 (3-0)**  
The Trans-Mississippi West in terms of imperial expansion; introduction to Indians of the Far West; types of societies and cultural conflict-accommodation that developed as America enveloped the continent in building a nation.
- 3325 **History of Mass Media in America (3-0)**  
Development and role of newspapers, books, radio, television, magazines, and movies in American life, with particular emphasis on the communications revolution of the twentieth century.
- 3327 **American Attitudes toward the Indian, Black, and Chicano: An Historical Perspective (3-0)**  
A comparative and historical survey of the dominant racial theories, stereotypes and popular attitudes focused upon the Native American, Black, and Chicano during the course of American history.
- 3328 **American Social History to 1865 (3-0)**  
A survey of social trends and social movements through the Civil War, with emphasis on ethnic groups, class conflict and urbanization.
- 3329 **American Social History, 1865 to the present (3-0)**  
A survey of social trends and social movements since the Civil War, with emphasis on ethnic groups, class conflict, and urbanization and industrialization.
- FIELD II: ASIA, RUSSIA, AND AFRICA**
- 3330 **History of the Far East (3-0)**  
A brief survey of traditional China, Korea, and Japan, westernization and modernization, and the Far East in the twentieth century. Special emphasis on the uniqueness of East Asian societies.
- 3332 **History of Russia, to 1801 (3-0)**  
Survey of Russian history from its origins through the Eighteenth century. Emphasis upon the development of Russian political, cultural and economic institutions.
- 3333 **History of Russia, 1801 to the present (3-0)**  
Imperial Russia from Alexander I to Nicholas II, the rise of the revolutionary movement, the revolutions of 1905 to 1917, the Soviet state from War Communism to "peaceful co-existence."



- 3336 **Islamic Saints and Sinners: The Muslim World to 1050 (3-0)**  
The mysteries, lives and accomplishments of Muhammad's people from Spain to Indonesia, from animist Arab bedouin to Harun al-Rashid's Baghdad, from monotheism to mysticism. Emphasis on what Muslims said and say about themselves. Lectures and discussions.
- 3337 **The World of Islam, from 1050 to the Present (3-0)**  
Muhammad's people form the onslaughts of the steepe people to the Israeli crises, from the Spanish Reconquista and Granada to Moorish overtones in Mexico and Muslims in Bangladesh, from religion, society and government to the arts, philosophy and science. Emphasis on Muslims writing about Muslim friends and enemies. Lectures and discussions.
- 3339 **The Near East and North Africa, since 1798 (3-0)**  
Colonialism vs. nationalism in the Islamic world; Europe, the Eastern Question, and the Crimean War; the dilemma of modernization; the Israel-Arab conflict.

**FIELD III: HISPANIC AMERICA**

- 3341 **The History of Spain and Portugal (3-0)**  
A survey of the Iberian peninsula from the earliest times to the regimes of Franco and Salazar, with particular emphasis on the rise, development, and decline of the Spanish and Portuguese empires. Note: History majors may count this course in either Field III or Field IV.
- 3342 **The Spanish Borderlands (3-0)**  
A study of the Spanish northern frontier in North America from California to Florida, with particular emphasis on the Spanish impact on the American Southwest from the sixteenth-century explorations to 1821. Note: History majors may count this course in either Field I or Field III.
- 3346 **The United States and Latin America (3-0)**  
A history of the Hispanic relations of the United States, emphasizing recognition, Monroe Doctrine, the United States and Mexico, Pan Americanism, the Big Stick, the Good Neighbor, the Organization of American States, and hemispheric affairs since the rise of Castro. Note: History majors may count this course in either Field I or Field III.
- 3347 **South America, since 1810 (3-0)**  
A history of the South American countries beginning with revolution for independence, emphasizing their political, social, economic, and cultural development.
- 3348 **Colonial Mexico to 1821 (3-0)**  
The pre-Columbian civilizations, Spanish conquest and colonization of the Caribbean and Spanish North America, colonial institutions and culture, and the Mexican movement for independence.
- 3349 **Mexico in the Nineteenth Century (3-0)**  
Independent Mexico, the period of Santa Anna, Juarez and the Reform, the Diaz regime, and the background of the Revolution.
- 3350 **The Mexican Revolution (3-0)**  
Political, social, economic, and military development of the Mexican Revolution from the revolt of Francisco Madero through the presidency of Lazaro Cardenas.

**FIELD IV: EUROPE, EXCEPT RUSSIA**

- 3351 **England From the Black Death to the Armada (3-0)**  
A study of England in transition from the late middle ages to the early modern age with emphasis on the Tudors.
- 3352 **The English Revolution (3-0)**  
The causes, events, and consequences of one of the first modern revolutions from the late Elizabethan age to 1688.
- 3354 **England, to 1547 (3-0)**  
Major developments in England from its prehistory through the reign of Henry VIII. *Prerequisite:* Junior standing or concurrent enrollment in English 3211.

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- 3355 **England, since 1547 (3-0)**  
A continuation of History 3354 to the present. *Prerequisite:* Junior standing or concurrent enrollment in English 3212.
- 3357 **The Greeks, from Homer to Alexander (3-0)**  
The ancient Greeks and their civilization, from Minoan and Hittite precedents, through Athenian and Spartan triumphs and disasters, to Macedonian political hegemony. Emphasis on what Greeks said about their world and themselves in their epics, plays, histories and philosophies. Lectures and discussions.
- 3358 **History of Rome (3-0)**  
The Roman Republic, its expansion and overthrow, and the early Empire to the revolution of Septimius Severus, 193 A.D.
- 3362 **The High Middle Ages (3-0)**  
An analysis of the revolutionary new society which emerged in Western Europe in the three centuries following the invasions of the ninth and tenth centuries, focusing especially on social, economic, political and cultural realities and accomplishments.
- 3363 **European Intellectual History, from the Renaissance to the French Revolution (3-0)**  
Thoughts of individuals and currents of thought from Machiavelli to Burke seen in relationship to the social and political reality out of which they sprang.
- 3364 **European Intellectual History, since the French Revolution (3-0)**  
Thoughts of individuals and currents of thought from Burke to the present seen in relationship to the social and political reality out of which they sprang.
- 3365 **The French Revolution and Napoleonic Eras (3-0)**  
An analysis of the background, events, and significance of the Revolutionary and Napoleonic era from the late eighteenth century to the Congress of Vienna.
- 3370 **The Early Renaissance and Reformation Era. (3-0)**  
An analysis and comparison of the social, political, intellectual and religious experience of Italy, France, Germany, and Spain in an attempt to understand the origins and nature of the Renaissance and Reformation.
- 3371 **Late Renaissance and Reformation Era. (3-0)**  
The emergence of a unified German national state, relations with neighboring powers, World War I, the revolution of 1918, the Weimar Republic, rise and fall of the Third Reich, divided Germany.
- 3373 **History of Central Europe to 1815 (3-0)**  
Political, economic, social, and cultural history of Germany, the Habsburg Empire, and Poland, from their origins to the Congress of Vienna.
- 3375 **France, from the Revolution to present (3-0)**  
A survey of the social, economic, and political development of France from the French Revolution to the present, with emphasis on France's search for political stability in the post-Revolutionary era.
- 3376 **Nineteenth Century Europe, 1815-1900 (3-0)**  
A study of Europe in a process of fundamental economic, political, and social change, with emphasis on the revolutionary movements of the 1820's, 1830 and 1848, the unification of Italy and Germany, the emergence of parliamentary democracies in France and England, and the development of nationalism, conservatism, liberalism, and socialism.
- 3377 **Twentieth Century Europe, 1900 to the present (3-0)**  
The collapse of the European dynastic monarchies, World War I, the Versailles Treaty, totalitarian dictatorships in Italy, Germany, and Russia; World War II, the Cold War and the Common Market era.
- 3381 **Honors Proseminar (3-0)**  
Reading and discussion of an important topic in history. Admission by consent of instructor. History majors should count the course in the appropriate field.
- 3382 **Research Course for Undergraduates (3-0)**  
Reading, discussion, and research on an important topic in history. History majors should count the course in the appropriate field.

- 3390 History, Special Topics (3-0)**  
An examination of a currently relevant subject from a historical perspective. Topics will vary and will be drawn from such fields as minority groups, women's history, local history, ecology, historical methodology and the relationship of history to other social sciences.
- 3399 History and Historians (3-0)**  
Survey of historical thought from Herodotus to Voltaire, with emphasis on Greek, Christian, Renaissance, and Enlightenment conceptions of history. Includes an analysis of the problems confronted in modern historical thought. Note: History majors may count this course in any of the four fields.

**For Graduate Students Only**

DEPARTMENTAL REQUIREMENTS FOR M.A. Students working toward the Master of Arts degree in history may follow either of two plans:

**PLAN I.** Of the thirty semester hours required for the M.A. degree, at least twenty-four must be in courses numbered 3500 or above, including the thesis, 3598-99, for which six credit hours are allowed. At least nine hours must be in graduate seminars. History 3581 must be completed with a grade of A or B. It is strongly recommended that History 3581 be taken before a student enrolls for another seminar. Plan I is recommended for students who plan to study for a Ph.D. in History.

**Plan II.** Of the thirty-three semester hours required for the M.A. degree, at least twenty-four must be in courses numbered 3500 or above. At least nine hours must be in graduate seminars. History 3597 is recommended for teachers and prospective teachers. History 3581 is recommended for non-teachers. A student must be enrolled for History 3593 — Independent Research, in the semester in which he expects to complete the program. A student enrolled under this plan must submit two suitably-bound graduate seminar research papers to the departmental committee which conducts the final examination for the M.A. degree, as prescribed by the Graduate School.

An optional 6-hour Minor in a related field, in either Plan I or Plan II, is permitted, the courses to be selected in consultation with the Graduate Advisor.

*Prerequisite for Graduate credit:* At least twelve semester hours of advanced courses in History, and a bachelor's degree.

- 3501 Early American Society (3-0)**  
Lectures, discussion, and reports.
- 3506 The Civil War Era, 1850-1876 (3-0)**  
Lectures, discussion, and reports.
- 3510 The Era of Reform, 1890-1917 (3-0)**  
Lectures, discussion, and reports.
- 3513 The South since the Civil War (3-0)**  
Lectures, discussion, and reports.
- 3514 Western America (3-0)**  
Lectures, discussion, and reports.
- 3515 Problems in American Diplomatic History (3-0)**  
Lectures, discussion, and reports.
- 3517 American Thought (3-0)**  
Lectures, discussion, and reports.
- 3518 Problems in the History of Texas (3-0)**  
Lectures, discussion, and reports.
- 3519 Spain in the American Southwest (3-0)**  
Lectures, discussion, and reports.
- 3520 Problems in Modern European History† (3-0)**  
Lectures, discussion, and reports.
- 3550 Modernization and the Middle East (3-0)**  
Lectures, discussion, and reports.
- 3581 SEMINAR: Historical Method and Historiography\* (3-0)**

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- 3582 SEMINAR: Studies in European History (3-0)
- 3584 SEMINAR: Colonial and Revolutionary America† (3-0)
- 3585 SEMINAR: American Diplomatic History† (3-0)
- 3586 SEMINAR: American Intellectual History† (3-0)
- 3587 SEMINAR: Modern America† (3-0)
- 3588 SEMINAR: American South† (3-0)
- 3589 SEMINAR: Civil War and Reconstruction† (3-0)
- 3590 SEMINAR: Texas History† (3-0)
- 3591 SEMINAR: History of Mexico †‡ (3-0)
- 3592 SEMINAR: American West† (3-0)
- 3593 Independent Research (3-0)
- 3596 Independent Readings (3-0)
- 3597 Teaching History in Secondary and Elementary Schools (3-0)
- 3598-99 Thesis Course for the Master's Degree

\*Required of all Plan I candidates for the M.A. degree in History, and offered in the fall semester.

†May be repeated when topic varies.

‡A reading knowledge of Spanish is required.

## LINGUISTICS

RAY PAST, *Chairman*

*Professors* BLANSITT, COLTHARP, ORNSTEIN, PAST, SHARP

*Associate Professor* D. NATALICIO

*Associate Professors* COTTON, ELERICK, SPRINGSTEAD

*Instructor* RAMIREZ

- B.A. Degree** — Specific course requirements for the linguistic major in addition to the requirements for the B.A. degree, are Linguistics 3210, 3220, and 4103-04, plus eighteen hours of advanced linguistic courses.
- 1110-1113 Language Laboratory (0-3)**  
These laboratories accompany the corresponding numbered 41 — courses and are required.
- 4110 English for Speakers of Other Languages (5-3)**  
Introduction to and practice with the basic systems of English, including the phonological, morphological and syntactic, both orally and in writing. *Prerequisite:* Departmental English language ability test.
- 4111 English for Speakers of Other Languages (5-3)**  
Practice with the basic structures of English, including their expansion into more complex structures, toward the end of making their use automatic; attention given to vocabulary development; all work to be both oral and written. *Prerequisite:* Departmental English language ability test.
- 4112 English for Speakers of Other Languages (5-3)**  
Fundamentals of composition; training in analytical reading of adult English prose; particular attention given to vocabulary development. *Prerequisite:* Departmental English language ability test.
- 4113 English for Speakers of Other Languages (5-3)**  
Further practice in composition and in reading comprehension; emphasis on writing a research paper and on research techniques; further vocabulary development. Note: the final examination in this course will be evaluated by a panel of readers. *Prerequisite:* Departmental English language ability test. (May not be counted in addition to English 3112.)
- 4103-04 Non-Indo-European Language (5-3)**  
An intensive course designed to enable the student to master the fundamentals of a major non-Indo-European language. Oral drill. Basic structure, reading of elementary texts, laboratory. Repeatable for credit as the language varies.
- 3201-02 Non-Indo-European Language (3-0)**  
Both oral and written work in the Non-Indo-European language being studied, including an introduction to the literature.
- 3210 Phonetics and Phonemics (3-0)**  
The study of speech sounds with emphasis on their articulation and transcription, with constant attention to the phonemic principle. The study is *not* limited to the phenomena of English speech.
- 3220 An Introduction to Linguistic (3-0)**  
Introduction to modern language studies with emphasis on contemporary as opposed to historical linguistics. (May be taken as English 3220.)
- 3307 The Structure of English (3-0)**  
Investigation of Modern English: a study of modern analyses of the language. *Recommended background:* Ling. 3210 or Ling. 3220. (May be taken as English 3307.)
- 3308 Methods of Teaching English as a Foreign Language (3-0)**  
Modern foreign language teaching techniques with particular attention to the problems of the learner of English. Theories of language learning and testing, and the practical use of audio-visual equipment. *Recommended background:* Ling. 3220 or Ling. 3307. (May be taken as English 3308.)

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- 3309 The Structure of Spanish (3-0)**  
Linguistic analysis of Spanish, including phonology, morphology, and syntax. Same as Spanish 3309. *Prerequisite:* Spanish 3202 or equivalent.
- 3400 Teaching Spanish (3-0)**  
The application of modern linguistic methods to the effective teaching of Spanish, with particular emphasis on the oral language. Conducted in Spanish. *Prerequisite:* Six hours advanced Spanish or six hours Spanish-oriented linguistic courses, or permission of department chairman. (Same as Spanish 3400.)
- 3401 Methods of Foreign Language Instruction (3-0)**  
Practical application of linguistic principles to the teaching of foreign languages. *Prerequisite:* Completion of course 3202 or the equivalent in a foreign language.
- 3419 English Historical Linguistic (3-0)**  
The development of English from its beginnings to Modern English. A study of the changes in the phonological, morphological and syntactical systems. *Prerequisite:* Six hours sophomore English or Ling. 3220.
- 3454 Psycholinguistics (3-0)**  
A study of the psychological factors in language behavior, including attention to theories of language learning. *Prerequisite:* Permission of department chairman or instructor.
- 3471 Studies in Linguistics (3-0)**  
Topic to be discussed will be selected. May be repeated for credit when topic varies. *Prerequisite:* Six hours of 3300-3400 linguistics or permission of the departmental chairman.
- 3472 Contrastive Linguistics, Spanish/English (3-0)**  
A contrastive study of the systems of the two languages: the phonology, the morphology, the syntax. Conducted in both languages. *Prerequisite:* Spanish 3202 or equivalent. *Recommended background:* Ling. 3220 or 3309.
- 3473 The Spanish Language in the Americas**  
The historical development of American Spanish, including contemporary dialects of Latin America and the United States. *Prerequisite:* Six hours of advanced Spanish or of linguistics courses conducted in Spanish.
- 3490 Studies in the Spanish Language (3-0)**  
Topic to be discussed will be selected. May be repeated for credit when topic varies. Conducted in Spanish. *Prerequisite:* Six hours advanced Spanish or six hours Spanish-oriented linguistics courses, or permission of department chairman.
- 3494 History of the Spanish Language (3-0)**  
A survey of the phonological, morphological and syntactical changes from Vulgar Latin to modern Spanish. *Prerequisite:* Six hours of advanced Spanish or six hours Spanish-oriented linguistics courses, or permission of department chairman. (Same as Spanish 3494.)

**MASS COMMUNICATION**FRANCISCO J. LEWELS, *Chairman**Professor Emeritus* VIRGIL C. HICKS*Assistant Professors* LEWELS, PEREZ, SIQUEIROS*Instructor* WIRT

**B.A. Degree** — Specific courses required for the Journalism Major are Mass Communication 3101, 3102, 3201, 4207, 3355; Journalism 3202, 3305, 3204 and six additional advanced hours. Specific courses required for the Broadcasting Major are Mass Communication 3101 (or Broadcasting 3101), 3102, 3201, 4207, 3355; Broadcasting 3105, 3214, 3320 and six additional advanced hours.

**MASS COMMUNICATION****For Undergraduates**

The following core courses are required of all Mass Communication majors.

- 3101 History and Principles of Mass Communication (3-0)**  
History of American journalism and its role in society. Includes journalism as practiced in both print and electronic media. (With approval of the Department, Broadcast majors may substitute Broadcasting 3101.)
- 3102 Mass Media and Society(3-0)**  
A study of the nature and function of mass communication and an appraisal of the performance of the mass media in society in general with emphasis on the United States.
- 3201 News Gathering and Reporting (2-4)**  
Instruction and intensive practice in writing news stories under deadline pressure. Provides initial experience in use of wire-service style, interviewing, and fact-gathering techniques. *Prerequisite:* Sophomore standing including English 3111-12. Ability to type 30 words per minute. *Prerequisite:* to 3202.
- 4207 Elementary Photography (93-3)**  
Introduction and practice in the processes of News Photography. Discussion of lenses and cameras, along with the actual photographic process. Capabilities of the press camera; exposure and development of film; printing and finding news pictures. *Prerequisite:* Sophomore standing.
- 3355 Communication in Law (3-0)**  
A consideration of the legal philosophy bearing on the mass media, tracing the development of press freedom as well as legal restrictions on the media today. *Prerequisite:* Junior standing.

**JOURNALISM****For Undergraduates**

- \*3202 Advanced New Gathering and Reporting (2-4)**  
Emphasis on developing and writing news stories of substance and depth. Study of the investigative reporter's techniques for gathering public intelligence. Practice in learning to deal systematically with quantities of information. Evaluation of conflict in points of view. *Prerequisite:* Journalism 3201.
- \*3204 Graphics of Journalism (2-3)**  
Development and uses of engraving and printing; type design; copy fitting and layout and color reproduction.
- 3303 The Special Article (3-0)**  
Methods of gathering material for newspaper and magazine feature stories through interviews, research, and observation; study of feature story form and style; discussion of markets for literary material; practice in writing feature stories. *Prerequisite:* Journalism 3201 or 3202.
- \*3305 News Editing (3-3)**  
Instruction and practice in newspaper deskwork. Preparation of local copy, wire service copy, headlines and make-up. Work on a newspaper copy desk. Emphasis on news judgment and social responsibility. *Prerequisite:* Journalism 3201.

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- 3308 Fields of Photography (2-3)**  
A continuation of Elementary News Photography with special emphasis on press photography. A survey of the various fields of photography including a practical working knowledge of cameras and their most effective uses. *Prerequisite:* Journalism 4207 or permission of the instructor, based on applicant's previous experience with camera and darkroom.
- 3312 Editorial Writing and Page Direction (3-0)**  
Instruction and practice in writing newspaper editorials and page columns. Early emphasis on structure and style, make-up, and policies. Practice in writing the signed column. *Prerequisite:* Junior standing and 3201.
- 3350 Fundamentals of Advertising (3-3)**  
Survey of advertising principles used in all media of communications. Role of advertising in small and large business enterprises. *Prerequisite:* Junior standing or consent of the department.
- 3351 Advertising Layout and Copy (2-3)**  
Basic course in production and handling of advertisements. Step by step production of typical ad; stresses creativity, mechanical makeup, final reproduction and evaluation. Agency and trade terms used to specify methods and desired results.
- 3352 Public Relations (3-0)**  
Principles, techniques, and methods used in public relations; necessity and significance in the free enterprise system. Relationships include national, state and local governments, employees, customers, suppliers, social and religion institutions. *Prerequisite:* Junior standing or consent of the department.
- 3353 Magazine — Publications Production (2-3)**  
Production of small magazines through offset reproduction. Stresses basics of organization, layout, design, and copy fitting. Basics of color runs and color separation. Includes working with art and photos and business side of publications.
- 3354 Photo-Journalism and Professional Practice (2-3)**  
Developing the photo story and editing to obtain professional type magazine or newspaper layout. Stresses creative viewpoint and use of equipment to obtain desired result. Problems in "available" and tungsten lighting. Special use of flash bulb and electronic lighting. Use of 35mm, press type, and view cameras. *Prerequisite:* Junior standing and 3308.
- FOREIGN PRESS (3-0)**  
Comparison of modern press systems of the world focusing on each country's internal communications problems with emphasis on current events relating to those problems. Special studies in the Latin American (especially Mexico) press. *Prerequisite:* Junior standing.
- 3404 Cinematography I (2-3)**  
Introduction to professional 16mm cameras. Basics and practice in cameras, exposure, lenses, basic processing, editing, and other production methods. *Prerequisite:* Senior standing and 4207 or 3308.
- 3405 International Communication (3-0)**  
A study of the process of communication between nations to include an analysis of the functions of international wire services, communications satellites, propaganda and cultural exchange programs, with a consideration of barrier to international understanding. *Prerequisite:* Senior standing.

## UNIVERSITY PUBLICATIONS

### For Undergraduates

- 1104 and 1204 Publications (0-3)**  
For work on the staff of one of the University's student publications. Students taking the course must work on the staff of the Prospector at prescribed periods under teacher-adviser supervision. May be repeated for credit to the extent of six hours toward graduation. No senior student may take the 1104 course for credit toward graduation.



**2204 Intern Program (0-6)**

For selected students to work in all areas of newspaper production for the Prospector. Applications may be made to the chairman of the Mass Communication Department prior to registration each semester.

\*Required of all Journalism Majors.

**BROADCASTING****For Undergraduates****3101 Survey of Broadcasting (3-0)**

A survey of world systems of broadcasting with emphasis upon the history, Federal regulations and philosophies of broadcasting in the United States.

**3102 Broadcast Theory, Facilities and Equipment (3-0)**

An introduction to the physical theory of radio and television. This course approaches the subject assuming the student has little or no background in math, electronics or physics.

**3103 Elementary Radio Production**

An introduction to all phases of audio operations including familiarization with the equipment and the techniques of audio production. This course is a prerequisite to all one-hour production classes.

**\*3105 Radio-Television News (3-0)**

News reporting and writing for radio and television. Processing A.P. wire copy. Skills of the radio-television news announcer.

**\*3214 Radio-Television Announcing (3-0)**

A study of the announcer-newscaster's responsibilities as a communicator. Analysis of announcer skills. Drills in radio and television announcing and the development of an effective on-the-air personality.

**3215 Script Writing for Radio and Television (3-0)**

Writing for radio and television. Creating writing and producing effective commercial continuity. Preparation of documentary scripts.

**3305 News Editing for Radio/TV (3-0)**

An advanced course in gathering, processing, and reporting news for radio and television. *Prerequisite:* Junior standing.

**3306 Sales in Radio and Television (3-0)**

Detailed role played by sales in broadcasting — its inception, organization, departmental construction, function, planning, creative selling, and relationship to entire operation and management.

**\*3320 TV Production (2-3)**

An introduction to the equipment and production facilities of television. Beginning problems in television production. *Prerequisite:* Junior standing.

**3321 Advanced TV Production (2-3)**

A continuation of Television Production I. Advanced problems in television production. The skills of the television producer-director. *Prerequisite:* 3320.

**3404 Cinematography (2-3)**

Use of 16mm motor driven professional motion picture cameras to record news events and documentaries for television use. Stresses basics of production, filming, editing, splicing, meter-exposures, zoom lenses, film choices, processing, lighting and sound-on-film. Course project by crews of 3-4 students consists of a 1-minute documentary. Students provide film and processing costs.

**3430 Radio-Television Station Management (2-3)**

Complete survey of management problems in the radio-television industry. Information relating to network affiliation, staff training, public service policies, systems of records, legal restrictions. Survey of job opportunities. Counselling with industry personnel. Required of all radio-television majors.

**RADIO STATION KVOF AND KTEP**

**For Undergraduates**

**1104-05 Radio Station KVOF (0-3)**

Work on the staff on Radio Station KVOF. *Prerequisite:* RATV 3103 or consent of the department chairman.

**1204-05 Radio Station KVOF (0-3)**

Work on the staff of Radio Station KVOF. *Prerequisite:* RATV 3103 or consent of department chairman.

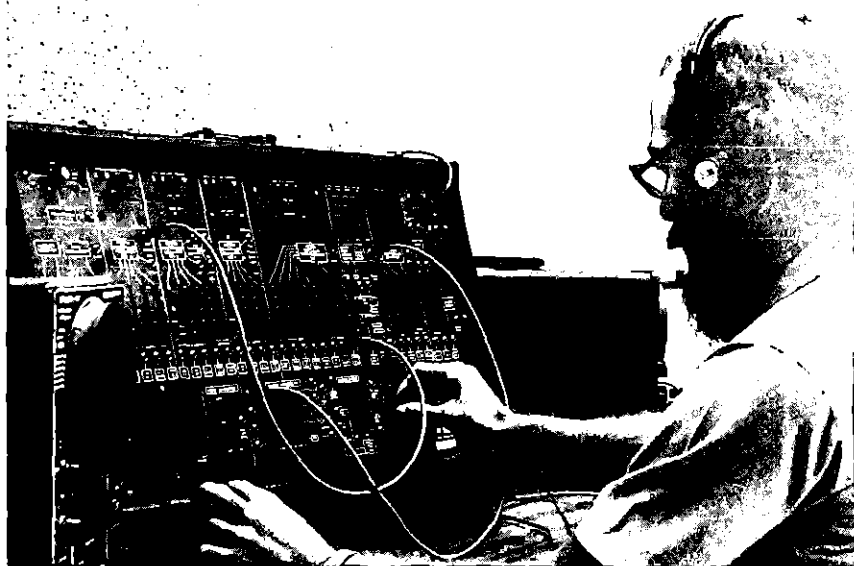
**1304-05 Radio Station KTEP (0-3)**

Work on Radio Station KTEP with increased responsibility. *Prerequisite:* RATV 3103 and FCC 3rd Class Permit with Broadcast Endorsement.

**1404-05 Radio Station KTEP (0-3)**

Work on Radio Station KTEP with increased responsibility. *Prerequisite:* RATV 3103 and FCC 3rd Class Permit with Broadcast Endorsement.

**\*Required of all Broadcast Majors.**



## MILITARY SCIENCE

LIEUTENANT COLONEL BENEDICT J. ULCAK, *Chairman*

*Professor LTC ULCAK*

*Assistant Professors MAJOR RODRIGUEZ,*

*MAJ SCHUYLER, CAPTAIN WEST, CAPTAIN BRAUD*

*Instructor SERGEANT MAJOR SEGURA*

**GENERAL:** Courses offered by this department are designed to produce commissioned officers, who by their education, training, and demonstrated leadership qualities are considered suitable for continued development as officers in the United States Army, or in the civilian career of their choice. Army ROTC courses provide leadership training and experience that is not duplicated in any other college course. Instruction is designed to develop self-assurance, personal discipline, physical stamina, bearing, acceptance of responsibility, and other basic qualities required of an Army Officer. These same qualities also contribute significantly to success in civilian careers.

Military Science courses are offered during the fall and spring semesters only. The first two years (Military Science 1101-02, 2201-02, and 2215 for nursing students) form the basic course and are normally taken during freshman and sophomore years. For Freshman students who did not enroll in MS 1101 in the fall semester, both MS 1101 and 1102 are offered in the spring semester. The last two years (Military Science 3301-02, 3315-16 for nursing students, and 3401-02) form the advanced course and are taken during the student's junior and senior years. Military Science (ROTC) is elective.

**ELIGIBILITY:** *Basic Course.* To enroll in ROTC, a student must be a full-time student of U.T. El Paso or the El Paso Community College. Normally the ROTC student begins Military Science courses during his freshman year. Sophomores are permitted to enroll in the basic course with the permission of the Professor of Military Science (PMS). Enrollment is limited to students who can qualify for a degree prior to their 28th birthday. Credit for all or a part of the basic course may be granted by the PMS for participation in high school ROTC or for active military service of four or more months.

*Two Year Program.* Students who did not enroll in the basic course or who cannot be given credit for the basic course by virtue of active military service or participation in high school ROTC, may qualify for the advanced course by attending a six week Basic Summer Training Camp. Applicants for the camp should visit the Department of Military Science in February to secure application forms and schedule a physical examination. The student must have a minimum of two years remaining prior to completion of a baccalaureate or advanced degree.

*Advanced Course.* Admission requires selection by the PMS, medical fitness and ability to qualify for a degree prior to the 28th birthday. Prerequisite is completion of the basic course of Basic Summer Training Camp, or credit for the basic course because of military service or high school ROTC. The student is required to execute a contract with the government to accept a commission in the Army upon graduation. The active duty commitment may be as little as three months and will not involuntarily exceed two years.

**SCHOLARSHIPS:** *Four-year Scholarships.* Over one thousand four-year Army ROTC scholarships are available annually. These scholarships are awarded on a national competitive basis to high school graduates. Interested high school seniors should obtain application requests from their counselors and submit the request by December. Application forms are also available by writing to the Military Science Department.

*Three-year Scholarships.* UT El Paso is allocated one three-year Army ROTC scholarship; others are available on a nationally competitive basis. At the beginning of the spring semester, Freshman cadets enrolled in Military Science may apply through the Military Science Department. In SY 1973-74, seven UTEP cadets were awarded three years scholarships.

*Two-year Scholarships.* U.T. El Paso is allocated one two-year Army ROTC Scholarship; others are available on a national competitive basis. Sophomores enrolled in ROTC are eligible. Application is made in December through the Military Science Department. Other two-year scholarships are available on a competitive basis to stu-

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dents attending the basic camp. Application is made at camp.

*One-year Scholarships.* Available to students who have completed MS III. Application is made in May through the Military Science Department.

**PAY AND ALLOWANCES:** All students enrolled in ROTC are furnished summer and winter uniforms, textbooks, and equipment on a loan basis. All advanced course cadets are paid \$100.00 per month for a maximum of twenty months, excluding the six week advanced camp, where pay is at the rate of \$317.10 per month. Army ROTC scholarship cadets have their tuition, required fees, textbooks, and essential classroom supplies paid for by the government. Additionally ROTC Scholarship recipients are paid \$100.00 per month during the fall and spring semesters of their freshman and sophomore years. The government also provides a mileage allowance of six cents per mile to and from basic and advanced camps. Pay at the six week basic camp, attended by candidates for the Two-Year ROTC Program, is at the rate of \$344.10 per month.

**FIGHT TRAINING:** Flight training at a local flying school is available to qualified ROTC cadets in their senior year. A more rigid physical examination is required and special mental screening tests must be passed. Flight training cadets must take flight instruction on their own time. The ROTC Flight Training Program seeks to qualify the individual for a Federal Aviation Agency private pilot's license. All instructional costs are paid by the government. Selected ROTC flight training cadets must agree to serve on active duty for three years and to volunteer for Army Aviation training.

**PARACHUTE TRAINING:** Qualified advanced course cadets may attend the three week Airborne Course at Fort Benning, Georgia. Successful completion of the course qualifies the student as an Army paratrooper. No additional service obligation is incurred.

**ARMY NURSE CORPS:** Participation in Military Science offers the opportunity for nursing students to receive a commission as a Lieutenant in the Army Nurse Corps upon completion of nurses' training. Commissions may also be granted in the Medical Specialists Corps for those completing a course of study in dietetics and physical therapy.

**COMMISSIONS OFFERED:** Upon successful completion of all Military Science studies and requirements for a Baccalaureate Degree, a cadet is tendered a commission as a Second Lieutenant in the United States Army Reserve and will be required to serve on active duty, not to exceed two years. He may request that his active duty be for a period of only three months. Cadets who have completed ROTC Flight Training are required to serve for three years. Students who qualify as Distinguished Military Students at the end of their junior year and maintain the prescribed academic and leadership standards through advanced camp and their senior year, will be designated as Distinguished Military Graduates of U.T. El Paso. Distinguished Military Graduates may apply and qualify for a Regular Army commission — the same as given at the United States Military Academy at West Point. Since U.T. El Paso offers a General Military Science Curriculum, a commission in most branches of the Army is obtainable. Following graduation, the newly commissioned officer is sent to an Orientation Course of about nine weeks to qualify him in his branch, and then completes his tour of active duty through challenging assignments overseas and in the United States. Delays in call to active duty are generally obtainable for those students who wish to pursue graduate studies leading to a Master's Degree, Law Degree, Medical Degree or others.

### **BASIC COURSE**

#### **1101-02 Military Science I (1-1)**

Organization of the Army and ROTC; United States Army and National Security; Military History; and Leadership Laboratory, Academic credit: One hour per semester.

#### **2201-02 Military Science II (2-1)**

Military topography and graphics; Leadership and Management; American Military History; Techniques of Military Operations; and Leadership Laboratory. Academic credit: Two hours per semester.

#### **2215 Military Science II (2-1)**

Introduction to the Army Nurse Corps; History of the Army Medical Department; Fields of Specialization within the Army Nurse Corps. *Prerequisite:* Sophomore preparing for admission to an accredited school of nursing. Academic credit: Two hours per semester.

**ADVANCED COURSE****3301-02 Military Science III (3-1)**

Leadership; Military Teaching Principles; Branches of the Army; Small Unit Tactics and Communications; and Leadership Laboratory. *Prerequisite:* Junior standing, basic course or equivalent military training, and selection by Professor of Military Science. Academic credit: Three hours per semester.

**3315-16 Military Science III (3-1)**

Leadership; Principles of Instruction, branches of the Army; duties of the Army Nurse; Military Doctors' lectures on current Military and medical issues; Periodic visits to William Beaumont Army Medical Center. *Prerequisite:* Junior standing enrolled in the U.T. System School of Nursing, be desirous of a commission in the Army Nurse Corps, basic course or equivalent military training, and selection by Professor of Military Science. Academic credit: Three hours per semester.

**3401-02 Military Science IV (3-1)**

Operations; Logistics; Army Administration; Military Justice; The Role of the United States in World Affairs; Service Orientation; and Leadership Laboratory. *Prerequisite:* Military Science 3301-02. Academic credit: Three hours per semester.



## MODERN LANGUAGES

DIANA S. NATALICIO, *Chairman*

*Professors* AYER, SHARP, SMILEY;

*Associate Professors* BAGBY, BORNSCHEUER, EWTON, NATALICIO, RUSSELL,  
TAPPAN;

*Assistant Professors* ASTIAZARAN, BAILEY, BEYER, BREWER, IRWIN, LANDY,  
NAVAR, PEREZ, RODRIGUEZ, SCRUGGS;

*Instructors* AGUILAR, GARCIA, KLUCK

### *Incoming Students.*

Students with a knowledge of French, German, Russian, or Spanish, should determine their placement according to the paragraph below.

Students with no knowledge of the language: register for 4101.

### *Examinations for Placement.*

All students with a knowledge of a foreign language, however acquired, who have not taken a college course in the language should follow the guidelines listed below for proper placement. Arrangements for placement tests may be made by contacting departmental advisers.

1. Credit will be given for appropriate scores on the CEEB Achievement test taken on or before May 4, 1974. After this date, the CEEB test was replaced by a local placement test. Credit will be given for appropriate scores on this placement test.
2. Students who have completed one year or more of a foreign language in high school and who wish to continue in the same language should take the placement test, or register for 4101.
3. Native speakers should take the placement test.

### *Courses for Spanish-Speaking Students*

Students who speak Spanish natively and who wish to take courses in Spanish should take the sequence of courses especially designed for Spanish-speakers: 4103, 4104, 3203, and 3204. Students who take 4103, 4104, 3203, and 3204 cannot receive credit for 4101, 4102, 3201, and 3202.

### *General Foreign Language Requirement for all B.A. Degrees*

All programs leading to the B.A. degree require completion of course 3202 or 3204 in a foreign language. The requirement is not a fixed number of semester hours, but a level of achievement. The 4101-02, 3201-02 or 4103-04, 3203-04 course sequence can be reduced by successful examinations (see above). The requirement may be completed in French, German, Italian, Portuguese, Russian or Spanish. Some Departments require that their majors take a certain foreign language.

### *Major Requirements in Modern Languages; Definition of "advanced hours"*

Requirements for majors in French, German and Spanish are set forth below in terms of advanced hours (semester hours earned in courses numbered 3300 or above). Completion of course 3202 or 3204 is the prerequisite for all 3300 courses.

#### **B.A. Degree in French, German or Spanish (without teacher certification)**

Twenty-one semester hours of advanced courses in the major including at least nine hours of 3400-level courses. Courses 3201-02 or 3203-04 in a second foreign language.

#### **B.A. Degree in French, German or Spanish (with teacher certification)\*\***

\*\*For other requirements concerning teacher certification, including a second teaching field and the required sequences of Education courses, the student should consult with the College of Education.

#### **FRENCH:**

21 semester hours of advanced courses in French including:

**French**        3301  
                  3303  
                  3357  
                  3401  
                  (2205 recommended for non-native speakers)

**GERMAN:**

21 semester hours of advanced courses in German including:

- German** 3301  
3303  
3357  
3401

**SPANISH:**

21 semester hours of advanced courses in Spanish including:

- Spanish** 3309  
3320 or 3322 or 3405  
3357  
3400 or 3401 or 3402  
3472  
six hours from 3301, 3302, 3303, 3304

*Linguistics Majors, or Spanish majors interested in linguistics.*

Note that the following courses may be taken for credit either in Spanish or Linguistics: Spanish (or Linguistics) 3309, 3400, 3401, 3472, 3473, 3494.

**FRENCH**

**For Undergraduates**

- 4101-02 Beginning French (5-0)**  
An introductory course with emphasis on pronunciation, the basic elements of grammar, and practice in understanding, speaking, reading and writing everyday French with some facility.
- 3108 Conversation (3-0)**  
Conversation and spoken drill with emphasis on the language used in modern everyday situations. Oral discussions on current topics, vocabulary building. Not for native speakers. May not be used to fulfill requirement for Bachelor of Arts degree.
- 3201-02 Intermediate French (3-0)**  
Oral and written work in French; grammar review; reading from modern French authors. *Prerequisite:* French 4102.
- 2205 French Phonetics (2-0)**  
Systematic classroom pronunciation practice based on a theoretical understanding of the sound system of the French language. *Prerequisite:* French 3201.
- 3301 French Literature I (3-0)**  
Introduction to French Literature through the Eighteenth Century. Main literary trends and principal writers from the Middle Ages through the Enlightenment. *Prerequisite:* French 3202.
- 3303 French Literature II (3-0)**  
Introduction to French Literature of the Nineteenth and Twentieth Centuries. Main literary trends and principal writers from the Romantic Period to the present. *Prerequisite:* French 3202.
- 3320 French Civilization (3-0)**  
A survey of the political, social, intellectual and artistic history of France. *Prerequisite:* French 3202.
- 3350 French Literature in Translation (3-0)**  
Readings in English translation from periods and genres of French literature. Taught in English. *Prerequisite:* 6 hours of sophomore literature.
- 3357 Advanced Composition (3-0)**  
*Prerequisite:* French 3202.

**For Undergraduates and Graduates**

- 3401 Methods of Foreign Language Instruction (3-0)**  
Practical application of linguistic principles to the teaching of modern foreign languages. Classroom techniques, development and evaluation of teaching and testing materials appropriate to the written and spoken languages. May not be

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- counted for credit in addition to German 3401, Spanish 3401, or Linguistics 3401. *Prerequisite:* 6 hours of advanced courses in French.
- 3431 **Sixteenth Century Literature (3-0)**  
Rabelais, Ronsard, Montaigne, and others. *Prerequisite:* 6 hours of advanced French.
- 3432 **The Classical Period (3-0)**  
Representative authors of the seventeenth century, including Corneille, Moliere and Racine. *Prerequisite:* 6 hours of advanced French.
- 3434 **Eighteenth Century Literature (3-0)**  
Rousseau, Diderot, Voltaire, and others. *Prerequisite:* 6 hours of advanced French.
- 3435 **Nineteenth Century Novel: Early Period (3-0)**  
Hugo, Stendhal, Balzac, and others. *Prerequisite:* 6 hours of advanced French.
- 3437 **Late Nineteenth and Twentieth Century Novel (3-0)**  
Flaubert, Zola, Daudet, France, and others. *Prerequisite:* 6 hours of advanced French.
- 3439 **The Short Story (3-0)**  
*Prerequisite:* 6 hours of advanced French.
- 3458 **Contemporary Literature (3-0)**  
Novel and drama after 1937. *Prerequisite:* 6 hours of advanced French.
- 3477 **Lyric Poetry (3-0)**  
*Prerequisite:* 6 hours of advanced French.
- 3490 **Senior Seminar (3-0)**  
*Prerequisite:* 6 hours of advanced French and consent of instructor. May be repeated for credit when topics vary.

**For Graduate Students Only**

*Prerequisite:* Twelve hours of advanced courses in French.  
and a Bachelor's degree.

- 3550 **Old French (3-0)**  
Studies in language and literature from the "Serments de Strasbourg" to the 14th century.
- 3551 **Literature of the Middle Ages and the Renaissance (3-0)**  
Readings in the most important works of the 15th and 16th century.
- 3552 **The Classical Period (3-0)**  
Readings in seventeenth century in French literature.
- 3353 **The Age of Enlightenment (3-0)**  
Readings in eighteenth century French literature.
- 3561 **Nineteenth Century Literature (3-0)**  
Readings in the major works of the nineteenth century.
- 3565 **Literature of the Early Twentieth Century (3-0)**  
Readings in literature until 1939.
- 3567 **Contemporary Literature (3-0)**  
Readings from 1939 to the present.
- 3568 **Literary Criticism (3-0)**  
A study of criticism from Sainte-Beuve to the present.
- 3569 **Studies in the Novel\* (3-0)**  
Studies in the development of the genre through the ages.
- 3571 **Studies in the Theater\* (3-0)**  
Studies in the development of the genre through the ages.
- 3573 **Studies in Poetry\* (3-0)**  
Studies in the development of the genre through the ages.

\* May be repeated for credit when the topic varies.



## GERMAN

## For Undergraduates

- 4101-02 **Beginning German (5-0)**  
An introductory course with emphasis on pronunciation, the basic elements of grammar, and practice in understanding, speaking, reading and writing everyday German with some facility.
- 3103-04 **Reading German (3-0)**  
Fundamentals of grammar, reading of elementary texts, reading and translation of intermediate texts in various fields of science and technology. Primarily for science majors. May not be used to fulfill language requirement for the Bachelor of Arts Degree.
- 3108 **Conversation (3-0)**  
Conversation and spoken drill with emphasis on the language used in modern everyday situations. Oral discussions on current topics, vocabulary building. Not for native speakers. May not be used to fulfill language requirement for the Bachelor of Arts degree.
- 3201-02 **Intermediate German (3-0)**  
Oral and written work in German; grammar review; readings from modern German authors. *Prerequisite:* German 4102.
- 3301 **German Literature before 1750 (3-0)**  
Main literary trends and principal writers from the beginnings through the Enlightenment. *Prerequisite:* German 3202.
- 3303 **German Literature since 1750 (3-0)**  
Main literary trends and principal writers from the birth of Goethe to the present. *Prerequisite:* German 3202.
- 3320 **German Civilization (3-0)**  
A survey of the political, social, intellectual and artistic history of Germany. *Prerequisite:* German 3202.
- 3350 **German Literature in Translation (3-0)**  
Readings in English translation from various periods and genres of German literature. Taught in English. *Prerequisite:* 6 hours of sophomore literature.
- 3357 **Advanced Composition (3-0)**  
*Prerequisite:* German 3202.

## For Undergraduates and Graduates

- 3401 **Methods of Foreign Language Instruction (3-0)**  
Practical application of linguistic principles to the teaching of modern foreign languages. Classroom techniques, development and evaluation of teaching and testing materials appropriate to the written and spoken languages. May not be counted for credit in addition to French 3401, Spanish 3401 or Linguistics 3401. *Prerequisite:* 6 hours of advanced German.
- 3433 **Masterpieces of German Literature (3-0)**  
Intensive readings from masterpieces of German literature. At least four complete works from such authors as Goethe, Schiller, Kleist, etc. *Prerequisite:* 6 hours of advanced German.
- 3439 **The Novelle and Short Story (3-0)**  
A study of the shorter fictional forms in German from the time of Goethe to the present. *Prerequisite:* 6 hours of advanced German.
- 3441 **Modern Drama (3-0)**  
A study of the modern German drama through the works of such authors as Buchner, Grillparzer, Hebbel, Hauptmann, etc. *Prerequisite:* 6 hours of advanced German.
- 3450 **Medieval Literature (3-0)**  
Readings in German Literature from its beginnings to the end of the Middle Ages. Middle High German works will be read in the original. *Prerequisite:* 6 hours of advanced German.

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- 3458 **Contemporary Literature (3-0)**  
Emphasis on the novel with some attention to the contemporary drama. Study of such authors as Hesse, Mann, Kafka, Grass, etc. *Prerequisite:* 6 hours of advanced German.
- 3477 **Poetry (3-0)**  
German poetry from the Middle Ages to the twentieth century. *Prerequisite:* 6 hours of advanced German.
- 3490 **Senior Seminar (3-0)**  
May be repeated when topics vary. *Prerequisite:* 6 hours of advanced German and consent of instructor.

**For Graduate Students Only**

*Prerequisite:* Twelve hours of advanced courses in German and a Bachelor's degree.

- 3590 **Seminar (3-0)**  
May be repeated when topics vary.

**ITALIAN**

- 4101-02 **Beginning Italian (5-0)**  
An introductory course with emphasis on pronunciation, the basic elements of grammar, and practice in understanding, speaking, reading and writing everyday Italian with some facility.
- 3201-02 **Intermediate Italian (3-0)**  
Reading from modern writers; oral and written work in Italian; grammar review. *Prerequisite:* Italian 4102 or equivalent.

**LATIN**

- 4103-04 **Fundamentals of Latin (reading emphasis) (5-0)**  
Reading of elementary and intermediate texts; grammar, written exercises. Intended to provide a basis for advanced study in Romance Languages.

**PORTUGUESE**

- 3201-02 **Intensive Portuguese (3-0)**  
Intensive course in pronunciation and grammar; practice in speaking, understanding, reading, and writing everyday Portuguese; reading from modern Brazilian and Portuguese writers. *Prerequisite:* Spanish 4102 or equivalent.
- 3301 **Portuguese Literature (3-0)**  
An introductory survey of Portuguese literature. Selected readings from the most representative authors, including Camoes, Garret, and Eca de Queiros. *Prerequisite:* Portuguese 3202.
- 3321 **Introduction to Brazilian Literature (3-0)**  
An introductory survey of Brazilian literature and culture. Selected readings from major works of Brazilian prose and poetry. Conducted in Portuguese. *Prerequisite:* Portuguese 3202.
- 3490 **Senior Seminar (3-0)**  
May be repeated when topics vary. *Prerequisite:* 6 hours of advanced Portuguese and consent of instructor.

**RUSSIAN**

**For Undergraduates**

- 4101-02 **Beginning Russian (5-0)**  
An introductory course with emphasis on pronunciation, the basic elements of grammar, and practice in understanding, speaking, reading and writing everyday Russian with some facility.
- 3103-04 **Reading Russian (3-0)**  
An introduction to the structure of the language necessary for reading and translation of texts in science and technology. May not be used to fulfill the foreign language requirement for the B.A. degree.

- 3201-02 Intermediate Russian (3-0)**  
 Conversation, composition, reading of simple fiction, grammar review. Grammatical, oral, and written practice based on reading material. *Prerequisite:* Russian 4102.
- 3301 Nineteenth Century Literature (3-0)**  
 Major works of the 19th century: Pushkin, Lermontov, Gogol, Dostoevsky, Tolstoy, Chekhov, and the various trends at the beginning of the 20th century: Symbolism, Acmeism, Futurism, and other movements. *Prerequisite:* Russian 3202. Taught in Russian.
- 3303 Soviet Literature (3-0)**  
 Major developments in Russian literature since 1917: representative works by Gorky, Sholokhov, Olesha, Mayakovski, Eisenin, and others. *Prerequisite:* Russian 3202. Taught in Russian.
- 3320 Russian Civilization (3-0)**  
 The comparative aesthetics and development of art, film, music, architecture, and literature within the context of Russian history, philosophy, religion and government. Taught in English. *Prerequisite:* Junior standing.
- 3350 Russian Literature in Translation (3-0)**  
 Readings in English translation from various periods and genres of Russian literature. Taught in English. *Prerequisite:* 6 hours of sophomore literature.

**SPANISH**

**For Undergraduates**

- 4101-02 Beginning Spanish (3-0)**  
 An introductory course with emphasis on pronunciation, the basic elements of grammar, and practice in understanding, speaking, reading and writing everyday Spanish with some facility.
- 4103-04 Basic Spanish For Native Speakers (5-0)**  
 The bilingual student's knowledge of Spanish is used as a basis to increase reading and writing skills as well as oral expression in Spanish by means of vocabulary building and grammar study.
- 3108 Conversational Spanish (3-0)**  
 Conversation and spoken drill with emphasis on the language used in modern everyday situations. Oral discussions on current topics, vocabulary building. Not for native speakers. May not be used to fulfill language requirements for the Bachelor or Arts Degree.
- 3201-02 Intermediate Spanish (3-0)**  
 Oral and written work in Spanish; grammar review; reading from modern Spanish authors. *Prerequisite:* Spanish 4102.
- 3203-04 Intermediate Spanish For Native Speakers (3-0)**  
 Emphasis on reading and writing skills, vocabulary building techniques oral work, grammar review. Introduction to Spanish and Spanish American literature. Lectures on cultural topics of interest to the bilingual student. *Prerequisite:* Spanish 4104.
- 3301 Spanish Literature before 1700 (3-0)**  
 Main literary trends and principal writers from the Middle Ages through the Golden Age. *Prerequisite:* Spanish 3202 or 3204.
- 3302 Spanish American Literature through Modernism (3-0)**  
 Main literary trends and principal writers in Spanish America from the sixteenth century through Modernism. *Prerequisite:* Spanish 3202 or 3204 or the equivalent.
- 3303 Spanish Literature since 1700 (3-0)**  
 Main literary trends and principal writers from the Eighteenth Century to the Contemporary period. *Prerequisite:* Spanish 3202 or 3204.
- 3304 Spanish American Literature since Modernism (3-0)**  
 Main literary trends and principal writers in Spanish America since Modernism. *Prerequisite:* Spanish 3202 or 3204 or the equivalent.

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- 3308 **Business Spanish (3-0)**  
Supervised practice in the composition of business letters, memos, and reports in Spanish. *Prerequisite:* Spanish 3202 or 3204 or consent of instructor.
- 3309 **The Structure of Spanish (3-0)**  
Linguistic analysis of Spanish, including phonology, morphology, and syntax. Same as Linguistics 3309. *Prerequisite:* Spanish 3202 or 3204 or equivalent.
- 3320 **Spanish Civilization (3-0)**  
A survey of the political, social, intellectual and artistic history of Spain. *Prerequisite:* Spanish 3202 or 3204.
- 3322 **Latin American Culture (3-0)**  
An interpretation of the culture of Latin America through contemporary literature. Conducted in Spanish. *Prerequisite:* Spanish 3202 or 3204.
- 3325 **The Confluence of Mexican and Chicano Literature (3-0)**  
Comparative study of representative works in both Mexican and Chicano literature, stressing differences and correlations between the two. *Prerequisite:* Spanish 3202 or 3204.
- 3350 **Hispanic Literature in Translation (3-0)**  
Readings in English translation from various periods and genres of Hispanic literature. Taught in English. *Prerequisite:* 6 hours of sophomore literature.
- 3357 **Advanced Composition (3-0)**  
*Prerequisite:* Spanish 3202 or 3204.
- For Undergraduates and Graduates**
- 3400 **Teaching Spanish in the Southwest (3-0)**  
A course designed to acquaint prospective teachers of Spanish in the Southwest with (1) practical application of modern linguistics to the teaching of Spanish; (2) a survey and critique of effective teaching techniques; (3) bicultural and bilingual problems peculiar to this area. Taught in Spanish. Same as Linguistics 3400. Spanish 3400 and 3401 may not both be counted. *Prerequisite:* 6 hours of advanced Spanish, preferably including Spanish 3309.
- 3401 **Methods of Foreign Language Instruction (3-0)**  
Practical application of linguistic principles to the teaching of modern foreign languages. Classroom techniques, development and evaluation of teaching and testing materials appropriate to the written and spoken languages. May not be counted for credit in addition to French 3401, German 3401 or Linguistics 3401. Spanish 3401 and 3400 may not both be counted. *Prerequisite:* 6 hours of advanced courses in Spanish.
- 3402 **Spanish for Teachers (3-0)**  
An overview of the principal features of Southwest Spanish as it might occur in a school setting, and of Spanish vocabulary required to teach in Spanish the basic areas of the school curriculum. *Prerequisite:* 6 hours of advanced Spanish.
- 3405 **Hispanic Culture for Teachers (3-0)**  
Contrasting interpretation of Hispanic and Anglo-American culture with special attention to cultural traditions of Spanish-speaking populations, including Spain, Spanish America and Spanish-speaking groups in the U.S. *Prerequisite:* 6 hours of advanced Spanish.
- 3414 **Literary Theory and Analysis (3-0)**  
Literary genres, criticism, esthetics, metrics, rhetoric, oriented toward the Hispanic literary tradition. Recommended for students considering future graduate study in the Hispanic literatures. *Prerequisite:* Spanish 3202 or 3204.
- 3424 **The Literature of Mexico (3-0)**  
Principal genres and major works of Mexican literature. *Prerequisite:* 6 hours of advanced Spanish.
- 3425 **The Novel of the Mexican Revolution (3-0)**  
The principal novelists of the Mexican Revolution: Lopez y Fuentes, Azuela, Guzman, etc. *Prerequisite:* 6 hours of advanced Spanish.
- 3428 **Golden Age Drama (3-0)**  
A study of the leading dramatists: Lope de Vega, Tirso de Molina, Calderon de la Barca, Ruiz de Alarcon, Moreto and others. *Prerequisite:* 6 hours of advanced Spanish.

- 3432 **Classical Spanish Prose (3-0)**  
A study of the Spanish picaresque, chivalresque and pastoral novels and shorter forms. Some consideration of mystic and satirical masterpieces. Outside reading reports. *Prerequisite:* 6 hours of advanced Spanish.
- 3435 **Nineteenth Century Spanish Novel (3-0)**  
Readings from such authors as: Fernan Caballero, Valera, Alarcon, Pereda, Perez Galdos, Pardo Bazan, etc. *Prerequisite:* 6 hours of advanced Spanish.
- 3439 **The Short Story (3-0)**  
Shorter fictional forms in Spain and Spanish America from Juan Manuel to the present. *Prerequisite:* 6 hours of advanced Spanish.
- 3441 **Modern Spanish Drama (3-0)**  
Readings from representative Spanish dramatists such as Benavente, Lorca, Casona and Buero Vallejo. *Prerequisite:* 6 hours of advanced Spanish.
- 3448 **Spanish Play Production (3-0)**  
Intensive analysis of outstanding plays from Spain or Spanish America, with emphasis on literary values and on problems of staging; public performance of at least one play at the end of the semester. *Prerequisite:* 6 hours of advanced Spanish and consent of the instructor.
- 3451 **Latin American Philosophy (3-0)**  
Selected works of Latin American thinkers (Rodo, Vasconcelos, Sarmiento, Vaz Ferreira, Octavio Paz, and others) are read and discussed both as contributions to literature and as milestones in the formation of modern Latin American thought. Team-taught by the Departments of Modern Languages and Philosophy. May not be counted for credit in addition to Philosophy 3212. *Prerequisite:* 6 hours advanced Spanish.
- 3456 **The Generation of 1898 (3-0)**  
Selected readings from the prose, poetry, and drama of twentieth century Spain prior to the Civil War, including authors such as Unamuno, Azorin, Ortega and Baroja. *Prerequisite:* 6 hours of advanced Spanish.
- 3457 **Syntax and Stylistics (3-0)**  
Syntactical and stylistic analysis of contemporary texts in Spanish: free composition and creative writing. *Prerequisite:* 6 hours of advanced Spanish including Spanish 3357.
- 3458 **Translation (3-0)**  
Techniques of translation of English into Spanish and vice-versa, including instantaneous oral, literary, business, and other forms of translation. *Prerequisite:* 6 hours of advanced Spanish.
- 3459 **Twentieth Century Spanish Literature (3-0)**  
Readings in outstanding works by the principal authors of Spain of this century. Emphasis on a genre or type. *Prerequisite:* 6 hours of advanced Spanish.
- 3460 **The Regional and Historical Novel of Latin America (3-0)**  
Study of novels representing the major geographical regions of Latin America, with their characteristic patterns of culture and speech. *Prerequisite:* 6 hours of advanced Spanish.
- 3461 **Don Quixote (3-0)**  
The literary value and influence of the *Quijote*. Traditional and modern interpretations. The life and times of Cervantes. Collateral readings and reports. *Prerequisite:* 6 hours of advanced Spanish.
- 3462 **New World Chronicles (3-0)**  
Literary study of diaries, accounts, biographies of Spanish explorers in the New World with special attention to the American Southwest. *Prerequisite:* 6 hours of advanced Spanish.
- 3464 **Latin American Poetry (3-0)**  
Study and interpretation of major poets and movements from the Colonial period to the present. Emphasis on the Modernist period and contemporary poetry. *Prerequisite:* 6 hours of advanced Spanish.

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- 3465 **The Contemporary Urban Novel of Latin America (3-0)**  
A survey of the increasing tendency among Latin American novelists to portray life in rapidly growing population centers. *Prerequisite:* 6 hours of advanced Spanish.
- 3467 **The Essay (3-0)**  
A study of the Spanish and Spanish American Essay of the nineteenth and twentieth centuries: Larra, Ganivet, Rodo, Bello, Sarmiento, Marti, Sierra, Caso, Reyes and others. Conducted in Spanish. *Prerequisite:* 6 hours of advanced Spanish.
- 3472 **Contrastive Linguistics, English-Spanish (3-0)**  
A contrastive study of the phonological, morphological, and syntactical systems of Spanish and English. Same as Linguistics 3472. *Prerequisite:* 6 hours of advanced Spanish, preferably including Spanish 3309.
- 3473 **The Spanish Language in the Americas (3-0)**  
The historical development of American Spanish including contemporary dialects of Latin America and the United States. *Prerequisite:* 6 hours of advanced Spanish or Linguistics.
- 3477 **Spanish Poetry (3-0)**  
Selected readings from the poetry of Spain including authors such as Manrique, Gongora and Lorca. *Prerequisite:* 6 hours of advanced Spanish.
- 3490 **Senior Seminar (3-0)**  
May be repeated when topics vary. *Prerequisite:* 6 hours of advanced Spanish.
- 3494 **History of the Spanish Language (3-0)**  
A survey of the phonological, morphological and syntactical changes from Vulgar Latin to modern Spanish. Same as Linguistics 3494. *Prerequisite:* 6 hours of advanced Spanish, preferably including 3309.

**For Graduate Students Only**

Departmental Requirements for admission to the M.A. program in Spanish are:

1. Fulfillment of general admission requirements for graduate study.
2. A satisfactory score on the Advanced Spanish Test of the Graduate Record Examination.

Students seeking conditional admission with deficiencies will be required to complete advanced level undergraduate courses as directed by the Graduate Adviser. Such courses will not count toward the M.A. degree.

*Program for the M.A. in Spanish:*

**PLAN I (NON-THESIS OPTION)**

Requirements:

1. Complete 36 hours of courses for graduate credit, including 30 hours of 3500-level courses in Spanish. A minor in a related field may be offered, with approval of the Committee on Graduate Studies.
2. Submit two graduate seminar research papers, suitably bound, as required by the Graduate School.
3. Complete course 3202 in a second foreign language with a grade of at least B, or demonstrate equivalent proficiency.
4. Pass a written comprehensive examination based on a prescribed reading list.

**PLAN II (THESIS OPTION)**

Plan II is considered a pre-Ph.D. program and is especially recommended for students planning future doctoral work. The candidate must petition the Committee on Graduate Studies for admission to Plan II, submitting two term papers prepared for graduate courses. Requests will be accepted after completion of 12 graduate hours.

**Requirements:**

1. Complete 24 hours of courses for graduate credit, including 18 hours of 3500-level courses in Spanish. A minor in a related field may be offered, with approval of the Committee of Graduate Studies.
2. Complete Spanish 3598-99, thesis. A prospectus outlining the proposed thesis must be approved by the Committee on Graduate Studies. The thesis will be defended orally.
3. Complete course 3202 in a second foreign language with a grade of at least B, or demonstrate equivalent proficiency.
4. Pass a written comprehensive examination based on a prescribed reading list. This examination should be passed before registering for Spanish 3598.

*Prerequisite for Graduate Courses:* Twelve semester hours of advanced courses in Spanish and a Bachelor's degree.

The following symbols indicate when a graduate course is taught: I: Even Fall; II: Odd Spring; III: Odd Summer; IV: Odd Fall; V: Even Spring; VI: Even Summer.

**GENERAL COURSES**

- 3501 Research Methods and Bibliography (3-0) (I, IV)**  
The basic course for graduate work in Spanish. Designed to equip the student with effective techniques for preparing the Master's paper, the M.A. thesis, and other forms of scholarly research and writing.
- 3502 Independent Study (3-0) (I, II, III, IV, V, VI)**  
Subject to be determined in consultation with the Graduate Adviser.
- 3598-99 Master of Arts Thesis (I, II, III, IV, V, VI)**  
To be taken only by those who have been approved by the graduate committee to write a six hour thesis.

**SPANISH AMERICAN LITERATURE**

- 3511 Indigenous Literature of Latin American (3-0) (III)**  
Readings in Spanish translations of important works of the Mayan, Nahuatl and Incan cultures of Latin America.
- 3513 The Conquest and the Colonial Period (3-0) (V)**  
Readings from selected works of Hispanic discoverers, conquistadores, and literati of Latin America from 1492 through the seventeenth century.
- 3515 Premodernism and Modernism (3-0) (I)**  
Readings in the works of major Latin American poets of the nineteenth and early twentieth century, with special attention placed upon Ruben Dario and his school.
- 3517 Postmodernism and Contemporary Poetry (3-0) (VI)**  
Readings in the works of major Latin American poets from approximately 1910 to the present.
- 3519 The Short Story and the Narrative in Latin America\* (3-0) (II)**  
Spanish American narrative works (exclusive of the novel) of the nineteenth and twentieth centuries. While particular attention will be devoted to the short story, the instructor may include other types of narratives, such as the artistic biography.
- 3521 The Latin American Novel\* (3-0) (IV)**  
Reading in the Latin American novel: different periods and various categories of novels (i.e., the urban novel, the regional novel, etc.), may be dealt with in successive offerings of this course.
- 3523 The Hispanic Essay\* (3-0) (II)**  
The development and influence of the essay in the Hispanic world. Included in the readings are both Peninsular and Latin American writers.
- 3525 Latin American Theatre\* (3-0) (I)**  
Spanish American theatre from its beginnings to the present, with particular emphasis on the contemporary drama.

**SPANISH LITERATURE**

- 3551 **Old Spanish Literature (3-0) (VI)**  
Study of the literature of the Spanish Middle Ages, with selections from works such as the *Jarchas*, *Poema del Cid*, *Milagros of Berceo*, the *Libro de Buen Amor*, etc.
- 3553 **Golden Age Drama (3-0) (III)**  
Readings in major works of Spain's classical theater, by authors such as Lope de Vega, Tirso de Molina, Pedro Calderon de la Barca.
- 3555 **Picaresque Novel (3-0) (IV)**  
Readings in the genre that so significantly influenced subsequent novels in Spain and abroad, beginning with the *Lazarillo de Tormes*.
- 3557 **Cervantine Studies (3-0) (V)**  
The works of Cervantes, stressing the *Quijote*.
- 3559 **Eighteenth Century Spanish Literature (3-0) (IV)**  
Studies in literary Neo-Classicism through some of its major representatives, such as Feijoo, Luzan, Cadalso, Jovellanos, Melendez Valdes, Moratin, etc.
- 3561 **Nineteenth Century Spanish Literature (3-0) (V)**  
Studies in the principal literary movements of the century — romanticism, realism, and naturalism — through outstanding writers of prose, poetry, and drama.
- 3563 **Studies in Galdos (3-0) (II)**  
Readings in the major works of Benito Perez Galdos.
- 3565 **Early Twentieth Century Spanish Literature (3-0) (III)**  
Readings in the works of the Generation of '98 and other Spanish writers prior to the Civil War.
- 3567 **Contemporary Spanish Literature (3-0) (I)**  
Spanish literature since the Civil War.
- 3569 **Studies in the Spanish Novel\* (3-0) (VI)**  
Studies in works of prose fiction from the Middle Ages to the present. Emphasis on a particular period or novelistic type.
- 3571 **Studies in Spanish Theater\* (3-0) (II)**  
Readings from the principal dramatic works of Spain. Emphasis on a particular type or period.
- 3573 **Studies in Spanish Poetry\* (3-0) (V)**  
Study of major poets of Spain with emphasis on a specific school or period.

**LANGUAGES AND LINGUISTICS**

- 3585 **History of the Spanish Language (3-0) (IV)**  
The development of the language from Vulgar Latin to modern Spanish, with selected readings from different periods.
- 3586 **Spanish Dialect Studies\* (3-0) (II)**  
Study of regional and social dialects in Spain and Spanish America.
- 3587 **Applied Spanish Linguistics: Research Methods (3-0) (V)**  
Methods, techniques, and designs of linguistic research including execution of simple research projects.
- 3588 **Studies in Bilingualism\* (3-0) (I, III)**  
Study of social and linguistic aspects of bilingualism.
- 3589 **Problems in Language Instruction\* (3-0) (VI)**  
A course designed for language teachers involving study of psychological, linguistic and methodological aspects of language instruction and testing. Same as Linguistics 3589.

\* May be repeated for credit when the topic varies.



## MUSIC

R. E. HENDERSON, *Chairman*

*Professors* CHAVEZ, EIDBO, HENDERSON, THORMODSGAARD,  
TROSZCZEWSKI (TROSS),

*Associate Professors* CARDON, PAUL, STANLEY, SWINGLE

*Assistant Professors* FOUNTAIN, GIBSON, HEUSER, KRESS,  
LEWIS, MUTNICK, WRIGHT;

*Instructors* EVERS, STRIBLING;

*Part-Time Instructor* ANTUNEZ

### THEORY

#### For Undergraduates

- 3111, 3112 **Music Fundamentals (3-0)**  
Functional experiences in the basic fundamentals of music with simple melodic, harmonic and rhythmic activities; one through four-part singing and dictation. Open to all.
- 1111, 1112 **Sight-Singing and Dictation (1-1)**  
Experience in aural recognition of tone relations through sight-singing, dictation, and keyboard activities. Concurrent registration with 3113, 3114 required. *Prerequisite:* Music 3112, or equivalent background.
- 3113, 3114 **Essentials of Acoustics and Music Theory (3-0)**  
The combination, transmission and effects of musical sounds, utilizing symbols. The logic of order in music as exemplified in acoustics, overtone series, scales, diatonic harmony, rhythm, melody writing, non-harmonic devices, simple modulation. Concurrent registration with 1111, 1112 required. *Prerequisite:* 3112, or equivalent background.
- 3115 **Introduction to Electronic Music (3-1)**  
Brief survey of history of electronic music and the theory of synthesizers. Laboratory experience in the synthesizing and tape processing of sounds. Open to all.
- 1211, 1212 **Sight Singing and Dictation (1-1)**  
Continuation of Music Theory 1112; Concurrent registration with 3213-14 required.
- 3213, 3214 **Harmony (3-0)**  
Continuation of melodic and harmonic dictation and part writing; harmonic analysis and simple forms; seventh chords; altered chords, keyboard practice. *Prerequisite:* Music 3113-14. Concurrent registration with 1211-12 required.

#### For Undergraduates and Graduates

- 2311, 2312 **Counterpoint (Seminar) (2-0)**  
Continuation of melodic and harmonic dictation; mixed chords, foreign modulation. Survey of sixteenth and eighteenth century contrapuntal techniques as exemplified in Palestrina and Bach. Introduction to Composition. *Prerequisite:* Music 3213-14.
- 2313, 2314 **Seminar: Composition (2-0)**  
Modern styles of composition, including techniques from the Schillinger System, are integrated with traditional theory and composition in a practical course covering the smaller forms in vocal and instrumental music. *Prerequisite:* Theory 3213-14 or equivalent.
- 2315, 2316 **Form and Analysis (2316 Seminar) (2-0)**  
Detailed study of the logic of musical structure as exemplified in representative works beginning with song forms and including the larger forms. *Prerequisite:* Music 3213-14.

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- 2411 **Choral Arranging (2-0)**  
A study of basic principles of writing, arranging, and editing choral music in two to eight parts. Emphasis upon music suitable for public school choral groups. *Prerequisite:* Music 3213-14.
- 2412 **Instrumentation and Orchestration (2-0)**  
A study of orchestral and band instruments by classification. The range capabilities and limitations, timbre, transposition, etc. Practical experience is scoring for various combinations of instruments from trios to full orchestra and band. *Prerequisite:* Music 3213-14 and four semester hours, or equivalent, of class instruments.
- 2413, 2414 **Seminar: Advanced Composition (Indiv.)**  
*A continuation of Music 2313-14 with emphasis upon modern music and larger forms. Prerequisite:* Music 2313-14.
- 2415 **Seminar in Music Theory (Indiv.)**  
A study of melodic, harmonic and rhythmic devices and aspects of style including form, texture and tonality; practical experience in abstracting and applying theoretical principles. *Prerequisite:* Music 2315, and permission of Head of Department.

**LITERATURE AND HISTORY**

**For Undergraduates**

- 1141 **Band Literature\* (1-1)**  
A study of selected works in the field of band literature. Concurrent registration with band is required. *Prerequisite:* Placement.
- 1151 **Choral Literature\* (1-1)**  
A study of selected works in the field of choral literature. Concurrent registration with choir or chorus is required. *Prerequisite:* Placement.
- 1161 **String Orchestra Literature\* (1-1)**  
A study of selected works in the fields of orchestra literature. Concurrent registration with orchestra is required. *Prerequisite:* Placement.
- 1165 **Chamber Music and Accompanying\* (1-1)**  
Reading of music and the study of selected works characteristic to the performing group. *Prerequisite:* Placement.
- 2121, 2122 **Introduction to Music Literature (2-0)**  
A general survey of the history of music in the Western world, including some discussion of the music of non-western cultures. Music Majors. Non-majors by permission of instructor.
- 3124 **Our Fascinating World of Music (3-0)**  
A course for all students who wish to derive understanding and enjoyment from musical experiences. Guided listening to live and recorded music of a wide variety. Basic introduction to notation. *No musical background is assumed.*
- 3126 **The Music of Mexico (3-0)**  
A survey of Mexican music from pre-conquest times to the present. Study of music of the *Mayan and Aztec Indians*. Mexican folk music and dances, the "Mariachi," popular music and 20th century Nationalism. Representative literature demonstrated by guest artists and recordings. Open to all.
- 3127 **Jazz to Rock (3-0)**  
A study of the styles, performers and composers of American Jazz music, beginning with the evolution of early jazz styles which combine English, Spanish, and French folk songs with African tribal rhythms, and continuing to the present. Guest artists and audio-visual aids are used. *Open to all.*
- 3128 **Broadway Music (3-0)**  
The influence of tin-pan-alley, vaudeville, burlesque, musical revues, and musical trends throughout the world, both *classical and popular*. Guest lectures, films, recordings, and live performances utilized. *Open to all.*

\* *May be repeated for credit.*

**For Undergraduates and Graduates**

- 2319 **Music in the Middle Ages and Renaissance (2-0)**  
Music history and style from the fall of Rome through 1600. *Prerequisite:* Junior standing and 2122 or equivalent.
- 2320 **Music in the Baroque and Early Classic Era (2-0)**  
Music history and style from 1600 to 1770. *Prerequisite:* Junior standing and 2122 or equivalent.
- 2321 **Music in the Classic Era and Romantic Era (2-0)**  
Music history and style from 1770 to 1890. *Prerequisite:* Junior standing and 2122 or equivalent.
- 2322 **Music in the Late Romantic Era and Twentieth Century (2-0)**  
Music history and style from 1890 to the present. *Prerequisite:* Junior standing and 2122 or equivalent.
- 2343-44 **History of Ballet (2-0)**  
The evolution of Ballet, choreographic styles and traditions, significant artists and their contributions, and contemporary ballet. *Prerequisites:* Ballet 3242.

**MUSIC EDUCATION**

**For Undergraduates**

- 1201 **Guided Observation, Professional Laboratory Experiences\*** (1-1)  
Observation of musical performances by individuals, groups, and organized classes of all age levels. This course is designed to enable students on the Sophomore and Junior levels to encounter professional problems and solutions.

**For Undergraduates and Graduates**

- 3331 **Choral Procedures, Techniques and Conducting in Elementary Schools (3-0)**  
A study of unique problems in choir organization including the selection of voices. Special attention is given to the musical needs of the Elementary Grades, including rehearsal techniques phonetics, literature, interpretation, and baton techniques. *Prerequisite:* For music majors 20 hours in music and Junior standing; for others, Music Theory 3114 and Junior standing.
- 3333 **Techniques, Materials and Conducting in Secondary Schools (3-0)**  
Selected problems in conducting, including instrumental experiences. Methods of developing good posture, baton techniques; fundamental principles in obtaining balance, color, shading, interpretation, score reading, etc. Program building and practical application of the conducting of smaller concert numbers. *Prerequisite:* For music majors, 20 hours in music and junior standing; for others, Music Theory 3114 and Junior standing.
- 3334 **Teaching of Music in the Elementary Schools (3-0)**  
Consideration of music in relation to the child voice and song repertory, rhythm bands dramatic play, discriminating listening, as determined by the child's stage of growth, correlation and integration with the elementary curriculum. Curricular plans and materials. For Elementary Education Majors. *Prerequisite:* Junior standing.
- 3336 **Teaching of Music in the Elementary Schools (3-0)**  
Pre-adolescent growth and development as the basis of procedures in the teaching of music in the Elementary grades. Designed to meet the needs of the special music teacher. The child voice, its development and classification. Introduction of notation, song materials, rhythm bands, appreciation methods and creative music for children. For Elementary School Music Majors. *Prerequisite:* Junior standing in music education, and Theory 3214.
- 3433 **Teaching of Music in the Junior and Senior High Schools (3-0)**  
The study of the adolescent growth and development, and related procedures in the teaching of music in the upper level grades and in high school. Choral and instrumental music materials, organization of ensembles, teaching of music appreciation and theory; correlation and integration with the entire school curriculum; public school type music as it is related to the life and needs of a community. *Prerequisite:* Junior standing in music education, and Theory 3214.

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\* *May be repeated for credit.*

- 3435 **Seminar: Selected Problems in Music Education (Indiv.)**  
The student may receive individual instruction and guidance in the area in which a specific need is demonstrated. Credit may be received in the elementary or secondary school field. *Prerequisite:* Six hours of Education, six hours of Music, senior standing, or equivalent background as determined by the instructor and Head of the department.
- 3444 **Choreography (3-0)**  
Principles of development, rehearsal, and execution of ballet choreography. *Prerequisite:* Ballet 3342.
- 3496 **Professional Laboratory Experience in the Elementary Grades (1-10)**  
A minimum of ten hours per week for one semester of laboratory observation and teaching experience in the elementary school music classes. For all-level teacher certification. *Prerequisite:* Six hours of Education, six hours of upper level Music Education, senior standing and written approval of Music Faculty Teacher Education Committee.
- 3498 **Professional Laboratory Experience in Junior and Senior High Schools (1-10)**  
Continuation of 3496. *Prerequisite:* Music Education 3496, or concurrent registration with written approval of the Music Faculty Teacher Education Committee.

**For Graduate Students Only**

- 3531 **Seminar: Problems in Music Education (Indiv.)\***  
Educational research in the elementary and secondary school fields. Each student may conduct research on a problem of his own selection in his field of major interest. May be taken for credit in supervision, if desired. *Prerequisite:* Twelve semester hours of advanced courses in Music and a bachelor's degree. May be repeated for credit.
- 3535 **Seminar: Field Work in Music (Indiv.)\***  
The student works individually on a selected topic with an assigned specialist in that area under supervision of department head. *Prerequisite:* Twelve semester hours of advanced courses in Music and a bachelor's degree. May be repeated for credit.

**APPLIED MUSIC**

**For Undergraduates**

**ENSEMBLES**

Symphonic Wind Ensemble, Symphonic Band, Marching Band, Lab Stage Band, Ballet Corps, Chorale, Chorus, Orchestra, Guitar, and small chamber groups are maintained. These organizations are open to all students who wish to enjoy the performance of a great variety of music. On special occasions each year, several organizations are combined in large productions including operas, ballets, and oratorios. Home concerts and concert tours are a part of the program. Consent of instructor is required for admission.

- 1102 **Golddiggers\* (1-4)**  
A course for women in dancing, twirling, pom pom and marching activities; participation in football shows and other public appearances. *Prerequisite:* Admission by try-out only.
- 1143 **Band\* (3-0)**  
*Prerequisite:* Permission of instructor.
- 1144 **Orchestra\* (3-0)**  
*Prerequisite:* Permission of instructor.
- 1145 **University Chorale (Choir)\* (3-0)**  
*Prerequisite:* Permission of instructor.
- 1146 **Lab Band (Varsitonians)\* (3-0)**  
*Prerequisite:* Permission of instructor.

- 1147 **Ballet Ensemble\*** (3-0)  
Performing techniques and participation in the University Ballet Corps. Ballet majors are required to participate for eight semesters and/or each semester in attendance. Open to all through audition and permission of instructor.
- 1148 **Guitar Ensemble\*** (2-0)  
*Prerequisite:* Permission of instructor.
- 1155 **University Chorus\*** (2-0)  
A mixed singing organization open to all students interested in any kind of choral work. Audition is not required. Oratorios and operas are presented with orchestral accompaniment, occasionally in combination with the University Chorale. Open to all.

## GROUP INSTRUCTION

Credit granted only when taken as a secondary instrument or elective. Open to all students with permission of instructor.

- 2171 **Piano Class (1st Semester)** (2-1)
- 2172 **Piano Class (2nd Semester)** (2-1)
- 2271 **Piano Class (3rd Semester)** (2-1)
- 2272 **Functional Piano Class (4th Semester)** (2-1)
- 2173 **Voice Class (1st Semester)** (2-1)
- 2174 **Voice Class (2nd Semester)** (2-1)
- 2175 **Low Strings Pedagogy** (2-1)
- 2176 **High Strings Pedagogy** (2-1)
- 2167, 2177 **Woodwinds Pedagogy (Reeds)** (2-1)
- 2168, 2178 **Brass Pedagogy** (2-1)
- 2179 **Percussion Pedagogy** (2-1)
- 2180 **Guitar Class** (2-1)  
Techniques and materials for the use of guitar as an aid in the classroom at all levels. Chording and accompaniment for vocal and instrumental solos, ensembles, and folk songs. Open to all.
- 3190 **Foreign Language Diction** (3-0)  
A survey of course in Italian, German and French pronunciation; free translation. Open to all.
- 2145 **Mexican Folk Dances** (2-1)  
Emphasis on learning the dances for enjoyment and for teaching in the public schools. Open to all.
- 2253, 2254 **Music Theatre Workshop** (2-1)  
Exploration, through active participation, of the aspects of stage production peculiar to music theatre; styles and techniques of acting with music, stage directing problems in treating a musical score, and rudimentary technical production. Brief survey of literature for the musical stage appropriate to public school, community, and television productions. *Prerequisite:* Permission of instructor, and preceding course where listed.

## For Undergraduates and Graduates

- 2353, 2354 **Music Theatre Workshop** (2-1)  
Continuation of 2254. *Prerequisite:* Junior standing, permission of the instructor, and preceding course where listed.
- 2493 **Pedagogy of Voice** (2-1)  
Psychological and physiological problems in voice-building; study of the boy voice, the "monotone," and registers in all voice classifications. Methods of voice development through song literature. *Prerequisite:* Senior standing in music, or equivalent in vocal study and experience, Voice 2292, and permission of instructor.

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**2494 Piano Pedagogy and Literature (2-1)**

Psychology and art of teaching piano in group piano classes and/or in private lessons. Study and analysis of piano literature appropriate for all graded levels. *Prerequisite:* Piano 2392 and permission of instructor.

**BALLET**

**For Undergraduates**

**2141-42 Ballet Technique (3-0)**

Basic ballet techniques combining the methods of the Russian, Cecchetti and French Schools. Section I open to all students as an elective, not including majors.

**3141-42 Ballet Technique (4½-0)**

Same as above, but open only to students majoring in ballet, with the consent of instructor.

**1241, 1242 Character and Jazz Dance\* (2-0)**

Interpretation of national dancing; fundamentals and techniques of Jazz. Two hours per week. *Prerequisite:* Ballet, modern dance, or athletic (football, basketball, etc.) background, and permission of instructor.

**3241, 3242 Intermediate Ballet (4½-0)**

Continuation of 3142, with more advanced work in the creative aspects of dance movements. Four and one-half hours per week. *Prerequisite:* Ballet 3142 or permission of instructor. (Formerly 2241, 2242.)

**3341, 3342 Ballet Techniques (4½-0)**

Continuation of 3342; advanced techniques with increased emphasis on certain creative aspects of dance movements. *Prerequisite:* Ballet 3242, or equivalent, junior standing, and permission of the instructor.

**3441-42 Advanced Ballet Techniques (4½-0)**

For students wishing to study ballet as a principal performance medium. Concentrated study including points and adagio work. Admission is by audition only. *Prerequisite:* Ballet 3342.

**INDIVIDUAL INSTRUCTION**

Placement auditions are required on the major and secondary instruments. Students who demonstrate adequate proficiency on any required instrument (or voice) will be encouraged to substitute other courses outside of the music area. Students will perform before the Music Faculty at the close of each semester. The audition at the close of the second year also determines admission to upper division courses. A grade of "B" is required on the major instrument for permission to continue with the succeeding course. For full description of the course of study for any Applied Music course consult the Music Department Handbook with the Department Chairman.

*Consent of the instructor is required for all individual instruction.*

Junior and senior courses on the major level may be used for undergraduate and graduate credit and may be repeated for credit on the undergraduate level. Students are expected to study on campus with members of the University music faculty. Performance majors must present a full graduation recital approved by the music faculty. Music Education majors must present a partial recital.

**For Undergraduates and Graduates**

Only *junior and senior* courses with "6" or "9" as the third digit are acceptable towards a graduate degree.

For Voice, Keyboard Instruments (Piano, Organ, Harpsichord, Accordion), Orchestra and Band Instruments (Violin, Viola, Violoncello, String Bass, Flute, Oboe, Clarinet, Bassoon, Saxophone, Cornet or Trumpet, French Horn, Trombone, Baritone, Tuba, Percussion, Harp, Guitar, Synthesizer).

FOR NON-MAJORS, AS A SECONDARY INSTRUMENT, and for students needing preparatory study. Undergraduate credit only.

2181, 82, 2281, 82, 2381, 82, 2481, 82 (\$25)  
One thirty-minute lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3181, 82, 3281, 82 (\$45)  
Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

3381 82, 3481, 82 (\$50)  
Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

FOR MAJORS in Voice, Theory, Music Education, and other qualified students.

2181, 82, 2281, 82, 2381, 82, 2481, 82 (\$25)  
One thirty-minute lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3191, 92, 3291, 92 (\$45)  
Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

3391, 92, 3491, 92 (\$50)  
Two thirty-minute lessons and nine practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

FOR MAJORS IN PERFORMANCE

4191, 92, 4291, 92 (\$45)  
Two thirty-minute lessons and fifteen practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

4391 92, 4491, 92 (\$50)  
Two thirty-minute lessons and fifteen practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

INDIVIDUAL AND GROUP INSTRUCTION

FOR NON-MAJORS, AS A SECONDARY INSTRUMENT, and for students needing preparatory study. Undergraduate credit only.

2151, 52, 2251, 52, 2351, 52, 2451, 52 (\$25)  
One thirty-minute individual lesson, one hour group lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3151, 52, 3251, 52, 3351, 52, 3451, 52 (\$25)  
One thirty-minute individual lesson, two one-hour group lessons, and nine practice hours per week. *Prerequisite:* Preceding course or placement.

FOR MAJORS in Voice, Theory, Music Education, and other qualified students.

2161, 62, 2261, 62, 2361, 62, 2461, 62 (\$25)  
One thirty-minute individual lesson, one hour group lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3161, 62, 3261, 62, 3361, 62, 3461, 62 (\$25)  
One thirty-minute individual lesson, two one-hour group lessons, and nine practice hours per week. *Prerequisite:* Preceding course or placement.

FOR MAJORS IN PERFORMANCE

4161, 62, 4261, 62, 4361, 62, 4461, 62 (\$25)  
One thirty-minute individual lesson, two one-hour group lessons, and fifteen practice hours per week. *Prerequisite:* Preceding course or placement.

## PHILOSOPHY

WILLIAM C. SPRINGER, *Chairman*

H. Y. BENEDICT *Professor*, ROMANELL:

*Professor*, HADDOX;

*Associate Professors*, HALL, ROBINSON, SPRINGER,

*Instructor* BRIONES

**B.A. Degree** — Specific requirements for a Bachelor of Arts in Philosophy are twenty-four semester hours of Philosophy, fifteen of which must be at the advanced level (3300-3400). The following courses are required: Philosophy 3103, 3214, 3217, and one other History of Philosophy course, plus either 3451 or 3452.

(Philosophy 3103 is a prerequisite for all courses in philosophy except 3104, 3109, 3206. May be waived by chairman for adequate reason)

- 3103 Introduction to Philosophy: Men, Movements and Ideas in Western Philosophy (3-0)**  
An examination of the thought of the principal men whose arguments have shaped Western tradition and institutions insofar as these have been characterized by a search for an understanding of reality, truth, goodness, justice and beauty.
- 3104 Logic (3-0)**  
A survey of modern logic, including traditional logic, informal fallacies, sentential logic, quantification theory and inductive logic.
- 3109 Introduction to Chicano Thought (3-0)**  
This course takes the given socio-cultural and political phenomenon of Chicanismo and subjects it to a critical analysis, examining some of the underlying premises and attempting to project possibilities. The focus is on group-identity and alienation, myth and *Raza*, traditional legacy and new values, *Machismo* and stereotypes, language and world.
- 3206 Ethics: Critical Appraisal of Human Conduct and Motivation (3-0)**  
An examination of some positions on moral value taken by various philosophers and their application to contemporary moral issues.
- 3208 Aesthetics: The Philosophy of Art (3-0)**  
An inquiry into the notions of aesthetic experience, creativity, criticism, and of art products such as drama, literature, painting, music, films, etc.
- 3212 Latin American Philosophy (3-0)**  
A Survey of Latin American thought.
- 3213 Chicanos and American Thought (3-0)**  
After an analysis of the intellectual heritage (pre-Hispanic, Spanish, and Mexican) of the present-day Chicano, contemporary Chicano value orientations are compared and contrasted with such orientations in American society.
- 3214 Ancient Philosophy: The Origins of Western Thought (3-0)**  
Studies the origin and development of those ideas and problems which have come to characterize the philosophic tradition in the West as reflected in the thought of the Pre-Socratics, Socrates, Plato, Aristotle, the Stoics and others.
- 3215 Medieval Philosophy: The Scholastic Synthesis (3-0)**  
Studies the philosophies of the medieval period of the Christian West. Philosophers to be examined include Augustine, Anselm, Aquinas, Duns Scotus, William of Ockham and others.
- 3217 Modern Philosophy: The Age of Reason and Doubt (3-0)**  
Focuses on rationalism (Descartes, Leibniz, Spinoza) and empiricism (Locke, Berkeley, Hume) as well as on Kant's attempt to synthesize these two traditions.
- 3218 Nineteenth Century Philosophy (3-0)**  
Studies the reaction to Kant's attempted rejection of speculative philosophy in the thought of Fichte, Schelling, Hegel, Schopenhauer and Marx. Also examines the critical assault on these systems by Kierkegaard and Nietzsche.



- 3225 Social Philosophy (3-0)**  
This course will consider such concepts as law, freedom, authority, justice, violence, revolution, etc., in their relevance to an understanding of extant forms of social existence.
- General Prerequisite:* Junior standing for all 3300 and 3400 level courses.
- 3311 Philosophy of Science (3-0)**  
An analysis of the concepts and methods of both the natural and social sciences with consideration of their historical development and philosophical significance.
- 3322 Philosophy of Religion (3-0)**  
Drawing upon western and non-western religions, in ancient and modern forms, the philosopher of religion examines such subjects as religious experience and expression, belief in, and the knowledge of, God (or gods), and the functions of religious myths.
- 3335 Twentieth Century Philosophy (3-0)**  
This course will consider the principal forms of contemporary philosophy; logical-positivism, linguistic analysis, existentialism, phenomenology and speculative philosophy. (Any one or several of these traditions will be stressed depending on the instructor. Consult the philosophy bulletin board for current offering). May be repeated when course content varies.
- 3340 Oriental Philosophy (3-0)**  
A survey of some aspects of oriental philosophy, traditions and cultures concentrating on those of India and China.
- 3401 Symbolic Logic (3-0)**  
Examines quantification theory, axiomatic systems, logical theory and mathematical logic.
- 3402 Metaphysics (3-0)**  
Often called ontology or speculative philosophy, metaphysics studies the attempts to develop coherent sets of principles by which to understand comprehensive notions such as being and change, appearance and reality, God, freedom, mind and the universe.
- 3403 Problems in the Philosophy of Science (3-0)**  
A detailed analysis of a small number of selected problems in the philosophy of science. May be repeated when course content varies.
- 3411 Epistemology: Belief, Perception and Truth (3-0)**  
Analysis of the leading philosophical positions regarding knowledge, its source, criteria and limits.
- 3451 Great Philosophers (3-0)**  
The life and work of one or more of the most influential philosophers will be the focus of this course. May be repeated when the course content varies.
- 3452 Problems in Philosophy Seminar (3-0)**  
The problem of knowledge, the meaning of persons, technological society and the new religious sensibility have been recent topics. May be repeated when the course content varies.
- 3453 Independent Study (3-0)**  
Student research under supervision of the staff. Permission of the instructor is required.
- 3454 Philosophy of History (3-0)**  
An examination of attempts to find recurring patterns and laws in the course of history as in Augustine, Vico, Hegel, Marx, Toynbee and Spengler. May also include or stress an examination of historical narrative in order to compare or contrast historical with scientific explanation.

## RELIGION

MSGR. ANDREW BURKE, *Chairman*

*Instructors* ARROYO, BURKE, GRUBBS, HUDGENS, MAXWELL, AND TAYLOR

Credit toward University degrees is given for the following courses offered under the regulations established by the Board of Regents:

The students enrolled in the courses for credit (1) may be credited with no more than twelve semester hours in Religion on any Bachelor's degree; (2) are subject to the regulations of the catalog on the amount of work which may be carried.

### For Undergraduate Credit Only

*Suggested prerequisite:* Junior standing for all 3300 or 3400 level courses.

- 1101 **Introduction to the Bible**  
A course to provide the beginning Bible student with a general introduction to the Bible. Those who have had 3101 or 3104 may not take this course.
- 2101 **The Biblical Teachings on Marriage and the Home (1-0)**  
A study of Biblical teachings on the home and marriage with an effort to apply the principles to today's problems.
- 3101 **Survey of the Old Testament (3-0)**  
A comprehensive study of the entire Old Testament.
- 3104 **Survey of the New Testament (3-0)**  
A comprehensive study of the entire New Testament.
- 3202 **The Life of Christ (3-0)**  
A historical study of the life and teachings of Christ. *Prerequisite:* Religion 3104 or Sophomore standing.
- 2202 **Poetical and Wisdom Literature of the Old Testament (1-0)**  
A study of the Hebrew contributions to poetry. Special attention will be given to background, style and content of the Old Testament books which are classified as poetry: Job, Psalms, Proverbs, Ecclesiastes, Song of Solomon, and Lamentations. *Prerequisite:* Religion 3101.
- 3201 **The Life of Paul (3-0)**  
A historical study of the life and missionary endeavors of the Apostle Paul. *Prerequisite:* Religion 3104 or Sophomore standing.
- 3203 **An Introduction to the Psychology of Religion (3-0)**  
To introduce students to the creative dialogue between the disciplines of the psychological sciences and theological studies through the writings of psychiatry, psychoanalysis and religion. *Prerequisite:* Religion 3101 or 3104 or Sophomore standing.
- 3204 **Survey of World Religion (3-0)**  
An introduction to the study of religion and an examination of primitive religion. Among the living religions, Zoroastrianism, Hinduism, Buddhism, Confucianism, Taoism, Shintoism, Judaism, and Christianity will be studied. *Prerequisite:* Sophomore standing or Religion 3101 or 3104.
- 3205 **The Hebrew Prophets (2-0)**  
A study of the place of Hebrew prophecy in the development of the Old Testament. Special attention will be given to all of the major and minor prophets. *Prerequisite:* Religion 3101 or Sophomore standing.
- 3303 **Archeology of the Old Testament (3-0)**  
A study of archeology in Biblical lands as related to the Old Testament. *Prerequisite:* 3101 or 2202.
- 3304 **Survey of Christian Tradition in America**  
An historical study of varying Christian denominational traditions in the United States. This will be taught by a team of various professors experts in the distinctive traditions. *Prerequisite:* Junior level or permission of instructor.
- 3305 **Introduction to Christian Ethics**  
A study of New Testament ethical teaching and their application to contemporary society. *Prerequisite:* Religion 3202 or Junior standing.

## POLITICAL SCIENCE

Z. ANTHONY KRUSZEWSKI, *Chairman*

*Professor Emeriti* MYRES, RAY

*Professors* BEASLEY, COOK, GOMEZ, GRAVES, KRUSZEWSKI, LEONARD,  
STRAUS;

*Associate Professors* BATH, NEIGHBOR, PETERSON, PRICE;

*Assistant Professors* HOVEL, JOHNSON, LAMARE,

*Instructors* OROZCO, GALICIA

**B.A. Degree** — In addition to the basic American Government and Politics courses 3110 and 3111 required of all students, a major in Political Science will include thirty (30) semester hours in the Department, eighteen of which must be the advanced (3300-3400) level. At least one course must be completed in each of the following fields:

American Political Processes

Public Law

International Relations

Comparative Politics

Political Theory and Thought

Public Administration

Political Science majors are required to complete two courses (six hours) from among the following five offerings:

- 1) Mathematics 3280, Introduction to Statistics I
- 2) Mathematics 3281, Introduction to Statistics II
- 3) Mathematics 3124, Introduction to Computer Programming
- 4) History 3201, Western Civilization to 1648
- 5) History 3202, Western Civilization since 1648

In order to receive course-hour credit the student must enroll in the 3200 level courses before completing 90 total credit hours.

**Soviet and East European Studies Option:** Specific requirements for all students in the program: Russian 3301, 3303; Political Science 3324, 3338; History 3332 or 3333 and 3373 or 3374; Economics 3395; Geography 3110; English 3385 or 3386. The Political Science major must include 3231, 3426, 3224, 3250, 3335, 3343, plus 3 advanced hours in each of the following fields: American Politics and Public Law. Other departmental requirements are three of the following: History 3202, 3338, 3377; Sociology 3425, 3455.

### For Undergraduates

*Prerequisite:* Political Science 3110 and 3111.

Political Science 3110 and Political Science 3111 fulfill the legislative requirements of the State of Texas for a course on the Constitutions of the United States and Texas.

**3110 American Government and Politics (3-0)**

A survey of the basic concepts used in the contemporary study of American national, state and local political processes and institutions.

**3111 American Government and Politics (3-0)**

A survey of contemporary American national, state, and local political processes and institutions, with special emphasis upon the Constitutions of the United States and Texas. This course meets teacher certification requirements for out-of-state graduate students. *Prerequisite:* For undergraduates is 3110.

**3221 Comparative Federalism (3-0)**

A comparative examination of federal political systems. Emphasis may be upon the political systems of the fifty American states, or upon those of foreign nations having federal institutions.

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- 3224 **Comparative Political Systems (3-0)**  
An examination of theories and methods used in comparative political analysis with illustrative cases drawn from a variety of political cultures.
- 3231 **International Relations (3-0)**  
The theory and practice of international relations with particular attention to the forces and processes contributing to conflict and cooperation among nations.
- 3250 **Introduction to Public Administration (3-0)**  
A study of the processes involved in the management of men and materials in the accomplishment of the purposes of government; analysis of the structure and procedures of the administrative or executive branch of government, with particular reference to national, state and local governments in the United States.

**For Undergraduates and Graduates**

*General prerequisite:* Junior standing for all 3300 or 3400 level courses.

**AMERICAN POLITICAL PROCESSES**

- 3320 **Political Socialization and Political Culture (3-0)**  
An analysis of the influence of cultural, psychological, and social patterns on the nature of political orientations and political systems. *Prerequisite:* Political Science 3224.
- 3321 **Chicanos in American Politics (3-0)**  
Survey of the nature and role of the Chicano in the American Political System.
- 3322 **Urban Politics (3-0)**  
The American Political Process in its urban environment.
- 3325 **The Party System (3-0)**  
An analysis of the nature and role of American parties and pressure groups and their impacts upon the political process.
- 3327 **The Legislative Process (3-0)**  
A study of the legislative system, organization, and procedures; analysis of recruitment patterns, and the nature of the relation of the legislature to the rest of the political system.
- 3330 **Public Opinion and Propaganda (3-0)**  
A study of the nature and formation of public opinion, its measurement, and the impact of public opinion on policy formation.
- 3339 **Intergovernmental Relations (3-0)**  
An examination of the developing relationships among units of government in the United States, which special emphasis on the emerging theory of intergovernmental relations.
- 3420 **American Government and the Military (3-0)**  
An examination of civil-military relations in the United States; American military policy formation and administration; martial law; military government; state military forces; the doctrine of civil supremacy. Some comparisons will be made with civil-military relations abr.ad.

**PUBLIC LAW**

- 3328 **Constitutional Law I (3-0)**  
A study, by use of court cases, of the allocation of governmental powers, with special emphasis on the national government, and an introduction to the judicial function and the American legal system.
- 3332 **Constitutional Law II (3-0)**  
A study of the limitations on governmental power in the United States, with primary emphasis on civil and political rights. *Prerequisite:* Political Science 3328.
- 3329 **Law and Society (3-0)**  
An analysis of the role of law in society and the causes and consequences of judicial behavior.

- 3427 **Administrative Law and Regulation (3-0)**  
The study of the law as it affects public officials and agencies in their relations with private citizens and the business community. Attention is given to appropriate case materials and regulatory practices.
- 3429 **Philosophy of Law (3-0)**  
A study of the origin, nature, and development of law. The philosophical explanation of law as propounded by the various jurisprudential schools.

**INTERNATIONAL RELATIONS**

- 3331 **International Organization and Administration (3-0)**  
The development of the machinery and procedure of international government for the peaceful settlement of international disputes.
- 3338 **Soviet Foreign Policy (3-0)**  
A study of the objectives, methods and results of Soviet foreign policy.
- 3343 **Foreign Policy of the United States (3-0)**  
Origin and development of fundamental principles of American foreign policy.
- 3347 **Foreign Policies of the Latin American States (3-0)**  
The role of the major Latin American states in world affairs with emphasis on Latin America-U.S. relations and political, economic, and socio-cultural relations between the Latin American states.
- 3431 **Advanced Studies in International Relations (3-0)**  
Theory application and theory verification in the analysis of selected problems in contemporary international relations.

**COMPARATIVE POLITICS**

- 3323 **Great Britain and the Commonwealth (3-0)**  
An examination of British political institutions, phenomena, and problems in the mother country and in selected parts of the Commonwealth.
- 3324 **Soviet and Eastern European Politics (3-0)**  
A survey of contemporary Soviet and Eastern European Politics set in an ideological and historical framework. The role of the party in each country examined in the setting of labor, management, the army, agriculture and nationality problems.
- 3326 **Western European Politics (3-0)**  
A comparative analysis of the political systems of the major Western European powers and selected minor powers. Emphasis on political culture and the impact upon political institutions and functions.
- 3333 **Problems in Latin American Government (3-0)**  
A study of the nature and scope of problems in the political development of Latin American nations.
- 3342 **Government and Politics of Non-Western Areas (3-0)**  
The study of political cultures, interest groups, political parties, processes and structures of Non-Western areas. Specific areas to be studied will be selected by the instructor. Course may be repeated for credit with approval of the Chairman of the Department.
- 3426 **Polycentrism in the Communist World (3-0)**  
An analysis of ideological and pragmatic conflict in the context of centrifugal and centripetal forces within the Communist world today.
- 3444 **The Political System of Mexico (3-0)**  
An examination of political process and institutions within the social, economic and cultural environment of political development in Mexico.

**POLITICAL THEORY AND THOUGHT**

- 3334 **Western Political Heritage (3-0)**  
From Plato to Burke. A study of the ideas of the major political philosophers of the ancient, medieval, and early modern periods, including the Enlightenment.

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- 3335 **Western Political Heritage (3-0)**  
From Kant to the Present. Political thought from the late eighteenth century to the present, with an emphasis on the development of contemporary ideologies.
- 3336 **American Political Thought (3-0)**  
From the Colonial Period to the Civil War. The ideas of the earlier American Political thinkers. Attention will be given to the conflicts over the American Revolution, the framing and adoption of the Constitution, Jacksonian democracy, and the abolition of slavery.
- 3337 **American Political Thought (3-0)**  
From the Civil War to the Present. A study of recent American political and legal thought. Attention will be given to shifting ideas about democracy, the role of government, and the nation's place in the international affairs, as well as to the changing meanings of liberalism and conservatism.
- 3344 **Democracy in America (3-0)**  
The development of American democratic theory and its relation to contemporary political problems and challenges.
- 3433 **Latin American Political Thought (3-0)**  
A study of representative thinkers who have influenced political development in Latin America.
- 3435 **Contemporary Political Thought (3-0)**  
The ideas of contemporary political thinkers concerning the great modern issues of democracy, dictatorship, industrial order, and the political needs of the developing peoples. Emphasis also will be placed upon the process of political theorizing.
- 3439 **Scope and Methods of Political Science (3-0)**  
A survey of the scope and methodology of Political Science. An analysis and criticism of research in the field with emphasis on methods and techniques. Required of majors planning graduate study.

**PUBLIC ADMINISTRATION**

- 3340 **Public Policy Formulation (3-0)**  
The dynamics of public policy formulation in the governments of the United States. Emphasis will be placed upon the national bureaucracy.
- 3341 **The Presidency (3-0)**  
Examination of the Office of the President in relation to the functions, roles, powers, and duties which have accrued to the office as it has developed in scope and authority from Washington to the present.
- 3351 **Municipal Planning Administration (3-0)**  
History, principles and theories of urban growth, planning, and development with emphasis on public policy, and the administrative and legislative processes.
- 3421 **Urban Government and Administration (3-0)**  
The organization and administration of urban government in the United States. *Prerequisite:* 12 hours of advanced social sciences.
- 3438 **Administrative Theory (3-0)**  
Emphasis is placed on administrative decision-making, leadership, supervision, communications and control in public and private organizations.
- 3450 **Internship in Public Administration (3-0)**  
This course is open only to seniors and graduate students with the approval of the Chairman of the Department. It is a work-study program in which the student is assigned two days (or 16-20 hours) each week to a governmental agency. A weekly seminar session is also required. Normally open only to students interested in professional preparation in Public Administration.

**GENERAL**

- 3410 **Readings in Political Science (3-0)**
- 3412 **Technology and Public Policy (3-0)**  
An examination of the relationship of technology to governmental policy. Special

attention will be given to problems of population, the natural environment, and the use and conservation of energy.

**3480 Undergraduate Research in Political Science (3-0)**

A research and writing experience for undergraduates in Political Science. An intensive investigation into the foundations of Political Science with emphasis on research.

**FOR GRADUATE STUDENTS ONLY**

**Master of Arts Degree in Political Science**

**ADMISSION**

The Department of Political Science follows the requirements specified by the Graduate School for admissions.

**PROGRAMS**

Departmental requirements for students working toward a Master's degree in Political Science may follow either of two programs:

**Plan I — Thesis:** A thesis (six semester hours) plus twenty-four semester hours of course work. There must be a minimum of twenty-one hours including the thesis, of graduate courses (those numbered 3500 and above). Only nine hours of 3300 and 3400 courses are permitted in a program. However, neither the major nor the minor respectively may include more than six of these hours. The thesis program is recommended for students who wish to study for a Ph.D. in Political Science.

**Plan II — Non-Thesis:** The Master of Arts degree without thesis is recommended for students not intending to continue graduate work toward the Ph.D. Thirty-six hours of study must be completed of which only nine hours of 3300 and 3400 courses are permitted in a program. Graduate students must take graduate courses (those numbered 3500 and above) in at least three sub-fields of Political Science and must maintain a "B" average. Only one "C" will be permitted in a student's graduate program. A student enrolled under this plan must submit two suitably-bound graduate research papers of more substantial quality than ordinary seminar papers, each of which shall be in a different field. These papers will be submitted to a committee, including the professors under whose guidance they were done, which will judge them and conduct the final examination.

Upon the occasion of petitioning for candidacy, each graduate student shall exercise an option, either for the thesis program or for the non-thesis program. This choice is not to preclude later change to the thesis option, but the inverse is not authorized.

An optional six-hour minor in a related field is permitted in either program. The courses are to be selected in consultation with the Graduate Advisor.

**REGISTRATION**

No student may be registered as a graduate student majoring in this department without the advice of, and signed approval of his program by, the Graduate Advisor. This applies not only to the initial registration, but also for each subsequent course registered for.

**ALL SEMINARS may be repeated for credit.**

*(Prerequisite: Graduate Standing)*

**3500 Seminar in Public Fiscal and Personnel Administration (3-0)**

A study of organization, practices, and principles of public fiscal and personnel administration.

**3501 Seminar in Advanced Research Methods in Political Science (3-1)**

Required of all graduate Political Science majors. Normally, the seminar will be taken during the first semester of graduate study. One additional hour of credit will be given for training in computer programming.

**3510 Seminar in American Government (3-0)**

Research, writing, and discussion.

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- 3515 **Comparative Analysis of the American and Mexican Political Developments.** (3-0)  
This seminar consists of a comparative analysis of the thoughts, values and events of the American Revolution of 1776 and the Mexican Revolution of 1910. Special attention is given to the impact of each Revolution on relations between the two nations, comparing and contrasting political cultures and movements.
- 3520 **Seminar in American Government and the Military** (3-0)  
Research, writing and discussion.
- 3521 **Seminar in the Methodology of Comparative Politics** (3-0)  
Advanced paradigms, methods and theoretical applications in Comparative Politics.
- 3522 **Seminar in the Politics of Modernizing Nations** (3-0)  
Research, writing and discussion.
- 3523 **Seminar in Communist Politics** (3-0)  
Research, writing, and discussion.
- 3524 **Seminar in Comparative Political Cultures** (3-0)  
Research, writing, and discussion.
- 3525 **Seminar in Latin American Studies.** (3-0)  
Research, writing, and discussion.
- 3526 **Seminar in Political Parties and Politics** (3-0)  
Research, writing, and discussion.
- 3528 **Seminar in Public Law** (3-0)  
Research, writing, and discussion.
- 3530 **Seminar in International Politics** (3-0)  
Research, writing, and discussion.
- 3533 **Seminar in International Organizations and Law** (3-0)  
Research, writing, and discussion.
- 3536 **Seminar in Political Theory** (3-0)  
Research, writing, and discussion.
- 3537 **Seminar in Political Classics** (3-0)  
Research, writing, and discussion.
- 3540 **Seminar in Foreign Policy Decision Making** (3-0)  
Research, writing, and discussion.
- 3550 **Seminar in Public Administration** (3-0)  
Research, writing, and discussion.
- 3551 **Seminar in Urban Problems** (3-0)  
Research, writing, and discussion.
- 3552 **Seminar in Comparative Law and Comparative Judicial Behavior** (3-0)  
A cross-cultural study of law and judicial decision-making. Focus may be on Canada, Mexico, Latin American countries, Japan, or Australia as compared to the United States. May be repeated for credit when topic varies.
- 3580 **Selected Problems in Government** (3-0)  
Research, writing, and discussion.
- 3598-99 **Thesis in Political Science** (3-0)



## PSYCHOLOGY

JUDITH GOGGIN, *Chairman*

*Professors* COLEMAN, GOGGIN, HIMELSTEIN;  
*Associate Professors* BARRIENTOS, DEVINE, LUCKER, MILLER,  
WHITWORTH;

### *Degree Requirements:*

The Psychology Department offers two programs leading to the Bachelor's Degree:

1. **B.S. Degree** for students who intend to pursue graduate work in psychology.  
Required courses are:
  - a) Major: 30 hours (15 advanced) including 3101, 3103, 3321, 3322, 3417 and at least one of the following: 3309, 3310, 3330, 3348, or 3411.
  - b) Minor: 18 hours (6 advanced) selected from Biological Sciences, Chemistry, Engineering, Mathematics, or Physics.
  - c) Foreign language, while not required, is strongly recommended.

For additional requirements, see Bachelor of Science degree plan.

2. **B.A. Degree** for students who do NOT intend to get advanced degrees.

Required courses are:

- a) Major: 24 hours (12 advanced) including 3101, 3103, and 3321 or 3322.
- b) 12 hours selected from Biological Sciences, Chemistry, or Physics. Specific courses for the science requirement to be selected in conference with the Department.

For additional requirements, see Bachelor of Arts degree plan.

### **For Undergraduate Credit Only**

*General Prerequisite:* Psychology 3101 is prerequisite for all psychology courses, with the exception of Psychology 3103. Junior Standing for all 3300 or 3400 level courses.

**3101 Introduction to Psychology (3-1)**

A survey of basic principles in general psychology.

**3103 Statistical Methods (3-0)**

A study of the basic concepts of descriptive and inferential statistics as applied to research in the behavioral sciences. Topics include descriptive statistics, experimental design, correlation, analysis of variance, and non-parametric tests. Required of all psychology majors.

**3201 Child Psychology (3-0)**

Principles of growth and development from infancy to adolescence.

**3202 Social Psychology (3-0)**

The individual in society, dealing with human relations, group effectiveness, and conflicts among people. Principles of social behavior. Applied social psychology, cognition, motivation, attitudes, society, culture, groups, leadership.

**3203 Social Psychology of the Chicano (3-0)**

An introduction to the problem of identity and self-image in the Mexican American segment of the population. Basic principles of psychology applied to the understanding of cognitive and social behavior.

**3206 Psychology of Personality (3-0)**

A study of the normal personality. Includes such topics as biological and social determinants of personality; appraisal of personality; and reactions to anxiety, frustration, and conflict.

**3212 Introduction to Abnormal Psychology (3-0)**

A review of historical approaches to the problems of abnormal behavior. Topics will include the dynamics of abnormal behavior, its classification, symptomatology, and treatment.

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- 3324 **Applied Psychology (3-0)**  
An introduction to the application of psychological principles and procedures to business and industry, consumer psychology, mental health and vocational guidance, and criminal behavior.
- 3301 **Developmental Psychology (3-0)**  
A study of the behavior and special problems characteristic in the development of the individual.
- 3302 **Theories of Personality (3-0)**  
A study of major systematic positions, i.e., Freud, Lewin, Cattell, etc. Major emphasis is put on the various theoretical interpretations of human dynamics.
- 3304 **Differential Psychology (3-0)**  
A survey of the psychological principles and methods of investigating individual and group differences.
- 3306 **Psychology of the Exceptional Child (3-0)**  
Application of psychological principles to the study of the atypical child, including a survey of etiological theories. *Prerequisite:* Psychology 3103 recommended.
- 3309 **History and Systems of Psychology (3-0)**  
A study of the historical development of psychological views.
- 3310 **Introduction to Learning Theory (3-0)**  
Introduction to the nature of the learning process and the application of learning principles.
- 3321 **Experimental Psychology: Learning (3-0)**  
An introduction to method and theory in contemporary experimental psychology. Emphasis is on method rather than on content. Topics emphasize the phenomena of learning. *Prerequisite:* Psychology 3103.
- 3322 **Experimental Psychology: Sensation and Perception (3-0)**  
An introduction to method and theory in contemporary experimental psychology. Emphasis is on method rather than on content. Topics emphasize the phenomena of sensation and perception. *Prerequisite:* Psychology 3103.
- 3330 **Perception (3-0)**  
A study of the major theoretical changes and experimental findings concerning perception and sensory processes. Emphasis on vision and audition. *Prerequisite:* Psychology 3321, or 3322.
- 3347 **Behavior Modification (3-0)**  
A review of contemporary studies involving the application of classical and operant conditioning techniques in the treatment of behavior disorders. Emphasis will be given to clinical cases.
- 3348 **Psychology of Thinking (3-0)**  
An analysis of thought which will include principles and research approaches to information processing, concept formation, decision processes (judgment) solution and creative accomplishment. *Prerequisite:* Psychology 3321 recommended.

**For Undergraduates and Graduates**

*General prerequisite:* Six advanced hours in psychology.

- 3401 **Psychological Testing (2-2)**  
Introduction to and training in the administration, scoring, and interpretation of psychological tests. *Prerequisite:* Psychology 3103; Psychology 3417 recommended.
- 3410 **Clinical Psychology (3-0)**  
A study of clinical problems case study methods and discussion of psychological tests used in common clinical situations.
- 3411 **Physiological Psychology (3-0)**  
*Basic psychological processes in relation to structure and function.*

- 3412 Advanced Abnormal Psychology (3-0)**  
A study of the psychological factors contributing to pathological behavior. Emphasis will be placed on current research in genetics, biochemistry, and learning theory, in the area of schizophrenia and neurotic processes. *Prerequisite:* Psychology 3212.
- 3417 Advanced Statistics (3-0)**  
Further study of experimental design, analysis of variance, covariance, correlation, orthogonal polynomials, complex experimental designs, and non-parametric statistics. *Prerequisite:* Psychology 3103; Mathematics 4110-4111 recommended.
- 3441 Motivation and Emotion (3-0)**  
A critical evaluation of present theories as to the causes of behavior. *Prerequisite:* Psychology 3321.
- 3442 Comparative Psychology (3-0)**  
A study of behavior at different phylogentic levels with emphasis on recent contributions from ethologists and psychologists. *Prerequisite:* Psychology 3321 or 6 hours of Biological Science or permission of instructor.
- 3451 Readings in Psychology**  
Readings and papers in selected fields of psychology. Independent study under the supervision of a member of the faculty. May be repeated once when topics vary. *Prerequisite:* Permission of instructor.
- 3452 Independent Research**  
Independent student research under the supervision of a member of the faculty. Regular meetings and reports are required. *Prerequisite:* Permission of instructor.
- 3453 Independent Research**  
Independent student research under the supervision of a member of the faculty. Regular meetings and reports are required. May not be taken with same instructor as in Psychology 3452. *Prerequisite:* Permission of instructor.
- 3454 Seminar in Psychology (3-0)**  
Topic to be discussed will be selected. May be repeated with different instructors. Permission of instructor required.
- 3460 Basic Correlational Methods (3-0)**  
Reviews correlation techniques, Pearsonian  $r$ , biserial  $r$ , point-biserial  $r$  and tetrachoric  $r$ , simple and multiple regression techniques and discusses their uses in research. *Prerequisite:* Psychology 3103.

#### FOR GRADUATE STUDENTS ONLY

DEPARTMENTAL REQUIREMENTS FOR M.A. — Before being admitted to the graduate program, a psychology major must include a course in psychological statistics and in experimental psychology in the undergraduate preparation.

The Department offers two programs leading to the M.A. degree: General Psychology and Clinical Psychology.

For the General Psychology program, there must be a minimum of twenty-four hours of course work and the thesis. It is the responsibility of the student to make sure that he completes the required core for the M.A. degree in General Psychology. Information on required courses, which may change from year to year, may be obtained from the Graduate Advisor.

The M.A. in Clinical Psychology requires the completion of forty-five hours, including twenty-one hours of required courses in clinical psychology. A student may, at his option, elect to include six hours of thesis in the total hours, or may elect a non-thesis program.

A student may include in his program only those courses approved by the Departmental Committee on Graduate Studies.

*Prerequisite:* Twelve semester hours of advanced courses in Psychology and a bachelor's degree.

#### 1501-6501 Individual Research (0-3)

Student, in conference with a member of the staff, will design and perform an original experiment. Results will be prepared for possible publication in a psychological journal. Permission is required from instructor.

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- 3502 **Advanced Experimental Psychology (3-1)**  
A study of the experimental procedure appropriate for various areas. Each student will design, execute and report on one or more original experiments.
- 3503 **General Psychology Seminar (3-0)**  
Reports and discussions of contemporary problems and issues in psychology.
- 3505 **Seminar in Industrial Psychology (3-0)**  
Covers specialized topics such as morale and motivation, labor relations, consumer motivation, man-machine systems, personnel selection, and others.
- 3510 **Seminar in Human Factors (3-0)**  
Experimental psychology applied to the study of man-machine systems; psychological factors in the design of communication and control equipment. *Prerequisite:* A laboratory course in experimental psychology or the equivalent.
- 3511 **Advanced Statistics: Experimental Design (3-0)**  
Consideration of problems of analysis and design commonly encountered in psychological research. *Prerequisite:* Psychology 3417 or the equivalent.
- 3513 **Seminar in Personality Theory (3-0)**  
Intensive study of selected aspects of the various theories of personality.
- 3514 **Seminar in Verbal Learning (3-0)**  
Advanced studies of verbal learning in the light of advances in psycholinguistics.
- 3520 **Seminar in Learning Theory (3-0)**  
Intensive study and analysis of systematic conceptions of the learning process. *Prerequisite:* Psychology 3310 or equivalent.
- 3521 **Seminar in Personality Assessment (2-2)**  
Introduces the student to methods and issues in the evaluation of personality and acquaints him with the more widely used projective and objective instruments.
- 3522 **Theories and Methods of Psychotherapy (3-0)**  
An analysis of theory, technique, and research methods used in various current psychotherapies. Permission of instructor required.
- 3523 **Individual Mental Tests (2-2)**  
Supervised practice in the administration, scoring, and interpretation of individual tests of intelligence. Permission of instructor required.
- 3530 **Seminar in Animal Behavior (3-0)**  
A critical study of the most recent literature in animal behavior. The contributions of ethologists and psychologists will be reviewed.
- 3540 **Introduction to School Psychology**  
A study of the history, trends, and methods of school psychology, with emphasis on the roles and functions of the school psychologist.
- 3547 **Seminar in Behavior Modification (3-0)**  
Advanced study of conditioning techniques in the treatment of behavior disorders and in the control of human behavior. *Prerequisite:* Psychology 3347 or 3310 or the equivalent.
- 3560 **Clinical Internship (0-4)**  
Supervised experience with clinical instruments. May be repeated once for credit. *Prerequisite:* Permission of instructor, Psychology 3521, or 3523. Psychology majors only.
- 3598-99 **Thesis Course for the Master's Degree**

## SOCIAL WORK PROGRAM

(Sponsored by the Dean of the College of Liberal Arts)

Students who expect to pursue a career in social work upon completion of the B. A. degree, or who plan to continue their education at the graduate level in social work, should take the following courses, which constitute the Social Work Sequence:

### SOCIAL WORK

- 3275 Social Welfare as a Social Institution (3-0)**  
An examination of the social welfare field which focuses on the institutional nature of the social welfare system and its relationship to other institutions.
- 3376 Methods of Social Work Intervention I (3-0)**  
A general survey of the major methods employed by social workers in the social welfare field to help individuals, groups, and communities. *Prerequisite:* Social Work 3275.
- 3377 Methods of Social Work Intervention II (3-0)**  
Human behavior theories and their application to social work with emphasis on poverty and minority groups. *Prerequisite:* Social Work 3275 and 3376.
- 3475 Field Experience in Social Work (1-6)**  
A laboratory learning experience in selected social welfare agencies with weekly seminars. Students are assigned to specific agencies for the semester. *Prerequisite:* Social Work 3275 and 3376.
- 3476 Independent Field Study**  
Limited to students who have had Social Work 3475 and who have shown interest and capability of carrying out specialized work with minimum supervision. *Prerequisite:* Twelve hours of Social Work.

Social Work students include in their programs supportive course from various related departments. The following courses are specifically minority-group oriented, and some or all of them should be taken by most students before they have their field experience and before they take their second "Interventions" course (Social Work 3377).

Anthropology 3205, Chicanos and Their Culture  
Psychology 3206, Psychology of Personality  
Political Science 3321, Chicanos in American Politics  
Sociology 3201, Sociological Analysis  
Sociology 3258, Chicanos in the Southwest  
Spanish 3108, Conversational Spanish

Other courses which contribute to understanding of Social Work areas are:

Business 3301, Business Law I  
Economics 3202, Economics of Poverty  
Economics 3203, Principles of Economics  
Educational Psychology & Guidance 3401, Psychology of the Kindergarten Child  
Educational Psychology & Guidance 3409, The Education of Exceptional Children  
Educational Psychology & Guidance 3421, Psychology of Mental Retardation  
English 3112, Research and Critical Writing  
English 3374, Chicano Folklore  
Health Education 3301, Community Hygiene  
Philosophy 3109, Introduction to Chicano Thought  
Philosophy 3216, Social Philosophy  
Political Science 3224, Comparative Political Systems

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Political Science 3328, Constitutional Law I  
Political Science 3332, Constitutional Law II  
Political Science 3329, Law & Society  
Sociology 3301, Sociology of Educational Institutions  
Sociology 3215, *The Sociology of Marriage and the Family*  
Sociology 3327, Minority Groups in the United States  
Sociology 3349, The Family as a Social Institution  
Sociology 3352, Sociology of Poverty  
Sociology 3362, Medical Sociology  
Sociology 3380, Society and Personality  
Speech 3307, Small Group Communications  
Speech 3308, Organizational & Institutional Communication

Courses in the sequence may be used to meet the Block B Elective Block requirements of any B.A. degree program, or as *Free Electives*. Most social work students major in Sociology; however, the sequence may appropriately be a part of the program of a major in other fields, such as Psychology, Political Science, or Criminal Justice.



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# SOCIOLOGY AND ANTHROPOLOGY

DAVID B. EYDE, *Chairman*

*Professors* RIVERA, STEGLICH, STODDARD;

*Associate Professors* EYDE, FAIRBANKS, GERALD, GOODMAN, HIATT, HOUGH;

*Assistant Professors* BROWN, DAUDISTEL, DUARTE, WATLEY

*Instructors* HAMBY, *Lecturer*, ZIRL

**B.A. Degree** -- Specific requirements for a Sociology major are twenty-four semester hours of Sociology, eighteen of which must be at the advanced level (3300-3400). Anthropology 3302 may be counted as Sociology Course for this purpose. The following courses are required: Sociology 3101, 3201, and 3401.

The optional major concentration in Anthropology requires thirty semester hours of Anthropology, eighteen of which must be at the advanced level (3300-3400). Sociology 3336 may be counted as an Anthropology course for this purpose. The following courses are required: Anthropology 3101, 3102, 3301, 3302, and 3480. The following courses are recommended, though not required, for those contemplating graduate work in Anthropology: Anthropology 3216, 3217, 3220, 3303, and 3317.

## SOCIOLOGY

### For Undergraduates Only

*Unless otherwise noted, Sociology 3101 is a prerequisite for all other courses in Sociology. Exceptions to this must receive permission from the Department Chairman.*

**3101 Principles of Sociology (3-0)**

Nature and scope of sociology, its terminology and concepts; study of social processes, social institutions, development of society and characteristics of group life.

**3102 Social Problems (3-0)**

A study of selected social problems in our society, including causes, interrelationships, and programs of amelioration. *Prerequisite:* None; however, Sociology 3101 is recommended.

**3201 Sociological Analysis (3-0)**

Basic procedures and methodology of sociology as applied by the profession to various areas of social investigation.

**3215 The Sociology of Marriage and the Family (3-0)**

The historical development, current problems and prospects of the American marriage and family institutions. *Prerequisite:* None except sophomore standing.

**3258 Chicanos in the Southwest (3-0)**

Introductory course to major themes in Mexican American studies; cultural pluralism, bilingualism, biculturalism, ethnicity and race, assimilation, cultural nationalism, regionalism, folk culture. *Prerequisite:* None in Sociology.

**3259 Chicanos and American Society (3-0)**

Analysis of Chicano experiences in selected institutions such as schools, churches, governmental structures, military and mass media. *Prerequisite:* None in Sociology.

### For Undergraduates and Graduates

*General prerequisite:* Junior standing for all 3300 or 3400 level courses.

**3301 Sociology of Educational Institutions (3-0)**

Analysis of the social processes and interaction patterns in educational organizations; the relationships of the school to such aspects of society as social class and power; social relationships within the school; formal and informal groups; school culture; and the roles of teachers, students, and administrators.

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- 3302 Social Legislation (3-0)**  
Survey of social legislation in Europe, the United States, and in representative states. Brief consideration of workman's compensation, unemployment, social security, pollution, and public welfare and of international and interstate aspects of these programs.
- 3303 Sociology of Urban Life (3-0)**  
Analysis of urban and rural social systems, their differences and similarities, using the comparative approach in studying aspects of structure and organization.
- 3304 The Community (3-0)**  
A comparative study of community types; methods of studying the community, analyses of underlying social processes and institutions; trends and problems of community change.
- 3312 Measurement and Inference in Social Research (3-0)**  
Sociological factors and their measurement; development and use of scales; assumptions underlying the use of statistical models in analysis of social data; application and limitations of statistical analysis.
- 3322 Collective Behavior and Social Movements (3-0)**  
Analysis of unstructured social behavior, including crowds, riots, revivals, fads, public opinion and social movements.
- 3327 Minority Groups in the United States (3-0)**  
A study of the principal minority groups in the United States and of the processes of accommodation, acculturation, and assimilation.
- 3333 Juvenile Delinquency (3-0)**  
An investigation of the social and legal definitions of juvenile delinquency; major theories of juvenile deviancy; the social system of the gang; factors contributing to apprehension, conviction, detention and parole; assessment of present and potential prevention programs.
- 3336 Comparative Cultures and Multi-ethnic Groups of the Southwest**  
A comparison of values, institution and ethnic groups of the American Southwest, emphasizing cultural variation and fusion along the U.S.-Mexican border region. May be counted for credit in Anthropology.
- 3340 Industrial Sociology (3-0)**  
A structural-functional analysis of management and labor organizations; social consequences of work and occupation in U.S. society; dynamic changes in automation and problems of leisure; community-industrial relations.
- 3342 Sociology of Deviance (3-0)**  
A study of deviations from social norms which encounter disapproval and to which theory and concepts derived from sociology and social psychology may be applied. Deviators and societal reaction to deviators are included.
- 3346 Sociology of Religion (3-0)**  
A study of the role of religion in society and its relation to other social institutions. Emphasis will be placed on the changing role of religion and its orientation to the values of society.
- 3348 Criminology (3-0)**  
Theories, causes, characteristics, and social function of crime in our society. Methods of prevention and reduction of crime will be analyzed.
- 3349 The Family as a Social Institution (3-0)**  
A study of the development of the family as a social institution. Includes the study of family under stress in various societies, emphasizing our own.
- 3352 Sociology of Poverty (3-0)**  
A systematic survey of the causes of poverty, the characteristics of group living in poverty, and problems of dealing with impoverished peoples and the reduction of poverty.
- 3355 Contemporary Sociological Theory (3-0)**  
Study of the major theories in contemporary sociology and of their development historically.



- 3360 **Institutions and Cultures of Latin America (3-0)**  
Survey of social institutions, the diverse cultures, and the processes of social change in Latin America.
- 3361 **The Sociology of Regionalism (3-0)**  
An analysis of regions as functional structures and organizations in social and political life, with special emphasis on a Great Plains model, but including others based on rivers or cities.
- 3362 **Medical Sociology (3-0)**  
Cultural factors in medical beliefs and practices; professionalization of medical practitioners; group factors in medical practice and medical care programs.
- 3380 **Society and Personality (3-0)**  
The social aspects of interpersonal interaction in the socialization process in small and complex groups.
- 3381 **Complex Organizations (3-0)**  
Examines structures, processes, interactions and human problems of modern organizations. Classical and contemporary sociological theories of organization are compared. Issues regarding organizational authority; change; conflict, control; cooperation; division of labor; efficiency; goals; and relationships with consumer-clients are studied.
- 3401 **General Sociological Theory (3-0)**  
Study of the major concepts of general sociology as these have been developed by contemporary sociologists and by the founding fathers of the field. *Prerequisite:* Sociology 3101, 3201, and nine hours of advanced sociology.
- 3405 **Culture and Personality (3-0)**  
This course will consist of a discussion of cultural materials in the light of anthropological personality theories. The areas of theory known as "culture and personality," "cognitive anthropology" and "enculturation" will be emphasized.
- 3410 **Spanish-Speaking Peoples of the Southwest (3-0)**  
Study of the historical, regional and generational differences of Southwestern Spanish-speaking peoples. Examines their social institutions and demographic characteristics as an urban, heterogeneous population.
- 3425 **Social Class and Stratification (3-0)**  
Social class differences in static and dynamic societies. Comparison of social stratification in the U.S. and U.S.S.R. Social class theories of Marx, Weber, and Michel. Measurement of social mobility in the U.S., U.S.S.R., and other societies.
- 3440 **Independent Study**  
Individual study in an area which is too specialized to be offered as an organized class. Supervised individual reading and research leading to development of a major paper or report. *Prerequisite:* 12 hours of advanced course work in sociology and consent of Department Chairman.
- 3447 **Population Studies (3-0)**  
Statistical analysis of the population of the world, the U.S. and the southwest. Study of fertility, mortality, and migration patterns.
- 3455 **Social Change and Social Action (3-0)**  
Structure and functional requisites for effecting social change; latent consequences of unplanned change; resistance and implementation of social action programs; impact of technological change on social systems.
- 3465 **Field Methods of Social Research (3-0)**  
Nature of scientific research with emphasis upon actual field experience; techniques of social research from initial formulation of proposal, collection and analysis of data, to preparation of final report. *Prerequisite:* Twelve hours of Sociology.

#### For Graduate Students Only

*M.A. degree prerequisites:* Twelve semester hours of advanced courses in Sociology, a bachelor's degree, graduate standing, or consent of adviser.

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*M.A. degree requirements:* There are two options leading to the M.A. degree in Sociology.

The following are the requirements of the thesis M.A. degree program: (1) Each candidate must take one course in research methods (3512, 3520, or 3580), (2) Sociology 3525 (Seminar in Sociological Theory), (3) plus eighteen semester hours from the list of seminar courses below. He must (4) enroll for at least one semester each in Sociology 3598 and 3599 (Thesis) and (5) successfully defend before his committee the thesis he has written while enrolled in Sociology 3598 and 3599. If the student elects to take a minor in another department or discipline, his course work in Sociology will be reduced accordingly.

The following are the requirements of the non-thesis M.A. degree program: (1) The student will complete 36 hours of graduate course work; (2) at least 30 of the 36 hours will be in 3500 level courses (that is, only six hours of 3300 and 3400 work will be allowed for graduate credit); (3) the student will be allowed only one "C" grade in the course work for which he enrolls, being required to maintain a "B" average throughout; (4) the student will be encouraged, but not required, to take six hours course work in some discipline other than Sociology as a minor; (5) the student will have a faculty committee of three chosen by him in consultation with the Graduate Advisor and with the approval of the Graduate Dean; (6) the student will submit a suitably bound graduate research paper, beyond regular semester papers, which will be judged by the student's committee and, if approved, placed on file in the Department and in the Office of the Graduate Dean.

- 3510 Seminar in Social Organization (3-0)
- 3512 Seminar in Advanced Measurement and Inference (3-0)
- 3515 Seminar in Sociology of Deviance (3-0)
- 3518 Seminar in Social Differentiation (3-0)
- 3520 Seminar in Methodology (3-0)
- 3525 Seminar in Sociological Theory (3-0)
- 3540 Seminar in Demography (3-0)
- 3545 Seminar in Comparative Institutions (3-0)
- 3548 Seminar in Criminology (3-0)
- 3550 Seminar in Social Change and Social Processes (3-0)
- 3555 Seminar in Minority Groups (3-0)
- 3560 Seminar in Marriage and the Family (3-0)
- 3565 Seminar in Sociology of Education (3-0)
- 3570 Seminar in Work and the Profession (3-0)
- 3575 Seminar in Southwestern Cultures
- 3580 Seminar in Evaluation Research
- 3590 Individual Studies (may repeat for maximum credit of six hours.)
- 3598-99 Thesis

#### **ANTHROPOLOGY**

- 3101 **The Study of Man: His Body and Technologies (3-0)**  
Introduction to the evolution of human behavioral systems with particular attention to the somatic and technological components. The biological development of man, from the 14 million year old ape-man *Ramapithecus* to modern *sapiens* man, is discussed and correlated with developments in house types, means of transportation tool types, and other aspects of technology. This course is *not* a prerequisite: to Anthropology 3102.

- 3102 **The Study of Man: His Societies and Cultures (3-0)**  
Introduction to the evolution of human behavioral systems with particular attention to the social and cultural, or ideational components. The variety of types of societies and ideologies is discussed together with the ecological situations to which they are adapted. *Prerequisite:* None.
- 3205 **Chicanos and Their Culture (3-0)**  
A survey of the history, economics, sociology, politics, demography, literature and thought of Mexican Americans as manifestations of their culture. Introduction to specialized study in the field.
- 3210 **Southwestern Archaeology (3-0)**  
The development and characteristics of prehistoric Indian societies, from the Elephant Hunters to the Pueblos, is considered with particular attention to the Mogollon, Hohokam, Anasazi, and Casas Grandes areas. Ties of the area to nuclear Meso-America will be discussed. *Prerequisite:* None.
- 3211 **Southwestern Ethnology (3-0)**  
A study of the economy, social life, religion, mythology, language, dwellings, and tool types of living Indian groups such as the Apache, Papago, Yuma, Navaho, Hopi, Zuni, and Rio Grande Pueblos. The influence of these Indian cultures on Hispanic and Anglo cultures in the area will also be discussed. *Prerequisite:* None.
- 3216 **World Ethnographic Survey (3-0)**  
Human behavioral adaptations to a variety of natural environments and a variety of demographic situations are discussed with reference to specific ethnic groups, such as Eskimo, Hottentot, New Guinea Enga, Iroquois, Kongo, Zulu, and Trobrianders. *Prerequisite:* Anthropology 3102 or permission of instructor.
- 3217 **World Prehistory (3-0)**  
A survey of the development of human technology from the earliest known bone, horn, and dental tools through hand axes, and blade and microlith tools, to metal types of the Bronze and Iron Ages. Social and cultural interpretations will be made where possible. *Prerequisite:* Anthropology 3101 or permission of instructor.
- 3220 **Introduction to Linguistics (3-0)**  
(Same as Linguistics 3220). *Prerequisite:* None in Anthropology.
- 3301 **Primate Behavioral Systems (3-0)**  
A comparative study of the morphology, sociology, technology, and ideology of the higher primates, including man. Attention will be directed to the adaptive behavior of individuals and groups of cooperating individuals as they manipulate one another and the environment in order to satisfy their basic needs. *Prerequisite:* Anthropology 3101 and 3102.
- 3302 **Comparative Social Systems (3-0)**  
Attention will focus on several classic studies in social anthropology with equal attention devoted to the social data and to the theoretical perspectives giving rise to those data. *Prerequisite:* Anthropology 3102 or permission of instructor. Equivalent to Sociology 3336. May be counted for credit in Sociology.
- 3303 **Ecological Anthropology (3-0)**  
Uses of ecological principles and models in anthropological description and explanation. Human societies as parts of larger eco-systems. Folk models of the eco-system will be discussed. Economic problems of production, distribution, and consumption in non-Western societies. *Prerequisite:* Anthropology 3102 or permission of instructor.
- 3305 **Meso-American Prehistory (3-0)**  
The prehistoric and protohistoric development of social systems in Meso-America from the advent of Early Man through the Olmec, Maya, and Aztec. Attention will be directed to the interactions between environment, demography, technology, social organization, and ideology that precipitated the rise of Meso-American civilizations. *Prerequisite:* Anthropology 3101 and 3102 or permission of instructor.

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- 3312 Indians North of Mexico (3-0)**  
A survey to familiarize the student with the social, cultural and technological adaptations made by native peoples inhabiting the varied environmental zones of the present areas of the *United States and Canada as they competed with other Indians and early European immigrants for the necessities for maintenance of their ways of life. Prerequisite: Anthropology 3102 or permission of instructor.*
- 3313 Indians of Meso-America (3-0)**  
A survey of the forms of technology, social organization and culture of post-conquest and contemporary Indians of Mexico and Central America. *Prerequisite: Anthropology 3102 or permission of instructor.*
- 3317 Peoples of Africa (3-0)**  
A survey of the cultures of some of the larger tribal groups of Africa, including those that produced the highly sophisticated civilizations that existed at the time of the first European contacts in the fifteenth century.
- 3320 Afro-American Culture (3-0)**  
An examination of the directions taken by African culture as it has been modified in the Western Hemisphere. Anthropological, sociological and literary sources will be utilized.
- 3374 Folklore of the Mexican American (Same as English 3374)**
- 3379 Independent Study**  
Individual investigation of an area of anthropology that is not adequately covered by an organized class. Periodic meetings, reports and a major paper are required. *Prerequisite: Permission of department chairman and instructor.*
- 3480 Anthropology Theory (3-0)**  
A discussion of the goals of anthropology with a critical review of current theory and methodology. *Prerequisite: Anthropology 3101 and 3102 or permission of instructor.*
- 3374 Folklore of the Mexican-American (3-0)**  
Course description same as English 3374 (cross list). *Prerequisite: None in Anthropology.*
- 3405 Culture and Personality (3-0)**  
This course will consist of a discussion of cultural materials in the light of anthropological personality theories. The areas of theory known as "culture and personality," "cognitive anthropology and "enculturation" will be emphasized.
- 4460 Laboratory Methods in Archaeology (0-6)**  
Methods in extracting from archeological remains data relative to population density, subsistence base, activity patterns, social organization, etc., will be explored at both the theoretical and practical levels. Inductive and deductive methodologies will be employed to formulate hypotheses to be tested by statistics. Course will be taught as two 3 hour lecture labs. *Prerequisite: Open only to majors in anthropology, or by permission of instructor.*
- 3465 Museology (2-3)**  
The history, philosophy, and functions of museums. To include registration procedures, storage, treatment, exhibit methods, and the use of Museum objects in research, the classroom, and the community. *Recommended for majors in Anthropology, Art, Education, Botany and Geology and others who are interested in a career in Museums. Prerequisite: Advance standing, or permission of the instructor. The course will be offered as two hours of lecture and three hours of lab.*

# College of Science

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THE UNIVERSITY OF TEXAS AT EL PASO

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JUAN O. LAWSON, *Dean Ad Interim*  
CLARENCE H. COOPER, *Assistant Dean*  
KEITH B. PRATER, *Medical, Dental,*  
*Pre-Professional Advisor*



## College of Science

*General:* Baccalaureate degrees in the Sciences provide the training required for employment at the technologist level, for further study at the graduate level or for admission to professional schools (medical, dental). Two years of study in the Sciences may serve as preparation for admission to veterinary medicine or pharmacy programs at other institutions or to The University of Texas Nursing School System.

The Departments of Biological Sciences, Chemistry, Geological Sciences, Mathematics and Physics, which constitute the College of Science, offer the Bachelor of Arts degree (subject to the general requirements listed elsewhere in this catalog), the Bachelor of Science in the Sciences (subject to the general requirements listed below) and the Master of Science degree (subject to general requirements listed in the Graduate School section of this catalog). The student planning a technical career or graduate work is advised to follow the B.S. degree route. Either the B.S. or the B.A. degree route is suitable for professional school admission (see requirements below). The B.A. degree, with attention to a second teaching field concentration and with appropriate choice of free electives from professional education courses, may satisfy requirements for teacher certification. The interested student should refer to the College of Education section of this catalog.

### Bachelor of Science in the Sciences

*Degree Requirements:* The B.S. degree in all science areas require 135 semester hours credit including:

1. The completion of a major field concentration of prescribed courses. These departmental requirements range from 30 to 45 semester hours and are listed with departmental course offerings and other information.

2. The completion of a minor field concentration of 18 semester hours, 6 of which must be advanced, in an area related to the major. Each department specifies acceptable minor fields from the sciences and certain engineering areas.

3. Mathematics 4111 and 3212 or, if specified by the departments, 4111, 3280 and 3281 or 3324, for the B.S. Degree in Psychology, Mathematics 3212 may be replaced by Mathematics 3330.

The student scoring less than 600 on the Math SAT is required to complete Mathematics 4110 before enrolling in Mathematics 4111. The student scoring less than 480 on the Math SAT is strongly advised to complete Mathematics 3109 before enrolling in Mathematics 4110. Mathematics 3109 does not apply toward the 135 semester hour requirement for the B.S. Degree.

4. History 3101, 3102.

5. Political Science 3110, 3111.

6. English 3111 (or placement), 3112 and 3269. The student with a verbal SAT score of 550 or more may obtain credit or credit with grade in one or more semesters of English by providing an acceptable Achievement Test or Advanced Placement Examination score. Students whose first language is other than English or who present verbal SAT scores of less than 450 may require other or additional courses (English 3110 or Linguistics 4110, 4111, 4112, 4113. A maximum total of 10 credit hours of freshman level English may be applied toward the 135 hours required for graduation. The department of English should be consulted for placement. General details are provided on page 183 of this catalog.

7. Electives courses of general interest or relevance to the major field of study to complete the required 135 hours minimum. The elective courses must include 36 semester hours of advanced work. Courses in which the material is repetitive of, or included within courses required by the department or college may not be applied as elective credit toward the B.S. Degree.

Specific departmental requirements listed with departmental offerings) may extend the general requirements.

### Bachelor of Science in Medical Technology

*Degree Requirements:* The Medical Technology degree requires the completion of 100 semester hours of specified work in general studies, Biological Sciences, Chemistry, and Physics. In addition, a year of professional training is required at a hospital approved by the American Society of Clinical Pathologists. In El Paso either Thomason General, Providence Memorial or William Beaumont Army Medical Center attend students who have completed the prescribed course work.

The program is administered in the Department of Biological Sciences. Specific course requirements are listed with the Biological Sciences departmental material.

### Pre-Professional Programs

Students who intend to apply to medical, dental, veterinary, nursing or pharmacy schools should be aware of the following special requirements:

*Pre-Medical-Pre-Dental:* Medical schools (Galveston, San Antonio, Dallas) and dental schools (Houston, San Antonio) associated with the University of Texas System have uniform entrance requirements including courses which may not fall within a particular degree program. The specific courses which satisfy these requirements are:

*Biological Sciences* 3105, 1107, 3106, 1108 and any two courses listed under the departmental core curriculum.

*Physics* 4103, 4104.

*Chemistry* 3105, 3106, 2106, 3324, 1324, (or 3321, 1321), 3325 and 1325 (or 3322, 1322).

*Mathematics* 4111 (not required for dental school entrance).

Application for admission should be initiated approximately 15 months prior to the anticipated entrance by requesting application forms from the Central Applications Office of the University of Texas System.

Entrance requirements for other medical and dental schools may differ from those listed. The interested student should refer to a current edition of "Medical School Admission Requirements" or "Admission Requirements of American Dental Schools," both available from the Medical Dental Preprofessional Adviser.

Exceptionally mature students with outstanding academic records, superior performance on the respective Admissions tests and highly desirable personal qualifications may be considered for admission to medical school, if the applicant will have completed at least 90 semester hours prior to the anticipated date of matriculation or to a dental school, if the applicant will have completed at least 60 semester hours prior to the anticipated date of matriculation.

*Pre-Vet — Pre-Pharmacy:* Two years of study in the Biological Sciences and/or Chemistry programs will prepare the interested student for transfer to veterinary medicine or pharmacy programs in other state institutions. The Medical Dental Preprofessional Adviser should be consulted for details.

*Nursing.* Nursing schools (Austin, Galveston, San Antonio, El Paso, Arlington, Houston) associated with the University of Texas System require the completion of 60 semester hours of work (with a 2.0 grade point average in all required lower division courses excluding electives) in an accredited college or university for admission to the upper division nursing sequence. Particular program requirements and advising requirements are listed below. Students attending the University of Texas School of Nursing at El Paso will register at the University of Texas at El Paso for the entire four years of the program but will take the nursing courses at the Nursing School which is located approximately one mile from the campus. Students who transfer from other universities, colleges, or junior colleges at the freshman or sophomore level must meet the admission requirements of the University of Texas at El Paso.

All inquiries regarding the nursing degree should be addressed to Miss Christine Bonds, Dean, The University of Texas School of Nursing of El Paso, 1101 North Campbell Street, El Paso, Texas 79902.

### Curriculum

The prerequisite structure in Science area programs requires careful attention to course sequences and the completion of all freshman-sophomore science and related area courses before undertaking upper division work. To assist the student in constructing a program and maintaining a scheduled progress toward degree completion, the College of Science offers a closely structured first year curriculum.

FIRST YEAR PROGRAMS

**Biological Sciences and Medical Technology**

	<i>Credit Hours</i>
<b>Fall Semester</b>	<i>Hours</i>
General Biology .....	4
General Chemistry .....	3
English Composition .....	3
History of the U.S. ....	3
American Government .....	3
<b>Spring Semester</b>	
General Biology .....	4
General Chemistry .....	5
English Composition .....	3
Math (Calculus) .....	4

**Geological Sciences**

<b>Fall Semester</b>	
Geology .....	4
General Chemistry .....	3
English Composition .....	3
History of the U.S. ....	3
American Government .....	3
<b>Spring Semester</b>	
Geology .....	4
General Chemistry .....	3
English Composition .....	3
History of the U.S. ....	3
American Government .....	3

**Chemistry**

<b>Fall Semester</b>	
General Chemistry .....	3
Math (Calculus) .....	4
English Composition .....	3
History of the U.S. ....	3
American Government .....	3
<b>Spring Semester</b>	
General Chemistry .....	5
Math (Calculus) .....	3
English Composition .....	3
History of the U.S. ....	3
American Government .....	3

**Mathematics**

	<i>Credit Hours</i>
<b>Fall Semester</b>	
Calculus .....	4
Introduction to Computers .....	3
English Composition .....	3
History of the U.S. ....	3
American Government .....	3
<b>Spring Semester</b>	
Calculus .....	3
Statistics .....	3
English Composition .....	3
History of the U.S. ....	3
American Government .....	3

**Physics**

<b>Fall Semester</b>	
Physics Lab I .....	1
Calculus .....	4
English Composition .....	3
American Government .....	3
Electives .....	3/6
<b>Spring Semester</b>	
Physics Lab II .....	1
Mechanics .....	3
Calculus .....	3
English Composition .....	3
American Government .....	3
Electives .....	3/5

**Nursing**

<b>Fall Semester</b>	
General Biology .....	4
Introduction of Psychology .....	3
English Composition .....	3
History of the U.S. ....	3
Introduction to Sociology .....	3
<b>Spring Semester</b>	
General Biology .....	4
Child Psychology .....	3
English Composition .....	3
History of the U.S. ....	3
Elective .....	4

For all degree programs the second and following years will vary with major and minor field decision and with the entering English-Mathematics background.



## SECOND YEAR PROGRAMS

<b>Excluding Nursing</b>		<i>Credit Hours</i>
Complete History, Political Science Requirement .....	0 - 6	
English 3269 .....	3	
Foreign Language (if required) .....	3 - 6	
Major Area Courses .....	6 - 9	
Minor Area Courses .....	6 - 9	
Electives (to total 34 hours) .....	6 - 9	
<b>Nursing</b>		
Complete Political Science Requirement .....	6	
Biology Human Body .....	5	
General Microbiology .....	3	
Psychology (statistics) .....	3	
Electives .....	10 - 15	

The Third and fourth year programs in Nursing include 4 semesters of Nursing (41 credit hours) and additional elective courses.

**Advising**

Commitment to a major through identification of the department (or a special degree program e.g. medical technology, nursing) in which a degree will be pursued is required on admission. This action, together with prompt change of major (through the departments involved and the office of the Dean) when such changes are dictated by career plan changes, will insure continued administrative, advising and counseling contact between the student and the College.

Pre-professional students (pre-med, pre-dent, pre-vet, pre-pharmacy) will further identify themselves with the additional notation appropriate (e.g. biosci-pre-vet). All pre-professional students (excluding nursing) will obtain program, admissions and career counseling from the Health Professions Advisory Committee (consisting of a chairman and advisers in the several departments most commonly selected for major field work). The committee is thoroughly familiar with professional school entrance requirements, tests required and appropriate application procedures. Nursing students will receive academic advisement from the School of Nursing faculty.

The enrollment procedure requires each student to (a) obtain program advising from the appropriate advisor (upper division or lower division) in the Major field department and (b) obtain clearance and confirmation of standing from the Office of the Dean of the College of Science. On completion of 60 credit hours a listing of the outstanding requirements for graduation (degree plan) must be obtained from the Office of the Dean of the College of Science (Liberal Arts for the B.A. Degree) and a degree program listing specific enrollments developed and filed with the upper division departmental adviser and the Office of the Dean. All freshmen, sophomore level work required by the department must be complete at this time. The degree plan and the degree program must be updated following the completion of 90 hours.

## BIOLOGICAL SCIENCES

ALBERT G. CANARIS, *Chairman*

*Professors* CANARIS, EKLUND, HARRIS, METCALF, ROBERTSTAD, WEBB;  
*Associate Professors* BRISTOL, CHRAPLIWY, DUKE, ELLZEY, FREEMAN, HUNTER,  
WORTHINGTON;

*Assistant Professors* JONES, MANNING, RAE,  
REDETZKE, REID.

**B.S. Degree:** Specific course requirements for the Biological Science major with concentration in the three major areas are:

- A. Microbiology — Biology 3105-06, 1107-08, 3214, 1215, 3216, 1217, 3320 and elective Biological Sciences courses making a total of 38 semester hours including 18 hours of advanced courses; Chemistry 3105-06, 2106, Math 4111 and 3212 or 4111 and Statistics 3280, 1282, 3281, 1283. A total of 18 semester hours of Chemistry are required for a minor.
- B. Plant Science or Zoology — All of the Biology core courses and elective Biological Sciences courses making a total of 38 semester hours including 18 hours of advanced courses; Chemistry 3105-06, 2106, Math 4111 and 3212 or 4111 and Statistics 3280, 1282, 3281, 1283. A total of 18 semester hours required for a minor. Acceptable minors are Chemistry, Engineering, Geological Sciences, Mathematics and Physics.

**B.A. Degree:** Specific course requirements for the Biological Sciences major with concentration in the three major areas are: the above stated specific requirements excepting that the total Biological Sciences requirement is 30 semester hours including 15 hours of advanced courses, and that the B.A. degree requires no minor.

**B.S. Degree in Medical Technology:** Specific course requirements for the Medical Technology major, in addition to the clinical training, are Biology 3105-06, 1107-08, 4211, 1212, 3214, 1215, 3320; Microbiology 3240, 1241, 2343, 2344, 3453, 1454, 2455, 2456; Zoology 2364, 1365; Chemistry 3105-06, 2106, 4213, 3324, 1324, 3325, 1325; English 3111-12; Mathematics 3280, 1282, 3124; Political Science 3110-11; History 3101-02; Physics 4103-04; 8 electives (6 in non-science area).

All undergraduate Biology and Medical Technology majors are required to consult with and have their enrollment forms signed by their departmental advisor before every enrollment.

An entering freshman student with at least one year of high school biology with an "A" or "B" in biology and a SAT score of at least 1000 may take an advanced Placement Examination given by the University Counseling Service covering Biology 3105, 3106, 1107 and 1108.

### BIOLOGY For Undergraduates

**3105-06 General Biology\* (3-0)** [Formerly Bio. 4110, Bot. 4103, Zool. 4103]  
A modern approach to the principles of biology, stressing the evolutionary relationship of plants and animals to success in their biosphere. *Prerequisite for all other biology courses:* Biology 1107 concurrent with Biology 3105 and Biology 1108 concurrent with Biology 3106.

**1107 Topics in the Study of Life\* (I) (0-2) (\$6)**  
Elementary aspects of cell structure, function, nutrition and reproduction. Concurrent with Biology 3105.

**1108 Topics in the Study of Life\* (II) (0-2) (\$6)**  
Elementary aspects of evolution, physiology, development, genetics and ecology in plants and animals. Concurrent with Biology 3106.

\*Core courses.

- 4211 **Biology of the Human Body (4-0)** [Formerly Bio. 4202-Bio. 4203]  
Correlated structure and function of human organ systems. Concurrent with Biology 1212. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 1212 **Exercises in Human Physiology (0-2) (\$6)**  
Methods in and principles of human anatomy and physiology. Concurrent with Biology 4211.
- 3214 **Functional Biology\* (3-0)** [Formerly Biology 4327, Botany 4313]  
Biochemistry and physiology of prokaryotic and eukaryotic organisms. Homeostasis, metabolism, membrane structure, conduction, contraction and pigmentation. Concurrent with Biology 1215. *Prerequisite:* Biology 3105-06, Biology 1107-08 and eight hours of Chemistry.
- 1215 **Functional Biology Techniques\* (0-3) (\$6)**  
Experimental techniques with prokaryotic and eukaryotic organisms. Respirometry, photometry, calorimetry, paper and column chromatography, electrophoresis, measurement of bioelectrical events. Concurrent with Biology 3214.
- 3216 **General Ecology\* (3-0)** [Formerly Botany 3301, Zool. 3303, Zool. 4306]  
Relations of biota to the physical and biological environment. *Prerequisite:* Biology 3105-06, Biology 1107-08. Biology majors must take Biology 1217; non-majors may take Biology 3216 without Biology 1217.
- 1217 **General Ecology Investigative Techniques\* (0-3) (\$6)**  
Demonstrations and application of ecological concepts with emphasis on field work. Concurrent with Biology 3216 or may be taken later.
- For Undergraduates and Graduates**
- 3318 **Developmental Biology\* (3-0)** [Formerly Zool. 5201, or 3301, or 3302]  
A study of growth, differentiation and developmental patterns in microbes, plants and animals. Concurrent with Biology 1319. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 1319 **Experimental Embryology\* (3-0) (\$6)**  
Techniques and observations of differentiation and regeneration in invertebrates and vertebrates, as well as regulatory patterns of plant hormones. Concurrent with Biology 3318.
- 3320 **Genetics\* (3-0)** [Formerly Biology 3304]  
The nature and functions of hereditary material with emphasis on the experimental procedures and data that have led to the current concepts in genetics. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 3321 **Evolutionary Theory\* (3-0)** [Formerly Biology 3314]  
Development of evolutionary thought, evidences of evolution and the evolutionary processes. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 3324 **Ecosystem Function I: The Producers (3-0)**  
The functional dynamics of plants in the ecosystem, including energy flow, nutrient cycling, water relations, and transpiration. *Prerequisite:* General Ecology 3216. Recommended Course: Physical Geography 3106.
- 1324 **Ecosystem Function I: Investigative Techniques (0-3) (\$6)**  
Field and laboratory techniques for studying plant function in the ecosystem. Concurrent with Biology 3324 or may be taken later.
- 3326 **Ecosystem Function II: The Consumers (3-0)**  
Animal population dynamics, food habits, and nutritional aspects of ecosystem study. *Prerequisite:* General Ecology 3216. Recommended course: Physical Geography 3106.
- 1326 **Ecosystem Function II: Investigative Techniques (3-0) (\$6)**  
Field and laboratory techniques for studying animal function in the ecosystem. Concurrent with Biology 3326 or may be taken later.
- 3328 **Ecosystem Function III: The Decomposers (3-0)**  
Environmental microbiology and microbial ecology, emphasizing the relationships of viruses, bacteria, fungi, algae and protozoa. Concurrent with Biology 1328. *Prerequisites:* General Ecology 3216, and a minimum of eight hours of chemistry. Recommended course: Physical Geography 3106, General Microbiology 3240, and General Microbiology Methods 1241.

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- 1328 **Ecosystem Function III: Investigative Techniques (0-3) (\$6)**  
Techniques employed in studying microbial ecology and environmental microbiology. Concurrent with Biology 3328.
- 3410 **Ecosystems Analysis (3-0)**  
Systems analysis and simulation modeling of natural ecosystems. Concurrent with Biology 1410. *Prerequisites:* Ecosystem Function I, II, or III, and the mathematics requirement for Biological Science majors.
- 1410 **Ecosystem Analysis Laboratory (0-3) (\$6)**  
Methods of ecosystem analysis and simulation modeling, emphasizing computer applications. Concurrent with Biology 3410.
- 3422 **Biological Ultrastructure Interpretation (3-0)** [Formerly Bio. 4327]  
Morphology, chemical nature and physiology of eukaryotic organelles and cell processes. Concurrent with Biology 2423. *Prerequisite:* Biology 3105-06, Biology 1107-08, Biology 3214, Biology 3318 and eight hours of Chemistry.
- 2423 **Methodology in Biological Ultrastructure (0-4) (\$6)**  
Techniques and instruments used to analyze cell structure and function. Concurrent with Biology 3422.
- 3424 **Animal Behavior (3-0)** [Formerly Zoology 3511]  
Theories, experiments and field studies that elucidate the behavior of animals. *Prerequisite:* Senior standing.
- 6425 **Field Biology (Fee varies. Summer only.)** [Formerly Biology 6465]  
Collection and study of organisms under field conditions. *Prerequisite:* Core and consent of instructor.
- 1498-3498 **Special Problems (\$8)**  
Credit will be granted up to six semester hours for research satisfactorily completed by advanced students. Only Biology majors will be accepted for this work. *Prerequisite:* Consent of the instructor.

**MICROBIOLOGY**

**For Undergraduates**

- 3240 **General Microbiology (2-0)** [Formerly Microbiology 4202]  
Survey of the different types of microorganisms and their characteristics; aspects of biochemical cytology, physiology and genetics; introduction to areas of applied microbiology. Concurrent with Microbiology 1241. *Prerequisite:* Biology 3105-06, Biology 1107-08, Biology 3214, Biology 1215.
- 1241 **General Microbiology Methods (0-3) (\$6)**  
Techniques used to study pure cultures and physiological characteristics of microorganisms, introduction to the applications of microbiology. Concurrent with Microbiology 3240.
- 3230 **Microorganisms and Disease (3-0)**  
A survey of microorganisms important to man with emphasis on those pathogenic for man; laboratory demonstrations of diagnostic procedures for pathogenicity of and immune responses to the more common pathogens. A terminal course not to be used as a prerequisite for any other course. A course for non-majors, including those in nursing program. *Prerequisites:* Biology 3105-06, Biology 1107-08.

**For Undergraduates and Graduates**

- 3335 **Mycology (2-0)** [Formerly Botany 3323]  
Phylogenetic relationships among fungi as determined by taxonomy, biochemistry, ultrastructure, and cytochemistry. Stresses non-pathogenic species. Concurrent with Microbiology 1336. *Prerequisite:* Biology 3105-06, 1107-08 and Junior standing.
- 1336 **Mycological Techniques (0-3) (\$4)**  
Identification of fungi with the aid of various culture techniques and types of microscopy. Concurrent with Microbiology 3335.

- 2343 **Pathogenic Microbiology (3-0)** [Formerly Microbiology 4302]  
A study of the epidemiology, pathogenicity and host response to disease-producing microorganisms. Concurrent with Microbiology 2344. *Prerequisite:* Microbiology 3240 or equivalent as determined by instructor.
- 2344 **Diagnostic Bacteriology (0-3) (\$8)**  
The practical application of diagnostic procedures for isolating and identifying pathogenic microorganisms and ancillary procedures in disease diagnosis. Concurrent with Microbiology 2343.
- 2347 **Determinative Microbiology (2-0)**  
Cultivation, characterization, and systematics of microorganisms. Concurrent with Microbiology 2348. *Prerequisites:* Microbiology 3240 and Microbiology 1241.
- 2348 **Determinative Techniques (0-6) (\$8)**  
Principles of sterilization, preparation and use of culture media, enrichment cultures, and modern identification techniques. Concurrent with Microbiology 2347. *Prerequisites:* Microbiology 3240 and Microbiology 1241.
- 3328 **Ecosystem Function III: The Decomposers (3-0)**  
Environmental microbiology and microbial ecology, emphasizing the relationships of viruses, bacteria, fungi, algae and protozoa. Concurrent with Microbiology 1328. *Prerequisites:* General Ecology 3216, and a minimum of eight hours of chemistry. Recommended course: Physical Geography 3106, General Microbiology 3240, and General Microbiology Methods 1241.
- 1328 **Ecosystem Function III: Investigative Techniques (0-3) (\$6)**  
Techniques employed in studying microbial ecology and environmental microbiology. Concurrent with Microbiology 3328.
- 3345 **Microbial Physiology (3-0)** [Formerly Microbiology 3333]  
Biochemical cytology, growth, nutrition, metabolism and genetics of microorganisms. Concurrent with Microbiology 1346. *Prerequisite:* Microbiology 3240 Microbiology 1241. Chemistry 3324 and Chemistry 1324.
- 3349 **Bacterial Genetics (3-0)**  
The evolution, cytological basis, and molecular aspects of bacterial genetics; population changes; types of genetic transfer; regulatory genes. *Prerequisites:* Microbiology 3240 and Microbiology 1241.
- 1346 **Microbial Physiology Methods (0-3) (\$6)**  
Techniques used to study structures and physiological activities of microbial cells. Concurrent with Microbiology 3345. *Prerequisite:* Microbiology 3240, Microbiology 1241, Chemistry 3324, and 1324.
- 3451 **General Virology (3-0)** [Formerly Microbiology 4425]  
Structural, physiological and genetic aspects of bacterial, animal and plant viruses. Concurrent with Microbiology 1452. *Prerequisite:* Microbiology 3240, Microbiology 1241, Microbiology 3345 or consent of instructor.
- 1452 **General Virology Techniques (0-3) (\$6)**  
Techniques used to study viruses. Concurrent with Microbiology 3451.
- 3453 **Immunology (3-0)** [Formerly Microbiology 4460]  
Antigens and antibodies, humoral and cellular immunity, in vitro reactions, cell types in immune processes, transplants. Concurrent with Microbiology 1454. *Prerequisite:* Microbiology 2343, 2344, Chemistry 3324-1324, 3325-1325.
- 1454 **Immunology Techniques (0-3) (\$8)**  
Antigen-antibody reactions as applied to diagnosis and research, in vitro reactions, immunoelectrophoresis, fluorescent antibody techniques, hypersensitive reactions. Concurrent with Microbiology 3453.
- 2455 **Medical Mycology (2-0)** [Formerly Microbiology 4461]  
A study of the fungi of medical importance. Concurrent with Microbiology 2456. *Prerequisite:* Microbiology 2343 and 2344.
- 2456 **Medical Mycology Techniques (0-3) (\$6)**  
Diagnosis and identification of medically important fungi. Concurrent with Microbiology 2455.

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- 3457 **Environmental Microbiology (3-0)**  
Environmental microbiology and microbial ecology; use of microbes in the transformation of wastes. Concurrent with Microbiology 1458. *Prerequisites:* Microbiology 3240, 1241, Microbiology 3345, 1346.
- 1458 **Environmental Microbiology Techniques (0-3) (\$8)**  
Techniques employed in studying microbial ecology and environmental microbiology. Concurrent with Microbiology 3457. *Prerequisites:* Microbiology 3240, 1241, Microbiology 3345, 1346.

**PLANT SCIENCES For Undergraduates and Graduates**

- 3330 **Comparative Plant Morphology (3-0)** [Formerly Botany 3210]  
Life histories, phylogenetic relationship of vascular and non-vascular plants. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 3332 **Economic Botany (3-0)** [Formerly Botany 3304]  
The origin and utilization of plants important to man, and interrelated nutrition problems between man and plants. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 3333 **Plant Anatomy (3-0)** [Formerly Botany 3320]  
Initiation, development and structure of cells, tissues and tissue systems in roots, stems, leaves and flowers. Concurrent with Plant Sciences 1334. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 1334 **Plant Anatomy Techniques (0-3) (\$4)**  
Microscopic studies of the internal structure of flowering plants. Concurrent with Plant Sciences 3333.
- 3335 **Mycology (2-0) (Same as listed under Microbiology)**  
Phylogenetic relationships among fungi as determined by taxonomy, biochemistry, ultrastructure and cytochemistry. Stresses non-pathogenic species. Concurrent with Plant Sciences 1336. *Prerequisite:* Biology 3105-06, Biology 1107-08 and junior standing.
- 1336 **Mycological Techniques (3-0) (\$4) (Same as listed under Microbiology)**  
Identification of fungi with the aid of various culture techniques and types of microscopy. Concurrent with Plant Sciences 3335.
- 2337 **Plant Taxonomy (2-0)** [Formerly Botany 3211, Botany 3414]  
Characteristics, classification and phylogenetic studies of native and ornamental vegetation. Concurrent with Plant Sciences 2338. *Prerequisite:* Biology 3105-06, Biology 1107-08. Consent of instructor.
- 2338 **Plant Identification Techniques (0-4) (\$4)**  
Collection, systematic identification and preservation of Southwestern flowering plants. Concurrent with Plant Sciences 2337. *Prerequisite:* Consent of instructor.
- 3437 **Plant Geography (3-0)** [Formerly Botany 3415]  
Geographical distribution of the major plant taxa of the world. Principles and factors governing plant distribution. *Prerequisite:* Ten hours of Plant Sciences.

**ZOOLOGY For Undergraduates and Graduates**

- 2364 **Medical Parasitology (2-0)** [Formerly Zoology 3305]  
A survey of medically important parasites. Concurrent with Zoology 1365. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 1365 **Identification of Human Parasites (0-3) (\$4)**  
Techniques used to identify human parasites and infections. Concurrent with Zoology 2364.

## For Undergraduates and Graduates

- 3366 **Invertebrate Zoology (3-0)** [Formerly Zoology 4464]  
Survey of the invertebrates, exclusive of protozoa and insects, stressing phylogeny. Concurrent with Zoology 1367. *Prerequisite:* Biology 3105-06, Biology 1107-08.
- 1367 **Invertebrate Zoology Investigative Techniques (0-3) (\$4)**  
Morphology and taxonomy of invertebrates, exclusive of protozoa and insects. Concurrent with Zoology 3366.
- 2368 **Entomology (2-0)** [Formerly Zoology 3307]  
Morphology, taxonomy and life histories of insects. Concurrent with Zoology 1369. *Prerequisite:* Twelve hours of Biological Sciences and junior standing.
- 1369 **Entomology Techniques (0-3) (\$4)**  
Observation, collection and identification of insects. Concurrent with Zoology 2368.
- 3470 **Protozoology (3-0)** [Formerly Zoology 4463]  
The morphology, taxonomy and physiology of the free-living and symbiotic protozoa. Concurrent with Zoology 1471. *Prerequisite:* Senior standing. May be counted as Zoology or Microbiology.
- 1471 **Protozoological Methods and Techniques (0-3) (\$6)**  
Concurrent with Zoology 3470.
- 1472 **Ecology of Animal Parasites (2-0)**  
Distribution, origin, evolution, environment, host relations and metabolism of parasites. Concurrent with Zoology 2473. *Prerequisite:* 16 hours of Biological Sciences and eight hours of Chemistry.
- 2473 **Investigative Techniques, Animal Parasitology (0-3) (\$6)**  
Research project culminating in a written paper. Concurrent with Zoology 1472.
- 3474 **Invertebrate Physiology (3-0)**  
Physiological mechanisms of ionic and osmotic regulation. Nitrogen excretion, circulation, respiration, temperature tolerance and endocrine regulation in invertebrate phyla. Comparative aspects of neuromuscular systems. Concurrent with Zoology 1475. *Prerequisite:* Core and 16 hours of Chemistry.
- 1475 **Investigative Techniques in Invertebrate Physiology (0-3) (\$8)**  
Instrumentation and investigative techniques involved in studying the invertebrates, both fresh and salt water. Concurrent with Zoology 3474.
- 3476 **Lower Vertebrates (3-0)**  
Classification and natural history of fish, amphibians and reptiles. Concurrent with Zoology 1477. *Prerequisite:* 14 Core hours.
- 1477 **Lower Vertebrate Identification Techniques (0-3) (\$6)**  
Recognition of selected, local fish, amphibians and reptiles; methods of preparation of study specimens and techniques of collection and data gathering. Concurrent with Zoology 3476.
- 3478 **Higher Vertebrates (3-0)** [Formerly Zoology 3204, Zoology 3506]  
History of study, literature and biology of birds and mammals. Concurrent with Zoology 1479. *Prerequisite:* 14 Core hours.
- 1479 **Higher Vertebrate Research Techniques (0-3) (\$4)**  
Methods of study and familiarization with Southwestern species. Overnight field trips are required. Concurrent with Zoology 3478.
- 2480 **Vertebrate Physiology (3-0)** [Formerly Zoology 4304]  
Vertebrate systemic functions emphasizing nerve action and movement, endocrinology and metabolic controls, osmoregulation, cardiophysiology and respiration. Concurrent with Zoology 2481. *Prerequisite:* Core and 8 hours Chemistry.
- 2481 **Vertebrate Physiology Methods (0-3) (\$6)**  
Techniques and instrumentation used in study of vertebrate function. Concurrent with Zoology 2480.

**FOR GRADUATE STUDENTS ONLY**

**Departmental Requirements for M.S. Degree**

Thirty semester hours are required for the degree. Nine semester hours of undergraduate division courses (0300 or 0400) may be counted for graduate credit. A minimum of 21 of the 30 semester hours must be in graduate courses (0500), of which six hours of Thesis (Biology 3598-3599) will be counted toward the 30 semester hour requirement. Biology 2502-5502 (Problems in the Biological Sciences) may be taken for not more than a total of six hours credit toward the 30 semester hour requirement. Six hours in a supporting area minor may be accepted by the department. A thesis describing original work is required and must be defended orally before receiving the degree.

All graduate students must have their enrollment cards signed by their supervising professor and by the graduate advisor. The student should decide on an area of specialization and select a supervising professor within 12 hours of admission. The supervising professor will act as chairman of the thesis committee which will be comprised of a minimum of three graduate faculty members, one from outside the Department of Biological Sciences.

**GRADUATE COURSES**

- 3501 **Selected Advanced Topics in the Biological Sciences (3-0)**  
Topics vary with student background and instructor.
- 2502-5502 **Problems in the Biological Sciences (\$8)**  
Research, writing and discussion in the Biological Sciences.
- 3504 **Developmental Cytology (3-0)**  
Cellular and molecular aspects of plant and animal development.
- 3505 **Herpetology (3-3) (\$8)**  
A study of the morphology, taxonomy and life histories of reptiles and amphibians.
- 3507 **Biology of the Pleistocene (3-0)**  
A study of the organisms of the Pleistocene.
- 3509 **Microbial Genetics (3-0)**  
A study of the genetics of microorganisms.
- 3512 **Recent Advances in Microbiology (3-0)**  
May be repeated for credit.
- 3513 **Biogeography (3-0)**  
Geographic distribution of plants and animals, reasons for and analysis of distributions.
- 3514 **Physiological Ecology (3-3) (\$8)**  
Physiological adaptations of organisms to different environments, desert adaptations emphasized.
- 3515 **Analytical Cytology (1-4) (\$8)**  
Modern techniques of phase microscopy, fluorescence microscopy, autoradiography, polarization microscopy and electron microscopy.
- 3516 **Biosystematics (3-0)**  
Methods and principles of taxonomy, classification, and systematics.
- 3517 **Plant Ecology (3-0)**  
Plant communities and factors determining them.
- 3518 **Identification and Ecology of Desert Plants (3-3) (\$6)**  
The identification and adaptation of desert plants.
- 3519 **Ecology and Physiology of Animal Parasites (2-3) (\$6)**  
Field and laboratory investigations of animal parasites.
- 3520 **Neuroendocrine Physiology (2-3) (\$8)**  
Neural control of endocrine secretion in vertebrates and invertebrates.



- 3521 **Archaeobiology (3-3) (\$6)**  
Recovery, processing, and interpretation of biological materials associated with prehistoric and historic man in the New World.
- 3522 **Malacology (3-3) (\$6)**  
A survey of mollusks, emphasizing the fauna of the Southwest.
- 3523 **Ultrastructure (3-0)**  
Current research advances in Cellular Biology.
- 3524 **Mammalogy (3-3) (\$6)**  
Class Mammalia, with emphasis on morphologic, physiologic, ecologic, and behavioral adaptations to past and present environments.
- 3598-99 **Thesis**



## CHEMISTRY

WILLIAM C. HERNDON, *Chairman* (Leave of Absence 1975-76)

HAROLD E. ALEXANDER, *Acting Chairman* (1975-76)

*Professor Emeritus* HATCH

*Professors* ALEXANDER, DAVIS, HERNDON, LEVITT, PARKANYI, WHALEN;

*Associate Professors* CABANESS, EASTMAN, ELLZEY, LLOYD, PANNELL,  
PRATER, RIVERA;

*Assistant Professor* SCRUGGS

**B.S. Degree** — Specific course requirements for the Chemistry major are: Chemistry 3105-06, 2106, 3321-22, 3310, 1310, 1321-22, 3351-52, 1351-52, 4411, 3465, plus three additional advanced courses in Chemistry one of which must be a laboratory course. The minor must be chosen from one of the following fields: Biological Sciences, Engineering, Geology, Mathematics, Physics, Psychology. Students planning to attend Graduate School should take German 3103-04.

**B.A. Degree** — Specific course requirements for the Chemistry major are Plan I (Pre-Medical-Pre-Dental Option): Chemistry 3105-06, 2106, 4213, 3324-1324, 3325-1325, 3326-1326, two additional advanced courses, one of which must be a laboratory course. The advanced course from which the two are to be selected are Chemistry 3428, 3432, 3462, 3465, 1476-3476, 4411, 4470.

Plan II: Chemistry 3105-06, 2106, 3321-22, 1321-22, 3310, 1310, 3351-52, 1351-52, plus one additional advanced course in Chemistry from the list given in Plan I.

All undergraduate Chemistry majors are required to consult with and have their enrollment forms signed by their department adviser before every enrollment.

An Entering Freshman student with at least one year of high school chemistry with an "A" or "B" in chemistry and a SAT score of at least 1000 may take an Achievement Examination given by the department. If a student scores 80 or above, he will be given the corresponding grade AND credit for Chemistry 3105.

An entering Freshman student with two years of high school chemistry with grades of "A" or "B" and a SAT score of at least 1000 may take Achievement Examinations given by the department over Chemistry 3105 and 3106. If he scores 80 or above, he will be given the corresponding grade and credit for Chemistry 3105 and 3106.

An entering Freshman student with the above qualifications and who scores less than 80 on the Achievement Examination may, at the discretion of the department be allowed to enter the next higher course without credit granted.

### For Undergraduates

*General prerequisite:* Junior standing for all 3300 or 3400 level courses.

#### 3103-04 Chemistry, *Contemporary Applications* (2-3)

Consideration of the role of chemistry in the natural and social environment and application to life processes. Satisfies laboratory science requirement for the liberal arts student. May not be used as a prerequisite for any other chemistry course.

#### 3105-06 General Chemistry (3-0)

[Formerly 4103-04]

The laws and theories of chemistry; the elements and their most important compounds with reference to their production and use. For students who need a foundation for work in advanced chemistry and related science. *Prerequisite:* A one-year high school chemistry course. Math 4110 or equivalent. Concurrent enrollment Chemistry 3106-2106 required.

#### 4105 General Chemistry (4-0)

Includes more introductory material than Chemistry 3105. Designed for students who have not had a course in high school chemistry. Serves as a prerequisite for Chemistry 3106. *Prerequisite:* Math 4110 or equivalent.

#### 2106 Laboratory for Chemistry 3106 (0-6)

- 4213 **Analytical Chemistry (2-6)** [Formerly 5213]  
Analytical chemical practices, separations, identifications and quantitative measurements. This course is designed for students who are not chemistry majors. *Prerequisite:* Chemistry 3106.
- 3324 **Organic Chemistry (3-0)** [Formerly 4324]  
A study of the fundamental types of carbon compounds. Intended for students not required the detailed theoretical courses specified for the B.S. degree in Chemistry. May not be counted in addition to Chemistry 3321 or 3222. *Prerequisite:* Chemistry 3106-2106 and concurrent registration in Chemistry 1324.
- 1324 **Laboratory for Chemistry 3324 (0-3)**
- 3325 **Organic Chemistry (3-0)** [Formerly 4325]  
A continuation of Chemistry 3324 with emphasis on organic compounds and their reactions in living systems. May not be counted in addition to Chemistry 3321 or 3322. *Prerequisite:* Chemistry 3324 and concurrent registration in Chemistry 1325.
- 1325 **Laboratory for Chemistry 3325 (0-3)**

#### For Undergraduates and Graduates

- 3321-22 **Organic Chemistry (3-0)** [Formerly 4321-22]  
A study of chemical bonding and structure in organic molecules, functional group synthesis and reactions, reaction mechanisms, nomenclature, and isomerism. Intended for Chemistry majors and others requiring a modern theoretical approach to organic chemistry. Concurrent enrollment in Chemistry 3321-1321 and in Chemistry 3322-1322 required. *Prerequisite:* Chemistry 3106-2106. May not be counted in addition to 3324-25.
- 1321-22 **Laboratory for Chemistry 3321-22 (0-5)**
- 3310 **Analytical Chemistry (3-0)**  
Quantitative measurements and calculations, chemical equilibrium as applied to analyses and separations. Concurrent enrollment in Chemistry 1310, 3351, and 1351 required. *Prerequisite:* Chemistry 3322, Math 3217 (or concurrently) and Physics 3222. This course is designed for Chemistry majors.
- 1310 **Laboratory for Chemistry 3310 (0-3)**
- 3351-52 **Physical Chemistry (3-0)** [Formerly 4360-61]  
Properties of substances in gaseous, liquid and solid states; solutions, thermodynamics, kinetics and other advanced topics. Concurrent enrollment in Chemistry 3351-1351 and in Chemistry 3352-1352 required. *Prerequisite:* Chemistry 3106-2106, Mathematics 3217 (or concurrently) and Physics 3222.
- 1351-52 **Laboratory for Chemistry 3351-52 (0-4)**
- 3326 **Physical Chemistry (3-0)**  
A survey of physical chemistry as applied to the life sciences. May not be substituted for or counted in addition to Chemistry 3351 or 3352. *Prerequisite:* Chemistry 3325, completion of the math requirement for life sciences majors, and concurrent registration in Chemistry 1326.
- 1326 **Laboratory for Chemistry 3326 (0-3)**
- 3423 **Organic Chemistry (3-0)**  
A third semester of organic chemistry for those who plan to do advanced work in organic chemistry. *Prerequisite:* Chemistry 3322.
- 3428 **Advanced Topics in Organic Chemistry (3-0)**  
Selected topics at the undergraduate level which are not usually covered in introductory courses in organic chemistry. Course may be repeated for credit when topics vary. *Prerequisite:* Chemistry 3322 or 3325.
- 3432 **Biochemistry (3-0)**  
A study of enzyme action, the metabolic pathways, and their interrelationships, including energy generation, storage, and utilization. *Prerequisite:* Chemistry 3322 or 3325 and Chemistry 3351 or 3326.

- 4411 **Instrumental Methods of Analytical Chemistry (2-6)** [Formerly 4450]  
A study of the more important optical and electrical methods of chemical analysis.  
*Prerequisite:* Chemistry 3352-1352 or consent of instructor.
- 3454 **Advanced Topics in Physical Chemistry (3-0)**  
Topics selected from quantum theory, statistical thermodynamics, surface chemistry, photochemistry, chemical kinetics and other areas of physical chemistry. Course may be repeated for credit when topics vary. *Prerequisite:* Chemistry 3352.
- 3462 **Structure of Matter (3-0)** [Formerly 3262]  
Introduction to Quantum Theory; atomic and molecular structure; atomic and molecular spectra; chemical bonding. *Prerequisite:* Physics 3222; Chemistry 3352 or consent of instructor.
- 3465 **Inorganic Chemistry (3-0)**  
Principles of molecular structure and chemical reactivity of inorganic compounds; coordination chemistry and introduction to ligand field theory; kinetics and mechanism of inorganic reactions; organometallic compounds; chemistry of non-metals and physical methods in inorganic chemistry. *Prerequisites:* Chemistry 3351 or consent of instructor.
- 1465 **A Laboratory Course in Inorganic Chemistry (0-3)**  
Provides laboratory practical exposure for students taking Inorganic Chemistry 3465.
- 4420 **Analytical Organic Chemistry (1-9)** [Formerly 3468]  
Identification techniques and functional group analysis of organic compounds.  
*Prerequisite:* Chemistry 3322, Chemistry 4411.
- 4470 **Radiochemistry (3-3)**  
Fundamental principles of radioactivity, theory and operation of radiation measurement devices, separation techniques, preparation and handling of radioactive samples; radioisotope applications. *Prerequisite:* Chemistry 3352 or consent of instructor.
- 1476-3476 **Introduction to Research**  
*Credit will be granted only upon completion of research in the Senior year on the recommendation of the head of the Chemistry Department. May be repeated for credit, but no more than three credit hours may be applied to a major in Chemistry. Prerequisite:* Permission of the instructor.

#### FOR GRADUATE STUDENTS ONLY

The department offers a program of study and research leading to the degree of Master of Science in Chemistry. In addition to the institutional requirements for a Master of Science degree, which include a thesis, the candidate must also meet the following stipulations. A minimum of 21 of the required 30 hours of credits must be in courses at the 0500 level. Credits must include at least one graduate level course in three of the four areas of organic chemistry, physical chemistry, inorganic chemistry or analytical chemistry. The candidate must also enroll in Chemistry 1595 during each semester of residence. Not more than one hour of Chemistry 1595 may be counted toward the 30 credit hour requirement. The normal program for the MS degree in Chemistry will include 6-hour supporting work from approved fields. A program of specialization in chemical physics may be elected with the permission of the graduate adviser. Such a program may include within the required 30 hours of credits in excess of 6 hours but not more than 12 hours in the related fields (e.g., Physics, Mathematics). Courses of study are designed for each student in consultation with his advisor. Each student must confer with the graduate advisor prior to each registration and any changes in the approved course program must be approved by the student's supervising committee. The thesis presented for this degree must describe original work related to a research problem of some importance. The thesis must be defended orally.

- 3518 **Advanced Analytical Chemistry (3-0)**  
Chemical equilibrium and its application to separation and analysis.
- 3519 **Contemporary Topics in Analytical Chemistry\* (3-0)**  
Selected topics of current interest in modern analytical chemistry.
- 3521 **Advanced Organic Chemistry I (3-0)**  
A survey of the more important type of reactions in organic chemistry: Reaction mechanisms; stereochemistry of intermediates and products; current structural theory. *Prerequisite:* Chemistry 3322.
- 3522 **Advanced Organic Chemistry II (3-0)**  
A continuation of Chemistry 3521. *Prerequisite:* Chemistry 3521.
- 3529 **Contemporary Topics in Organic Chemistry\* (3-0)**  
Selected topics of current interest in descriptive and theoretical organic chemistry.
- 3539 **Contemporary Topics in Biochemistry\* (3-0)**  
Selected topics of current interest in organic or physical aspects of biological chemistry.
- 3551 **Advanced Physical Chemistry I (3-0)**  
Schroedinger wave mechanics; atomic and molecular quantum states; applications to the treatment of wave functions for atoms and molecules.
- 3552 **Advanced Physical Chemistry II (3-0)**  
Classical and statistical thermodynamics; applications to physical and chemical systems.
- 3559 **Contemporary Topics in Physical Chemistry\* (3-0)**  
Selected topics of current interest in experimental and theoretical fields of physical chemistry.
- 3561 **Advanced Inorganic Chemistry (3-0)**  
Ionic, metallic and covalent bonding; valence bond, molecular orbital and ligand field theories; structure and properties of coordination compounds, metal carbonyls and pi-complexes.
- 3569 **Contemporary Topics in Inorganic Chemistry\* (3-0)**  
Selected topics in theoretical inorganic chemistry.
- 1595 **Graduate Seminar (1-0)**
- 1596-6596 **Graduate Research in Chemistry**  
*Prerequisite:* Graduate standing and staff consent.
- 3598-3599 **Research for the MS Degree**
- \*May be repeated for credit when topics vary.

## GEOLOGICAL SCIENCES

K. W. KELMENT, *Chairman*

*Professors* HILLS, HOFFER, KLEMENT, LeMONE, LOVEJOY, McANULTY, QUINN (Emeritus), STRAIN (Emeritus), WHITE (L.A. Nelson Professor)

*Associate Professors* SCHMIDT, CORNELL

### GEOLOGY

**B.S. Degree** — Specific course requirements for the geology major are Geology 4101-02, 4216-17, 4220, 4323, 3327, 6465, 3471 and nine additional advanced hours in geology, at least 6 of which must be senior level courses having direct economic application. These nine additional hours and Geology 4220 and 6465 may be substituted by Geology 3222, 3332, 3333, 1467-3467, and 6466 for geology majors pursuing the Geophysics option. Chemistry 3105, 3106, 2106; Physics 4103-04, or 3120 and 3221 (Paleontology majors may substitute Biology 3105-06, 1107, 1108 for Physics); Mathematics 4111 and 3212, or Mathematics 3280 and 3281, or Mathematics 3324 for 3281, but preferably in addition to 3281; Geography 3208.

The minor must be chosen from one of the following fields: Biological Sciences, Chemistry, Civil Engineering, Metallurgical Engineering, Physics or Mathematics; Physics or Mathematics being the required minor in the Geophysics option. A total of 18 hours (minimum), six hours of which must be advanced, are to be chosen from one of the above stated fields. Students planning to become professional geologists are strongly advised to take the B.S. degree program.

**B.A. Degree** — Specific course requirements are Geology 4101-02, 4216-17, 4220, 4323, 3327, 6465, and 3471 (students pursuing the Geophysics option may substitute Geology 3222, 3332, 3333, and 6466 for Geology 4220, 3327, 3471, and 6465); Chemistry 3105, 3106, 2106; Physics 4103-04, or 3120 and 3221 (Paleontology majors may substitute Biology 3105-06, 1107, 1108 for Physics); Mathematics 4110 and 4111, or Mathematics 3280 and 3281 or 3324; Geography 3208.

### For Undergraduates

*General prerequisite: Junior standing for all 3300 or 3400 level courses.*

#### 3103 Principles of Earth Sciences (2-2)

Study of the earth as a planet: A survey of the physical processes operating in the atmosphere, lithosphere, and biosphere. Includes an introduction to meteorology, physical geology, soils, and vegetation. A one-day field trip is required. May not be counted toward a major or minor in Geological Sciences.

#### 3104 Principles of Earth Sciences (2-2)

Study of the Earth as a planet: A survey of earth history as interpreted from and exhibited by plants, animals, rocks and minerals; a study of the earth in space; a survey of the physical processes operating in the hydrosphere. Includes an introduction to historical geology, astronomy, physiography, and oceanography. A one-day field trip is required. For non-geology majors.

#### 4101-02 Physical and Historical Geology (3-3)

The first course, 4101, of this two semester sequence deals with principles and processes of physical geology. The second course is a critical study of the principles of historical geology. These courses must be taken in sequence. Required for all students majoring and minoring in geology. Recommended for all students majoring in any of the sciences or engineering. A one-day field trip is required in each course.

#### 3205 Principles of Geology (for Teachers of Earth Science)

##### Fall Semester (2-3)

Study of the principles and processes of physical and historical geology. Designed for Education and Liberal Arts majors. A one-day field trip is required. *Prerequisite:* Geology 3104. Not open to students who have completed Geology 4101 and/or 4102.

- 3222 Survey of Geophysics**  
Earth properties on a large scale: Creep and earthquakes; earth tides and slow vibrations; gravity and magnetic fields; electrical currents and resistivity; heat flow. Applications on a smaller scale: Oil and mineral exploration using seismic, gravity, magnetic, and electrical methods; site evaluation for power plants, dams, and other structures; archeological uses. *Prerequisite:* Math 4111, Physics 3120 or equivalent.
- 4216 Mineral Fall Semester (3-3)**  
Elementary study of crystallography, crystal chemistry, classification and physical properties of minerals, and identification of the common silicate and ore minerals. *Prerequisite:* Geology 4101, Chemistry 3105.
- 4217 Petrology Spring Semester (3-3)**  
Hand specimen study and classification of igneous, metamorphic, and sedimentary rocks. *Prerequisite:* Geology 4216.
- 4220 Invertebrate Paleontology (3-3)**  
A survey of the classification, paleoecology, and stratigraphic distribution of fossil invertebrates. *Prerequisite:* Geology 4102 or 3205.
- 3305 Rocks and Minerals for Earth Science Teachers (2-3)**  
Hand specimen study of the common rock-forming minerals, gem, and ore minerals, and of igneous, metamorphic, and sedimentary rocks. *Prerequisite:* Geology 4101; or 3205, or permission of instructor. Not open to Geology majors.
- 3320 Geology of National Parks in the United States**  
A study of the geologic features of major National Parks and Monuments in the United States; illustrated by slides; team taught. *Prerequisite:* Geology 3103-04, or equivalent.

#### For Undergraduates and Graduates

- 3315 Oceanography (3-3)**  
Introduction to submarine geology, physical and chemical oceanography, marine organisms, marine resources, shore processes, and methods of marine technology. *Prerequisite:* Geology 4101 or 3104, or permission of instructor.
- 3321 Geology for Engineers - Fall Semester (2-3)**  
The principles of physical geology and their practical applications to civil engineering. *Prerequisite:* Junior standing in engineering or permission of instructor.
- 3322 Exploration Geophysics**  
A quantitative treatment of methods of physics applied to exploration for oil, minerals, and other resources. This includes principles and current practices in seismic refraction and reflection prospecting; magnetic and electromagnetic mapping; and gravity measurement and interpretation. *Prerequisite:* Math 4111, Physics 3222, or permission of instructor.
- 3331 Global Geophysics (3-0)**  
A quantitative discussion of the major physical properties of the earth including its gravity field, geomagnetism, heat flow, earthquake seismology, and crustal movement. Both mathematical models and measurement techniques will be covered. *Prerequisites:* Math 4111, Physics 4104, 1120, or concurrently.
- 4323 Structural Geology (3-6)**  
A study of the principles and theories of structural geology. Special attention is given to primary and secondary rock structures important for economic reasons. *Prerequisite:* Geology 4217 and Mathematics 4111 and Cartography 3208 or concurrently.
- 3324 Geochemical Prospecting Spring Semester (2-3)**  
The application of geochemistry to the search for commercial mineral deposits. *Prerequisite:* Geology 4217 or permission of instructor.
- 3325 Sedimentation Fall Semester (2-3)**  
Methods of study and interpretation of sediments, including grain size and statistical analysis. Consideration is given to the genesis and classification of sedimentary rocks through field observation and laboratory study of hand specimens. *Prerequisite:* Geology 4217 or permission of instructor.

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- 3327 **Geological Microscopy Fall Semester (2-3)**  
The optical theory of the interaction of light and minerals and the study of minerals and ores in grains, polished sections, and thin sections with the petrographic and ore microscopes. *Prerequisite:* Geology 4217; Physics 4104 or 4216 and/or permission of instructor.
- 3328 **Morphology of Fossil Invertebrates (3-3) Spring Semester**  
A study of the functional morphology, taxonomy, phylogeny, and biometry of the fossil invertebrates. *Prerequisite:* Geology 4220 or permission.
- 3330 **Introduction to Micropaleontology (3-3)**  
Techniques of collecting and preparation. Morphology, classification, biostratigraphic distribution, and paleoecology of animal microfossils. *Prerequisite:* Geology 4101-02 or permission of instructor.
- 3333 **Engineering and Environmental Geophysics**  
Practical application of geophysical methods to engineering problems. Site evaluation for large structures. *Seismic risk analysis* and building response to earthquakes. Environmental aspects of blasting and excavation. Applications to archeology. *Prerequisite:* Math 4111, Physics 3222, or permission of instructor.
- 3340 **Vulcanology**  
A study of the origin, eruption patterns and products of volcanoes. Discussion of thermal energy resources. *Prerequisite:* Geology 3103 or equivalent.
- 3359 **Mineral Resources (2-3) Fall Semester**  
Geology and distribution of mineral resources, present and future supplies, and consideration. *Prerequisite:* Geology 3103 or 3205 or 4101.
- 3405 **Earth Science Field Course Fall Semester (2-4)**  
*Field observation; use of the field as a laboratory; methods and techniques of constructing maps and cross-sections, collecting and preparation of fossils, rocks, and minerals. Prerequisite:* Geology 3305 or permission of instructor. Not open to Geology majors.
- 3421 **Environmental Geology (3-0)**  
A study of the applications of the science of geology to the problems of urban development and environmental control. *Prerequisite:* Geology 4101 or 3305 or 3321.
- 4458 **Geology Applied to Petroleum (3-6)**  
A study of the origin, nature, migration, and accumulation of petroleum. Special emphasis is placed on the economics of commercial deposits of oil and gas, and on specific techniques for studying rocks and structures beneath the earth's surface. *Prerequisite:* Geology 3462.
- 3462 **Stratigraphy - Spring Semester (3-0)**  
A study of the fundamental principles of stratigraphy with special emphasis on the stratigraphy of Southwestern United States and Northern Mexico. *Prerequisite:* Geology 4220 and/or permission of instructor.
- 3464 **The Geology of Groundwater - Spring Semester - Alternate years (3-0)**  
Study of the geology and hydrology of groundwater; occurrences, movements, fluctuations, and production; with emphasis on the groundwater resources of the Southwest. *Prerequisite:* 3323, 3325, or permission of instructor.
- 6465 **Field Geology (Summer Field Course) (\$60)**  
A six-week summer course in field geology. The work will include preparation of topographic and geologic maps, cross-sections, columnar sections, and detailed structural studies of areas embracing both sedimentary and igneous rocks. plane table and aerial photo mapping techniques will be used. A report will be required of each student. Five hours of lecture and thirty-two hours of field work per week. *Prerequisite:* Geology 4216-17, 4220, 4323, and permission of instructor.
- 6466 **Field Geophysics (Summer Field Course)**  
A summer field course in field geophysics. *Prerequisites:* Geology 3222, 3322, 3333, or permission of instructor.



**1466-3466 Special Problems**

Special problem in geology; hours and subjects to be arranged with each student; for undergraduate students of senior standing who wish to do special work on special problems. No student may receive credit for more than six hours of special problem work. *Prerequisite:* Permission of Head of Department.

**1467-3467 Special Problems in Geophysics**

Special problems in geophysics; hours and subjects to be arranged with each student, for undergraduate students of senior standing who wish to do special work on special problems. No student may receive credit for more than six hours of special problem work. *Prerequisite:* Permission of Head of Department or instructor.

**3470 Economic Mineral Deposits (3-3) Spring Semester**

Study of the origin, nature, occurrence, and uses of economic industrial and metallic mineral deposits; prospecting and exploration techniques and economic factors are included. *Prerequisite:* Geology 4323 or permission.

**3471 Advanced General Geology (3-3) Fall Semester**

Comprehensive review of the fundamental principles of geology. *Prerequisite:* Senior standing in geology or permission.

**3472 Computer Applications in the Natural Sciences (1-6)**

Study of computer applications in the natural sciences utilizing Fortran IV. Methods of preparation of data and statistical analysis will be stressed. *Prerequisite:* Junior standing or permission of the instructor.

**FOR GRADUATE STUDENTS ONLY**

DEPARTMENTAL REQUIREMENTS — Doctor of Geological Sciences. Requirements for this degree can be found in the Graduate School section of this catalog (pages 55-57).

DEPARTMENTAL REQUIREMENTS — Master of Science Degree in Geology. Geology majors must present 30 hours, including a thesis (6 hours). At least 21 hours must be in courses numbered 3500 or above. As part of the 30-hour program, 6 hours are requested in a supporting field such as Mathematics, Chemistry, Biology, Physics, Geography, Geophysics, Civil Engineering, or Metallurgical Engineering. At least 3 hours of the supporting area work must be done in residence. All candidates are required to take Geology 3560 - Advanced Physical Geology, and 3561 - Advanced Historical Geology; all candidates are required to enroll in Geology 1501 - Technical Sessions Seminar, during each semester they are in residence. All candidates are required to satisfactorily pass an oral examination on his thesis investigation problem. A written qualifying examination must be taken during the first semester in residence.

**1501 Technical Session (1-0)**

Required of all graduate students. Discussion of various geological topics by the faculty, graduate students, and speakers from industry and other institutions. May be repeated for credit. *Prerequisite:* Senior or graduate standing.

**3510 Advanced Invertebrate Paleontology (2-3)**

A comprehensive analysis of the faunal taxonomy and paleoecology of the geologic systems. Professional methods of collecting and preparing invertebrate fossils will be stressed. *Prerequisite:* Geology 4220, or permission.

**3520 Paleozoic Biostratigraphy - Fall Semester - Alternate years (2-3)**

Classification, paleogeography, and paleontology of the stratigraphic units within the Paleozoic systems. *Prerequisite:* Geology 4220.

**3525 Mesozoic and Cenozoic Biostatigraphy - Spring Semester****Alternate years (2-3)**

Classification, paleogeography and paleontology of the stratigraphic units of the marine Mesozoic and Cenozoic. *Prerequisite:* Geology 4220 and consent of instructor.

- 3530 **Paleobotany (2-3) Fall Semester**  
A study of the morphology, ecology, classification, evolution, and geological significance of fossil plants, including algae. *Prerequisite:* Permission of instructor.
- 3535 **Advanced Micropaleontology (3-3)**  
A study of foraminifera, their ecology, systematics, and biostratigraphic usefulness. *Prerequisite:* Permission of instructor.
- 3540 **Advanced Carbonate Petrography (2-3) Spring Semester**  
Thin-section and hand-specimen studies of carbonate rocks with emphasis on environmental interpretation, porosity formation, and potential reservoir characteristics. *Prerequisite:* Geology 3325, 3595, or permission of instructor.
- 3545 **Igneous and Metamorphic Petrography (2-3) Spring Semester**  
**Alternate Years**  
The study of igneous and metamorphic rocks in thin sections. *Prerequisite:* Geology 3327.
- 3555 **Seismic Wave Propagation (3-0)**  
Mathematical treatment of plane waves in homogenous, laminated, granular, and porous media. Effect of fluid content. Measurements of attenuation in rocks and review of loss mechanisms. Reflection at plant boundaries. Propagation along cylindrical boreholes. Radiation from simple seismic sources. *Prerequisite:* Math 3326 or equivalent.
- 3556 **Physical Well Logging (3-0)**  
Physical principles, instrumentation and interpretation of measurements in oil wells and boreholes. Logging tools include electrical resistivity and self-potential; natural and induced radioactivity; seismic velocity and attenuation; and geometry of the borehole. *Prerequisite:* Graduate standing and permission.
- 3560 **Advanced Physical Geology - Fall Semester - Alternate years (3-0)**  
*Prerequisite:* Senior or graduate standing and consent of instructor.
- 3561 **Advanced Historical Geology - Spring Semester - Alternate years (3-0)**  
*Prerequisite:* Senior or graduate standing and consent of instructor.
- 3562 **Special Problems in Geology**  
*Prerequisite:* Graduate standing and consent of instructor.
- 3563 **Special Problems in Geophysics**  
*Prerequisite:* Graduate standing and permission of instructor.
- 3570 **Advanced Structure and Geotectonics (3-0)**  
Extensive reading on selected topics in structural geology, and broad review of the major principles and theories of geotectonics. *Prerequisite:* 4323 and permission.
- 3574 **Mineral Economics - Fall Semester - Alternate years (3-0)**  
Economic characteristics of mineral resources; economic analyses as applied to the mineral industries; problems related to mineral organization and financing. *Prerequisite:* Graduate standing and consent of instructor.
- 3576 **Applied Geochemistry (2-3)**  
Application of geochemical principles and techniques to prospecting for commercial mineral deposits. *Prerequisite:* Geology 3324 or permission.
- 3580 **X-ray Mineralogy - Fall Semester - Alternate years (2-3)**  
Theory and application of single, crystal and powder diffraction X-ray methods and crystal chemistry of rock-forming silicates and ores. *Prerequisite:* Senior or graduate standing, and/or consent of instructor.
- 3585 **Development of Geological Concepts (3-0)**  
Study of the growth of the fundamental philosophical structure of the earth sciences from original sources, and the influence of these principles on modern geological thinking. *Prerequisite:* Graduate standing and permission of instructor.
- 3590 **Seminar in Geology (3-0)**  
Seminar sections (non-concurrently) in paleontology and stratigraphy; mineralogy, petrology, and geochemistry; structural geology and geomorphology; economic geology, and subsurface correlation. *Prerequisite:* Graduate standing and permission.

- 3591 **Economic Geology: Industrial Rocks and Mineral Deposits (3-0)**  
Study of the geologic and economic factors and techniques involved in finding, evaluating, producing, and marketing industrial rocks and minerals. *Prerequisite:* Geology 3470 or permission.
- 3592 **Economic Geology: Metallic Mineral Deposits (3-0)**  
Study of the geologic and economic factors and techniques involved in finding, evaluating, producing, and marketing metallic minerals. *Prerequisite:* Geology 3470 or permission.
- 3595 **Petrology of Carbonate Rocks (2-3) Fall Semester**  
Description and classification of carbonate rocks; recrystallization, dolomitization, depositional environments; major groups of lime-secreting organisms; energy interpretations; diagenesis, and porosity formation. *Prerequisite:* Geology 3325 and permission of instructor.
- 3596 **Environmental/Engineering Geology: Theory (2-1)**  
Advanced study of selected physical phenomena and rock properties of special importance to the planning, design, construction and operation of man's works. Analysis of the common problems encountered in the practice and predicting the influence of natural and man-made environmental factors. *Prerequisite:* Graduate standing and permission of instructor.
- 3597 **Seminar in Environmental Geology (2-0)**  
The geologic basis of man's environment and its significance in our modern technological society. Some principles of geological science are analyzed as to their interrelationship with other fields which influence man's environment. *Prerequisite:* Graduate standing and permission of instructor.
- 3598-99 **Thesis Course for M.S. degree**  
*Prerequisite:* Graduate standing and consent of staff.

## GEOGRAPHY

**Minor in Geography:** Students may minor in Geography by taking 18 hours (six advanced) from the following list of courses: Geography 3106, 3110, 3207, 3208, 3210, 4206, 4306, 3312, 3407, 4410, and Geology 3315 and 3359.

### For Undergraduates

*General prerequisites:* Junior standing for all 3300 and 3400 level courses.

- 3106 **Physical Geography (2-2)**  
Survey of the physical elements of the earth, with emphasis on maps, climate, landforms, soils, and vegetation.
- 3110 **Cultural Geography (3-0)**  
Introduction to cultural elements, their spatial distribution, and their interrelationship to the physical environment.
- 3207 **Economic Geography (2-2)**  
Study of the physical and economic factors affecting the distribution and interrelationship of world resources and commodity production. *Prerequisite:* Geography 3106, 3110, or permission of instructor.
- 3208 **Cartography (2-4)**  
Theory and construction of map projections, compilation procedures, principles of generalization and symbolization, cartographic drafting and lettering techniques, and map reproduction methods.
- 3210 **Geomorphology (2-2)**  
Qualitative and quantitative analysis of geomorphic processes generated by water, ice and wind, with special reference to their effect in North America. *Prerequisite:* Geology 3103 or 4101, 3205, or Geography 3106.
- 4206 **Weather and Climate (3-3)**  
Study of the components of weather, weather processes, and measurement; climate elements and control factors; geographic classification of climatic and natural vegetation on the earth's surface. *Prerequisite:* Geography 3106, or Geology 3103 or 4101, or permission of instructor.

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- 4306 **Geography of Arid Lands (3-3)**  
A study of the physical complexes of the world's dry regions. Salient factors emphasized include climate, landforms, water soils, natural vegetation and the various aspects of human occupancy. *Prerequisite:* Geography 3106, 3207 or permission of instructor.
- 3312 **Geography of Latin America (3-0)**  
Study of the physical and cultural features which characterize the economic, social, and political geography of Latin America. *Prerequisite:* Geography 3106, 3110, or permission of instructor.
- 3407 **Arid Lands, Seminar (3-0)**  
Topics will be selected. Emphasis will be placed on field study. *Prerequisite:* Geography 4306 or permission of instructor.
- 4410 **Advanced Geomorphology (3-3)**  
Quantitative and theoretical geomorphology along the lines of current research on hydraulic geometry of rivers, statistical laws of channel networks, and evolution of slopes and drainage basins. *Prerequisite:* Geography 3210.



## MATHEMATICS

JAMES E. NYMANN, *Chairman*

*Professors* BOYER, LEAHEY, NYMANN,

*Associate Professors* BENTZ, GLADMAN, HALL, SCHUSTER, STRAUSS, WAGNER

*Assistant Professors* BAILEY, FITZPATRICK, FOX, GUTHRIE, GRAY, HANSEN,

HUNTLEY, KAIGH, LIGUORI, LOPP, McDONALD, MICULKA,

NARVARTE, PROVENCIO, SRINIVASAN

### MATHEMATICS

**B.S. Degree** — Specific course requirements for the mathematics major are: 3323, 3325, 3341, and four advanced courses including at least two from 3425, 3441, 3480. The minor is usually chosen from Physics, Engineering, Chemistry, or Biology. Other choices leading to a meaningful and coherent program may be approved by the Dean.

**B.A. Degree** — Specific course requirements are: 3325, 3341, two courses chosen from 3319, 3323, 3328, 3330, 3422, 3431, 3480; and one additional advanced course.

All undergraduate mathematics majors are required to consult with and have their enrollment forms signed by their departmental advisor before every enrollment.

Students desiring to obtain a minor in statistics or a master's degree in mathematics with emphasis in probability and statistics should consult with the Chairman of the Department.

#### For Undergraduates

**3101 Excursions in Mathematics (3-0)**

A course designed to provide some understanding of the nature of mathematical thought. Topics are chosen from such fields as combinatorics, probability, statistics, and number theory. This course does not serve as preparation for any other mathematics course except 3102.

**3102 Excursions in Mathematics (3-0)**

A continuation of Mathematics 3101. *Prerequisite:* Mathematics 3101.

**3109 Intermediate Algebra (3-0)**

This course is designed for students who lack training in algebra needed for Math 4110. Basic topics such as signed numbers, exponents, factoring, fractions, radicals, and quadratic equations are included, along with systems of linear equations, determinants, and an introduction to trigonometry. *Prerequisite:* One unit of high school algebra.

**3120 Introductory Mathematics for Business and Social Sciences (3-0)**

The topics covered include the algebra of sets; other bases; functions: linear, quadratic, exponential and logarithmic; systems of linear equations and inequalities; matrix algebra and determinants. *Prerequisite:* Two units of high school mathematics or Mathematics 3109.

**3121 Quantitative Study Skills (2-0)**

A course designed to teach students how to interpret, set up, and solve problems in science and engineering courses. Short lectures and ample classroom practice. Not to be counted toward a major, minor, or teaching field in mathematics.

**3124 Introduction to Computer Programming (3-1)**

Through an introduction to the Fortran language, the student becomes acquainted with the design and organization of computers, with various algorithms, and with a logical approach to problem analysis. Open to all students.

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- 4110 Pre-Calculus (4-0)**  
The course deals with the elementary mathematics necessary for a successful study of calculus. It includes a review of number systems and basic arithmetic operations; the elements of analytic geometry and trigonometry; polynomials; systems of linear equations; the definition of a function and the logarithmic and exponential functions; induction and the binomial theorem. *Prerequisite:* Two units of high school algebra and one unit of high school geometry or Mathematics 3109.
- 4111 Calculus (4-0)**  
Topics include limits, continuity, differentiation, and integration of functions of a single variable; parametric equations. *Prerequisites:* Four units of high school mathematics and a SAT score of at least 600, or Mathematics 4110, or departmental approval based on placement test.
- 1170 Honors Seminar (1-0)**  
Supplementary topics for superior students who want to gain a deeper understanding of Calculus. The course is intended for students of engineering and the sciences as well as mathematics majors. *Prerequisite:* Concurrent enrollment in Mathematics 4111 and consent of the Department of Mathematics.
- 3212 Calculus (3-0)**  
Continuation of Mathematics 4111. Topics include solid analytic geometry, vectors, coordinate systems, special methods of integration and applications. *Prerequisite:* Mathematics 4111.
- 3217 Calculus (3-0)**  
Infinite series, partial differentiation, and multiple integrals. *Prerequisite:* Mathematics 3212.
- 3201 Introductory Analysis for Business and Social Sciences (3-0)**  
An introduction to differential and integral calculus, counting methods, probability, and the theory of games. *Prerequisite:* Mathematics 3120 or 4110.
- 3302 Mathematics for Elementary Education (3-0)**  
A study of the structure of the real number system and its subsystems, emphasizing concepts usually taught in elementary school. Topics include set theory, numeration, counting numbers, integers, rational and real numbers, decimal representation, and elementary number theory. The notions of group, ring, and field are presented. *Prerequisite:* Current registration in elementary education and junior standing. May not be counted as part of the advanced hour requirement for a major or minor for the B.A. or B.S. degree in Mathematics.
- 3303 Mathematics for Elementary Education (3-0)**  
A continuation of Mathematics 3302. *Prerequisite:* Mathematics 3302.
- 3304 Mathematics for Elementary Education (3-0)**  
The course consists of a review of set theory, an axiomatic development of geometric ideas, an introduction to the abstract notion of distance followed by a presentation of Euclidean and non-Euclidean geometry. *Prerequisite:* Mathematics 3303.
- 3319 Elementary Number Theory (3-0)**  
An introduction to some of the classical topics in number theory including divisibility, congruences, quadratic reciprocity, Diophantine equations and the distribution of primes. *Prerequisite:* Mathematics 3212.
- 3323 Linear Algebra (3-0)**  
An introduction to the algebra of vectors and matrices, and to linear transformations on vector spaces. The course is oriented towards applications and is primarily intended for the engineer and scientist. *Prerequisite:* Mathematics 3212.
- 3324 Computer Programming and Computer Principles (3-1)**  
Includes a detailed study of Fortran IV together with applications to selected numerical methods. Because the language studied is relatively sophisticated and is presented as a tool to solve numerical problems, this course is more advanced and specialized than Mathematics 3124. *Prerequisite:* Mathematics 4111.
- 3325 Introduction to Algebra (3-0)**  
Set Theory. Introduction to groups, rings, fields, and their elementary properties. *Prerequisite:* Mathematics 3212.

- 3326 **Differential Equations (3-0)**  
A study of first order equations, linear equations with constant coefficients, general linear equations, the method of variation of parameters, the Laplace transform, and power series solutions. *Prerequisite:* Mathematics 3217.
- 3328 **Set Theory (3-0)**  
A study of set theory including cardinal and ordinal numbers together with a detailed development of the natural, rational, and real number systems starting with Peano's postulates. *Prerequisite:* Mathematics 3212.
- 3335 **Higher Mathematics for Engineers and Physicists (3-0)**  
Line and surface integrals, change of variable in multiple integrals, vector analysis and an introduction to complex variables. *Prerequisite:* Mathematics 3217.
- 3341 **Introduction to Analysis (3-0)**  
Topology of the real line. Convergence. Continuity. The Integral. *Prerequisite:* Mathematics 3217 and 3325.
- 3422 **Modern College Geometry (3-0)**  
A course in modern plane geometry involving an extension of some of the material of elementary geometry, together with an introduction to projective geometry. Properties of the triangle, properties of the circle, similitude, inversion, cross ratio, and principle of duality. *Prerequisite:* Mathematics 3325.
- 3425 **Modern Algebra (3-0)**  
Groups, rings, integral domains, and fields. *Prerequisite:* Mathematics 3325.
- 3426 **Modern Algebra (3-0)**  
Continuation of Mathematics 3425. *Prerequisite:* Mathematics 3425.
- 3429 **Numerical Analysis (3-1)**  
Numerical techniques and the mathematics of computation, including linear difference equations, interpolation and the numerical solution of differential equations. Illustrative problems will be programmed in Fortran for solution on a high speed computer. *Prerequisite:* Mathematics 3217, basic knowledge of Fortran, or consent of the instructor.
- 3431 **Introduction to Point Set Topology (3-0)**  
Topological spaces, continuous mappings, homeomorphisms and topological properties. *Prerequisite:* Mathematics 3341.
- 3436 **Higher Mathematics for Engineers and Physicists (3-0)**  
Series solutions of differential equations, Fourier Series and Fourier integrals, Bessel's equation and Bessel Functions, Legendre's equation and Legendre's polynomials, the Sturm-Liouville theorem and eigenfunction expansions, and an introduction to partial differential equations. *Prerequisite:* Mathematics 3326.
- 3437 **Introduction to Complex Variables (3-0)**  
The definition of the elementary analytic functions, differentiation, integration, Taylor series, and an introduction to conformal mapping. *Prerequisite:* Mathematics 3341 or 3335.
- 3441 **Introduction to Real Functions (3-0)**  
A detailed treatment of calculus. Topics include a study of real numbers, elementary topology in  $\mathbb{R}^n$ , sequences, limits, properties of continuous functions and the development of the Riemann integral. *Prerequisite:* Mathematics 3341.
- 3442 **Introduction to Real Functions (3-0)**  
A continuation of Mathematics 3441. Topics include series, uniform convergence, partial differentiation, Jacobians, and the implicit and inverse function theorems. *Prerequisite:* Mathematics 3441.
- 3443 **Ordinary Differential Equations (3-0)**  
An introductory course in the theory of ordinary differential equations. Linear systems of equations. Existence, uniqueness, and dependence of solutions on initial conditions. Singularities of second order equations. Series Solutions. Topics from boundary value problems and stability theory as time permits. *Prerequisite:* Mathematics 3323 or consent of instructor.

**1499-3499 Individual Studies in Mathematics**

Studies of topics not included in or going beyond the regular course offerings. *Prerequisite:* Students must make arrangements with the Chairman, Department of Mathematics, prior to enrolling. May be repeated for credit. Not to be counted towards Major requirement.

**STATISTICS**

*Minor in Statistics:* Students may minor in Statistics by taking 18 hours (six advanced) as follows: Mathematics 3124 or 3324, 3201 or 4111, plus 12 units from Statistics 3280, 3281, 3330, 3380, 3480, 3481. Students who plan to pursue graduate studies in statistics related areas are urged to take Statistics 3480 and 3481.

**For Undergraduates**

**3280 Introduction to Statistics I (3-0)**

A study of the principles and methods of statistics without calculus. Statistical description, probability concepts, random variables and probability distributions, special probability distributions, sampling distributions, estimation and confidence intervals; introduction to hypothesis testing and regression analysis. Open to all students. Concurrent enrollment in Statistics 1282 is optional.

**3281 Introduction to Statistics II (3-0)**

A study of the principles and methods of statistics without calculus; hypotheses testing, nonparametric tests, analysis of variance, regression, correlation and experimental design. *Prerequisite:* Statistics 3280. Concurrent enrollment in Statistics 1283 is optional.

**1282 Computing Laboratory for Statistics 3280 (1-1)**

Practical exercises in the handling of statistical data and experimental sampling as related to the course work in Statistics 3280. Includes an introduction to data processing.

**1283 Computing Laboratory for Statistics 3281 (1-1)**

Practical exercises in the handling of statistical data as related to the course work in Statistics 3281.

**3330 Probability (3-0)**

This is an introductory course in the theory of probability. The ideas of sample space and probability and the axioms of probability theory are introduced through familiar finite examples. The standard notions of the theory are presented: conditional probability, random variables, distribution functions, expectation, mean, variance, etc. The central limit theorem, the law of large numbers and other limit theorems are included. *Prerequisite:* Math 4111 or 3201.

**3380 Sampling Techniques (3-0)**

An account of sampling theory with practical applications; the role of sampling theory, simple random sampling, sampling for proportions, the estimation of sample size, stratified random sampling, systematic sampling. *Prerequisite:* Statistics 3281 or Statistics 3330.

**3480 Introduction to Mathematical Statistics I (3-0)**

A mathematical study of the principles and methods of statistics at the introductory level; includes distribution theory, estimation, hypotheses testing, correlation and an introduction to regression and analysis of variance. *Prerequisite:* Statistics 3330 and Mathematics 3217.

**3481 Introduction to Mathematical Statistics II (3-0)**

A continuation of Statistics 3480; includes regression analysis, analysis of variance, nonparametrics, and other selected topics in experimental design. *Prerequisite:* Statistics 3480.



FOR GRADUATE STUDENTS ONLY

DEPARTMENTAL REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE. For students electing to write a thesis, the program involves a minimum of 24 semester hours of acceptable course work and 6 hours of credit for the thesis. For those not writing a thesis, at least 36 hours of acceptable course work are required. All but 9 hours (6 hours if there is no minor) must be graduate course work. Those students working toward a M.S. degree in mathematics should include Mathematics 3521, 3531, 3541, and 3551 in their program. For students desiring a M.S. degree in mathematics *with emphasis in probability and statistics*, Statistics 3580, 3581, 3582, and 3583 are recommended. The particular course of study for each student must be approved by the departmental committee on graduate studies. A comprehensive examination is required.

- 3511 **Applied Mathematics I (3-0)**  
Spectral theory of operators, distribution theory, perturbation theory. Green's functions. Applications to ordinary and partial differential equations, integral equations and calculus of variations. *Prerequisite:* Mathematics 3335 and 3436 or the equivalent as approved by the instructor.
- 3512 **Applied Mathematics II (3-0)**  
A continuation of Mathematics 3511. *Prerequisite:* Mathematics 3511 or its equivalent as approved by the instructor.
- 3521 **Advanced Abstract Algebra I (3-0)**  
Groups, rings, fields, modules, with an introduction to homological methods. *Prerequisite:* Mathematics 3425 or its equivalent as approved by the instructor.
- 3522 **Advanced Abstract Algebra II (3-0)**  
A continuation of Mathematics 3521. *Prerequisite:* Mathematics 3521 or its equivalent as approved by the instructor.
- 3531 **Real Variables I (3-0)**  
Measurable sets and functions, Lebesgue-Stieltjes integration, Baire categories,  $L_p$  spaces and various types of convergence. *Prerequisite:* Mathematics 3441 or its equivalent as approved by the instructor.
- 3532 **Real Variables II (3-0)**  
A continuation of Mathematics 3531. *Prerequisite:* Mathematics 3531 or its equivalent as approved by the instructor.
- 3541 **Topology I (3-0)**  
A study of topological spaces, uniform spaces and function spaces, with an introduction to algebraic topology. *Prerequisite:* Mathematics 3431 or its equivalent as approved by the instructor.
- 3542 **Topology II (3-0)**  
A continuation of Mathematics 3541. *Prerequisite:* Mathematics 3541 or its equivalent as approved by the instructor.
- 3551 **Complex Variables I (3-0)**  
Complex integration and the calculus of residues. Analytical continuation and expansions of analytic functions. Entire, meromorphic, and periodic functions. Multiple-valued functions and Riemann surfaces. *Prerequisite:* Mathematics 3441 or its equivalent as approved by the instructor.
- 3552 **Complex Variables II (3-0)**  
A continuation of Mathematics 3551. *Prerequisite:* Mathematics 3551 or its equivalent as approved by the instructor.
- 3570 **Seminar (3-0)**  
Various topics not included in regular courses will be discussed. May be repeated once for credit as the content changes. *Prerequisite:* Consent of instructor.

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- 3580 Mathematical Statistics I (3-0)**  
A thorough mathematical study of the principles and methods of statistics. Probability spaces, random variables and random vectors, probability distributions, expectation and moments, characteristic functions, moment generating functions and probability generating functions, derived distributions of random variables, law of large numbers and central limit theorem, order statistics, principles and methods of estimation. *Prerequisite:* Consent of the instructor.
- 3581 Mathematical Statistics II (3-0)**  
A thorough mathematical study of the principles and methods of statistics; hypotheses testing, likelihood ratio and chi-square tests, sequential analysis, multivariate analysis, quadratic forms, least squares and the general linear model, analysis of variance, nonparametric techniques. *Prerequisite:* Mathematics 3580.
- 3582 Probability Theory I (3-0)**  
A mathematical study of the notions of probability spaces, measurable functions and random variables, modes of convergence and limit theorems. *Prerequisite:* Consent of the instructor.
- 3583 Probability Theory II (3-0)**  
A mathematical study of central limit theorems for sequences of independent and dependent random variables; multivariate limit theorems, conditional expectation and martingale theory; introduction to the theory of stochastic processes, in particular, Brownian motion. *Prerequisite:* Mathematics 3582.
- 3584 Statistical Principles in Experimental Design (3-0)**  
The basic principles of the design and analysis of experiments which occur in all areas of experimental work. The computer will be used in the analysis of the data. *Prerequisite:* Consent of the instructor.
- 3586 Stochastic Processes I (3-0)**  
A study of the theory and applications of stochastic processes. The role of stochastic processes, elements of stochastic processes, Markov chains, limit theorems, Poisson processes. *Prerequisite:* Consent of the instructor.
- 3587 Stochastic Processes II (3-0)**  
A study of the theory and applications of stochastic processes; birth and death processes, renewal processes, Brownian motion, branching processes, queueing processes. *Prerequisite:* Mathematics 3586.
- 3589 Special Topics in Statistics (3-0)**  
Various topics in probability and statistics not included in the regular courses will be discussed. May be repeated once for credit as the content changes. *Prerequisite:* Consent of the instructor.
- 3598-99 Thesis Course for the Master's Degree**

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## PHYSICS

DONALD E. BOWEN, *Chairman*

*Professors Emeritus* KNAPP, McMAHAN

*Professors* BARNES, BOLEN, BOWEN, BRIENT, COOK, LAWSON, McINTYRE

*Associate Professors* BLUE, BRUCE, DEAN

*Assistant Professors* COOPER, SLUSHER

### *Departmental Requirements:*

**B.S. Degree** — Specific course requirements for the physics major are: Physics 1120, 3120, 1121, 3221, 3222, 3325, 2343, 3326, 3351, 3431, 3441, 2446, 3453, 3457, and Electrical Engineering 4278.

**B.A. Degree** — Specific course requirements for the Physics major are: Physics 1120, 3120, 1121, 3221, 3222, 3325, 2343, 3326, 3351, 3441, 2446.

Mathematics is the normal minor for a physics major; other minors can be substituted upon approval of the undergraduate advisor.

All Bachelor of Science degree students are required to take the Graduate Record Examination (both Aptitude and Advanced) during their senior year.

All undergraduate physics majors are required to consult with and have their registration forms signed by the undergraduate advisor in the Physics Department each semester before registering.

**3101 Principles of Physical Science (3-0)**

Designed to introduce as clearly and simply as possible the concepts of physical science to nonscience students, and especially those students with a limited background in mathematics. May not be counted as physics toward a major or minor in physics, but may be counted as a laboratory science for liberal arts, business, and education students.

**3102 Principles of Physical Science (3-0)**

A continuation of Physics 3101. May not be counted as physics toward a major or minor in physics. *Prerequisite:* Physics 3101.

**4103 General Physics (3-2)**

Mechanics and heat. May not be counted as physics toward a major or minor in physics. May be counted as a laboratory science in the liberal arts curriculum and the teaching field requirement in education programs.

**4104 General Physics (3-2)**

Electricity, magnetism, sound, and light. May not be counted as physics toward a major or minor in physics. May be counted as a laboratory science in the liberal arts curriculum and the teaching field requirement in education programs. *Prerequisite:* Physics 4103.

**3106 Elementary Theory of Sound (3-0)**

A study of sound as related to speaking, singing, and to musical instruments. It includes physical principles of sound production, transmission, interference, hearing, resonance, pitch, quality, musical intervals, stringed instruments, wind instruments, acoustics of rooms, and associated electronic equipment. May not be counted as physics toward a major or minor in physics or as a prerequisite to any course in physics.

**3107 Elementary Astronomy (3-0)**

A survey of the solar system. Topics include astronomical history and instruments, the planets and their moons, comets, and meteors. The course includes field observation with telescopes. May not be counted as physics toward a major or minor in physics, but may be counted as a laboratory science for liberal arts, business, and education students.

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- 3108 **Elementary Astronomy (3-0)**  
A continuation of Physics 3107. Topics include stellar properties, galaxies, and cosmology. May not be counted as physics toward a major or minor in physics. *Prerequisite:* Physics 3107.
- 1120 **Physics Laboratory I (0-3)**  
Basic laboratory techniques; elementary error analysis and curve fitting of experimental measurements. *Prerequisite:* Two years high school algebra.
- 3120 **Mechanics (3-0)**  
Vector kinematics, dynamics of particles, and dynamics of rigid bodies via the calculus. *Prerequisite:* Mathematics 4111 or concurrently.
- 1121 **Physics Laboratory II (0-3)**  
Continuation of Physics 1120. *Prerequisite:* Physics 1120 or equivalent as determined by instructor.
- 3221 **Heat, Wave Motion, and Optics (3-0)**  
Thermal properties of matter, kinetic theory of gases, mechanical waves, and physical and geometrical optics. *Prerequisite:* Physics 3120 or equivalent; Mathematics 3212 or concurrently.
- 3222 **Electricity and Magnetism (3-0)**  
Electric fields, magnetic fields, dc- and ac-circuit theory, and Maxwell's equations. *Prerequisite:* Physics 3120 and Mathematics 3212.

**For Undergraduates and Graduates**

- 4320 **Introduction to Geophysics (3-3)**  
A study of the application of the principles and practices of physics to the solution of problems related to the earth. It includes a study of geochronology, temperature of earth, seismology, dimensions of the earth, gravity, isostasy and tectonics, and geomagnetism.
- 4321 **Introduction to Geophysics (3-3)**  
A study of geophysical prospecting. A general discussion of the methods of physics applied to exploration problems. Topics covered are seismic and gravimetric methods of prospecting.
- 3323 **Physical Optics (3-0)**  
Wave propagation, interference, diffraction, absorption, scattering, and polarization. The theory and operation of lasers and optical resonant cavities are introduced. *Prerequisite:* Physics 3221 and 3222.
- 4324 **Applied Geophysics (3-3)**  
A study of geophysical prospecting with special emphasis on geomagnetism and nuclear geophysics. Includes theory and field work on the various magnetic and nuclear techniques.
- 3325 **Modern Physics I (3-0)**  
Relativistic mechanics and quantum mechanical theory. *Prerequisite:* Physics 3221 and 3222.
- 3326 **Modern Physics II (3-0)**  
Continuation of Physics 3325. Atomic and molecular structure, spectra, solid state physics, and nuclear physics. *Prerequisite:* Physics 3325.
- 3331 **Contemporary Physics (3-0)**  
A descriptive course of contemporary physics topics designed for students in elementary and secondary education. May not be counted as physics toward a major or minor in physics but may be counted toward the advanced hour teaching field requirements in education programs. *Prerequisite:* Junior standing and six hours of physics.
- 2343 **Advanced Laboratory Practice — Fall Semester (0-6)**  
Certain phases of modern experimental physics are discussed and dealt with in the laboratory. *Prerequisite:* Physics 1121, 3221, and 3222.
- 3351 **Analytical Mechanics — Spring Semester (3-0)**  
Dynamics of particles via Newtonian, Lagrangian, and Hamiltonian equations of motion. *Prerequisite:* Physics 3120 and Mathematics 3326.

- 3352 **Advanced Mechanics (3-0)**  
Additional topics in mechanics. *Prerequisite:* Physics 3351.
- 3359 **Astrophysics (3-0)**  
The physical basis for stellar radiation, stellar motions, binary and variable stars, stellar interiors, and the formation of energy in stars, interstellar matter, galaxies, and cosmology. *Prerequisite:* Physics 3221 and 3222 and Mathematics 3326.
- 3427 **Theoretical Geophysics (3-0)**  
A study of mechanical radiation and elasticity. A working knowledge and understanding of the fundamentals of geophysics is emphasized with special emphasis on problems in seismology. *Prerequisite:* Mathematics 3326 or 3436.
- 3428 **Theoretical Geophysics (3-0)**  
A study of the theory of potential. Emphasis is on the solving of various problems associated with the natural force fields of the earth. *Prerequisite:* Mathematics 3326. Not dependent on Physics 3427.
- 3431 **Thermal and Statistical Physics — Spring Semester (3-0)**  
An introduction to the behavior of macroscopic systems and to the microscopic basis for that behavior. *Prerequisites:* Physics 3351. Mathematics 3326 or concurrent.
- 3441 **Electricity and Magnetism — Fall Semester**  
Electromagnetic theory via Maxwell's equations. *Prerequisite:* Physics 3351. Mathematics 3335 is recommended.
- 3442 **Electricity and Magnetism (3-0)**  
Additional topics in electromagnetic theory. *Prerequisite:* Physics 3441.
- 2446 **Experimental Physics — Spring Semester (0-6)**  
Topics in experimental physics. May be repeated once for credit. *Prerequisite:* Physics 2343.
- 3448 **Fundamentals of Acoustics — (3-0)**  
The principles underlying the generation, transmission, and reception of acoustic waves. Mathematical analyses of the various types of vibration of solid bodies. Propagation of plane and spherical sound waves through fluids, transmission and absorption phenomena, resonators and filters. *Prerequisite:* Physics 3221 and 3222; Mathematics 3326.
- 3453 **Theoretical Physics — Spring Semester (3-0)**  
Eigenvalue problems applied to mechanics and electrostatics. *Prerequisite:* Physics 3441. Some knowledge of linear algebra helpful.
- 3454 **Methods of Mathematical Physics (3-0)**  
Selected topics in mathematical physics. *Prerequisite:* Physics 3351.
- 3457 **Introduction to Quantum Mechanics — Fall Semester (3-0)**  
Boltzmann and quantum statistics, electron theory of metals, atomic interactions with radiation, the Hamiltonian and Schroedinger's equation, the square well, harmonic oscillator, hydrogen-like atoms, and the theory of transitions. *Prerequisite:* Physics 3326.
- 3470 **Atmospheric Physics (3-0)**  
The physical structure and dynamics of the atmosphere. *Prerequisite:* Physics 3221 and 3222, and Mathematics 3326.
- 1457-6475 **Special Topics in Physical Science Teachers**  
Designed for students in elementary or secondary education. This course is not designed to fulfill the science requirements for a Liberal Arts degree. May be repeated for credit upon change of subject. May not be counted as physics toward a major or minor in physics. *Prerequisite:* Junior standing and the permission of the instructor.
- 1477-3477 **Undergraduate Research Problems in Physics**  
Supervised individual research. May be repeated for credit as study topic changes. *Prerequisite:* Senior standing, a 3.0 grade point average and permission of the faculty member who is to supervise the research.
- 3478 **Undergraduate Special Topics in Physics (3-0)**  
Topics to be announced. May be repeated for credit upon change of subject. *Prerequisite:* To be announced.

**FOR GRADUATE STUDENTS ONLY**

The department offers a program of courses and research leading to the degree of M.S. in Physics. Two routes may be taken. Plan 1 requires 30 semester hours of credit: 24 hours of course work plus a 6 hour thesis (Physics 3598 and 3599). Plan 2 requires 36 hours of course work, including the successful completion of a research problem (Physics 3591) being substituted for a thesis.

Requirements for Plan 1 are 21 semester hours of graduate work at the 3500 level including theses; specific courses required are Physics 3521, 3541, 3561, 3598 and 3599. Requirements for Plan 2 are 27 semester hours of graduate work at the 3500 level; specific courses required are Physics 3521, 3541, 3561 and 3591. A grade of B or better must be made in each of three required courses (3521, 3541, 3561). The student must have his course program approved by the graduate advisor each semester. The student will choose, in consultation with the graduate advisor, a committee and at least three additional committee members who will supervise his thesis or research problem (Physics 3591). One member of this committee must be from outside the Physics department. These choices will be made no later than the end of the student's second semester of residence.

The candidate for the M.S. Degree in Physics must pass a final examination which will include an oral defense of the thesis or research problem.

The following courses have the prerequisite of the equivalence of a B.S. Degree in Physics or any prerequisite shown in the description of the course.

**3501 Principles of Geodynamics (3-0)**

An extensive mathematical and physical study of geodynamics. Study takes up the geophysical data regarding the earth, mechanics of deformations, effects of the rotation of the earth, orogenesis, dynamics of earthquakes, dynamics of volcanism, and related topics.

*College of Science*

**3506 Physics of the Upper Atmosphere (3-0)**

Upper atmospheric circulation influences on photochemical equilibrium. State changes involving water vapor, ozone, oxides and ionized and neutral components of the atmosphere and their relation to formation and destruction processes and equilibrium conditions. Interactions between the gravitational, magnetic, flow and plasma fields. Sources sinks and propagation characteristics relative to a spectrum of wave motions ranging from acoustic waves to diurnal tides. *Prerequisite:* Physics 3470 or equivalent as determined by the instructor.

**3521 Mechanics — Fall Semester (3-0)**

D'Alembert's and variational principles, Lagrange's equations, Hamilton's principle, two-body central force, rigid body, kinetics and force equations, Lagrangian relativistic mechanics, principle of least action. *Prerequisite:* Physics 3351.

**3532 Plasma Physics — (3-0)**

Physics of fully ionized gases. Waves and instabilities. Transport properties. Interaction of charged particles with electromagnetic fields. *Prerequisite:* Physics 3431, 3441 or consent of instructor.

**3541 Electricity and Magnetism — Fall Semester (3-0)**

Boundary value problems: polarization, and stress tensor; Conservation laws and energy momentum-tensor. Relativistic electrodynamics. Covariant form of field equations. Potentials and gauge invariance. *Prerequisite:* Physics 3441.

**3545 Atmospheric Structure and Dynamics (3-0)**

Development of stress tensor; kinematics of fluids; conservation of mass, momentum and energy; continuity, Navier-Stokes, and energy equations. Development of change in state, turbulent, and Coriolis effects; linearized approximations and non-linear prognostic equations. (Same as Electrical Engineering 3545).

- 3546 **Atmospheric Radiation Processes (3-0)**  
The theory of radiative transfer including gaseous absorption and emission, aerosol extinction, atmospheric fluxes and heating rates, airflow and other atmospheric radiative phenomena. Applications are made to remote sensing of planetary atmospheres. *Prerequisite:* Physics or Electrical Engineering 3545.
- 3547 **Propagation of Waves in the Atmosphere (3-0)**  
Characteristics of electromagnetic and hydrodynamic wave propagation in the atmosphere are developed. Observed changes in wave characteristics are related to techniques and applications of remote sensing. *Prerequisite:* Physics of Electrical Engineering 3545.
- 3551 **Nuclear Physics (3-0)**  
Systematics of nuclei, binding energy, nuclear models, scattering of protons and neutrons, nuclear reactions, passage of charged particles and gamma rays through matter. *Prerequisite:* Physics 3457 or consent of instructor.
- 3554 **Cosmic Radiation (3-0)**  
Topics of Cosmic Radiation and high energy nuclear physics.
- 3561 **Quantum Mechanics — Spring Semester (3-0)**  
Solution of the Schroedinger wave equation for discrete and continuous energy eigenvalues; representation of physical variables as operators and the matrix formulation of quantum mechanics; approximation methods. *Prerequisite:* Physics 3457.
- 3565 **Advanced Statistical Mechanics (3-0)**  
Classical and quantum statistics of systems in equilibrium. Treatment of fluctuations and transport phenomena. Introduction to many-body problems. *Prerequisite:* Physics 3457 or equivalent as determined by the instructor.
- 3571 **Solid State Physics — Fall Semester (3-0)**  
Electromagnetic, elastic and particle waves in periodic lattices as applied to the electrical, magnetic and thermal properties of solids. *Prerequisite:* Physics 3457 or consent of instructor.
- 3591 **Research Problems in Physics (3-0)**  
Required course for the 36-hour non-thesis option. Requires two copies of a type-written report. May be repeated for credit; maximum credit allowed six hours. May not be counted as thesis research but may be taken one time as a preparatory investigation course prior to the beginning of thesis research. *Prerequisite:* Permission of Chairman of Supervisory Committee.
- 3593 **Special Topics in Physics**  
Topics to be announced. May be repeated for credit.
- 1595 **Graduate Seminar (1-0)**  
May be repeated for credit up to a total of 3 semester hours.
- 3598 **Thesis Course for the Master's Degree**
- 3599 **Thesis Course for the Master's Degree**





# The University of Texas System School of Nursing

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THE UNIVERSITY OF TEXAS AT EL PASO

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DR. MARILYN D. WILLMAN, *President*

Austin, Texas

MISS CHRISTINE BONDS, *Dean*

El Paso, Texas



## NURSING

The University of Texas System of Nursing offers Nursing courses at six locations — Austin, Galveston, San Antonio, El Paso, Fort Worth and Houston.

The University of Texas School of Nursing at El Paso was established by the Legislature of the State of Texas in March of 1970.

Students may attend The University of Texas at El Paso or any other accredited college or university for the first 60 required semester hours. An overall grade-point average of 2.0 and, in addition, a grade-point average of 2.0 on all required lower division courses, excluding electives, is required for admission to upper division nursing courses. The student may register at The University of Texas at El Paso for the completion of the first 60 hours of pre-nursing courses.

The last two years of the program will consist of nursing courses at one of the six U.T. System School of Nursing locations. This will depend upon the applications the student makes and the openings available.

All junior students admitted to the University and stating a preference for nursing as a major will receive academic advisement from the School of Nursing faculty. HOWEVER, ACCEPTANCE FOR ADVISEMENT DOES NOT CONSTITUTE A GUARANTEE THAT SUCH STUDENTS WILL BE SELECTED FOR ENROLLMENT IN THE NURSING SEQUENCE AT THE JUNIOR LEVEL.

Upon satisfactory completion of the required 120 semester hours, the student will receive the degree of Bachelor of Science in Nursing from the University of Texas System School of Nursing.

Students who transfer from other universities, colleges, or junior colleges at the freshman or sophomore level must meet the admission requirements of The University of Texas at El Paso.

All inquiries regarding the courses required for the baccalaureate degree in Nursing should be addressed to the Dean, The University of Texas School of Nursing at El Paso, 1101 North Campbell Street, El Paso, Texas 79902.

### Bachelor of Science in Nursing

	<i>Sem.</i>		<i>Sem.</i>
<b>Freshman Year—1st Semester</b>	<b>Hrs.</b>	<b>Freshman Year—2nd Semester</b>	<b>Hrs.</b>
Biol. 3105 General Biology . . . . .	.3	Biol. 3106 General Biology . . . . .	.3
Biol. 1107 (Lab) . . . . .	.1	Biol. 1108 (Lab) . . . . .	.1
Psych. 3101 Intro. to Psych . . . . .	.3	Psych. 3201 Child Psych . . . . .	.3
English 3111 Freshman English . . . . .	.3	English 3112 Freshman English . . . . .	.3
History 3101 U.S. Hist. to 1865 . . . . .	.3	History 3102 U.S. Hist. since 1865 . . . . .	.3
Sociology 3101 Intro. to Soc. . . . .	.3	H.Ed. 3202 (Nutrition) . . . . .	.3
	16		16
<b>Sophomore Year—1st Semester</b>		<b>Sophomore Year—2nd Semester</b>	
Biol. 4211 Biol. of Human Body . . . . .	.4	Pol. Sc. 3111 American Govt. . . . .	.3
Biol. 1212 (Lab) . . . . .	.1	Psych. 3103 Statistics . . . . .	.3
Microbiology 3230 Gen. Micro . . . . .	.3	Electives . . . . .	.4

NURSING

Pol. Sc. 3110 American Govt . . . . .3	Chem. 4105 . . . . .4
Elective . . . . .3	
<u>14</u>	<u>14</u>
<b>Junior Year—1st Semester</b>	<b>Junior Year—2nd Semester</b>
Level I Nursing . . . . .15	Level II Nursing . . . . .12
	Elective . . . . .3
<u>15</u>	<u>15</u>
<b>Senior Year—1st Semester</b>	<b>Senior Year—2nd Semester</b>
Level III Nursing . . . . .12	Level IV Nursing . . . . .12
Elective . . . . .3	Elective . . . . .3
<u>15</u>	<u>15</u>

**Total Semester Credit Hours . . . 120**

All elective courses must be approved by the Dean.

## THE FACULTY

- LONNIE LEE ABERNETHY, *Professor of Metallurgical Engineering*, 1963  
B. Cer.E., North Carolina State University;  
M.Sc., Ph.D., Ohio State University
- RICARDO D. AGUILAR, *Instructor in Modern Languages*, 1974  
B.A., M.A., The University of Texas at El Paso
- LYDIA ROSALVA AGUIRRE, *Lecturer, Sociology*, 1972  
B.S., M.S.W., The University of Texas at Austin
- MARY LOUISE ZANDER AHO, *Assistant Professor of Curriculum and Instruction*, 1963  
B.S.E., University of Florida; M.A., The University of Texas at El Paso;  
Ph.D., Florida State University
- HAROLD EDWIN ALEXANDER, *Professor of Chemistry*, 1955  
B.S., The University of Texas at El Paso;  
M.A., Ph.D., The University of Texas at Austin
- DAVID L. ANDERSON, *Assistant Professor of Mass Communications*, 1975  
B.J., University of North Dakota, M.A., University of Illinois
- EVAN HAYWOOD ANTONE, *Assistant Professor of English*, 1967  
B.A., M.A., The University of Texas at El Paso;  
M.A., Ph.D., The University of California at Los Angeles
- HOWARD GEORGE APPLGATE, *Professor of Civil Engineering*, 1970  
B.S., M.S., Colorado State University; Ph.D., Michigan State University
- JOHN CLEVELAND ARNOLD, *Associate Professor of Art*, 1965  
B.A., University of Minnesota; M.F.A., Arizona State University
- DAVID RAYMOND ARROYO, *Instructor in Religion*, 1973  
A. of A., East Los Angeles College; B.A., Brigham Young University
- GLORIA CABALLERO ASTIAZARAN, *Assistant Professor of Modern Languages*, 1967  
B.A., M.A., Ph.D., University of Arizona
- MICHAEL EVAN AUSTIN, *Associate Professor of Electrical Engineering*, 1963  
B.S.E.E., M.S.E.E., Ph.D., The University of Texas at Austin
- GEORGE WESTON AYER, *Professor of Modern Languages*, 1969  
A.B., Harvard College;  
M.A., University of the Americas; Doctorat d'Universite, University of Paris
- ALBERTO IAN BAGBY, Jr., *Associate Professor of Modern Languages*, 1973  
A.B., Baylor University; M.A., University of Missouri; Ph.D., University of Kentucky
- FREDERICK HOMER BAILEY, *Assistant Professor of Mathematics*, 1963  
B.S., New Mexico State University; M.A., University of Colorado
- JACK SEARCY BAILEY, *Assistant Professor of Modern Languages*, 1963  
B.A., The University of Texas at El Paso; M.A., University of Arizona
- KENNETH KYLE BAILEY, *Professor of History*, 1960  
B.A., M.A., Ph.D., Vanderbilt University
- STANLEY EUGENE BALL, *Assistant Professor of Curriculum and Instruction*, 1964  
B.S., University of Wyoming; M.S., University of Arizona; Ph.D., New Mexico State University
- WILLIAM GERALD BARBER, *Professor of Educational Administration*, 1967  
B.S., M.S., East Texas State University; Ed.D., University of Houston
- MARIE ESMAN BARKER, *Assistant Professor of Curriculum and Instruction*, 1968  
B.A., M.A., The University of Texas at El Paso; Ed.D., New Mexico State University
- THOMAS GROGARD BARNES, *Professor of Physics*, 1938  
B.A., ScD. (Hon.), Hardin-Simmons University; M.S., Brown University

- GUIDO ALAN BARRIENTOS, *Associate Professor of Psychology*, 1963  
 B.A., Universidad de San Carlos (Guatemala); M.A., Ph.D., University of Kansas
- HERBERT HERMAN BARTEL, Jr., *Professor of Civil Engineering*, 1972  
 B.S.C.E., Southern Methodist University; M.S.C.E., The University of Texas at Austin; Ph.D., Texas A&M University
- CHARLES RICHARD BATH, *Associate Professor of Political Science*, 1966  
 B.A., University of Nevada; M.A., Ph.D., Tulane University
- ALLEN OSCAR BAYLOR, *Professor of Business*, 1965  
 B.A., Licence en Droit et Economie Politique, American College, Teheran;  
 Doctorat es Sciences Mathematiques et Statistiques, University of Lausanne;  
 D.P.A., Ph.D., University of Southern California
- KENNETH EPHRIAM BEASLEY, *Professor of Political Science*, 1967  
 B.A., M.A., Ph.D., University of Kansas
- RALPH PORTER BENTZ, *Associate Professor of Mathematics*, 1952  
 B.S., West Chester State College; M.Ed., Pennsylvania State University;  
 Ph.D., George Peabody College
- SANDRA STEWART BEYER, *Assistant Professor of Modern Languages*, 1972  
 B.A., Wichita State University; M.A., M.Phil., Ph.D., University of Kansas
- SACHINDRANARAYAN BHADURI, *Associate Professor of Mechanical Engineering*, 1963  
 B.M.E., Jadavpur University (India); B.A., Calcutta University (India);  
 M.S. in M.E., State University of Iowa; M.E.S., Johns Hopkins University;  
 Ph.D., Colorado State University
- SALLY MITCHELL BISHOP, *Assistant Professor of Art*, 1967  
 B.F.A., M.F.A., Wichita State University
- LAWRENCE PHILLIPS BLANCHARD, *Professor of Business*, 1959  
 B.A., J.D., The University of Texas at Austin
- LELAND THOMAS BLANK, *Associate Professor of Industrial Engineering*, 1970  
 B.S.I.E., St. Mary's University; M.S., Ph.D., Oklahoma State University
- EDWARD LEE BLANSITT, Jr., *Professor of Linguistics*, 1967  
 Ph.D., The University of Texas at Austin
- ROBERT TERRELL BLEDSOE, *Assistant Professor of English*, 1971  
 A.B., Harvard University; M.A., University of Kent at Canterbury;  
 Ph.D., Princeton University
- MICHAEL HENRY BLUE, *Associate Professor of Physics*, 1964  
 B.S., Colorado State University; Ph.D., University of Washington
- MAX CARLTON BOLEN, *Professor of Physics*, 1965  
 B.A., Wabash College; M.S., Purdue University; Ph.D., Texas A&M University
- TOMMY J. BOLEY, *Assistant Professor of English and Curriculum and Instruction*, 1967  
 B.B.A., North Texas State University; M.A., Ph.D., The University of Texas at Austin
- JOAN HELEN BORNSCHEUER, *Associate Professor of Modern Languages*, 1969  
 B.A., University College of London; Ph.D., The University of Texas at Austin
- GERALD RAYMOND BOVARD, *Associate Professor of Accounting*, 1964  
 B.S., Grove City College; M.L.Ind., University of Pittsburgh;  
 Certified Public Accountant
- DONALD EDGAR BOWEN, *Professor of Physics*, 1966  
 B.A., M.A., Texas Christian University; Ph.D., The University of Texas at Austin
- DELMAR LEE BOYER, *Professor of Mathematics*, 1965  
 B.A., Kansas Wesleyan University; M.A., Ph.D., University of Kansas
- HALDEEN BRADY, *Professor of English*, 1946  
 B.A., East Texas State University; M.A., The University of Texas at Austin;  
 Ph.D., New York University
- MADELINE BRAND, *Assistant Professor of Drama and Speech*, 1968  
 B.A., University of Toronto; M.A., Columbia University

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- MICHAEL BRAND, *Associate Professor of Economics*, 1958  
B.A., University of Washington; M.A., University of Colorado
- FRED MEZA BREWER, *Assistant Professor of Modern Languages*, 1955  
B.A., University of New Mexico; M.A., The University of Texas at El Paso
- SAMUEL JOHN BRIENT, Jr., *Professor of Physics*, 1962  
B.S., Ph.D., The University of Texas at Austin
- ERNEST ENRIQUE BRIONES, Jr., *Instructor in Philosophy*, 1972  
B.A., The University of Texas at El Paso; M.A., Notre Dame University
- JOHN RICHARD BRISTOL, *Associate Professor of Biological Sciences*, 1970  
B.A., Cornell College; M.A., Ph.D., Kent State University
- JOHN MORGAN BROADDUS, Jr., *Assistant Professor of History*, 1954  
B.A., M.A., The University of Texas at El Paso
- BONNIE SUE BROOKS, *Associate Professor of Educational Psychology and Guidance*, 1968  
B.M.E., Milliken University; M.S.Ed., Ed.D., Indiana University
- GARY DONALD BROOKS, *Associate Professor of Educational Administration*, 1968  
B.M.E., Milliken University; M.S.Ed., Ed.D., Indiana University
- IRVING RAYMOND BROWN, *Instructor in Sociology*, 1969  
B.A., The University of Texas at El Paso; M.A., New Mexico State University
- RUFUS E. BRUCE, Jr., *Associate Professor of Physics*, 1966  
B.S., Louisiana State University; M.S., Ph.D., Oklahoma State University
- ANDREW BURKE, *Instructor in Religion*, 1952  
S.T.L., M.A., Catholic University of America; S.S.B., Pontifical Biblical Institute
- ROBERT NORTHCUTT BURLINGAME, *Professor of English*, 1954  
B.A., M.A., University of New Mexico; Ph.D., Brown University
- LOU ELLA BURMEISTER, *Professor of Curriculum and Instruction*, 1968  
B.A., M.A., Ph.D., University of Wisconsin
- RICHARD WEBSTER BURNS, *Professor of Curriculum and Instruction*, 1952  
B.A., University of Northern Iowa; M.S., Ph.D., State University of Iowa
- WILLIAM RALPH CABANESS, Jr., *Associate Professor of Chemistry*, 1965  
B.A., M. A., Ph.D., The University of Texas at Austin
- ALBERT GEORGE CANARIS, *Professor of Biological Sciences*, 1970  
B.S., M.A., Washington State University; Ph.D., Oregon State University
- HUGH FREDERICK CARDON, *Associate Professor of Music*, 1963  
B.M., M.A., The University of Texas at El Paso; D.M.A., University of Oregon
- PATRICIA MOORE CARR, *Associate Professor of English*, 1969  
B.A., M.A., Rice University; Ph.D., Tulane University
- SATISH CHANDRA, *Visiting Assistant Professor of Mathematics*, 1974  
B.A., M.A., Lucknow University, India; M.S. University of Chicago; Ph.D., Southern Methodist University
- ABRAHAM CHAVEZ, Jr., *Professor of Music*, 1975  
B.M., University of Texas at El Paso
- PETER STANLEY CHRAPLIWY, *Associate Professor of Biological Sciences*, 1960  
A.B., M.A., University of Kansas; Ph.D., University of Illinois
- \*EDWARD CORNELL CLARK, *Associate Professor of History*, 1969  
B.S., Massachusetts Institute of Technology; M.A., Ph.D., Princeton University
- KENTON J. CLYMER, *Associate Professor of History*, 1970  
A.B., Grinnell College; M.A., Ph.D., University of Michigan
- EDMUND BENEDICT COLEMAN, *Professor of Psychology*, 1965  
B.S., University of South Carolina; M.A., Ph.D., Johns Hopkins University
- RALPH MONROE COLEMAN, *Professor of Engineering Graphics*, 1946  
B.S., M.S., North Texas State University
- MARY LILLIAN COLLINGWOOD, *Associate Professor of English*, 1947  
B.A., The University of Texas at El Paso; M.A., University of Michigan
- \*Leave of Absence

- BENNY WESLEY COLLINS, *Associate Professor of Health and Physical Education*, 1950  
B.A., The University of Texas at El Paso; M.S., University of Utah
- J. ROBERT COLTHARP, *Associate Professor of Civil Engineering*, 1961  
B.S., M.S., The University of Texas at Austin
- LURLINE HUGHES COLTHARP, *Professor of Linguistics and English*, 1954  
B.A., M.A., Ph.D., The University of Texas at Austin
- CLARENCE SHARP COOK, *Professor of Physics*, 1970  
A.B., De Pauw University; M.A., Ph.D., Indiana University at Bloomington
- THOMAS IRA COOK, *H. Y. Benedict Professor of Political Science*, 1966  
B.S., London School of Economics; Ph.D., Columbia University
- CLARENCE HENRY COOPER, *Assistant Professor of Physics*, 1959  
B.S., The University of Texas at El Paso; M.S., Vanderbilt University;  
Ph.D., The University of Texas at Austin
- MARY EDITH CORN, *Assistant Professor of English*, 1967  
A.B., Southwest Missouri State College; A.M., University of Missouri at Columbia
- WILLIAM C. CORNELL, *Associate Professor of Geological Sciences*, 1971  
B.S., M.S., University of Rhode Island; Ph.D., The University of California at Los Angeles
- ELEANOR GREET COTTON, *Assistant Professor of Linguistics*, 1960  
B.A., M.A., The University of Texas at El Paso; Ph.D., University of New Mexico
- KATHLEEN CRAIGO, *Assistant Professor of Health and Physical Education*, 1945  
B.A., M.A., North Texas State University
- WILLIAM LIONEL CRAVER, Jr., *Associate Professor of Mechanical Engineering*, 1970  
B.S.M.E., The University of Texas at Austin; M.S.M.E., University of New Mexico;  
Ph.D., University of Oklahoma
- CECIL CLEMENT CRAWFORD, *Professor Emeritus of Philosophy*, 1953  
B.A., M.A., Ph.D., Washington University
- JOHN KELLOGG CREIGHTON, *Associate Professor of History*, 1966  
B.A., M.A., Ph.D., University of Colorado
- EVERETT EDWARD DAVIS, *Associate Professor of Educational Psychology and Guidance*, 1965  
B.A., University of Colorado; M.A., University of Northern Colorado;  
Ph.D., Arizona State University
- MICHAEL IAN DAVIS, *Professor of Chemistry*, 1968  
B.S., The University of London; Ph.D., University of Oslo
- VELMA LOU DAVIS, *Assistant Professor of Curriculum and Instruction*, 1963  
B.S., New Mexico State University; M.Ed., University of the Philippines
- KATHERINE SIMS DAVISON, *Lecturer in Curriculum and Instruction*, 1974  
B.A., New Mexico State University; M.Ed., The University of Texas at El Paso
- LOLA B. DAWKINS, *Professor of Management*, 1965  
B.B.A., The University of Texas at El Paso;  
M.B.A., Ph.D., The University of Texas at Austin
- GERTRUDE DAWSON, *Assistant Professor of Business*, 1968  
B.A., M.A., The University of Texas at El Paso
- JAMES FRANCIS DAY, *Professor of Educational Psychology and Guidance*, 1955  
B.S., M.S., Utah State University; Ed.D., Stanford University
- JAMES MILTON DAY, *Associate Professor of English*, 1967  
B.A., M.A., The University of Texas at Austin; Ph.D., Baylor University
- EUGENE ALAN DEAN, *Associate Professor of Physics*, 1958  
B.S., The University of Texas at El Paso; M.S., New Mexico State University;  
Ph.D., Texas A&M University
- ANA MARIA V. DE NAVAR, *Assistant Professor of Modern Languages*, 1965  
B.S., M.S., Universidad Nacional Autonoma de Mexico;  
M.A., The University of Texas at El Paso

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- JAMES VINCENT DEVINE, *Associate Professor of Psychology*, 1967  
B.S., M.S., University of New Mexico; Ph.D., Kansas State University
- JOHN ALEXANDER R. DICK, *Assistant Professor of English*, 1971  
A.B., Harvard University; M.A., Ph.D., Yale University
- EVERETT GEORGE DILLMAN, *Professor of Business*, 1968  
B.B.A., M.B.A., University of New Mexico;  
Ph.D., The University of Texas at Austin
- JACK ALLEN DOWDY, *Associate Professor of Mechanical Engineering*, 1964  
A.A., Wharton Jr. College; B.S.M.E., Southern Methodist University;  
M.S.M.E., Oklahoma State University; Ph.D., The University of Texas at Austin
- MANSFORD ELMER DRUMMOND, Jr., *Adjunct Professor of Electrical Engineering*,  
1972  
B.S., East Central State College; M.A., University of Oklahoma
- PETE TONY DUARTE, *Assistant Professor of Sociology*, 1971  
B.A., California State College at Hayward
- MARY ELEANOR DUKE, *Associate Professor of Biological Sciences*, 1947  
B.A., The University of Texas at El Paso;  
M.A., Ph.D., The University of Texas at Austin
- PHILIP DURIEZ, *Associate Professor of Economics*, 1962  
B.A., New Mexico Western College; M.A., Baylor University;  
Ph.D., Louisiana State University
- MICHAEL PAUL EASTMAN, *Associate Professor of Chemistry*, 1970  
B.A., Carleton College; Ph.D., Cornell University
- KENNETH SCOTT EDWARDS, *Professor of Mechanical Engineering*, 1965  
B.M.E., Cornell University; M.A.E., Yale University; Ph.D., Cornell University
- SETH JAIVANT EDWARDS, *Associate Professor of Curriculum and Instruction*, 1970  
B.Sc., Robertson College, Jabalpur, India; M.Sc., Saugar University, Saugar, M.P.,  
India; M.S., Ed.S., Ph.D., Indiana University
- FRANCIS ALAN EHMANN, *Assistant Professor of English*, 1950  
B.A., The University of Texas at El Paso; M.A., Harvard University
- HENRY PHILIP EHRLINGER, *Professor Emeritus of Metallurgical Engineering*, 1959  
B.S., E.M., University of Wisconsin
- OLAV ELLING EIDBO, *Professor of Music*, 1950  
B.A., Concordia College; M.A., The University of Texas at El Paso;  
Ph.D., University of North Dakota
- CURTIS EINAR EKLUND, *Professor of Biological Sciences*, 1966  
B.A., M.A., Ph.D., The University of Texas at Austin
- ELDON EDWARD EKWALL, *Professor of Curriculum and Instruction*, 1969  
B.S., M.Ed., University of Nebraska; Ed.D., University of Arizona
- \*CHARLES GAYLORD ELERICK, *Assistant Professor of Linguistics*, 1968  
B.A., University of New Mexico; M.A., The University of Texas at El Paso;  
Ph.D., The University of Texas at Austin
- JOANNE TONTZ ELLZEY, *Associate Professor of Biological Sciences*, 1969  
B.A., Randolph-Macon Woman's College; M.A., University of North Carolina;  
Ph.D., The University of Texas at Austin
- MARION LAWRENCE ELLZEY, Jr., *Associate Professor of Chemistry*, 1968  
B.A., Rice University; Ph.D., The University of Texas at Austin
- ROBERT MORLEY ESCH, *Assistant Professor of English*, 1962  
B.A. Southern Methodist University; M.A., The University of Wisconsin
- BILLIE WALKER ETHERIDGE, *Assistant Professor of English*, 1968  
B.S., University of Houston, M.A., The University of Texas at El Paso



- CHARLES LARIMORE ETHERIDGE, Sr., Associate Professor of Drama and Speech, 1963  
B.S., M.A., Sul Ross State University
- DARLENE LOU EVERS, *Instructor in Music*, 1972  
B.M., Drake University; M.M., University of New Mexico
- RALPH WALDO EWTON, Jr., *Associate Professor of Modern Languages*, 1966  
B.A., M.A., Ph.D., Rice University
- DAVID BRUENER EYDE, *Associate Professor of Sociology*, 1970  
B.A., University of Hawaii; Ph.D., Yale University
- DIANNE MARIE FAIRBANK, *Assistant Professor of Sociology*, 1969  
B.A., M.A., Ph.D., University of Arizona
- FLOYD EMMETT FARQUEAR, *Professor Emeritus of Education*, 1942  
B.S., Miami University; M.A., University of Chicago;  
Ed.D., The University of Texas at Austin
- PAUL EDWARD FENLON, *Professor of Economics and Finance*, 1967  
B.S., College of the Holy Cross; A.B., University of Illinois;  
M.A., Ph.D., University of Florida
- \*JOHN ANDREW FILLO, *Associate Professor of Mechanical Engineering*, 1972  
B.S.M.E., M.S.M.E., Ph.D., Syracuse University
- JOE WARREN FITZPATRICK, *Assistant Professor of Mathematics*, 1966  
B.S., Baylor University; M.A., The University of Texas at Austin
- F. BRIGG FLORES, *Associate Professor of Accounting*, 1971  
B.S., A.B., M.S., Kansas State Teachers College; Ph.D., University of Utah
- JANIE RUTH FLYNT, *Assistant Professor of Accounting*, 1966  
B.B.A., The University of Texas at El Paso; M.B.A., Texas Tech University;  
Certified Public Accountant
- JAMES HARRISON FORD, *Assistant Professor of Metallurgical Engineering*, 1969  
B.S., The University of Texas at El Paso; M.S., University of Oklahoma;  
Ph.D., The University of Texas at Austin
- JOHN ROBERT FOSTER, *Professor of Business*, 1972  
B.A., University of Oklahoma; M.B.A., D.B.A., Indiana University
- MARCIA TAYLOR FOUNTAIN, *Assistant Professor of Music*, 1970  
B.M., University of North Carolina at Greensboro; M.M., Northwestern University;  
D.M.A., University of Iowa
- REX ELWYN FOX, *Assistant Professor of Mathematics*, 1961  
B.S., Texas A&M University; M.Ed., Southwest Texas State University;  
M.A., Louisiana State University
- DONALD KEITH FREELAND, *Assistant Professor of Business*, 1949  
B.S., Austin College; M.B.A., North Texas State University
- CHARLES EDWARD FREEMAN, Jr., *Associate Professor of Biological Sciences*, 1968  
B.S., Abilene Christian College; M.S., Ph.D., New Mexico State University
- FRANCIS LYLE FUGATE, *Associate Professor of English*, 1949  
B.A., B.J., University of Missouri
- WAYNE EDISON FULLER, *Professor of History*, 1955  
B.A., University of Colorado; M.A., University of Denver;  
Ph.D., University of California at Berkeley
- HECTOR HOMERO GALICIA, *Instructor in Political Science*, 1974  
B.A., The University of Texas at El Paso
- PHILIP JOSEPH GALLAGHER, *Assistant Professor of English*, 1972  
A.B., Providence College; M.A., Ph.D., University of Massachusetts

\* *Leave of Absence*

*The University of Texas at El Paso*

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- FERNANDO GARCIA, *Instructor in Modern Languages*, 1974  
B.A., Roger Baton College; M.A., The University of Texas at El Paso
- CLARKE HENDERSON GARNSEY, *Professor of Art*, 1966  
B.S., M.S., Ph.D., Western Reserve University
- \*EDWARD YOUSSEF GEORGE, *Professor of Business*, 1969  
B.A., American University at Cairo; B.S., M.A., Cairo University;  
Ph.D., New School for Social Research
- REX ERVIN GERALD, *Associate Professor of Sociology*, 1958  
B.A., University of Arizona; M.A., University of Pennsylvania
- GLENN ALLEN GIBSON, *Associate Professor of Electrical Engineering*, 1966  
B.S.E.E., University of Kansas; M.S.E.E., M.A., Ph.D., Arizona State University
- LAURENCE AREY GIBSON, *Assistant Professor of Music*, 1969  
B.M., M.M., Eastman School of Music
- ARTHUR SHOLLEY GIFFORD, *Assistant Professor of Marketing*, 1967  
B.S., M.B.A., University of Arkansas
- GLEND A ELOISE GILL, *Instructor in English*, 1970  
B.S., Alabama Agricultural and Mechanical University;  
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- CHARLES HERMAN GLADMAN, *Associate Professor of Mathematics*, 1948  
B.S., M.A., Ohio State University
- MIMI REISEL GLADSTEIN, *Assistant Professor of English*, 1971  
B.A., M.A., The University of Texas at El Paso; Ph.D., The University of New Mexico
- LYNETTE GLARDON, *Assistant Professor of Health and Physical Education*, 1951  
B.A., M.A., The University of Texas at El Paso
- JUDITH PAGE GOGGIN, *Associate Professor of Psychology*, 1969  
B.A., Bryn Mawr; Ph.D., University of California at Berkeley
- RUDOLPH GOMEZ, *Professor of Political Science*, 1972  
B.S., Utah State University; M.A., Stanford University; Ph.D., University of Colorado
- PAUL WERSHUB GOODMAN, *Associate Professor of Sociology*, 1957  
B.A., M.S., Syracuse University; Ph.D., University of Colorado
- JOSEPH BENJAMIN GRAVES, *Professor of Political Science*, 1964  
B.A., J.D., Vanderbilt University; M.P.A., Harvard University
- JAMES MICHAEL GRAY, *Assistant Professor of Mathematics*, 1970  
B.S., M.S., Ph.D., Texas Christian University
- FRANK H. GRUBBS, *Instructor in Religion*, 1975  
B.B.A., M.B.A., University of New Mexico; M. Div., Seabury-Western Theological Seminary
- RAY WESLEY GUARD, *Professor of Metallurgical Engineering*, 1970  
B.S.M.E., Purdue University; M.S.M.E., Carnegie Institute of Technology;  
Ph.D., Purdue University
- ERNEST ALLEN GUINN, Jr., *Assistant Professor of Criminal Justice*, 1972  
B.A., The University of Texas at El Paso; J.D., St. Mary's University
- JOE A. GUTHRIE, *Visiting Assistant Professor of Mathematics*, 1974  
B.A., The University of Texas at Austin; M.A., Ph.D., Texas Christian University
- DAVID A. HACKETT, *Assistant Professor of History*, 1971  
B.A., Earlham College; M.A., Ph.D., University of Wisconsin
- JOHN HERBERT HADDOX, *Professor of Philosophy*, 1957  
B.A., M.A., Ph.D., University of Notre Dame
- CARL ELDRIDGE HALL, *Associate Professor of Mathematics*, 1969  
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- DAVID LYNN HALL, *Associate Professor of Philosophy*, 1969  
B.A., The University of Texas at El Paso;  
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B.A., M.A., University of Florida
- JULE ANN HANSEN, *Assistant Professor of Mathematics*, 1961  
B.S., University of Wisconsin; M.Ed., The University of Texas at El Paso
- DONALD HOWARD HARDIN, *Professor of Health and Physical Education*, 1962  
B.A., M.A., University of Northern Iowa; Ph.D., State University of Iowa
- ARTHUR HORNE HARRIS, *Professor of Biological Sciences*, 1965  
B.A., M.A., Ph.D., University of New Mexico
- WILLIAM HAROLD HARRIS, *Professor of Health and Physical Education*, 1963  
B.S., M.E., University of Missouri at Columbia; M.A., Columbia University;  
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- WILTZ HARRISON, *Professor of Art*, 1948  
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B.A., Texas Tech University; M.B.A., Ph.D., The University of Texas at Austin
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B.S., Grove City College; M.S., University of New Mexico
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- WILLIAM GARTH HENDERSON, *Professor of Civil Engineering*, 1965  
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B.S., The University of Texas at El Paso; Ph.D., Rice University
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- INGEBORG HEUSER, *Assistant Professor of Ballet*, 1960
- ROBERT SMITH HIATT, *Associate Professor of Sociology*, 1968  
A.B., Washington University; M.S.W., University of Denver;  
D.S.W., Columbia University
- VIRGIL HICKS, *Professor Emeritus of Radio and Television*, 1945  
B.A., The University of Texas at El Paso; M.A., University of Southern California
- JOHN MOORE HILLS, *Professor of Geological Sciences*, 1967  
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B.A., M.A., State University of Iowa; Ph.D., Washington State University
- ERNEST HOWARD HOLT, *Adjunct Professor of Electrical Engineering and Physics*, 1969  
B.S., Ph.D., University of London;
- RICHARD L. HOUGH, *Assistant Professor of Sociology*, 1971  
B.A., Texas Christian University; B.D., Iliff School of Theology;  
M.A., Ph.D., University of Illinois
- JOHN ANTHONY HOVEL, Jr., *Assistant Professor of Political Science*, 1958  
B.A., M.A., University of Wisconsin
- ALLEN NANCE HUDGENS, *Instructor in Religion*, 1972  
B.A., Harding College; M.A., Harding Graduate School
- JERRY DON HUNTER, *Associate Professor of Biological Sciences*, 1966  
M.A., Hardin-Simmons University; M.S., Ph.D., Texas A&M University
- LAWRENCE HUNTLEY, *Assistant Professor of Mathematics*, 1964  
B.A., M.A., Kansas State Teachers College
- ILSE HEDWIG IRWIN, *Assistant Professor of Modern Languages*, 1965  
B.A., Kansas University; M.A., University of Colorado
- CARL THOMAS JACKSON, *Professor of History*, 1962  
A.B., University of New Mexico; Ph.D., University of California at Los Angeles
- DILMUS DELANO JAMES, *Associate Professor of Economics*, 1958  
B.A., M.A., The University of Texas at Austin; Ph.D., Michigan State University
- JOSEPH HOPKINS JAMES, *Associate Professor Emeritus of English*, 1938  
B.A., M.A., University of Alabama
- LOREN GENE JANZEN, *Assistant Professor of Art*, 1967  
B.F.A., M.F.A., Wichita State University
- KAREN DENYSE JOHNSON, *Assistant Professor of Political Science*, 1974  
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- \*LAWRENCE JOSEPH JOHNSON, *Assistant Professor of English*, 197?  
B.A., University of Wisconsin; M.A., Ph.D., Johns Hopkins University
- LARRY PAUL JONES, *Assistant Professor of Biological Sciences*, 1972  
B.A., Augustana College; M.S., Iowa State University; Ph.D., Oregon State University
- STEPHEN JUSTICE, *Assistant Professor of English*, 1962  
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- WILLIAM DANIEL KAIGH, Jr., *Visiting Assistant Professor of Mathematics*, 1974  
B.S., M.A., Ph.D., University of Arizona
- YASUhide KAWASHIMA, *Associate Professor of History*, 1966  
LL.B., LL.M., Keio University, Japan;  
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- DONALD PAUL KEDZIE, *Professor of Metallurgical Engineering*, 1967  
B.S., University of Houston; M.S., Ph.D., University of Wisconsin
- BRIAN JOHN KELLY, *Associate Professor of Health and Physical Education*, 1968  
Dip. P.E., University of New Zealand at Denedin;  
M.Ed., Western Washington State College; Ph.D., University of Oregon
- NOELINE LILLIAS KELLY, *Assistant Professor of Health and Physical Education*, 1969  
B.Ed., University of British Columbia; M.S., University of Oregon; Ph.D., New Mexico State University
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- \*Leave of Absence

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- DANIEL ALLAN KIES, *Associate Professor of Curriculum and Instruction*, 1972  
 B.S., University of Wisconsin; M.A. Arizona State University; Ed.D., University of Arizona
- PAULA KISKA, *Assistant Professor of English*, 1966  
 A. B., Bradley University; M.A., The University of Texas at El Paso
- KARL WALTER KLEMENT, *Professor of Geological Sciences*, 1969  
 Ph.D., Tubingen
- JOE LARS KLINGSTEDT, *Associate Professor of Curriculum and Instruction*, 1970  
 B.M.Ed., University of Oklahoma; M.M. Ed., Ed.D., Texas Tech University
- FREDERICK JOSEPH KLUCK, *Instructor in Modern Languages*, 1970  
 B.A., North Texas State University; M.A., Northwestern University
- EDWIN JOHN KNAPP, *Professor Emeritus of Physics*, 1931  
 Ph.B., Ph.D., University of Wisconsin
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 B.M., The University of Texas at El Paso; M.M., New Mexico State University
- Z. ANTHONY KRUSZEWSKI, *Professor of Political Science*, 1968  
 Baccalaureat, Lycee, Cawthorne (England); Ph.D., The University of Chicago
- EUGENE EDWARD KUZIRIAN, *Assistant Professor of History*, 1967  
 A.B., University of California at Berkeley; M.A., Fresno State College;  
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- WILLIAM ROBERT LACEY, *Assistant Professor of English*, 1966  
 B.S., M.A., Mississippi State University; Ph.D., Louisiana State University
- JAMES WILBERT LAMARE, *Assistant Professor of Political Science*, 1970  
 B.A., San Fernando Valley State College;  
 M.A., Ph.D., University of California at Los Angeles
- JOSEPH S. LAMBERT, *Professor of Electrical Engineering*, 1966  
 B.S.E.E., University of Pittsburgh; M.S.E.E., M.S., Ph.D., University of Michigan.
- JACK PORTER LANDRUM, *Assistant Professor of Educational Psychology and Guidance*, 1966  
 B.A., Stanford University; M.A., The University of Texas at Austin; Ed.D., University of Colorado
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 B.A., M.A., The University of Texas at El Paso
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 B.S., M.A., The University of Texas at El Paso
- JUAN OTTO LAWSON, *Professor of Physics*, 1967  
 B.S., Virginia State College; M.S., Ph.D., Howard University
- JOSEPH LEE LEACH, *Professor of English*, 1947  
 B.A., Southern Methodist University; Ph.D., Yale University
- WILLIAM JOSEPH LEAHEY, *Professor of Mathematics*, 1968  
 S.B., S.M., Ph.D., Massachusetts Institute of Technology
- THOMAS F. LEE, *Professor of Economics and Finance*, 1975  
 B.S., M.B.A., Ph.D., University of Kansas
- ROBERT MILTON LEECH, *Professor of Drama and Speech*, 1949  
 B.F.A., M.F.A., Ph.D., The University of Texas at Austin
- DAVID VONDENBURG LeMONE, *Professor of Geological Sciences*, 1964  
 B.S., New Mexico Institute of Mining and Technology;  
 M.S., University of Arizona; Ph.D., Michigan State University
- EDWARD ALMAND LEONARD, *Professor of Political Science*, 1965  
 B.A., Oglethorpe University; M.A., Ph.D., Emory University

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- LEONARD SIDNEY LEVITT, *Professor of Chemistry*, 1965  
B.S., Pennsylvania State University; B.A., University of Pennsylvania;  
M.A., Haverford College; Ph.D., Temple University
- JOHN MELVIN LEVOSKY, *Professor of Mechanical Engineering*, 1967  
B.S., Lamar State College; M.S., Ph.D., Oklahoma State University
- FRANCISCO JOSE LEWELS, Jr., *Assistant Professor of Mass Communications*, 1973  
B.A., The University of Texas at El Paso; M.S., Troy State University; Ph.D., University of Missouri
- GENE RAY LEWIS, *Assistant Professor of Music*, 1972  
B. Mus., The University of Texas at El Paso; M. Mus., Manhattan School of Music;  
M.A., P.D.M.E., Teachers College, Columbia University
- RALPH ANTHONY LIGUORI, *Assistant Professor of Mathematics*, 1963  
B.S., University of New Mexico; A.M., University of Illinois; Ph.D., University of New Mexico
- WINSTON DALE LLOYD, *Associate Professor of Chemistry*, 1962  
B.S., Florida State University; Ph.D., University of Washington
- MONA H. LOPER, *Assistant Professor of Health and Physical Education*, 1957  
B.S., Texas Christian University
- KENNETH WAYNE LOPP, *Assistant Professor of Mathematics*, 1968  
B.S., M.S., Ph.D., New Mexico State University
- EARL MARK P. LOVEJOY, *Professor of Geological Sciences*, 1965  
B.S., Rutgers University; M.S., Colorado School of Mines;  
Ph.D., University of Arizona
- \*WILLIAM GLASGOW LUCKER, *Associate Professor of Psychology*, 1967  
B.A., The University of Texas at El Paso;  
Ph.D., George Peabody College for Teachers
- ELIZABETH CRYMES MANNING, *Assistant Professor of Biological Sciences*, 1960  
B.S., M.A., The University of Texas at Austin
- \*DEANE MANSFIELD, *Instructor in English*, 1970  
B.A., M.A., The University of Texas at El Paso
- OLGA MAPULA, *Lecturer in Curriculum and Instruction*, 1975  
B.A., M.A., The University of Texas at El Paso
- LOIS A. MARCHINO, *Assistant Professor of English*, 1974  
B.A., M.A., Purdue University; Ph.D., University of New Mexico
- JOHN ROBIN MARSHALL, *Instructor in English*, 1971  
B.A., Williams College; M.A., Ph.D., University of Michigan
- OSCAR J. MARTINEZ, *Instructor in History*, 1974  
B.A., California State University at Los Angeles;  
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- JAMES GORDON MASON, *Professor of Health and Physical Education*, 1970  
B.S., M.A., Ohio State University; Ed.D., Teachers College, Columbia University
- ROBERT JOSEPH MASSEY, *Professor of Art*, 1953  
B.A., Oklahoma State University; M.F.A., Syracuse University;  
Ph.D., The University of Texas at Austin
- GORDON BRUCE MAXWELL, *Instructor in Religion*, 1975  
B.S., The University of Texas at El Paso;  
M.Th., Southern Methodist University
- WILLIAM NOEL McANULTY, *Professor of Geological Sciences*, 1964  
B.S., M.S., University of Oklahoma; Ph.D., The University of Texas at Austin
- CARLOS McDONALD, *Assistant Professor of Civil and Electrical Engineering*, 1958  
B.S., The University of Texas at El Paso; M.S., Ph.D., New Mexico State University
- ROBERT CLARENCE McDONALD, Jr., *Assistant Professor of Mathematics*, 1963  
B.S., United States Military Academy; M.S., University of Southern California
- ROBERT GERALD McINTYRE, *Professor of Physics*, 1965  
B.S., U.S. Naval Academy; Ph.D., University of Oklahoma
- OSCAR HARRY McMAHAN, *Professor Emeritus of Physics*, 1943  
B.S., Oklahoma State University; M.S., University of Arizona
- \*Leave of Absence

- JOHN HAMILTON McNEELY, *Professor of History*, 1946  
B.A., American University; M.A., George Washington University;  
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- ARTIE LOU METCALF, *Professor of Biological Sciences*, 1962  
B.S., Kansas State University; M.A., Ph.D., University of Kansas
- JEAN HEININGER MICULKA, *Assistant Professor of Drama and Speech*, 1961  
B.A., The University of Texas at El Paso; M.A., Northwestern University
- VLADIK ADOLPH MICULKA, *Assistant Professor of Mathematics*, 1955  
B.S., Southwest Texas State University; M.S., Texas Tech University
- GRACE FREDERICK MIDDLETON, *Assistant Professor of Drama and Speech*, 1970  
B.S., Oklahoma State University; M.C.D., Oklahoma University
- GERALD REUBUSH MILLER, *Associate Professor of Psychology*, 1965  
B.A., Ph.D., Johns Hopkins University
- JAMES LEE MILSON, *Associate Professor of Curriculum and Instruction*, 1970  
B.S., M.Ed., Texas Wesleyan College; Ph.D., The University of Texas at Austin
- JOHN DOUGLAS MITCHELL, *Assistant Professor of Electrical Engineering*, 1973  
B.S., M.S., Ph.D., The Pennsylvania State University
- ROSS MOORE, *Instructor in Health and Physical Education*, 1940  
B.A., The University of Texas at El Paso
- HERBERT CLARK MORROW, Jr., *Instructor of Sociology*, 1969  
B.A., M.A., University of Arizona
- JAMES KENNETH MORTENSEN, *Associate Professor of English*, 1966  
B.A., M.A., University of Minnesota; Ph.D., University of New Mexico
- FLORENCE WAYMOUTH MUNN, *Assistant Professor of Curriculum and Instruction*, 1964  
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- WILLE'TE M. MUNZ, *Assistant Professor of Art*, 1974  
B.F.A., Moore College of Art; M.F.A., Columbia University Teachers College
- PHOEBE HANSON MUTNICK, *Assistant Professor of Music*, 1970  
B.A., Hunter College; M.A., Teachers College, Columbia University
- SAMUEL DALE MYRES, *Professor Emeritus of Political Science*, 1955  
B.A., M.A., Southern Methodist University;  
Ph.D., The University of Texas at Austin; LL.D., Trinity University
- JOHN ANTHONY NARVARTE, *Assistant Professor of Mathematics*, 1970  
B.A., The University of Texas at Austin; M.S., St. Mary's University;  
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- ELEANOR DIANA NATALICIO, *Associate Professor of Linguistics and Modern Languages*, 1971  
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- LUIZ FERNANDO NATALICIO, *Associate Professor of Curriculum and Instruction*, 1971  
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- HOWARD DUNCAN NEIGHBOR, *Associate Professor of Political Science*, 1968  
B.S., M.S., Kansas State University; Ph.D., University of Kansas
- WELDON CLINTON NEILL, *Associate Professor of Economics and Finance*, 1968  
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- CLYDE RUSSELL NICHOLS, *Professor Emeritus of Electrical Engineering*, 1961  
B.S.E.E., M.S.E.E., Texas A&M University
- FAYEZ SALIM NOURALLAH, *Professor of Accounting*, 1970  
B. Commerce, Cairo University; M.S., Ph.D., University of Illinois
- JAMES EUGENE NYMANN, *Professor of Mathematics*, 1967  
B.A., University of Northern Iowa; M.S., Ph.D., University of Arizona
- HONG-SIOE OEY, *Associate Professor of Civil Engineering*, 1967  
B.C.E., Bandung Institute of Technology; M.C.E., Ph.D., University of Oklahoma
- JACOB ORNSTEIN, *Professor Emeritus of Modern Languages*, 1968  
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University of Chihuahua; M. A., The University of Texas at El Paso
- GLENN LOYD PALMORE, *Associate Professor of Marketing*, 1971  
B.S., University of Maryland; M.B.S., D.B.A., University of Oklahoma
- KEITH HOWARD PANNELL, *Associate Professor of Chemistry*, 1971  
B.Sc., M.Sc., University College, Durham University; Ph.D., University of Toronto
- CYRIL PARKANYI, *Professor of Chemistry*, 1969  
M.S., R.N.Dr., Charles University, (Prague);  
Ph.D., Czechoslovak Academy of Sciences, (Prague)
- RAYMOND EDGAR PAST, *Professor of Linguistics and English*, 1952  
A.B., University of Pennsylvania; M.A., Ph.D., The University of Texas at Austin
- JOHN GILLIS PATE, Jr., *Professor of Accounting*, 1969  
B.S., M.S., Florida State University; Ph.D. Columbia University
- ARRYL STANTON PAUL, Jr., *Associate Professor of Music*, 1966  
B.M., Drury College; M.M., Wichita University; D.M.A., The University of  
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- DONALD L. PAULSON, *Assistant Professor of Educational Psychology and Guidance*,  
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B.A., Hamline University; M.S.Ed., Indiana University; Ph.D., University of Iowa
- ARTURO P. PEREZ, *Assistant Professor of Modern Languages*, 1970  
B.A., Our Lady of the Lake College; Ph.D., University of Oklahoma
- LUIS PEREZ, *Assistant Professor of Journalism*, 1973  
B.A., The University of Texas at El Paso; M.A., University of Missouri
- JOSEPH ANTHONY PEROZZI, *Associate Professor of Drama and Speech*, 1971  
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- ROBERT LOUIS PETERSON, *Associate Professor of Political Science*, 1967  
B.A., M.A., State University of Iowa; Ph.D., Pennsylvania State University
- JOSEPH HENRY PIERLUISSI, *Associate Professor of Electrical Engineering*, 1969  
B.S.E.E., University of Puerto Rico, M.S.E.E., Cornell University;  
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- MAXIMINO PLATA, *Assistant Professor of Educational Psychology and Guidance*, 1973  
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- ROBERT J. POPLAR, *Lecturer in Business Administration*, 1974  
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B.S., M.S., Baylor University
- MAUREEN AUDREY POTTS, *Assistant Professor of English*, 1970  
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- THOMAS JOSEPH PRICE, *Associate Professor of Political Science*, 1970  
B.S., College of Charleston; M.A., University of Chicago;  
Ph.D., Florida State University
- JESUS ROBERTO PROVENCIO, *Assistant Professor of Mathematics*, 1966  
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- JOAN PHELAN QUARM, *Associate Professor of English*, 1957  
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- HOWARD EDMUND QUINN, *Professor Emeritus of Geology*, 1924  
E.M., M.S., University of Minnesota; Ph.D., Harvard University
- EPIE D. RAEL, *Assistant Professor of Biological Sciences*, 1975  
B.S., University of New Mexico; M.S., New Mexico Highlands University; Ph.D., University of Arizona
- KAREN GROSSE RAMIREZ, *Instructor in Linguistics*, 1971  
B.A., University of South Dakota; M.A., The University of Texas at El Paso
- JOSEPH MALCHUS RAY, *Professor Emeritus of Political Science, President Emeritus*, 1960  
B.A., M.A., Ph.D., The University of Texas at Austin
- KEITH ALLEN REDETZKE, *Assistant Professor of Biological Sciences*, 1973  
B.S., M.S., University of Idaho; Ph.D., Colorado State University
- WILLIAM HARPER REID, *Assistant Professor of Biological Sciences*, 1975  
B.S., University of Missouri; Ph.D., University of Colorado
- PAUL A. RICHER, *Visiting Assistant Professor of Psychology*, 1974  
B.A., Bard College; M.A., Ph.D., The New School for Social Research, New York
- ROBERT EDWARD RICHESON, Jr., *Associate Professor of English*, 1962  
B.A., M.A., University of Virginia; Ph.D., Boston University
- JOSEPH CHARLES RINTELEN, Jr., *Professor Emeritus of Metallurgical Engineering*, 1949  
B.S., Brooklyn Polytechnic Institute; M.S., Cornell University; Ph.D., Duke University
- JULIUS RIVERA, *Professor of Sociology*, 1973  
M.A., University of Detroit; Ph.D., Michigan State University
- WILLIAM HENRY RIVERA, *Associate Professor of Chemistry*, 1962  
B.S., Ph.D., University of Louisville
- FRANK EARL RIZZO, *Professor of Metallurgical Engineering*, 1968  
B.Ch.E., University of Detroit; M.S., Ph.D., University of Cincinnati
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B.S., M.S., University of Wisconsin; Ph.D., Colorado State University
- PETER ROBINSON, *Associate Professor of Philosophy*, 1970  
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B.A., Colorado State College; M.A., The University of Texas at El Paso; Ph.D., The University of Arizona
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- PATRICK ROMANELL, *H. Y. Benedict Professor of Philosophy*, 1965  
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 B.A., University of Oregon; M. A., Cornell University; Ph.D., Rutgers University
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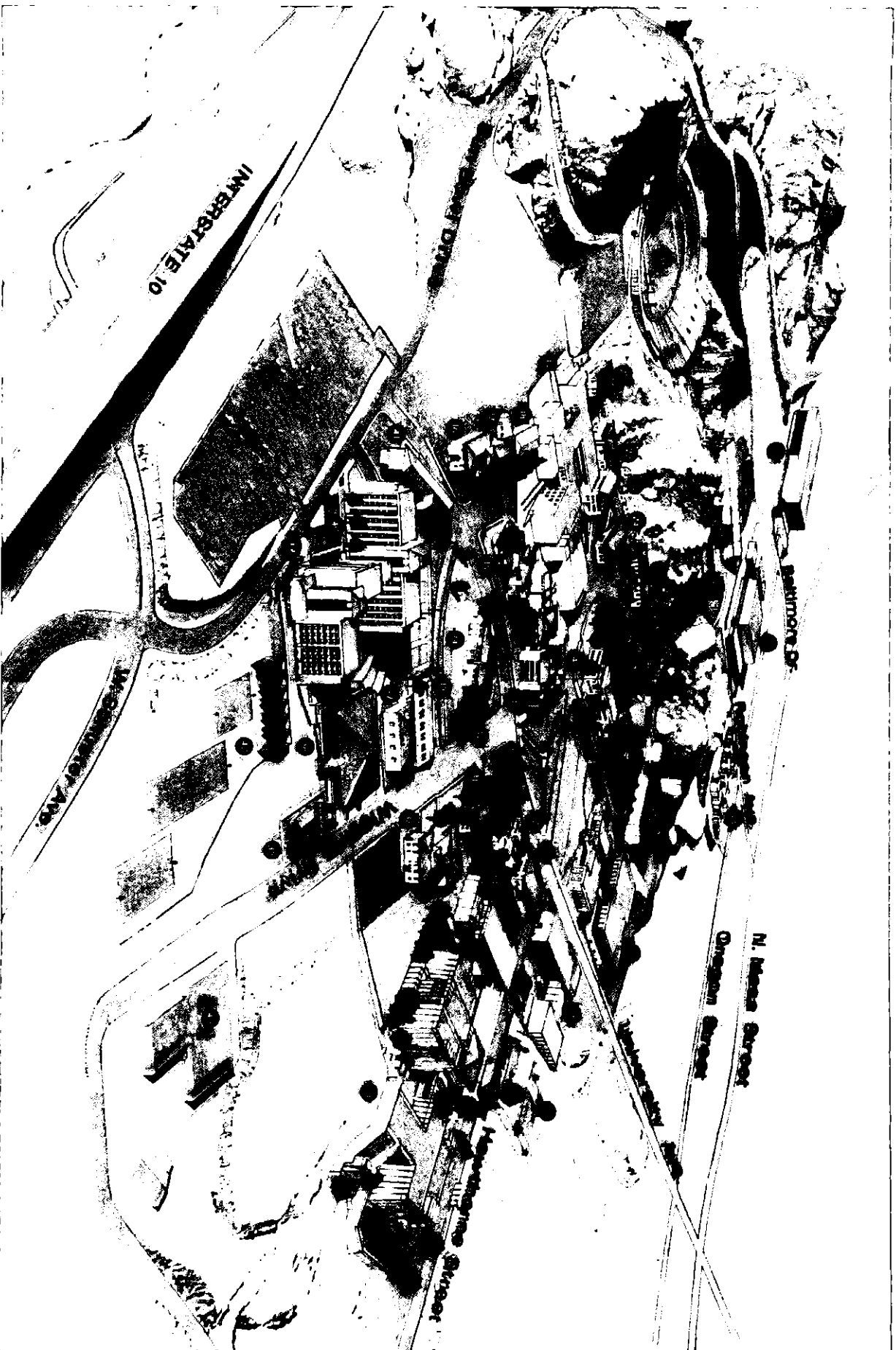
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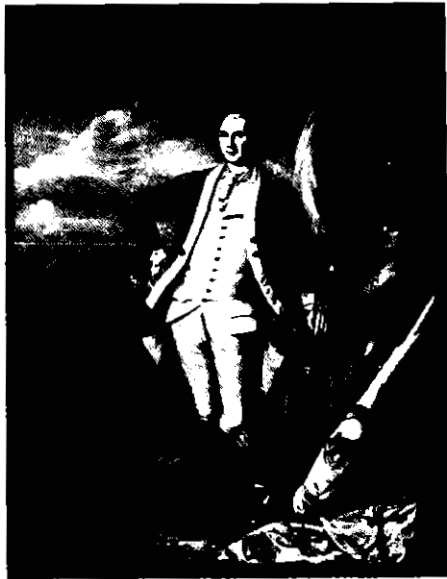




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