



THE UNIVERSITY  
OF NEW MEXICO  
BULLETIN  
CATALOG  
ISSUE

R. D.

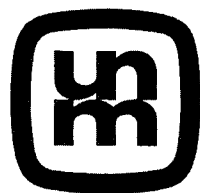
1968-69

## DIRECTIONS FOR CORRESPONDENCE

The post office address of The University of New Mexico is Albuquerque, New Mexico 87106. Requests for specific information should be directed as follows:

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ADMISSIONS (other than Graduate School, Law School, and Medical School) .....	Director of Admissions
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SCHOOL OF MEDICINE (Admission and General Information) .....	Dean of the School of Medicine
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TESTING .....	Testing Center
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University office hours are, in general, 8:00 to 12:00 and 1:00 to 5:00 Monday through Friday. The Information desk of the Office of Admissions and Records, Room 102, Administration Building is also open 8:00 to 12:00 most Saturdays. Office hours of the University Cashier are 8:30 to 12:00 and 1:00 to 3:30 Monday through Friday. Administrative offices are open during most of the days of the official student Recess periods.

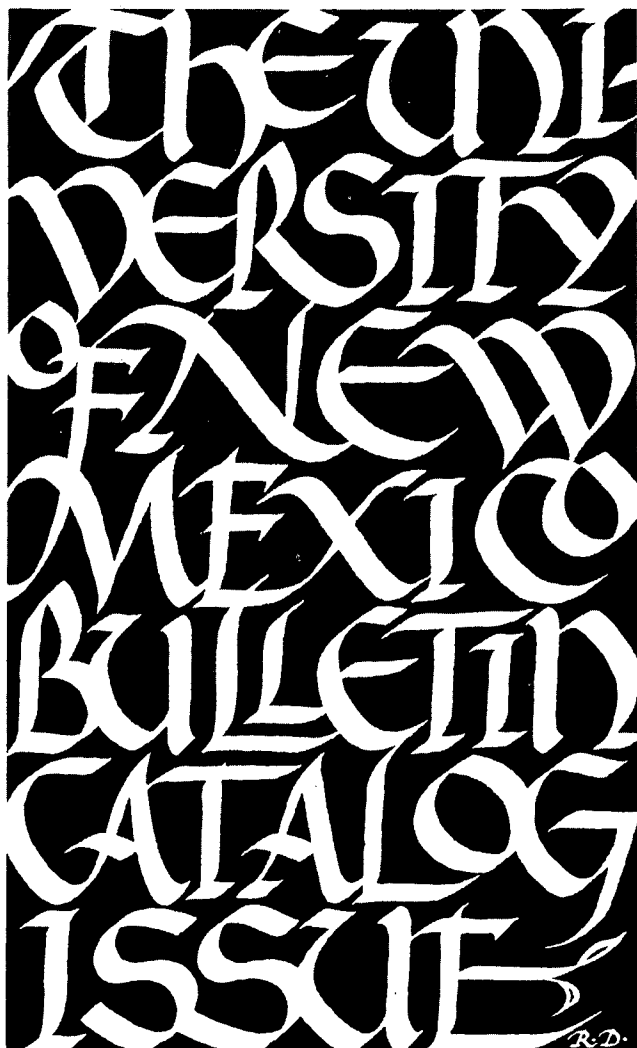


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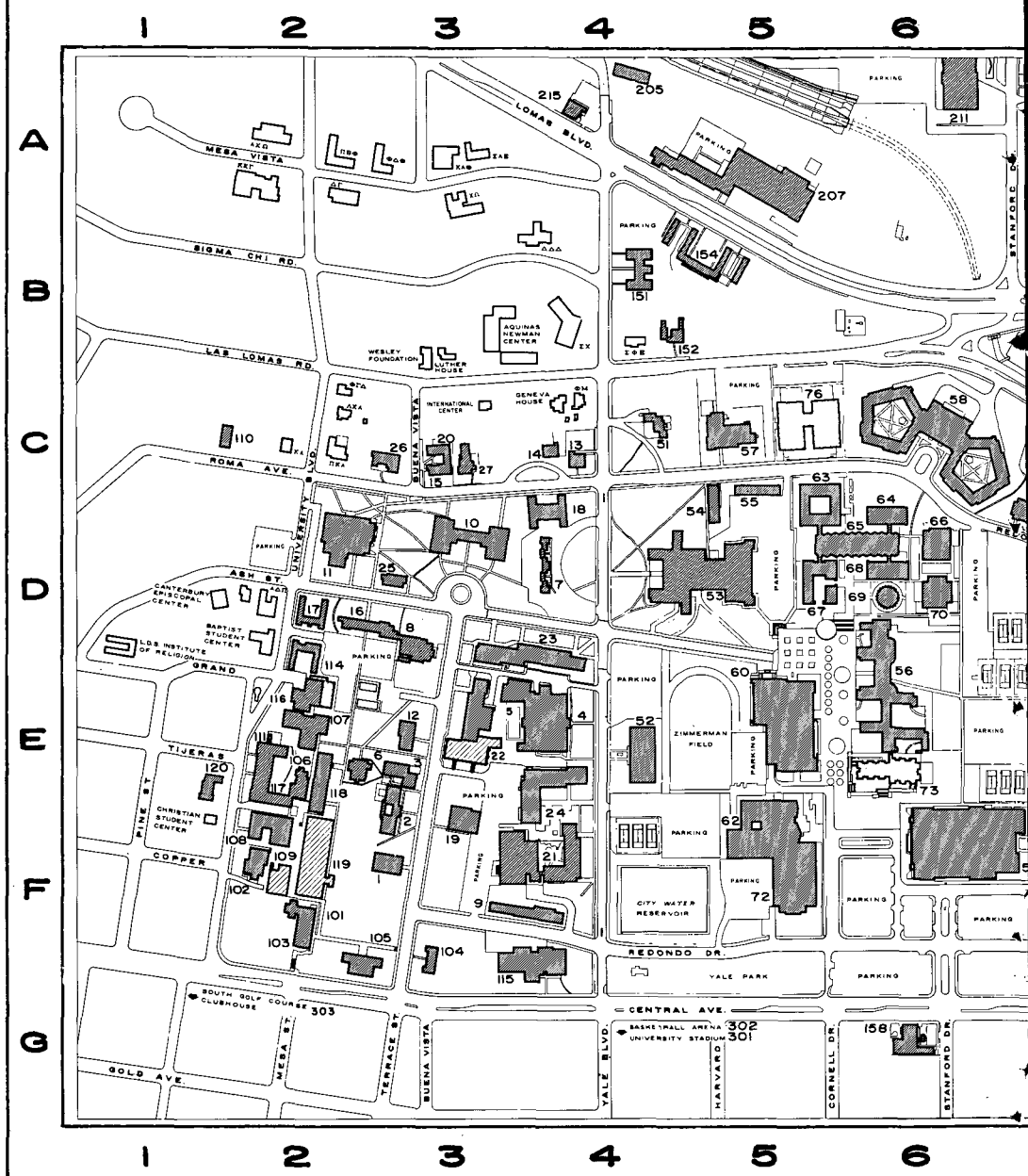


University Main Campus



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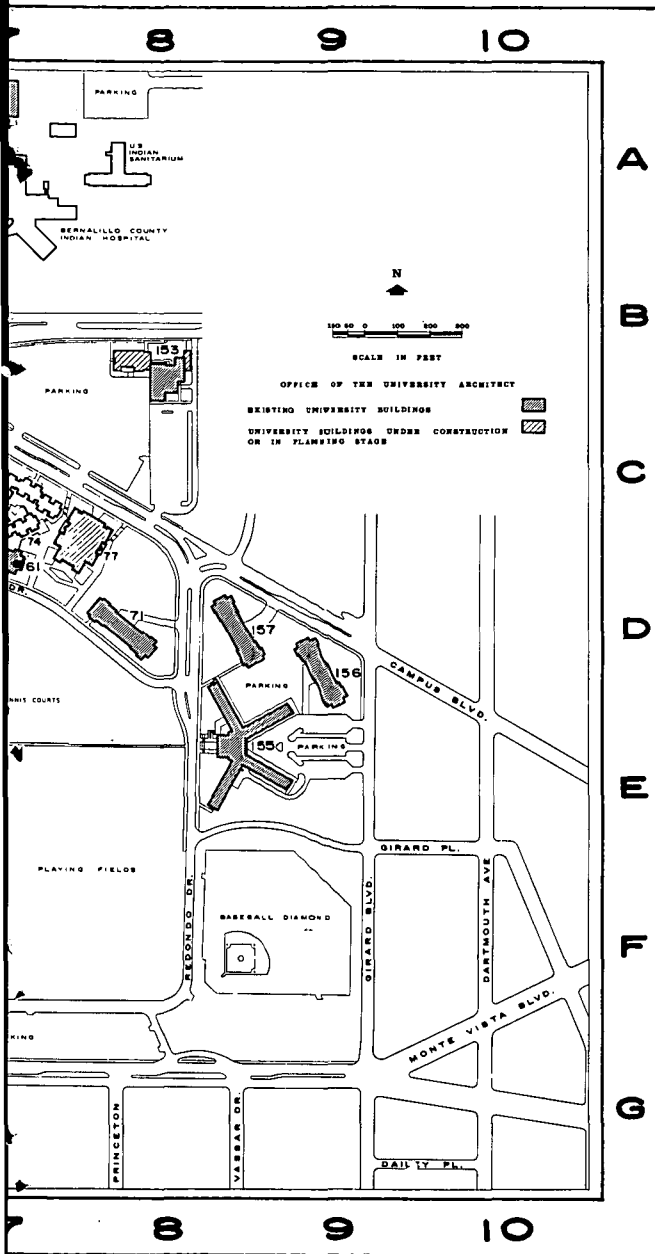
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THE UNIVERSITY OF NEW MEXICO

## CENTRAL CAMPUS

And a Portion of the North Campus

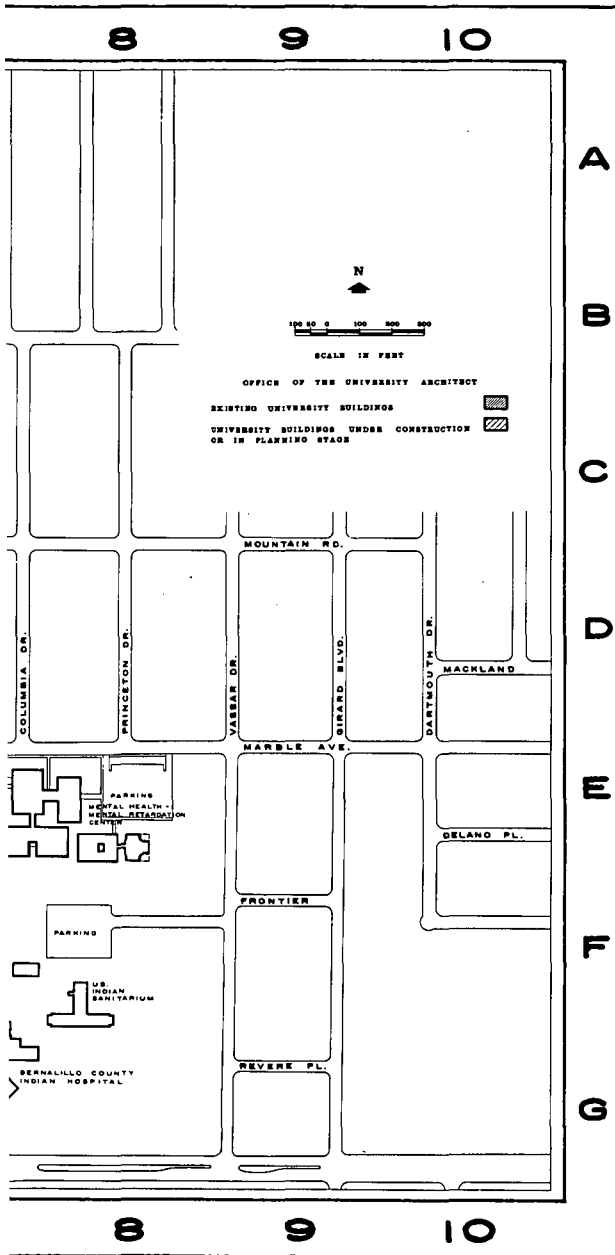


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## North Campus Legend of Buildings

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# 1968

JANUARY	FEBRUARY	MARCH	APRIL
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# 1969

JANUARY	FEBRUARY	MARCH	APRIL
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25 26 27 28 29 30 31	29 30	27 28 29 30 31	24 25 26 27 28 29 30
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SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
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1 2 3 4 5 6	1 2 3 4	1	1 2 3 4 5 6
7 8 9 10 11 12 13	5 6 7 8 9 10 11	2 3 4 5 6 7 8	7 8 9 10 11 12 13
14 15 16 17 18 19 20	12 13 14 15 16 17 18	9 10 11 12 13 14 15	14 15 16 17 18 19 20
21 22 23 24 25 26 27	19 20 21 22 23 24 25	16 17 18 19 20 21 22	21 22 23 24 25 26 27
28 29 30	26 27 28 29 30 31	23 24 25 26 27 28 29	28 29 30 31
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# ACADEMIC CALENDAR

## 1968 SUMMER SESSION

1968

LAST DATE FOR RECEIPT OF APPLICATION AND CREDENTIALS OR APPOINTMENT REQUEST FOR ASSURANCE OF JUNE 15 REGISTRATION .....		June 8, Sat. Noon
New Student Orientation .....	June 14, Fri., 8 a.m. Room 101, Anthropology Bldg.	
Registration .....	June 15, Sat.	
Instruction begins; late registration fee applies .....	June 17, Mon.	
Late Registration closes; last day for additions to programs; change of program fee applies .....	June 21, Fri., 5 p.m.	
End of second week; last day for withdrawal from course without grade .....	June 28, Fri., 5 p.m.	
Fourth of July, holiday .....	July 4, Thu.	
End of sixth week; last day for withdrawal from course without college approval .....	July 26, Fri., 5 p.m.	
Session ends .....	Aug. 9, Fri., 10 p.m.	

## 1968 ANTHROPOLOGY FIELD SESSION

Registration .....	June 15, Sat.
Field Session ends .....	July 26, Fri.

**DEADLINE FOR RECEIPT OF ADMISSION APPLICATIONS  
AND CREDENTIALS FOR FALL SEMESTER .....** July 15

## SEMESTER I, 1968-69

1968

New Student Orientation Period:	
Assembly for New University College Students .....	Sept. 9, Mon., 7:30 p.m. Johnson Gymnasium
Orientation for All New Undergraduates .....	Sept. 9, Mon.-Sept. 10, Tues.
Preregistration processing for new NROTC students .....	Sept. 9, Mon.-Sept. 10, Tues.
Advisement and Registration for all students .....	Sept. 11, Wed.-Sept. 14, Sat.
Instruction begins; late registration fee applies .....	Sept. 16, Mon.
Late Registration closes .....	Sept. 21, Sat. Noon
End of second week; last day for additions to programs of registered students; change of program fee applies .....	Sept. 28, Sat. Noon
End of fourth week; last day for withdrawal from course without grade .....	Oct. 12, Sat. Noon
Homecoming, holiday .....	Oct. 19, Sat.
NMEA Convention, recess begins .....	Oct. 23, Wed., 10 p.m.
Classes resume .....	Oct. 28, Mon., 7:30 a.m.
Midsemester; deadline for faculty grade reports for first half of Fall semester .....	Nov. 13, Wed., 9 a.m.
Thanksgiving recess begins .....	Nov. 27, Wed., 10 p.m.
Classes resume .....	Dec. 2, Mon., 7:30 a.m.
End of twelfth week; last day for removal of Incomplete grade; last day for withdrawal from course without college or school approval .....	Dec. 14, Sat. Noon
Christmas recess begins .....	Dec. 21, Sat., 10 p.m.

## ACADEMIC CALENDAR

1969

Classes resume	Jan. 6, Mon., 7:30 a.m.
*Closed Period	Jan. 13, Mon.-Jan. 25, Sat.
*Pre-Examination Week	Jan. 13, Mon.-Jan. 19, Sun.
*Semester Final Examinations	Jan. 20, Mon.-Jan. 25, Sat.
Semester ends	Jan. 25, Sat., 10 p.m.

**DEADLINE FOR RECEIPT OF ADMISSION APPLICATIONS  
AND CREDENTIALS FOR SPRING SEMESTER . . . . .**

Jan. 1

## SEMESTER II, 1968-69

New Student Orientation Period:	
Assembly for New Students .....	Jan. 31, Fri., 7:30 p.m. Room 101, Anthropology Bldg.
Orientation for All New Undergraduates .....	Jan. 31, Fri.-Feb. 1, Sat.
Advisement and Registration for all students .....	Feb. 3, Mon.-Feb. 5, Wed.
Instruction begins; late registration fee applies .....	Feb. 6, Thu.
Late Registration closes .....	Feb. 12, Wed., 5 p.m.
End of second week; last day for additions to programs of registered students; change of program fee applies .....	Feb. 19, Wed., 5 p.m.
End of fourth week; last day for withdrawal from course without grade .....	Mar. 5, Wed., 5 p.m.
Midsemester; deadline for faculty grade reports for first half of Spring semester .....	Apr. 2, Wed., 9 a.m.
Spring recess begins .....	Apr. 2, Wed., 10 p.m.
Classes resume .....	Apr. 10, Thu., 7:30 a.m.
Honors Assembly .....	To be announced
End of twelfth week; last day for removal of Incomplete grade; last day for withdrawal from course without college or school approval .....	May 7, Wed., 5 p.m.
Fiesta day, holiday .....	To be announced
*Closed Period .....	May 22, Thu.-June 4, Wed.
*Pre-Examination Week .....	May 22, Thu.-May 28, Wed.
*Semester Final Examinations .....	May 29, Thu.-June 4, Wed.
Semester ends .....	June 4, Wed., 10 p.m.
Commencement .....	June 6, Fri., 7:30 p.m.

## 1969 SUMMER SESSION

Registration (probable date, subject to change) .....	June 14, Sat.
Instruction begins (probable date, subject to change) .....	June 16, Mon.

\* Pre-Examination Week and Semester Final Examination Week are closed to extracurricular and social campus activities.

# IMPORTANT

The Catalog is the student's guide to the program and regulations of the University. The student is expected to familiarize himself with University regulations and to assume his proper responsibility in connection with them.

## GLOSSARY OF COLLEGE TERMS

(as used at this University)

**ACADEMIC YEAR** . . . the period which includes the Summer Session (beginning in June), Semester I (mid-September through January), and Semester II (February to early June).

**ACCREDITATION** . . . the type of recognition held by an educational institution. There are a number of nationally recognized accrediting agencies and associations which are reliable authorities on the quality of training offered by educational institutions. By voluntarily conforming to the standards of excellence set by an agency or association, an institution becomes eligible for inclusion in its accredited or approved list. Regional accrediting associations such as the North Central Association of Colleges and Secondary Schools accredit the institution as a whole; professional agencies such as the Engineering Council for Professional Development are concerned in particular with the standards of the professional schools or programs in their respective fields.

**ADMISSION** . . . acceptance of an applicant for enrollment.

**CLASS** . . . the regularly scheduled meeting of an academic course; also a group of students whose graduation date is the same—freshman, sophomore, junior, senior.

**CLASSIFICATION** . . . the designation used for the student's year of study in terms of his progress toward his chosen degree—freshman, sophomore, junior, senior.

**COLLEGE** . . . an organizational unit of the University normally offering courses and curricula leading to a particular degree or degrees, and supervising the academic progress of students working toward those degrees. The University College supervises all freshmen programs but is not a degree-granting college. The degree colleges to which students may transfer, if eligible, after completion of the freshman year are: Arts and Sciences, Business Administration, Education, Engineering, Fine Arts, Nursing, and Pharmacy. The Graduate School, the School of Law, and the School of Medicine offer advanced study.

**COURSE** . . . a particular subject in which instruction is offered within a given period of time—thus, a course in English.

**CREDIT** . . . a numerical system for evaluating a student's progress toward a degree, described in terms of semester hours (see definition of semester hours). In order to earn a degree in the normal four-year period, the student will average at least 16 semester hours' credit per semester since the minimum credit required for any bachelor's degree is 124 semester hours.

**CURRICULUM** . . . a body of courses required for a degree or a diploma or constituting a major field of study.

**DEGREE** . . . a title bestowed as official recognition for the completion of a curriculum. The bachelor's degree is the first-level degree granted normally upon completion of a four-year course of study in a given field. The master's degree is an advanced degree which requires at least one additional year beyond the bachelor's degree. The doctor's degree, or doctorate, is an advanced degree requiring at least three years beyond the bachelor's degree. The professional degrees of Juris Doctor and Doctor of Medicine require three and four years, respectively, beyond the pre-professional curricula. The honorary degree is bestowed in recognition of outstanding merit or achievement without reference to the fulfillment of academic course requirements.

**DEPARTMENT** . . . a division of a college which offers instruction in a particular branch of knowledge; for example: the Department of English.

**ELECTIVE** . . . a course which the student may study by choice but which may or may not be required for his particular degree.



GRADUATE STUDENT . . . one who has earned a bachelor's degree and is enrolled for advanced work in the Graduate School.

MAJOR . . . the field of study in which the student chooses to specialize.

MINOR . . . the field of second emphasis. Fewer semester hours' credit are required for a minor than for a major.

NEW STUDENT . . . one who is registering for the first time in The University of New Mexico or for the first time in its Graduate School, its School of Law, or its School of Medicine, or a student transferring from non-degree to degree status in this University.

PREREQUISITE . . . the requirement which must be met before a certain course can be taken.

READMITTED STUDENT . . . one who has previously registered for residence credit in this University but whose attendance has been interrupted by one or more semesters.

REGISTRATION . . . the act of enrolling in classes. A registration period is held at the beginning of each semester and summer session. At that time, the student with the help of his adviser chooses a program of courses for the session and fills in forms necessary for proper recording of his enrollment.

RESIDENT-FOR-TUITION-PURPOSES . . . classification as a resident of the State of New Mexico for purposes of assessing tuition. Determined on the basis of regulations applying to all institutions of higher learning in New Mexico.

RESIDENT STUDY (OR RESIDENCE WORK) . . . enrollment in courses on the campus or in courses off-campus which are allowed by special action to count as residence credit, as distinguished from correspondence or extension credit.

RETURNING STUDENT . . . one who was registered in the immediately preceding session.

SEMESTER . . . an instructional period of 16 weeks. Semester I, or the Fall Semester, runs from mid-September through January; Semester II, or the Spring Semester, runs from February through early June.

SEMESTER HOUR . . . the credit that is allowed for one 50-minute period per week throughout a semester in a lecture class. A course listed for three hours' credit would meet for three periods per week throughout the semester; for example: on Monday, Wednesday, and Friday from 10:30 to 11:20 a.m. Credit for laboratory work, studio, activity physical education, and ensemble music requires more class time per credit hour.

Many other terms are defined within the text of the catalog. Consult the index for page references.

## THE REGENTS OF THE UNIVERSITY

THE HONORABLE DAVID F. CARGO, Governor of New Mexico,  
ex officio . . . . . Santa Fe

LEONARD J. DeLAYO, State Superintendent of Public Instruction,  
ex officio . . . . . Santa Fe

ARTURO G. ORTEGA, President . . . . . Albuquerque

MRS. FRANK A. MAPEL, Vice President . . . . . Albuquerque

LAWRENCE H. WILKINSON, Secretary Treasurer . . . . . Albuquerque

HOWARD C. BRATTON . . . . . Albuquerque

WALTER F. WOLF . . . . . Gallup

Thomas R. Roberts of Los Alamos was President of the Regents at the time of his death on February 24, 1968.

# ADMINISTRATIVE OFFICES AND OFFICERS, 1967-68

TOM L. POPEJOY, M.A., LL.D. .... President  
 SHERMAN EVERETT SMITH, Ph.D. .... Administrative Vice President  
 JOHN NICOLL DURRIE, B.A. .... Secretary of the University

## COMPUTING CENTER

STOUGHTON BELL, Ph.D. .... Director  
 DALE SPARKS, B.S. .... Associate Director

## DEVELOPMENT OFFICE

LARS HALAMA, B.A. .... Director of Development  
 Executive Director, Alumni Association  
 GWINN HENRY .... Director of Alumni Relations  
 WINIFRED STAMM REITER, M.A. .... Editor

## PUBLIC INFORMATION OFFICE

JESS E. PRICE, B.A. .... Director  
 MARGIE TAYLOR .... Manager of News Bureau  
 RICHARD P. MELESKI .... Director of Photo Services  
 DON H. PETERSON, B.A. .... Publications Manager  
 NED P. JUDGE .... Radio-TV-Film Manager  
 EDWARD J. GROTH, M.A. .... Director of Sports Publicity

## INTERCOLLEGIATE ATHLETICS

PAUL EDWARD McDAVID, M.S. .... Director of Athletics  
 JOHN P. DOLZADELLI, B.S. .... Assistant Director of Athletics  
 ROBERT J. DOBELL, B.S. .... Business Manager of Athletics  
 IKE SINGER, JR. .... Athletic Coordinator

## STATION KNME-TV

F. CLAUDE HEMPEN, Ph.D. .... Director of Television, Station Manager  
 E. WAYNE BUNDY, Ph.D. .... Program Manager  
 ROBERT M. GORDON .... Director of Engineering

## UNIVERSITY ARCHITECT'S OFFICE

VAN DORN HOOKER, B.Arch. .... University Architect  
 EDWARD B. T. GLASS, B.Arch. .... Assistant to University Architect  
 ROBERT B. RILEY, B.Arch. .... Planner  
 ROBERT J. SCHMIDT, M.S. .... Engineer

## UNIVERSITY CONCERT HALL

WILLIAM J. MARTIN, M.F.A. .... Director

## ACADEMIC, RESEARCH, AND PUBLICATIONS DIVISIONS

FERREL HEADY, Ph.D. .... Academic Vice President  
 ROBERT GENE LALICKER, M.A. .... Administrative Assistant

## COLLEGES, SCHOOLS, AND OTHER ACADEMIC DIVISIONS

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<sup>25</sup> Deceased February 23, 1968.



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<sup>18</sup> Deceased December 31, 1967.

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- LOUIS ALEXANDER BRANSFORD**, B.B.A., St. Michael's College; M.A., Ed.D., Colorado State College. Assistant Professor of Guidance and Special Education.
- JOHN G. BREILAND**, B.A., Luther College; M.S., State University of Iowa; Ph.D., University of California at Los Angeles. Professor of Physics.
- T. DARRELL BRESHEARS**, D.D.S., University of Kansas City. Instructor in Dental Hygiene (Part-time).
- JACOB JEROME BRODY**, B.A., M.A., University of New Mexico. Assistant Professor of Anthropology, Curator, Maxwell Museum of Anthropology.
- BYRON GILLIAM BROGDON**, B.S., M.D., University of Arkansas. Professor of Radiology, Chairman of the Department of Radiology.
- FRANCES E. BROOKSHIER**, B.S., M.A., Texas Woman's University. Instructor in Home Economics (Part-time).
- JAMES ALBERT BROWDER**, B.A., M.D., University of Texas. Assistant Professor of Pediatrics.
- CHESTER RAYMOND BROWN**, B.S., M.S., Stout State College. Professor of Secondary Education.
- JAMES EARL BROWN**, B.A., University of Richmond; M.A., Michigan State University; Ph.D., University of Florida. Associate Professor of Business Administration.
- <sup>8</sup> **LAWRENCE CLIFFORD BROWN**, B.S., San Diego State College; M.S.W., Florida State University. Instructor in Home Economics (Part-time).
- <sup>1</sup> **HOWARD CARNES BRYANT**, B.A., University of California; M.S., Ph.D., University of Michigan. Associate Professor of Physics.

<sup>8</sup> On sabbatical leave second semester.

<sup>9</sup> On leave first semester.

<sup>8</sup> Second semester only.

<sup>1</sup> On sabbatical leave for the year.

- EDITH BUCHANAN, B.A.,** Meredith College; Ph.D., Duke University. Associate Professor of English.
- JANE STANLEY BUCKLES, B.A.,** Iowa Wesleyan College; M.A., Northwestern University. Assistant Professor of Dramatic Art.
- EDWARD WAYNE BUNDY, B.A., M.A.,** State University of Iowa; Ph.D., University of Michigan. Program Director, Production Manager, Station KNME-TV; Associate Professor of Speech.
- BAINBRIDGE BUNTING, B.S.,** University of Illinois; Ph.D., Harvard University. Professor of Art, Professor of Architecture.
- <sup>7</sup> **DORELEN FEISE BUNTING, B.A.,** Oberlin College; M.A., University of New Mexico. Instructor in English (Part-time).
- JOYCE T. BURGESS, B.S., M.S.,** University of Arkansas. Instructor in Home Economics (Part-time).
- <sup>4</sup> **THOMAS F. BURKS, B.S., M.S.,** University of Texas; Ph.D., University of Iowa. Instructor in Pharmacology.
- LLOYD ROBERT BURLEY, B.Ed.,** Duluth State Teachers College; M.A., Ph.D., State University of Iowa. Professor of Health, Physical Education, and Recreation.
- <sup>7</sup> **MARY LOUISE BUTLER, B.S.,** Iowa State University; M.S.Ed., University of New Mexico. Instructor in Mathematics (Part-time).
- DOLORES SMITH BUTT, B.A., M.A., Ph.D.,** University of New Mexico. Assistant Professor of Speech.
- JOHN EDWARD BUYNAC, Lieutenant Colonel, U.S.M.C., B.S.,** Bloomsburg State Teachers College. Associate Professor of Naval Science.
- WILLIAM JACKSON BYATT, B.S.,** Guilford College; M.S., University of North Carolina; Ph.D., University of Alabama. Professor of Electrical Engineering.
- WILLIAM ASMER BYNUM, JR., B.A., M.A.,** Marshall University; M.A., New Mexico Highlands University; Ph.D., University of Illinois. Associate Professor of Health, Physical Education, and Recreation.
- LOIS CAROL CALKINS, R.N.,** Emanuel Hospital School of Nursing. Instructor in Psychiatry (Nursing).
- THOMAS VINCENT CALKINS, B.A., M.A.,** University of New Mexico; M.F.A., Yale University. Assistant Professor of Dramatic Art.
- <sup>4</sup> **FLOYD OLAN CALVERT, B.S.M.E., M.M.E.,** University of Oklahoma. Associate Professor of Mechanical Engineering.<sup>16</sup>
- JOHN MARTIN CAMPBELL, B.A.,** University of Washington; Ph.D., Yale University. Associate Professor of Anthropology, Chairman of the Department of Anthropology.
- PHILIP MONTGOMERY CAMPBELL, B.A., M.A., Ph.D.,** University of Colorado. Assistant Professor of Physics.
- EDWIN H. CAPLAN, B.B.A., M.B.A.,** University of Michigan; Ph.D., University of California. Professor of Business Administration.
- JUDITH WALLACE CAREY, B.A.,** University of Wichita; M.A., University of New Mexico; Ph.D., University of Illinois. Assistant Professor of Speech.
- JAMES F. CARLIN, M.D.,** Western Reserve University. Assistant Professor of Psychiatry.
- HARRY JOHN CARLSON, B.S., M.S.,** New Mexico Western University; Ed.D., University of Arizona. Associate Professor of Elementary Education.
- ALICE CARMONA-MORGAN, M.A.,** University of Lisbon. Instructor in Modern Languages (Part-time).
- JOHN BRYAN CARNEY, JR., B.S., M.C.E.,** University of Oklahoma; Ph.D., University of Arizona. Assistant Professor of Civil Engineering.
- BARBARA ANNE CARPER, B.S.,** Texas Woman's University; M.Ed., Teachers College, Columbia University. Instructor in Nursing.
- <sup>7</sup> **WILLIAM FREDERICK CARSTENS, B.A.,** Ph.D., State University of Iowa. Instructor in English (Part-time).
- <sup>24</sup> **DOROTHY MERRIL CARTER, B.S., M.A.,** University of Washington. Instructor in Nursing.
- RAYMOND N. CASTLE, B.S.,** University of Idaho; M.A., Ph.D., University of Colorado. Professor of Chemistry, Chairman of the Department of Chemistry.

<sup>7</sup> First semester only.<sup>4</sup> On leave for the year.<sup>16</sup> Resignation effective December 15, 1967.<sup>24</sup> On military leave, effective January 27, 1968.

- ROBERT FOSTER CASTLE, A.B., M.D., Western Reserve University. Associate Professor of Pediatrics.
- WILMA KRAUSE CASTLE, A.B., M.D., Western Reserve University. Assistant Professor of Pathology and Pediatrics.
- THOMAS TELISPHORE CASTONGUAY, B.Met.Engr., University of Detroit; Ph.D., Iowa State University. Professor of Chemical Engineering, Chairman of the Department of Chemical Engineering.
- ELMON LAMONT CATALINE, B.S., M.S., Ph.D., University of Michigan. Dean of the College of Pharmacy, Professor of Pharmacy.
- HAROLD THOMAS CATES, B.S.E.E., Valparaiso University; M.S.E.E., University of New Mexico. Visiting Assistant Professor of Electrical Engineering.
- ROY DUDLEY CATON, JR., B.S., M.A., Fresno State College; Ph.D., Oregon State University. Associate Professor of Chemistry.
- ROBERT THOMAS CAUTHORNE, B.S., University of Virginia; M.D., Medical College of Virginia. Assistant Professor of Medicine.
- COLSTON CHANDLER, Sc.B., Brown University; Ph.D., University of California (Berkeley). Assistant Professor of Physics.
- MARGARET ELIZABETH CHISHOLM, B.A., M.L., Ph.D., University of Washington. Associate Professor of Elementary Education, Director of the Learning Materials Center.
- <sup>8</sup> FREDERICK MARTIN CHREIST, B.A., DePauw University; M.A., Ph.D., Northwestern University. Professor of Speech.
- TED LEO CHRISTIANSEN, B.S., M.A., University of New Mexico; Ph.D., Utah State University. Assistant Professor of Special Education.
- KARL CHRISTMAN, B.S., M.B.A., Indiana University; C.P.A. Assistant Professor of Business Administration.
- THOMAS WELDON CHRISTOPHER, B.A., Washington and Lee University; LL.B., University of Alabama; LL.M., S.J.D., New York University. Dean of the School of Law, Professor of Law.
- PHAM CHUNG, License en Droit, University of Saigon; M.A., Ph.D., University of Pennsylvania. Assistant Professor of Economics.
- PAUL ENGLISH CLARK, D.D.S., University of Kansas City. Instructor in Dental Hygiene (Part-time).
- JAMES SPENCER CLARKE, B.S., Harvard College; M.D., Harvard Medical School. Professor of Surgery, Chairman of the Department of Surgery.
- JOHN CHARLES CLARKE, Lieutenant, U.S.N., B.S., University of New Mexico. Assistant Professor of Naval Science.
- WOODROW WILSON CLEMENTS, B.A., New Mexico Highlands University; M.A., University of New Mexico. Associate Professor of Health, Physical Education, and Recreation, Assistant Chairman of the Department of Health, Physical Education, and Recreation.
- DANIEL EMMETT CLIFFORD, D.D.S., Creighton University. Clinical Instructor in Dental Hygiene (Part-time).
- DOROTHY IRENE CLINE, B.A., University of Michigan; M.A., University of Chicago. Professor of Political Science, Acting Director of the Division of Government Research.
- RICHARD HUDSON CLOUGH, B.S., University of New Mexico; M.S., University of Colorado; Sc.D., Massachusetts Institute of Technology. Dean of the College of Engineering, Professor of Civil Engineering.
- RUBEN COBOS, B.A., M.A., University of New Mexico. Assistant Professor of Modern Languages.
- JOANNE COCKELREAS, B.A., University of Oregon; M.F.A., State University of Iowa. Instructor in English.
- SANFORD COHEN, B.A., M.A., Ph.D., Ohio State University. Professor of Economics.
- FREDERICK COHN, B.S., Franklin and Marshall College; M.D., University of Pennsylvania. Adjunct Instructor of Obstetrics and Gynecology (Part-time).
- VAN DEREN COKE, B.A., University of Kentucky; M.F.A., Indiana University. Professor of Art, Chairman of the Department of Art.
- WILLIAM C. COLBORNE, B.A., M.A., Arizona State University. Visiting Lecturer in Business Administration (Part-time).
- LEROY CONDIE, B.A., Brigham Young University; M.S., New York University; Ph.D., University of New Mexico. Associate Professor of Elementary Education.

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<sup>8</sup> On sabbatical leave second semester.



- ANDREW GLEN CONLY, B.A., Bemidji State College; M.S., University of New Mexico. Instructor in Health, Physical Education, and Recreation (Part-time).
- <sup>14</sup> JAMES KIRK CONRAD, B.S., M.D., University of Michigan. Assistant Professor of Medicine.
- JOHN TERENCE CONWAY, B.F.A., John Herron School of Art; M.A., University of New Mexico. Instructor in Art.
- <sup>7</sup> JAMES ARLIN COOPER, B.S.E.E., M.S.E.E., University of New Mexico; Ph.D., Stanford University. Adjunct Professor of Electrical Engineering (Part-time).
- JAMES GORDON COOPER, B.S., University of Maine; M.A., Ed.D., Stanford University. Professor of Educational Foundations.
- <sup>4</sup> THEODORE COOPER, B.S., Georgetown University; M.D., Ph.D., St. Louis University. Professor of Pharmacology and Surgery, Chairman of the Department of Pharmacology.
- DON CORBIN, Instructor in Health, Physical Education, and Recreation.
- CARL ERNEST CORDS, JR., B.S., Arizona State University; Ph.D., University of Washington. Assistant Professor of Microbiology.
- MARION MARVIN COTTRELL, B.S., M.S., University of New Mexico. Associate Professor of Civil Engineering.
- ANTONIOS STEPHEN COUTSELINIS, Graduate, Medical School, University of Athens. Visiting Assistant Professor of Pharmacology.
- KENNETH EDWARD COX, B.Sc., Imperial College of Science and Technology, London; M.A.Sc., University of British Columbia; Ph.D., Montana State University. Assistant Professor of Chemical Engineering.
- HAZEL VIOLA CRAKER, B.S., Marion College; M.A., Colorado State College. Instructor in Elementary Education.
- BONNER MILTON CRAWFORD, B.A., Central Michigan University; M.A., Ph.D., University of Michigan. Professor of Secondary Education.
- CLIFFORD SMEED CRAWFORD, B.A., Whitman College; M.S., Ph.D., Washington State University. Assistant Professor of Biology.
- VIRGINIA POINDEXTER CRENSHAW, B.A.B.E., Columbia Bible College; B.S.N., Vanderbilt University; M.P.H., University of North Carolina; Ed.D., George Peabody College for Teachers. Professor of Nursing.
- JAMES PETTIT CROW, B.A., University of New Mexico; M.A., Stanford University. Assistant Professor of Journalism.
- NORTON BARR CROWELL, B.S., M.A., Southern Methodist University; M.A., Ph.D., Harvard University. Professor of English.
- EDGAR FRANK CRUFT, B.S., Durham University, England; Ph.D., McMaster University, Canada. Associate Professor of Geology.
- CHARLES EDWARD CULLEN, D.D.S., Marquette University. Lecturer in Dental Hygiene (Part-time).
- ALLIS W. CURRAN, B.A., University of Iowa; M.S.S., Smith College. Instructor in Psychiatry (Social Work) (Part-time).
- WILLIAM SHELDON CURRAN, B.A., Harvard College; M.D., Harvard Medical School. Assistant Professor of Medicine, Assistant Dean of the School of Medicine.
- ALICE HUSTON CUSHING, B.S., University of New Mexico; M.D., University of Colorado School of Medicine. Assistant Professor Pediatrics.
- DONALD COLGETT CUTTER, B.A., M.A., Ph.D., University of California. Professor of History.
- WILLIAM MINOR DABNEY, B.A., M.A., Ph.D., University of Virginia. Professor of History.
- LEWIS ALOYIUS DAHMEN, B.S., Wisconsin State College; M.S., Northern Illinois University; Ed.D., Arizona State University. Assistant Professor of Educational Foundations.
- RALPH CLAIR d'ARGE, B.S., Chico State College; M.S., Cornell University. Assistant Professor of Economics.
- DAVID WAYNE DARLING, B.S., M.S., Western New Mexico University; Ed.D., University of Texas. Associate Professor of Elementary Education, Chairman of the Department of Elementary Education.
- GUIDO H. DAUB, B.S., M.S., Ph.D., University of Wisconsin. Professor of Chemistry.

<sup>14</sup> December 1, 1967 to June 30, 1968.<sup>4</sup> On leave for the year.<sup>7</sup> First semester only.

- HENRY WERNER DAVIS, B.A., Rice University; M.A., Ph.D., University of Colorado. Assistant Professor of Mathematics.
- JEFFREY ROBERT DAVIS, B.E.E., M.S., Rensselaer Polytechnic Institute; Ph.D., Washington University. Assistant Professor of Mathematics.
- <sup>1</sup> PAUL BENJAMIN DAVIS, B.A., Oberlin College; M.A., Ph.D., University of Wisconsin. Assistant Professor of English.
- <sup>3</sup> NED J. DAVISON, B.A., University of Utah; M.A., Ph.D., University of California at Los Angeles. Associate Professor of Modern Languages.
- CHRISTOPHER DEAN, B.A., M.A., Ph.D., Harvard University. Professor of Physics.
- <sup>7</sup> JOHN JOSEPH DEELY, B. of E.E., Georgia Institute of Technology; M.S., Ph.D., Purdue University. Visiting Lecturer in Mathematics (Part-time).
- WILLIAM GEORGE DEGENHARDT, B.A., Syracuse University; M.S., Northeastern University; Ph.D., Texas Agricultural and Mechanical University. Associate Professor of Biology.
- JOANNA deKEYSER, B.M., University of Southern California. Assistant Professor of Music.
- CALVIN LLOYD DePASS, B.S., Portland State College. Assistant Professor of Economics.
- ROBERT JOHN DESIDERIO, B.S., St. Joseph's College; LL.B., Boston College. Assistant Professor of Law.
- AGAMEMNON DESPOPOULOS, B.M., B.S., M.D., University of Minnesota. Associate Professor of Physiology.
- JOHN RICHARD DETTRE, B.A., B.S.Ed., M.A., Ph.D., Ohio State University. Assistant Professor of Secondary Education.
- JERONE NELSON DEVERMAN, B.S., M.S., Purdue University. Visiting Lecturer in Mathematics (Part-time).
- RONALD CLIFFORD DeVRIES, B.S.E.E., Northwestern University; M.S., Ph.D., University of Arizona. Assistant Professor of Electrical Engineering.
- FRANK L. DEWEY, A.B., Grinnell College; LL.B., Harvard University. Lecturer in Law, Director of the Legal Services Program (Part-time).
- <sup>4</sup> ROBERT CHRISTOPHER DICK, B.S.E., Kansas State Teachers College; M.A., University of New Mexico. Assistant Professor of Speech, Director of Forensics.
- FRANKLIN MILLER DICKEY, B.A., University of Wisconsin; Ph.D., University of California at Los Angeles. Professor of English.
- LORAIN FREDRICK DIEHM, B.S., M.S., Kansas State Teachers College. Assistant Professor of Health, Physical Education, and Recreation, Athletic Trainer.
- SCOTT EDWARD DIETERT, B.A., Rice University; M.D., Washington University. Assistant Professor of Anatomy.
- LOIS CHAMBERS DILATUSH, B.A., Ohio Wesleyan University; A.M., Oberlin College; Ph.D., University of Colorado. Assistant Professor of Sociology and Psychiatry.
- EVERETT GEORGE DILLMAN, B.B.A., M.B.A., University of New Mexico; Ph.D., University of Texas. Assistant Professor of Business Administration.
- HOWARD J. DITTMER, B.A., M.A., University of New Mexico; Ph.D., State University of Iowa. Professor of Biology, Assistant Dean of the College of Arts and Sciences.
- ROBERT THOMAS DIVETT, B.S., Brigham Young University; M.A., George Peabody College for Teachers. Librarian of the Library of Medical Sciences, Associate Professor of Medical Bibliography.
- <sup>2</sup> JOVAN DJURIC, Elec. Engr., University of Belgrade; D.E.E., Serbian Academy of Sciences. Associate Professor of Electrical Engineering.
- RONALD HOWARD DOLKART, B.A., University of California at Los Angeles; M.A., University of California (Berkeley). Assistant Professor of History.
- VIRGINIA S. DORN, B.S., M.S., Iowa State University. Instructor in Home Economics (Part-time).
- BILL GRAY DOUGLAS, B.A., Mexico City College; M.A., Stanford University. Instructor in Psychiatry.
- RICHARD CHARLES DOVE, B.S. in M.E., M.S. in M.E., Ph.D., Iowa State University. Professor of Mechanical Engineering, Chairman of the Department of Mechanical Engineering.

<sup>1</sup> On sabbatical leave for the year.<sup>3</sup> On sabbatical leave second semester.<sup>7</sup> First semester only.<sup>4</sup> On leave for the year.<sup>2</sup> On sabbatical leave first semester.

- ROBERT JOHN DOXTATOR**, B.Ed., M.Ed., University of Indiana; Ed.D., University of Colorado. Associate Professor of Secondary Education, Chairman of the Department of Secondary Education.
- RODNEY DAVID DRIVER**, B.S., M.S., Ph.D., University of Minnesota. Visiting Lecturer in Mathematics (Part-time).
- <sup>1</sup> **HAROLD DEAN DRUMMOND**, B.A., M.A., Colorado State College; Ed.D., Stanford University. Professor of Elementary Education.
- DONALD WARD DUBOIS**, B.S. in M.E., M.A., Ph.D., University of Oklahoma. Associate Professor of Mathematics.
- STEPHEN ALLEN DUBOV**, B.F.A., Kansas City Art Institute; M.F.A., Stanford University. Instructor in Art.
- ROSE MARIE DUDNEY**, B.A., M.A.T., Vanderbilt University. Instructor in Modern Languages (Part-time).
- MARIE-LOUISE duFAULT**, B.S., Ed.M., Boston University. Assistant to the Director of the Dental Hygiene Program, Assistant Professor of Dental Hygiene.
- FOSTER RHEA DULLES**, A.B., Princeton University; Ph.D., Columbia University. Visiting Distinguished Professor of U.S. Diplomatic History.
- ROBERT MANLY DUNCAN**, B.A., M.A., Oberlin College; Ph.D., University of Wisconsin. Professor of Modern Languages.
- JACK LOWELL DYER**, B.A., Oklahoma City University; M.A., University of North Carolina; Ph.D., University of Colorado. Assistant Professor of Sociology.
- WILLIAM EASTLAKE**, Lecturer in English (Part-time).
- BETTY JEAN EBERLE**, B.S., Oberlin College; Ph.D., Western Reserve University. Assistant Professor of Epidemiology and Community Medicine.
- RALPH LEMON EDGEL**, B.A., University of Utah; M.B.A., Northwestern University. Professor of Business Administration; Associate Director of Business Economics, Bureau of Business Research.
- RONALD RALPH EICHORN**, B.S., University of Utah. Lecturer in Architecture.
- FLORENCE HAWLEY ELLIS**, B.A., M.A., University of Arizona; Ph.D., University of Chicago. Professor of Anthropology.
- HENRY CARLTON ELLIS**, B.S., College of William and Mary; M.A., Emory University; Ph.D., Washington University. Professor of Psychology.
- ROBERT M. ELLIS**, B.A., Mexico City College; M.F.A., University of Southern California. Assistant Director of the University Art Museum, Assistant Professor of Art.
- WILLIS HILL ELLIS**, A.B., Wabash College; J.D., Indiana University. Associate Professor of Law.
- WOLFGANG EUGENE ELSTON**, B.S., City College of the City of New York; M.A., Ph.D., Columbia University. Professor of Geology.
- <sup>8</sup> **ROGER CHARLES ENTRINGER**, B.S., State University of Iowa; M.S., Ph.D., University of New Mexico. Assistant Professor of Mathematics.
- BERNARD EPSTEIN**, B.A., M.S., New York University; Ph.D., Brown University. Professor of Mathematics.
- AHMED ERTEZA**, B.S., M.S., Calcutta University; M.S.E.E., Stanford University; Ph.D., Carnegie Institute of Technology. Professor of Electrical Engineering.
- WAYNE C. EUBANK**, B.S., West Texas State College; M.A., Northwestern University; Ph.D., Louisiana State University. Professor of Speech, Chairman of the Department of Speech.
- JOHN W. EVANS**, A.B., Swarthmore College; A.M., Ph.D., Harvard University; Sc.D., University of New Mexico. Professor of Astronomy (Part-time).
- MELBOURNE GRIFFITH EVANS**, B.A., Reed College; M.A., Ph.D., University of California. Professor of Philosophy.
- WILLIS LYNN EVERETT**, B.S., M.S., Ph.D., University of Michigan. Associate Professor of Nuclear Engineering.
- ANNETTE EWING**, B.A., M.A., University of New Mexico. Instructor in History.
- <sup>19</sup> **JOSEPH F. FAZEKAS**, M.D., Albany Medical College. Visiting Professor of Medicine (Neurology).
- KARL THOMAS FELDMAN, JR.**, B.S.M.E., University of Kansas; M.S.M.E., Ph.D., University of Missouri. Assistant Professor of Mechanical Engineering.

<sup>1</sup> On sabbatical leave for the year.<sup>19</sup> January 1, 1968 to June 30, 1968.<sup>8</sup> On sabbatical leave second semester.

- <sup>4</sup> **GARY GENE FERGUSON**, B.S., University of Houston; M.S., Baylor University. Instructor in Pharmacology.
- PELAYO HIPOLITO FERNANDEZ**, B.A., University of California; M.A., Wayne State University; Ph.D., Salamanca University, Spain. Associate Professor of Modern Languages.
- DOUGLAS PETER FERRARO**, A.B., Columbia College; M.A., Ph.D., Columbia University. Assistant Professor of Psychology.
- WILLIAM CARL FIEDLER**, B.S., M.S., Ph.D., Purdue University. Associate Professor of Pharmacy.
- JAMES SMITH FINDLEY**, B.A., Western Reserve University; Ph.D., University of Kansas. Professor of Biology.
- MYRON FINK**, B.A., Cornell University; LL.B., LL.M., New York Law School; M.S. in L.S., Columbia University. Law Librarian, Associate Professor of Law.
- THEODORE NEWSON FINLEY**, B.S., University of Washington; M.D., Johns Hopkins Medical School. Associate Professor of Medicine.
- HOWARD VIVIAN FINSTON**, B.A., M.A., Ph.D., Stanford University. Dean of the College of Business Administration, Professor of Business Administration.
- REGINALD HEBER FITZ**, B.A., M.D., Harvard University. Dean of the School of Medicine, Professor of Medicine.
- J. PAUL FITZSIMMONS**, B.S., Ph.D., University of Washington. Professor of Geology.
- MARTIN WILLIAM FLECK**, B.S., M.S., University of New Mexico; Ph.D., University of Colorado. Professor of Biology.
- ESTHER MAY FLEMING**, B.A., M.A., Northern Illinois University. Instructor in English (Part-time).
- ROBERT EDWARD FLEMING**, B.A., M.A., Northern Illinois University. Assistant Professor of English.
- TROY SMITH FLOYD**, B.J., M.A., University of Missouri; Ph.D., University of California. Associate Professor of History.
- MORRIS ALLAN FORSLUND**, B.A., M.A., Ph.D., Yale University. Assistant Professor of Sociology.
- JOSEPH FRANK**, B.A., M.A., Ph.D., Harvard University. Professor of English, Chairman of the Department of English.
- DONALD THA FRAZIER**, B.S., M.S., Ph.D., University of Kentucky. Assistant Professor of Physiology.
- KURT FREDERICK**, Graduate of the State Academy of Music and State College of Music in Vienna; B.S., University of New Mexico; M.Mus., Ph.D., University of Rochester. Professor of Music.
- <sup>4</sup> **NATHANIEL ABRAHAM FRIEDMAN**, B.S., M.S., University of Michigan; Ph.D., Brown University. Assistant Professor of Mathematics.
- GENE FRUMKIN**, B.A., University of California at Los Angeles. Assistant Professor of English.
- WILLIAM ROGERS GAFFORD**, B.S., University of New Mexico; M.S., University of Texas. Professor of Civil Engineering, Special Adviser in the University College.
- DAVID GALE**, B.S., College of the City of New York; Ph.D., University of California (Berkeley). Assistant Professor of Microbiology.
- HECTOR ANTONIO GARCIA**, Diploma, Peyrellade Conservatory, Havana. Artist-in-Residence (Part-time).
- LEONARDO GARCIA-BUNUEL**, M.D., University of Zaragoza, Spain. Assistant Professor of Psychiatry.
- LUIS GARCIA-BUNUEL**, B.A., B.S., M.D., University of Zaragoza, Spain. Assistant Professor of Medicine.
- <sup>7</sup> **GARLAND GENE GARDENHIRE**, B.S., West Texas State College; M.S., University of New Mexico. Instructor in Mathematics (Part-time).
- WALTER ALVIN GATHMAN**, B. Arch., Yale University. Lecturer in Architecture (Part-time).
- DOUGLAS ROLAND GEORGE**, B.A., M.A., University of Minnesota. Assistant Professor of Art.
- ROBERT HEPWORTH GERVAIS**, B.A., University of Vermont; M.D., State University of New York. Assistant Professor of Psychiatry.
- JOHN DOUGLAS GIBB**, B.S., M.A., University of Utah; Ph.D., Wayne State University. Assistant Professor of Speech.

<sup>4</sup> On leave for the year.

<sup>7</sup> First semester only.

- ROBERT STANDISH GILLESPIE**, B.A., University of Illinois; M.A., University of Iowa. Instructor in English (Part-time).
- MICHA GISSER**, B.S., School of Law and Economics, Tel Aviv, Israel; M.A., Ph.D., University of Chicago. Associate Professor of Economics.
- SAMUEL IALOUS GLOVER**, A.B., Lincoln University; M.D., Howard University; M.P.H., Columbia University. Instructor in Psychiatry.
- DELBERT TOLTON GOATES**, B.S., M.D., University of Utah. Assistant Professor of Psychiatry.
- DOLORES GONZALES**, B.A., Highlands University; M.A., Teachers College, Columbia University; Ed.D., Pennsylvania State University. Assistant Professor of Elementary Education.
- <sup>4</sup> **NANCIE L. SOLIEN DE GONZALEZ**, B.S., University of North Dakota; M.A., Ph.D., University of Michigan. Associate Professor of Anthropology and Sociology.
- WILLIAM ANTHONY GOODMAN**, B.F.A., M.F.A., San Francisco Art Institute. Instructor in Art.
- RICHARD MULLANY GORMAN**, B.A., University of Notre Dame; M.D., Ph.D., Fordham University. Assistant Professor of Educational Foundations.
- CHARLES THERON GRACE**, B.S.M.E., University of Colorado; M.S.M.E., University of Illinois. Professor of Mechanical Engineering, Assistant Dean of the College of Engineering, Director of the Sandia Technical Development and Educational Aids Programs.
- JOHN ROLAND GRAHAM**, M.D., Queens University, Ontario. Assistant Professor of Psychiatry.
- WILLIAM GEORGE BROWN GRAHAM**, B.A., Harvard University; M.D., University of Pennsylvania. Assistant Professor of Medicine.
- WAYNE WILLIS GRANNEMANN**, B.S.E.E., M.A., Ph.D., University of Texas. Professor of Electrical Engineering, Director of the Bureau of Engineering Research.
- JOHN ROOT GREEN**, B.S., Ph.D., University of California. Professor of Physics.
- ARNOLD H. GREENHOUSE**, B.A., M.D., University of Kansas. Associate Professor of Medicine.
- RICHARD JEROME GRIEGO**, B.S., University of New Mexico; M.S., Ph.D., University of Illinois. Assistant Professor of Mathematics.
- <sup>8</sup> **MERCEDES GUGISBERG**, B.S., M.S., University of Minnesota. Associate Professor of Health, Physical Education, and Recreation.
- WILLIAM WALTER HAKALA**, B.S., M.S.C.E., University of Minnesota; Ph.D., Virginia Polytechnic Institute. Assistant Professor of Civil Engineering.
- IRVING JAMES HALL**, B.A., Pacific Lutheran University; M.S., University of Minnesota; Ph.D., Iowa State University. Visiting Lecturer in Mathematics (Part-time).
- REINA FRANCES HALL**, B.S., M.S., Catholic University of America; Ph.D., St. John's University. Professor of Nursing, Dean of the College of Nursing.
- DAVID BOYCE HAMILTON, JR.**, B.A., M.A., University of Pittsburgh; Ph.D., University of Texas. Professor of Economics.
- BRENDA JOANNE HANCOCK**, B.A., University of the Pacific; M.A., University of Illinois. Instructor in Speech.
- JAMES COLLINS HANCOCK**, B.A., Vanderbilt University; M.D., University of Tennessee. Adjunct Assistant Professor of Psychiatry (Part-time).
- ROBERT JOSEPH HANNY**, B.S., M.A., Ph.D., Ohio State University. Assistant Professor of Secondary Education.
- LEE DUANE HANSEN**, B.S., Ph.D., Brigham Young University. Assistant Professor of Chemistry.
- WILLIAM RICHARD HARDY**, B.S., M.D., University of Illinois. Assistant Professor of Medicine.
- RUTH BRODERICK HARRIS**, B.S., Cornell University; M.S., University of Tennessee. Assistant Professor of Home Economics.
- FREDERICK MICHAEL HART**, B.S., LL.B., Georgetown University; LL.M., New York University. Professor of Law.
- JOYCE HARTL**, B.S., University of Puget Sound. Instructor in Psychiatry (Occupational Therapy).
- JOSEPH DAVID HASSETT**, A.B., Licentiate in Philosophy, Licentiate in Theology, Woodstock College; M.A., Fordham University. Associate Professor of Philosophy.
- <sup>8</sup> **STUART FLEMING HAYES**, A.B., Princeton University; M.S., University of New Mexico. Lecturer in Physics (Part-time).

<sup>4</sup> On leave for the year.<sup>8</sup> Second semester only.<sup>8</sup> On sabbatical leave second semester.

- FERREL HEADY**, A.B., A.M., Ph.D., Washington University. Academic Vice President, Professor of Political Science.
- MARVIN DEAN HEFFINGTON**, B.S., M.S., University of Illinois. Assistant Professor of Recreation, Director of Student-Faculty Recreation and Intramural Sports.
- JOHN JAMES HEIMERICH**, B.S., M.S., Kansas State College. Professor of Architecture.
- CARL RICHARD HEIN**, Major, U.S.A.F., B.S., Southwest Texas State Teachers' College; M.B.A., George Washington University. Professor of Air Science, Commanding Officer of the Air Force ROTC Unit.
- <sup>8</sup> **PERRY A. HENDERSON**, B.S., Morehouse College; M.D., Western Reserve University. Assistant Professor of Obstetrics and Gynecology.
- MORRIS S. HENDRICKSON**, B.S., Birmingham Southern College; M.A., Ph.D., Ohio State University. Director of Institutional Research, Professor of Mathematics.
- IRVIN EDWARD HENDRYSON**, B.A., University of Denver; M.A., M.D., University of Colorado. Associate Professor of Surgery,<sup>10</sup> Associate Program Director and Assistant Dean of the New Mexico Regional Medical Program.
- WILLIAM HENTEL**, B.S., New York University; M.D., University Basel, Switzerland. Associate Professor of Pathology.
- SIMON HERMAN**, B.S., M.S., Ph.D., Wayne State University. Lecturer in Business Administration (Part-time).
- REUBEN HERSH**, B.A., Harvard University; M.S., Ph.D., New York University. Associate Professor of Mathematics.
- FRANK CUMMINGS HIBBEN**, B.A., Princeton University; M.S., University of New Mexico; Ph.D., Harvard University. Professor of Anthropology, Director of the Maxwell Museum of Anthropology.
- MARTHA BETH HICKS**, B.S.N., Washington University; M.S., University of Maryland. Associate Professor of Nursing.
- HAMLIN LEWIS HILL, JR.**, B.A., University of Houston; M.A., Ph.D., University of Texas. Associate Professor of English.
- ANTHONY GROVE HILLERMAN**, B.A., University of Oklahoma; M.A., University of New Mexico. Associate Professor of Journalism, Chairman of the Department of Journalism.
- ABRAHAM HILLMAN**, B.A., M.A., Brooklyn College; Ph.D., Princeton University. Professor of Mathematics.
- FRED JOHN HINGER**, B.A., Texas Technological College; M.A., Colorado State College of Education. Assistant Professor of Health, Physical Education, and Recreation.
- GEORGE HIRSHFIELD**, B.A., Brooklyn College; M.A., Columbia Teachers College; Ed.D., University of New Mexico. Assistant Professor of Secondary Education.
- CLARENCE CLAYTON HOFF**, B.A., Bradley University; M.S., Ph.D., University of Illinois. Professor of Biology.
- RICHARD LEE HOLEMON**, B.S., Southeast Missouri State College; M.A., Ed.D., Washington University. Assistant Professor of Educational Administration, Chairman of the Department of Educational Administration.
- JOANNE FIELD HOLLAND**, A.B., Bryn Mawr College; B.A., Oxford University; Ph.D., Harvard University. Assistant Professor of English.
- STUART WINDSOR HOLLINGSWORTH**, B.A., University of California (Berkeley); M.D., University of California (San Francisco). Assistant Professor of Psychiatry, Director of the Community Mental Health Center.
- ULRICH HOLLSTEIN**, B.S., M.S., Ph.D., University of Amsterdam. Associate Professor of Chemistry.
- GEOFFREY HULETTE HOLROYD**, B.A., University of Sheffield, England. Visiting Lecturer in Architecture.
- ROBERT HOLZAPFEL**, B.A., M.A., Ph.D., State University of Iowa. Assistant Professor of Modern Languages.
- TAMARA HOLZAPFEL**, B.A., University of North Carolina at Greensboro; M.A., Ph.D., State University of Iowa. Assistant Professor of Modern Languages.
- JACOB DIRK HOOGERBEETS**, M.D., University of Amsterdam. Assistant Professor of Psychiatry.

<sup>8</sup> Second semester only.

<sup>10</sup> January 1, 1968 to June 30, 1968.

- LISE MARIE HOSHOUR, B.A., Barnard College. Instructor in Modern Languages (Part-time).
- SABERT A. HOTT, JR., B.S., M.D., University of Oklahoma. Instructor in Psychiatry.
- ARTHUR VINCENT HOUGHTON III, B.S., M.S., University of Illinois; Ph.D., Purdue University. Professor of Mechanical Engineering.
- ALVIN WENDELL HOWARD, B.A.Ed., M.Ed., Western Washington State College; B.A., University of Washington; Ed.D., University of Oregon. Assistant Professor of Secondary Education.
- ENID ETHEL HOWARTH, B.A., University of Miami; M.A., University of Connecticut. Visiting Lecturer in General Studies (Part-time).
- JOHN LEE HOWARTH, B.A., M.A., University of Cambridge; B.S., M.S., Ph.D., University of London. Associate Professor of Physics.
- MARY ANN HOWELL, B.A., Antioch College. Instructor in Elementary Education.
- EDWIN CHASE HOYT, B.A., Harvard University; LL.B., Harvard Law School; Ph.D., Columbia University. Professor of Political Science, Chairman of the Department of Political Science.
- YOUN-CHANG HSU, B.S., Cheng-King University, Taiwan; M.S., University of Washington; Ph.D., Rensselaer Polytechnic Institute. Assistant Professor of Mechanical Engineering.
- WILLIAM HENRY HUBER, JR., B.A., J.D., Ohio State University. Director of the University College and Counseling Center, Professor of Business Administration.
- <sup>7</sup> ROBERT EDWARD HUDDLESTON, B.A., Ph.D., Texas Christian University; M.S., University of Arizona. Visiting Lecturer in Mathematics (Part-time).
- <sup>7</sup> GEORGE WILLIAM HUDSON, B.S.E., University of Arkansas; M.S., University of New Mexico. Instructor in Mathematics (Part-time).
- <sup>4</sup> GARY CLYDE HUFBAUER, B.A., Harvard College; Ph.D., University of Cambridge. Assistant Professor of Economics.
- MARY KATHERINE VOGT HUFF, B.S., M.S., University of Texas. Instructor in Home Economics. (Part-time).
- HERBERT HOWARD HUGHES, B.S., University of New Mexico; M.S., Ph.D., Florida State University. Instructor in Educational Administration (Part-time).
- JIM DUFF HUGHEY, B.A., Oklahoma State University; M.S., Ph.D., Purdue University. Assistant Professor of Speech.
- CORNIE LEONARD HULSBOS, B.S., M.S., Ph.D., Iowa State University. Professor of Civil Engineering, Chairman of the Department of Civil Engineering.
- <sup>7</sup> GEORGE MILLARD HUNSLEY, B.A., University of New Mexico. Lecturer in Journalism (Part-time).
- RICHARD GEORGE HUZARSKI, B.S.C.E., University of Wisconsin; M.S., Texas Technological College. Professor of Civil Engineering.
- CHARLES LATIF HYDER, B.S., M.S., University of New Mexico; Ph.D., University of Colorado. Assistant Professor of Physics (Part-time).
- FRANK WILLIAM IKLÉ, B.A., Ph.D., University of California at Berkeley. Professor of History, Chairman of the Department of History.
- <sup>4</sup> DENNY OUZTS INGRAM, JR., B.A., LL.B., University of Texas. Associate Professor of Law.
- HELEN MOYER INGRAM, B.A., Oberlin College; Ph.D., Columbia University. Assistant Professor of Political Science.
- <sup>2</sup> WILSON HOWARD IVINS, B.A., Western Michigan University; M.A., University of Arizona; Ed.D., University of Colorado. Professor of Secondary Education.
- WILLIS DANA JACOBS, B.A., M.A., University of New Mexico; Ph.D., University of North Carolina. Professor of English.
- RONALD EUGENE JACOBSEN, B.S., University of New Mexico. Varsity Wrestling Coach, Instructor in Health, Physical Education, and Recreation.
- DAVID JAMES III, Lieutenant, U.S.N., B.A., Louisiana Polytechnic Institute. Assistant Professor of Naval Science.
- LEONARD LEON JERMAIN, B.S., M.S., University of Oregon. Associate Professor of Journalism.
- ROBERT CLIFFORD JESPERSEN, B.A., University of Utah; M.A., Ph.D., Stanford University. Assistant Professor of Modern Languages.
- NORMAN LAFAYETTE JETER, Lieutenant Commander, U.S.N., B. Mus. Ed., Central Missouri State College; M.M., Northwestern University. Assistant Professor of Naval Science.

<sup>7</sup> First semester only.<sup>2</sup> On sabbatical leave first semester.<sup>4</sup> On leave for the year.



- GEORGE ANTHONY JOCUMS, A.B., M.A., Duquesne University. Assistant Professor of Modern and Classical Languages.
- DAVID MARCUS JOHNSON, B.A., St. Olaf College; M.A., Ph.D., University of Connecticut. Assistant Professor of English.
- GORDON VERLE JOHNSON, B.S., M.S., University of California (Berkeley); Ph.D., University of Arizona. Assistant Professor of Biology.
- JOHN AMOS JOHNSON, B.S., Memphis State University; M.A., University of Tennessee; Ph.D., Louisiana State University. Visiting Assistant Professor of Geography.
- PEDER JACK JOHNSON, B.A., M.A., University of Minnesota; Ph.D., University of Colorado. Assistant Professor of Psychology.
- ROY LINTON JOHNSON, JR., B.S.C.E., M.S.C.E., Ph.D., University of Wisconsin. Assistant Professor of Civil Engineering.
- WILLIAM WAYNE JOHNSON, B.S., M.S., Ph.D., University of Minnesota. Assistant Professor of Biology.
- PAUL JONAS, Diploma, Ph.D., University of Technical and Economic Sciences, Budapest; Ph.D., Columbia University. Visiting Associate Professor of Economics.
- ARTHUR WOODRUFF JONES, B.A., M.A., Harvard University; B. Arch., University of Pennsylvania. Assistant Professor of Architecture.
- <sup>†</sup> KENT HOOVER JONES, B.S., Ph.D., University of New Mexico. Visiting Professor of Chemistry (Part-time).
- MARY LOUBRIS JONES, B.A., Pennsylvania State University; M.A., Northwestern University. Instructor in English.
- RICHARD TERRY JONES, Captain, U.S.A.F., B.A., Williams College. Associate Professor of Air Science.
- VERNON DOUGLAS JONES, B.A., Florence State College; Ph.D., Vanderbilt University. Assistant Professor of Pharmacology.
- SCOTT WILSON JORDAN, A.B., M.D., University of Kansas. Assistant Professor of Pathology.
- FREDERICK DSUIN JU, B.S., University of Houston; M.S., Ph.D., University of Illinois. Professor of Mechanical Engineering.
- JOHN KACERE, M.F.A., State University of Iowa. Professor of Art.
- MILTON KAHN, B.S., University of California; Ph.D., Washington University. Professor of Chemistry.
- LEO KANOWITZ, B.A., College of the City of New York; LL.B., University of California; LL.M., Columbia University. Associate Professor of Law.
- SIMON TSAI KAO, B.S., Chi-Nan National University of China; Ph.D., Catholic University of America. Associate Professor of Mathematics.
- RALPH JAY KAPLAN, B.A., Hofstra College; M.D., Albany Medical College. Assistant Professor of Neurosurgery and Neurobiological Sciences.
- SHLOMO KARNI, B.S.E.E., Israel Institute of Technology; M.Eng., Yale University; Ph.D., University of Illinois. Associate Professor of Electrical Engineering.
- M. LUE KEEFFE, D.H., Marquette University. Clinical Instructor in Dental Hygiene.
- WALTER BURROUS KELLER, B.Mus., M.A., Indiana University; Juilliard Graduate School; Ph.D., Harvard University. Professor of Music, Acting Chairman of the Department of Music.
- DAVID OTIS KELLEY, B.A., M.A., University of Southern California. University Librarian, Professor of Library Science.
- VINCENT COOPER KELLEY, B.A., University of California at Los Angeles; M.S., Ph.D., California Institute of Technology. Professor of Geology, Chairman of the Department of Geology.
- EDWARD JAMES KELLY, B.S., University of Santa Clara; M.S., Ed.D., University of Oregon. Assistant Professor of Guidance and Special Education.
- RUBEN DAVID KELLY, B.S., M.S., Ph.D., Oklahoma State University. Associate Professor of Electrical Engineering.
- BERNARD T. KENNA, B.S., Arizona State College; M.S., University of Mississippi; Ph.D., University of Arkansas. Associate Professor of Chemistry (Part-time).
- HAROLD EUGENE KENNEY, B.S., M.S., University of Illinois; Ed.D., George Peabody College. Visiting Professor of Physical Education.

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<sup>†</sup> First semester only.

- GEORGE LEONARD KEPPERS**, B.Ed., St. Cloud State College; M.A., Colorado State College; Ed.D., University of Colorado. Professor of Guidance and Special Education, Chairman of the Department of Guidance and Special Education.
- DAVID EUGENE KIDD**, B.S., Northern Arizona University; M.S., Northwestern University; M.S.T., University of New Hampshire; Ph.D., Michigan State University. Associate Professor of Biology.
- DAVID SOLOMON KING**, B.A., Manchester College; M.A., Ph.D., Indiana University. Assistant Professor of Astronomy.
- SHAREL ANDERSON KING**, B.S., M.S., Utah State University. Assistant Professor of Health, Physical Education, and Recreation.
- ALEXANDER LIONEL KISCH**, B.A., Columbia University; M.D., Harvard Medical School. Assistant Professor of Medicine.
- EUGENE LARUE KLINGLER, JR.**, B.S., M.D., Tufts University. Assistant Professor of Medicine.
- <sup>11</sup> **IAN C. S. KNIGHT**, M.B., Ch.B., University of Edinburgh. Assistant Professor of Surgery.
- MARGUERITE OATES KNOBLOCK**, B.A., Beloit College; M.A., University of Wisconsin. Instructor in Classical Languages (Part-time).
- HAROLD KNUD KNUDSEN**, B.S., M.S., Ph.D., University of California. Associate Professor of Electrical Engineering.
- <sup>19</sup> **JANE Q. KOENIG**, B.S., M.S., Ph.D., University of Washington. Assistant Professor of Physiology (Part-time).
- KARL PETER KOENIG**, B.A., Trinity College; M.S., Ph.D., University of Washington. Assistant Professor of Psychology.
- JACK KOLBERT**, B.A., M.A., University of Southern California; Ph.D., Columbia University. Professor of Modern Languages.
- <sup>†</sup> **ROLAND BEALL KOOL**, LL.B., University of New Mexico. Lecturer in Business Administration (Part-time).
- LAMBERT HERMAN KOOPMANS**, B.A., San Diego State College; Ph.D., University of California at Berkeley. Associate Professor of Mathematics.
- <sup>6</sup> **MARIO KORNFIELD**, M.D., D.Sc., University of Zagreb, Yugoslavia. Assistant Professor of Pathology.
- ARNOLD HERMAN KOSCHMANN**, B.A., Valparaiso University; B.S.E.E., M.S., Ph.D., Purdue University. Professor of Electrical Engineering, Chairman of the Department of Electrical Engineering.
- WILLIAM JACOB KOSTER**, B.S., Ph.D., Cornell University. Professor of Biology.
- ROY MATTHEW KROPINAK**, B.A., M.D., University of British Columbia. Instructor in Medicine and in Epidemiology and Community Medicine.
- ALBERT MASAKIYA KUDO**, B.A., University of Toronto; M.S., McMaster University; Ph.D., University of California (San Diego). Assistant Professor of Geology.
- JOSEPH MARSHALL KUNTZ**, B.A., M.A., University of New Mexico; Ph.D., University of Denver. Associate Professor of English.
- AARON J. LADMAN**, B.A., New York University; Ph.D., Indiana University. Professor of Anatomy, Chairman of the Department of Anatomy.
- ENRIQUE EUFRASIO LAMADRID**, B.A., Western Maryland College; M.A., New Mexico Highlands University; M.A.T.S., University of New Mexico. Assistant Professor of Modern Languages.
- LLOYD EDMOND LAMB**, B.A., North Texas State College; M.S., Ph.D., Purdue University. Assistant Professor of Speech.
- DONALD N. LANGE**, B.S., University of Minnesota; M.A., University of New Mexico. Instructor in Elementary Education (Part-time).
- THERESA SARAH LaPLANTE**, B.S.N.Ed., Boston University; M.S., M.N.Ad., University of Minnesota. Assistant Professor of Nursing.
- HAROLD WADE LAVENDER**, A.B., Southern Methodist University; M.A., Ph.D., University of New Mexico. Vice President for Student Affairs, Associate Professor of Educational Administration.
- WAYNE RODERIC LAZORIK**, B.S., University of Minnesota. Instructor in Art.

<sup>11</sup> Resignation effective October 1, 1967.<sup>19</sup> January 1, 1968 to June 30, 1968.<sup>†</sup> First semester only.<sup>6</sup> Second semester only.

- JOHN K. LEACH**, B.S., Baldwin-Wallace College; M.D., Albany Medical College. Assistant Professor of Medicine.
- CHRISTOPHER PRATT LEAVITT**, B.S., Ph.D., Massachusetts Institute of Technology. Professor of Physics.
- FRANCIS NEWTON LEBARON**, B.S., Massachusetts Institute of Technology; M.A., Boston University; Ph.D., Harvard University. Associate Professor of Biochemistry.
- MARION TURNBULL LEBRON**, B.A., Goucher College; M.A., Johns Hopkins University. Instructor in Classics (Part-time).
- RAYMOND G. LEDDY**, A.B., Holy Cross College; LL.B., Fordham University. Diplomat in Residence.
- <sup>7</sup> **JEAN LUCE LEGANT**, B.A., Rockford College; M.A., Northwestern University; Ph.D., University of New Mexico. Instructor in Elementary Education (Part-time).
- CYNTHIA LENGUEL**, B.S., D.V.M., University of California (Davis). Instructor in Pathology (Veterinary Medicine).
- LEONA LOUISE LEONARD**, B.S., Columbia University; M.S., Ph.D., New York University. Assistant Professor of Pathology.
- THEODORE JOHN LEPPI**, B.A., Albion College; Ph.D., Yale University. Assistant Professor of Anatomy.
- JEROME LEVY**, B.A., University of New Mexico; M.A., Ph.D., University of Denver. Assistant Professor of Psychiatry.
- <sup>7</sup> **DWIGHT FREDERICK LEWIS, JR.**, B.S., M.A., University of Missouri. Visiting Lecturer in Business Administration (Part-time).
- <sup>8</sup> **JAMES VERNON LEWIS**, B.A., M.A., Ph.D., University of California. Associate Professor of Mathematics.
- RALPH WAYNE LEWIS**, B.F.A., M.A., University of New Mexico. Assistant Professor of Art.
- LESTER M. LIBO**, M.A., Ph.D., Stanford University. Associate Professor of Psychiatry.
- SHIRLEY S. LIBO**, A.B., Vassar College; A.M., Ph.D., University of Michigan. Instructor in Medicine (Clinical Psychology, Neurology) (Part-time).
- <sup>4</sup> **WOLFRAM LIEPE**, B.A., Antioch College; M.A., University of Chicago. Associate Professor of Economics.
- EDWIN LIEUWEN**, B.A., M.A., Ph.D., University of California. Professor of History.
- <sup>8</sup> **EDWARD ANTHONY LISKE, JR.**, B.S., Georgetown University; M.D., Georgetown Medical School. Associate Professor of Medicine (Neurology).
- WILLIAM MORRIS LITCHMAN**, B.A., University of Colorado; Ph.D., University of Utah. Assistant Professor of Chemistry.
- LAWRENCE LITWIN**, B.A., Brooklyn College; Ph.D., New York University. Assistant Professor of Political Science.
- ROBERT BERNER LOFTFIELD**, B.S., M.A., Ph.D., Harvard University. Professor of Biochemistry, Chairman of the Department of Biochemistry.
- DOROTHY MUMFORD LOGAN**, B.A., New Mexico State Teacher's College; M.A., University of New Mexico. Instructor in English.
- FRANK ANDERSON LOGAN**, B.A., M.A., Ph.D., State University of Iowa. Professor of Psychology, Chairman of the Department of Psychology.
- ROBERT LEROY LONG**, B.S.E.E., Bucknell University; M.S.E., Ph.D., Purdue University. Assistant Professor of Nuclear Engineering.
- AARON NORTH LONGFIELD**, B.A., University of North Carolina; M.D., Northwestern University; M.S., University of Colorado. Associate Professor of Medicine.
- <sup>1</sup> **ALBERT RICHARD LOPES**, B.A., M.A., Ph.D., University of California. Professor of Modern Languages.
- CATHERINE ELLEN LOUGHLIN**, B.S., University of Connecticut; M.Ed., Pennsylvania State University; Ed.D., Rutgers University. Assistant Professor of Elementary Education.
- WILLIAM STEVENS LOVEKIN**, B.S., University of Arizona; M.D., Columbia University. Assistant Professor of Medicine.
- ALICE HENTZELT LUFT**, Pharmacological Institute of the University of Jena; Certificate, Ministry of the Interior, Thuringia. Instructor in Modern Languages (Part-time).

<sup>7</sup> First semester only.<sup>8</sup> On sabbatical leave second semester.<sup>4</sup> On leave for the year.<sup>8</sup> Second semester only.<sup>1</sup> On sabbatical leave for the year.

- <sup>4</sup> **PATRICK DANIEL LYNCH**, B.A., St. John's University; M.A., Ph.D., University of Minnesota. Associate Professor of Educational Administration.
- WILLIAM CLAYPOOL LYONS**, B.S., M.S., Ph.D., University of Kansas. Adjunct Professor of Mechanical Engineering (Part-time).
- RAYMOND RALPH MacCURDY, JR.**, B.A., M.A., Louisiana State University; Ph.D., University of North Carolina. Professor of Modern Languages, Chairman of the Department of Modern and Classical Languages.
- <sup>7</sup> **FRED IRA MAGEE**, B.S., University of Southern Mississippi; M.A., University of Mississippi. Instructor in Mathematics (Part-time).
- MIRIAM PITTSCHNER MALM**, B.S., University of New Mexico. Instructor in Chemistry.
- DOROTHY DELL MANNAHAN**, B.A., Texas Christian University; M.S., Oklahoma State University. Instructor in Mathematics (Part-time).
- LEON JESUS MARQUEZ**, B.A., M.A.T.S., University of New Mexico. Instructor in Modern Languages.
- JOEL HARTON MARTIN, JR.**, B.S.I.E., M.S., Oklahoma State University. Adjunct Professor of Mechanical Engineering (Part-time).
- JOHN STEPHEN MARTIN**, B.A., Hofstra University; M.A., University of Georgia; Ph.D., University of Wisconsin. Assistant Professor of English.
- WILLIAM CLARENCE MARTIN, JR.**, B.S., Purdue University; M.A., Ph.D., Indiana University. Associate Professor of Biology.
- JOSÉ ELEAZAR MARTINEZ**, B.S. in C.E., University of New Mexico; M.S., Iowa State University. Professor of Civil Engineering.
- <sup>8</sup> **ALEXANDER SIMEON MASLEY**, B.S., University of Minnesota; M.A., Ed.D., Columbia University. Professor of Art Education, Chairman of the Department of Art Education.
- CHARLES MATTOX**, Visiting Associate Professor of Art.
- GERALD WILLIAM MAY**, B.S., Bradley University; M.S., Ph.D., University of Colorado. Assistant Professor of Civil Engineering.
- MARVIN CLARK MAY**, B.S. in C.E., University of New Mexico; M.S., Oklahoma State University. Professor of Civil Engineering.
- JORG WERNER PETER MAYER**, Dipl.Math., Dr.Rer.Nat., University of Giessen, Germany. Associate Professor of Mathematics.
- <sup>7</sup> **SIGRID LUISE HENRIETTE MAYER**, University of Malaya. Instructor in Modern Languages (Part-time).
- <sup>7</sup> **REBECCA LOU MAYO**, B.A., University of Minnesota. Instructor in Speech (Part-time).
- KATHRYN ELLEN McCASH**, B.S.N., University of New Mexico. Clinical Instructor in Nursing.
- ELINOR FLORENCE McCLOSKEY**, B.A., Washington State University; M.A., University of Denver; Ed.D., Teachers College, Columbia University. Assistant Professor of Library Science.
- THOMAS STRUEVER McCONNELL**, B.S., University of Wyoming; M.D., University of Illinois. Instructor in Pathology.
- DOUGLAS REEVE McEWEN**, B.S., Bowling Green State University; M.M.Ed., Indiana University; Ph.D., Colorado State College. Associate Professor of Music.
- FRANCES MCGILL**, B.A., Mills College; M.S., University of Washington; Ph.D., Ohio State University. Associate Professor of Health, Physical Education, and Recreation.
- DONALD ALEXANDER MCKENZIE**, B.A., University of New Mexico; Ph.D., Stanford University. Professor of Modern Languages.
- LEROY CLARENCE McLAREN**, B.A., San Jose State College; M.A., Ph.D., University of California at Los Angeles. Professor of Microbiology, Chairman of the Department of Microbiology.
- DONALD REED McLAUGHLIN**, B.S., University of California at Los Angeles; Ph.D., University of Utah. Assistant Professor of Chemistry.
- IMOGEAN HELENA McMURRAY**, B.S., Oklahoma College for Women; M.S., University of Tennessee. Assistant Professor of Home Economics.
- LUCY GALE McMURRAY**, B.A., University of Wisconsin; M.D., Marquette University School of Medicine. Adjunct Assistant Professor of Pediatrics and Psychiatry (Part-time).

<sup>4</sup> On leave for the year.<sup>8</sup> On sabbatical leave second semester.<sup>7</sup> First semester only.

- DONALD CHRISTOPHER McRAE**, B.F.A., M.A., University of New Mexico. Associate Professor of Music, Assistant Dean of the College of Fine Arts.
- HAROLD CHARLES MEIER**, B.A., M.A., Ph.D., University of Colorado. Assistant Professor of Sociology.
- IVEN PETER MELADA**, B.A., State Teachers College (West Chester, Pa.); M.A., Ph.D., University of California (Berkeley). Assistant Professor of English.
- VELMA RUTH MELLOTT**, B.A., Hamline University. Instructor in Dental Assisting.
- RICHARD CLYDE METZLER**, B.S., University of Michigan; M.A., Ph.D., Wayne State University. Assistant Professor of Mathematics.
- WILLIAM MONROE MICHENER**, A.B., Dartmouth College; M.D., Tufts University Medical School; M.S., University of Minnesota. Assistant Professor of Pediatrics.
- VIVIAN NORA MILFORD**, B.F.A., Syracuse University; M.A., University of New Mexico. Lecturer in Art (Part-time).
- HUGH MILTON MILLER**, B.A., University of Oregon; M.A., Ph.D., Harvard University. Professor of Music.
- IRVING MILLER**, B.S., College of the City of New York; Ph.D., Western Reserve University. Associate Professor of Epidemiology and Community Medicine and of Mathematics.
- MERLE MITCHELL**, B.A., Southern Methodist University; M.A., University of New Mexico; Ph.D., George Peabody College for Teachers. Associate Professor of Mathematics.
- RUSSELL DUNCAN MITCHELL**, B.S., M.S., Southern Illinois University. Instructor in Health, Physical Education, and Recreation; Varsity Gymnastics Coach.
- WAYNE PAUL MOELLENBERG**, B.A., University of Colorado; M.A., Ed.D., Colorado State College. Assistant Professor of Educational Foundations.
- RONALD RUTT MOHLER**, B.S., Pennsylvania State University; M.S.E.E., University of Southern California; Ph.D., University of Michigan. Associate Professor of Electrical Engineering.
- <sup>7</sup> **MARTIN I. MONDLICK**, A.B., Brown University; LL.B., Harvard University. Visiting Lecturer in Business Administration (Part-time).
- JOHN ALBAN MONTGOMERY**, B.A., University of California at Berkeley; M.S., University of Illinois. Assistant Professor of Health, Physical Education, and Recreation.
- JAMES CLARK MOORE**, B.A.Ed., M.A.Ed., Ph.D., Arizona State University. Assistant Professor of Educational Foundations, Director of Testing.
- PERRY T. MORI**, B.S., B.A., M.B.A., Northwestern University; LL.B., University of New Mexico; C.P.A. Professor of Business Administration.
- JAMES GERARD MORRIS**, B.B.A., M.B.A., University of New Mexico. Instructor in Business Administration.
- JESSIE FARRINGTON MORRIS**, B.A., Salem College; M.A., University of Connecticut; Ph.D., University of New Mexico. Instructor in English.
- <sup>7</sup> **JOYCE MORRIS**, B.A., San Jose State College; M.A., Ph.D., University of New Mexico. Instructor in Elementary Education (Part-time).
- DONALD R. MORRISON**, B.E., Northern Illinois State Teachers College; M.S., Ph.D., University of Wisconsin. Professor of Mathematics and Computing Science (Part-time).
- EDWARD ALBERT MORTIMER, JR.**, A.B., Dartmouth College; B.M., M.D., Northwestern University. Professor of Pediatrics, Chairman of the Department of Pediatrics.
- ROBERT ALLIOT MUNSICK**, B.S., Cornell University; M.D., Ph.D., Columbia University. Professor of Obstetrics and Gynecology, Chairman of the Department of Obstetrics and Gynecology.
- PATRICIA MURPHY**, B.A., University of Rochester; M.A., University of Wisconsin. Assistant Professor of Modern Languages.
- RICHARD E. MURPHY**, B.A., St. Lawrence University; M.A., George Washington University; Ph.D., Clark University. Professor of Geography, Chairman of the Department of Geography.
- <sup>7</sup> **FRANCIS XAVIER MURRAY**, B.S., LaSalle College, Philadelphia; M.A., University of Nebraska. Visiting Lecturer in Business Administration (Part-time).
- TRACY WILSON MURRAY**, B.A., Washington State University; M.A., Michigan State University. Assistant Professor of Economics.
- GEORGE SUMIYA NAKAI**, B.S., M.D., University of Utah. Assistant Professor of Medicine.

<sup>7</sup> First semester only.

- LEONARD M. NAPOLITANO, B.S., Santa Clara University; M.S., Ph.D., St. Louis University. Associate Professor of Anatomy.
- GERALD DAVID NASH, B.A., New York University; M.A., Columbia University; Ph.D., University of California. Associate Professor of History.
- MARSHALL RUTHERFORD NASON, B.A., M.A., Louisiana State University; Ph.D., University of Chicago. Professor of Modern Languages.
- IRENE MURPHY NAVARRE, G.D.H., University of Minnesota. Clinical Instructor in Dental Hygiene (Part-time).
- MARTIN CYRIL NEEDLER, A.B., Ph.D., Harvard University. Associate Professor of Political Science. Director of the Division of Inter-American Affairs.
- CATHERINE NEIGHBOR, R.N., University of Kansas; B.S., University of California (San Francisco). Assistant Professor in Psychiatry (Nursing).
- † FRED R. NELSON, B. Ed., Wisconsin State University (Eau Claire); Ph.M., University of Wisconsin. Instructor in Elementary Education (Part-time).
- ROBERT DEWEY NESBITT, B.S., North Texas State University; M.Ed., Texas Agricultural and Mechanical University. Assistant Professor of Secondary Education.
- MARK NEUWELD, B.A., Northwestern University; M.A., Ph.D., Harvard University. Associate Professor of Political Science.
- STANLEY STEWART NEWMAN, Ph.B., M.A., University of Chicago; Ph.D., Yale University. Professor of Anthropology. Co-editor of the *Southwestern Journal of Anthropology*.
- EDWARD GILLIGAN NOLAN, M.A., B.Ed., University of Edinburgh; M.A., Ph.D., Princeton University. Professor of Business Administration.
- † MARIA LOUISE NORDMAN, B.A., M.A., University of California at Los Angeles. Instructor in Art.
- RALPH DAVID NORMAN, B.S., College of the City of New York; M.A., Teachers College, Columbia University; Ph.D., Ohio State University. Professor of Psychology.
- STUART ALVORD NORTHROP, B.S., Ph.D., Yale University. Research Professor of Geology, Curator of the Geology Museum.
- MONICA NOVITSKI, D.H., D.D.S., Marquette University. Professor of Dental Hygiene, Director of the Dental Hygiene Program.
- EDWIN JAMES NOWAK, B.S., Northwestern University; Ph.D., Princeton University. Assistant Professor of Chemical Engineering.
- WILLIAM HARVEY RALPH NYE, A.B., University of Colorado; M.D., University of Rochester. Assistant Professor of Medicine.
- RALPH DOUGLAS O'DELL, B.S., Ph.D., University of Texas. Assistant Professor of Nuclear Engineering.
- JANICE KAY OLSON, B.A., Western State College; M.S., University of Wisconsin. Instructor in Health, Physical Education, and Recreation.
- CYRUS OMID'VARAN, B.S., South Dakota State University; M.S., University of Kansas; Ph.D., University of Delaware. Assistant Professor of Civil Engineering.
- BRIAN EDGAR O'NEIL, B.A., M.A., Ph.D., University of California (Berkeley). Assistant Professor of Philosophy, Assistant Dean of the Graduate School.
- ROBERT OSEASOHN, B.S., Tufts College; M.D., Long Island College of Medicine. Professor of Epidemiology and Community Medicine, Chairman of the Department of Epidemiology and Community Medicine.
- GERALD DENNIS OTIS, B.A., University of Minnesota; M.A., Ph.D., University of Arizona. Assistant Professor in Psychiatry.
- MARVIN LOUIS OVITZ, B.S., M.D., University of Oregon. Assistant Professor of Pathology.
- CULEN BRYANT OWENS, B.A., Berea College; M.S., Northwestern University; Ph.D., Cornell University. Associate Professor of Speech.
- CARL ERICH PAAK, B.A.E., School of the Art Institute of Chicago; M.A., Ohio State University. Associate Professor of Art.
- DARWIN LYNN PALMER, A.B., Oberlin College; M.A., Columbia University; M.D., New York University Medical School. Assistant Professor of Medicine.
- FRANK EDWARD PAPCSY, B.S., Upsala College; M.A., New York University; A.C.S.M. Assistant Professor of Health, Physical Education and Recreation.

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† First semester only.

- RENEE WOLFSON PAPPER, B.A., Barnard College; M.D., New York University College of Medicine. Assistant Professor of Radiology (Part-time).
- SOLOMON PAPPER, B.A., Columbia University; M.D., New York University. Professor of Medicine, Chairman of the Department of Medicine.
- JAMES WALLACE PARK, B.S.C., M.B.E., University of Mississippi. Assistant Professor of Business Administration.
- ALFRED LEROY PARKER, B.S., M.S., Oklahoma State University. Assistant Professor of Economics.
- ROBERT OWEN PARKS, B.F.A., John Herron Art School. Professor of Art, Director of the Art Museum.
- JEROLD L. PARMER, B.B.A., M.B.A., Texas Technological College; C.P.A. Visiting Lecturer in Business Administration (Part-time).
- CALVIN CLYDE PATTERSON, B.E.C.E., M.C.E., Johns Hopkins University; Ph.D., University of Texas. Assistant Professor of Civil Engineering.
- <sup>7</sup> JOHN PEARSON, N.D.D., Harrogate College of Art, England; Cert., Royal Academy School, London; M.F.A., Northern Illinois University. Instructor in Art.
- JEANNE C. PERDREAUVILLE, B.S., University of Arizona; M.A., Purdue University. Instructor in Home Economics (Part-time).
- ROGER NICHOLAS PESCH, M.D., Université de Montpellier, France. Assistant Professor of Rehabilitation Medicine.
- EDWARD TURBERVILLE PETER, B.S., University of Alabama; M.D., Medical College of Alabama; Ph.D., University of Minnesota. Assistant Professor of Surgery.
- DANIEL PAUL PETERSEN, B.M.E., D.E.S., Rensselaer Polytechnic Institute; M.S.M.E., Massachusetts Institute of Technology. Associate Professor of Electrical Engineering.
- ALAN WINSTON PETERSON, A.B., University of California; M.S., Ph.D., University of New Mexico. Associate Professor of Astronomy.
- GEORGE THOMAS PETROL, B.S., Albright College; M.A., University of New Mexico. Assistant Professor of Health, Physical Education, and Recreation.
- <sup>17</sup> PAUL VERNON PETTY, B.S.E., Arkansas State Teachers College; M.A., Duke University; Ph.D., University of Texas. Professor of Educational Administration.
- DOUGLAS DUANE PHILLIPS, B.S.Ch.E., Washington University; Ph.D., University of Minnesota. Assistant Professor of Chemical Engineering.
- JEWELL CASS PHILLIPS, B.A., M.A., University of Oklahoma; Ph.D., University of Pennsylvania. Visiting Professor of Political Science.
- ROY GLENWOOD PICKETT, B.A., M.A., Ph.D., State University of Iowa. Associate Professor of English.
- RONALD JAMES PIOTROWSKI, B.S., University of Wisconsin; M.F.A., Pratt Institute. Instructor in Art Education.
- CHARLOTTE LEWIS PIPER, B.A., Baker University. Assistant Professor of Health, Physical Education, and Recreation, Special Adviser in the University College.
- MICHAEL POLLAY, B.S., M.D., University of Wisconsin; M.S., University of Colorado. Assistant Professor of Surgery.
- <sup>8</sup> LOREN DAVID POTTER, B.S., North Dakota State Agricultural College; M.A., Oberlin College; Ph.D., University of Minnesota. Professor of Biology, Chairman of the Department of Biology.
- MARY JANE POWER, A.B., Regis College; A.M., Ph.D., University of Wisconsin. Assistant Professor of English.
- <sup>7</sup> RICHARD ROLAND PRAIRIE, B.S., University of Minnesota; M.S., Ph.D., North Carolina State College. Adjunct Professor of Mechanical Engineering (Part-time).
- ANN ELAINE PRESSMAN, B.A., Swarthmore College; M.D., New York University. Assistant Professor of Epidemiology and Community Medicine and of Pediatrics.
- LOUIS ELLIOT PRICE, A.B., University of California at Los Angeles; M.A., Ph.D., State University of Iowa. Associate Professor of Psychology.
- DONALD VICTOR PRIOLA, B.S., Ph.D., Loyola University. Assistant Professor of Pharmacology.
- PETER PROUSE, B.A., Princeton University; M.A., University of New Mexico; Ph.D., Northwestern University. Associate Professor of Secondary Education.

<sup>7</sup> First semester only.<sup>8</sup> On sabbatical leave second semester.<sup>17</sup> On leave for the year but teaching part time.



- CLIFFORD RAY QUALLS, B.A., Long Beach State College; M.A., Ph.D., University of California (Riverside). Assistant Professor of Mathematics.
- ALEX THADDEUS QUENK, B.A., University of Connecticut; A.M., University of Michigan; Ph.D., University of California (Berkeley). Assistant Professor of Psychiatry.
- <sup>14</sup> NAOMI LITT QUENK, B.A., M.A., Brooklyn College; Ph.D., University of California. Instructor in Epidemiology and Community Medicine (Part-time).
- ALBERT RATNER, B.S., Brooklyn College; M.S., Ph.D., Michigan State University. Assistant Professor of Physiology.
- <sup>7</sup> MARY HICKS RAYMOND, B.A., Baylor University; M.A., University of New Mexico. Instructor in English (Part-time).
- <sup>8</sup> ERIK K. REED, B.A., George Washington University; M.A., Ph.D., Harvard University. Visiting Professor of Anthropology.
- VICTOR H. REGENER, Dr.-Ing., Technische Hochschule, Stuttgart. Research Professor of Physics, Chairman of the Department of Physics and Astronomy.
- DAVID AMBROSE REMLEY, A.B., Wabash College; A.M.T., Harvard University. Assistant Professor of English.
- HEINZ JURG RENGGLI, Dr.Sc., Swiss Federal Institute of Technology. Associate Professor of Mathematics.
- VIRGINIA REVA, B.A., St. Mary's College, Notre Dame; M.A., University of Michigan. Associate Professor of Business Administration.
- COSMA BEE RHINEHART, R.N., Stanford University School of Nursing; B.S., University of California at Los Angeles; M.A., Teachers College, Columbia University. Instructor in Nursing.
- <sup>8</sup> WILLIAM EARL RHOADS, B.Mus., M.Mus., University of Michigan. Professor of Music.
- HAROLD V. RHODES, B.A., M.A., University of Wichita; Ph.D., University of Arizona. Assistant Professor of Political Science.
- JOHN MARSHALL RHODES, B.A., University of California at Los Angeles; M.A., Los Angeles State College; Ph.D., University of Southern California. Associate Professor of Psychology.
- EDWARD JAMES RHOMBERG, B.S.C.E., M.S.C.E., University of Notre Dame; Ph.D., Iowa State University. Associate Professor of Civil Engineering.
- DON MARTIN RICE, B.S., M.S., Central Missouri State; Ed.D., Colorado State College. Assistant Professor of Guidance and Special Education.
- CHARLES GILBERT RICHARDS, B.S.E., M.S.E., Ph.D., University of Michigan. Assistant Professor of Mechanical Engineering.
- ELAINE PATRICIA RICHARDS, B.A., M.A.T.S., University of New Mexico. Instructor in English (Part-time).
- GEORGE MEYER RIDENOUR, B.A., College of Wooster; M.A., Ph.D., Yale University. Professor of English.
- JOHN ALLEN RIDER, B.S., Northwestern State College; M.A., University of Wyoming; Ed.D., University of Nebraska. Associate Professor of Secondary Education.
- HAROLD ORVILLE RIED, B.A., Nebraska Wesleyan University; M.A., Ph.D., University of Nebraska. Director of Extension, Summer Session, and Community Services, Professor of Secondary Education.
- MARVIN LeROY RIEDESEL, B.A., Cornell College; M.S., Ph.D., State University of Iowa. Associate Professor of Biology.
- BRUCE JOSEPH RIGSBY, B.A., University of Louisville; Ph.D., University of Oregon. Assistant Professor of Anthropology.
- DANIEL JOHN RITTER, B.A., DePauw University; M.A., Middlebury College. Instructor in English (Part-time).
- ELAINE ROBERT, Abitur, Frauenoberschule, Vienna. Instructor in Modern Languages (Part-time).
- GEORGE ROBERT, Student of Edward Steuermann and Anton von Webern. Professor of Music.
- STEPHEN JAMES RODEFER, B.A., Amherst College. Assistant Professor of English.
- LEO ROMERO, B.A., University of New Mexico; M.A., University of California at Los Angeles. Adjunct Instructor in Psychiatry (Part-time).

<sup>14</sup> December 1, 1967 to March 31, 1968.

<sup>7</sup> First semester only.

<sup>8</sup> Second semester only.

<sup>8</sup> On sabbatical leave second semester.

- JUDAH ISSER ROSENBLATT, B.A., Johns Hopkins University; Ph.D., Columbia University. Associate Professor of Mathematics.
- SIDNEY ROSENBLUM, B.A., Drew University; M.A., Ohio State University; Ph.D., State University of Iowa. Associate Professor of Psychology.
- ALBERT H. ROSENTHAL, B.A., University of Denver; M.A., University of Minnesota; Ph.D., Harvard University. Professor of Political Science.
- ABRAHAM ROSENZWEIG, B.S., University of Pennsylvania; Ph.D., Bryn Mawr College. Associate Professor of Geology.
- GUNTHER ERIC ROTHENBERG, B.A., Ph.D., University of Illinois; M.A., University of Chicago. Associate Professor of History.
- DONALD DENNIS ROYER, B.S., University of Albuquerque; M.B.A., University of New Mexico. Instructor in Business Administration.
- <sup>7</sup> KATE LIS ROYSTER, Diploma, Handelshøjskolen, Copenhagen. Instructor in Modern Languages (Part-time).
- <sup>8</sup> RICHARD RUDISILL, B.A., M.A., Sacramento State College; Ph.D., University of Minnesota. Visiting Assistant Professor in Art.
- BRITTON KENNETH RUEBUSH, B.A., Stanford University; M.S., Ph.D., Yale University. Associate Professor of Psychiatry and of Psychology.
- JAMES LYNN RUFF, B.A., Carleton College; M.A., Ph.D., Northwestern University. Assistant Professor of English.
- PAUL EDUARDO RUIPEREZ, Soc.Sci., Agelicum University, Rome; Ph.D., Gregoriana University, Rome. Visiting Lecturer in Sociology.
- WILLIAM BARTON RUNGE, B.S., M.Ed., Colorado State University; Ed.D., University of Southern California. Professor of Secondary Education.
- A. R. RUSTEBAKKE, B.A., Stanford University; M.S., Ph.D., Yale University. Instructor in Psychiatry.
- <sup>4</sup> WALTER EDWARD RUTKOWSKI, B.S., Rhode Island School of Design. Instructor in Art Education.
- THEODORE ALAN SACKETT, B.A., University of California (Riverside); M.A., Ph.D., University of Arizona. Assistant Professor of Modern Languages.
- ACYR SALGARELLO, A.B., Faculdade de Filosofia, Universidade de Minas Gerais, Brazil. Assistant Professor of Modern Languages.
- CHARLOTTE GAYLE SAMPLEY, B.A., M.A., Eastern New Mexico University. Instructor in Business Administration.
- PATRICIA FLAGG SANBORN, B.A., Mount Holyoke College; M.A., Ph.D., Columbia University. Assistant Professor of Philosophy.
- L. NORMA SANTA ANNA, B.A., University of Arizona; M.A.T.S., University of New Mexico. Instructor in Modern Languages.
- CHARLES WILLIAM SARGENT, B.A., M.A., Michigan State University; M.A.L.S., University of Michigan; Ph.D., University of New Mexico. Deputy Librarian of the Library of Medical Sciences, Assistant Professor of Medical Bibliography.
- JOAN KIMIKO SATO, B.S., Westminster College; M.S., Purdue University. Assistant Professor of Economics.
- PHADEJ SAYASDIBUTR, B.Eng., Chulalongkorn University, Thailand; M.S., University of Wisconsin. Visiting Instructor in Electrical Engineering.
- JOSEPH VICTOR SCALETTI, B.A., M.S., University of Connecticut; Ph.D., Cornell University. Associate Professor of Microbiology.
- TERENCE JOSEPH SCALLEN, B.S., College of St. Thomas; M.D., Ph.D., University of Minnesota. Assistant Professor of Biochemistry.
- DON PAUL SCHLEGEL, B.A., University of Cincinnati; M.A., Massachusetts Institute of Technology. Professor of Architecture.
- PAUL FREDERIC SCHMIDT, A.B., University of Rochester; Ph.D., Yale University. Professor of Philosophy, Chairman of the Department of Philosophy.
- TONY FREDERIC SCHNEIDER, Captain, U.S.N., B.A., Westminster College; M.A., Boston University. Commanding Officer of the Naval ROTC Unit, Professor of Naval Science.

<sup>7</sup> First semester only.

<sup>8</sup> Second semester only.

<sup>4</sup> On leave for the year.

- MORTON GERALD SCHOENFELD**, Juilliard Graduate School; B.Mus., Rollins College; M.Mus., University of Wisconsin. Associate Professor of Music.
- HOWARD LINN SCHREYER**, B.Sc., University of Alberta; M.S., Ph.D., University of Michigan. Assistant Professor of Mechanical Engineering.
- FLORENCE MARGARET SCHROEDER**, B.S., Iowa State College; M.A., Teachers College, Columbia University; Ph.D., New York University. Associate Professor of Home Economics.
- KARL H. SCHWERIN**, B.A., University of California; Ph.D., University of California at Los Angeles. Assistant Professor of Anthropology.
- <sup>6</sup> **JOHN WINFIELD SCOTT, JR.**, B.S., Auburn University; LL.B., LL.M., Harvard University. Visiting Professor of Law.
- VICTOR VIO SEARCY**, B.S., M.S., Oklahoma State University. Instructor in Chemistry.
- WILLIAM FRANKLIN SEARS**, M.D., University of Texas. Adjunct Assistant Professor of Psychiatry (Part-time).
- <sup>4</sup> **LLOYD SEATON, JR.**, B.A., M.S., San Jose State College; C.P.A. Assistant Professor of Business Administration.
- JAMES MARSHALL SEBRING**, B.A., Indiana University. Assistant Professor of Anthropology.
- <sup>9</sup> **VERLE RUE SEED**, B.A., B.S., J.D., University of Illinois; LL.M., Columbia University. Professor of Law.
- <sup>20</sup> **DONALD FRANK SEELINGER**, B.A., M.D., University of Colorado. Assistant Professor of Medicine.
- RICHARD JOSEPH SEI**, D.D.S., Creighton University. Lecturer in Dental Hygiene (Part-time).
- ARMOND HAROLD SEIDLER**, B.S., M.S., Ph.D., University of Illinois; F.A.C.S.M. Professor of Health, Physical Education, and Recreation, Chairman of the Department of Health, Physical Education, and Recreation.
- WESLEY THOMAS SELBY**, B.F.A., Western Maryland College; M.M., University of New Mexico; M.M., University of Colorado. Instructor in Music (Part-time).
- CARL MARVIN SELINGER**, A.B., University of California at Berkeley; LL.B., Harvard Law School. Associate Professor of Law.
- ROBERT ALAN SENESCU**, B.A., Columbia College; M.D., Boston University Medical School. Professor of Psychiatry, Chairman of the Department of Psychiatry.
- WILLIAM MAC SEYMOUR**, B.Mus.Ed., Music and Arts College; Ed.D., Washington University. Assistant Professor of Music.
- MOHAMMED SHAFI**, I.Sc., Edwardes College, Pakistan; B.S., Islamia College, Pakistan; M.Sc., University of Preshawar, Pakistan; M.Sc., Ph.D., Georgetown University. Lecturer in Physics.
- LAWRENCE FRED SHAMPINE**, B.S., Ph.D., California Institute of Technology. Associate Professor of Mathematics.
- IAN LORIMER SHAND**, B.S., M.D., University of Manitoba. Assistant Director of the Student Health Service, Associate Professor of Health, Physical Education, and Recreation.
- MALCOLM PITMAN SHARP**, B.A., Amherst College; M.A., University of Wisconsin; LL.B., S.J.D., Harvard Law School. Visiting Professor of Law.
- WILLIAM ANDREW SHINNICK**, B.S., Northwestern University; M.S., Massachusetts Institute of Technology. Assistant Professor of Business Administration (Part-time), Director of the Technology Application Center.
- ROGER WALLACE SHUGG**, A.B., A.M., Ph.D., Princeton University. Professor of History (Part-time), Director of the University Press.
- <sup>7</sup> **LEO HERMAN SIEGMUND**, B.S., St. John's University; M.A., University of North Dakota. Assistant Professor of History (Part-time).
- MARC STEVEN SIMMONS**, B.A., University of Texas; M.A., Ph.D., University of New Mexico. Instructor in Speech (Part-time).
- ERNEST R. SIMON**, M.D., Harvard Medical School. Associate Professor of Medicine.
- KATHERINE GAUSS SIMONS**, B.A., Grinnell College; M.A., Columbia University. Associate Professor of English.
- JOHN CHAMBERLAIN FYFE SIMPSON**, B.Sc., University of Bishop's College (Quebec); B.A., M.D., C.M., Queen's University (Ontario). Assistant Professor of Surgery.

<sup>8</sup> Second semester only.<sup>4</sup> On leave for the year.<sup>9</sup> Deceased May 21, 1967.<sup>20</sup> Resignation effective January 1, 1968.<sup>7</sup> First semester only.

- DONALD EMANUEL SKABELUND**, B.S., Utah State University; Ph.D., University of Utah. Assistant Professor of History.
- VICTOR J. SKOGLUND**, B.S., M.S., University of California; D.Eng., Yale University. Professor of Mechanical Engineering.
- HARRIET LUCILLE SLAPP**, R.N., St. John's Hospital School of Nursing; B.S.N.Ed., M.S.N.Ed., St. John's University. Instructor in Nursing.
- DANIEL MICHAEL SLATE**, B.S., M.A., Ph.D., University of Washington. Professor of Business Administration.
- ELLA MAY SMALL**, B.A., Texas Wesleyan College; M.A., Texas State College for Women; Ed.D., University of California at Los Angeles. Professor of Health, Physical Education, and Recreation, Assistant Chairman of the Department of Health, Physical Education, and Recreation.
- DANIEL EDWARD SMITH**, B.A., University of New Mexico; M.D., University of Colorado School of Medicine. Assistant Professor of Surgery.
- GEORGE WINSTON SMITH**, B.A., M.A., University of Illinois; Ph.D., University of Wisconsin. Professor of History.
- LESLIE FRANK SMITH**, B.Sc., Ph.D., University of London. Assistant Research Professor of Biochemistry.
- <sup>6</sup> **MARY ELIZABETH SMITH**, B.A., University of Michigan; M.A., Columbia University; Ph.D., Yale University. Assistant Professor of Art.
- SAMUEL DAVID SMITH**, Studied in Africa, Orient, Near East, and United States. Professor of Art.
- SARA DAWN SMITH**, B.S., M.A., University of New Mexico. Instructor in Elementary Education.
- SHERMAN EVERETT SMITH**, B.S., South Dakota School of Mines and Technology; Ph.D., Ohio State University. Administrative Vice President, Professor of Chemistry.
- <sup>8</sup> **ROBERT STEPHEN SMOLICH**, B.S., M.A., University of New Mexico; Ed.D., University of Texas. Instructor in Secondary Education (Part-time).
- ROBERT EDWIN SNAPP**, B.A., M.A., University of New Mexico; M.F.A., Yale University. Professor of Dramatic Art, Chairman of the Department of Dramatic Art.
- <sup>7</sup> **RODMAN ELDREDGE SNEAD**, B.A., University of Virginia; M.A., Syracuse University; Ph.D., Louisiana State University. Visiting Associate Professor of Geography.
- EDNELL MARGARET SNELL**, B.S., B.Ed., M.A., Washington State University; Ed.D., Teachers College, Columbia University. Associate Professor of Home Economics, Chairman of the Department of Home Economics.
- JANE SNOW**, B.Mus., M.Mus., Cincinnati College of Music. Associate Professor of Music.
- <sup>10</sup> **ROSS LELAND SNYDER**, B.A., Swarthmore College; B.D., Yale Divinity School; M.D., Yale Medical School. Assistant Professor in Psychiatry.
- RUSSELL DEWEY SNYDER**, B.A., Swarthmore College; M.D., University of Pennsylvania. Assistant Professor of Pediatrics and Medicine.
- SIDNEY SOLOMON**, B.S., University of Massachusetts; Ph.D., University of Chicago. Professor of Physiology, Chairman of the Department of Physiology.
- <sup>7</sup> **DOUGLAS ALLEN SPANIER**, A.B., Western Washington State College; M.A., University of Nebraska. Instructor in Psychology (Part-time).
- HAROLD DEAN SOUTHWARD**, B.S., West Texas State College; M.A., Ph.D., University of Texas. Associate Professor of Electrical Engineering.
- GEORGE P. SPRINGER**, A.B., M.A.T., M.A., Ph.D., Harvard University. Dean of the Graduate School, Associate Professor of Anthropology.
- MARJORIE EVARTS SPRINGER**, B.A., Smith College; M.S.W., Simmons College. Adjunct Instructor in Psychiatry (Part-time).
- JAMES NORMAN SPUHLER**, B.A., University of New Mexico; M.A., Ph.D., Harvard University. Leslie Spier Professor of Anthropology.
- JAMES JOSEPH SRÜBEK**, B.S., Pennsylvania State University; M.A., University of New Mexico. Instructor in Art Education.
- KENNETH HOTTENSTEIN STAHL**, B.A., Carthage College; B.S., M.S., State University of Iowa; Ph.D., University of Maryland. Associate Professor of Pharmaceutical Chemistry, Special Counselor University College.

<sup>6</sup> On leave second semester.

<sup>8</sup> Second semester only.

<sup>7</sup> First semester only.

<sup>10</sup> January 1, 1968 to June 30, 1968.

DAVID EDGAR STARKEY, B.M.E., Central Methodist College; B.M., M.M., Indiana University. Assistant Professor of Music.

<sup>7</sup> SAMUEL DOW STEARNS, B.S.E.E., Stanford University; M.S.E.E., Ph.D., University of New Mexico. Adjunct Professor of Electrical Engineering (Part-time).

ALPHEUS THORNTON STEELE, B.A., University of Wichita; M.A., Duke University; Ph.D., University of Iowa. Visiting Lecturer in Business Administration (Part-time.)

ARTHUR STEGER, B.A., University of Pennsylvania; M.A., Ph.D., University of California. Associate Professor of Mathematics, Assistant Dean of the Graduate School.

ANNE KERCHEVAL STEINER, B.A., M.A., University of Missouri; Ph.D., University of New Mexico. Assistant Professor of Mathematics.

EUGENE FRANCIS STEINER, B.S., M.A., Ph.D., University of Missouri. Associate Professor of Mathematics.

JACK RAMSEY STEPHENSON, B.Mus.Ed., B.Mus., M.Mus.Ed., Ph.D., University of Kansas. Professor of Music.

<sup>8</sup> GEORGE NEFF STEVENS, A.B., Dartmouth College; LL.B., Cornell University; M.A., University of Louisville; S.J.D., University of Michigan. Visiting Professor of Law.

ROBERT SAMUEL STONE, B.A., Brooklyn College; M.D., Downstate Medical Center, State University of New York. Professor of Pathology, Chairman of the Department of Pathology, Associate Dean of the School of Medicine.

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<sup>7</sup> First semester only.

<sup>8</sup> Second semester only.

<sup>4</sup> On leave for the year.

<sup>6</sup> On leave second semester.

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<sup>15</sup> December 15, 1967 to June 30, 1968.<sup>23</sup> Resignation effective December 4, 1967.<sup>22</sup> Appointment effective January 15, 1968.<sup>18</sup> December 1, 1967 to March 31, 1968.

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<sup>6</sup> On leave first semester.<sup>10</sup> Deceased May 10, 1967.<sup>9</sup> On sabbatical leave second semester.



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<sup>21</sup> January 8, 1968 to June 30, 1968.

<sup>12</sup> On disability retirement as of July 1, 1963, but not on emeritus status.

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- CHARLES NELSON MILLNER, JR., B.S., California State Polytechnic College. Department of Chemistry.
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- JOHN WYNN NEWFIELD, B.S., St. Michael's College; M.E.S., University of New Mexico. Department of Secondary Education.
- JUDITH GILBERT NEWTON, B.S., University of Santa Clara. Department of Mathematics and Statistics.
- BOBBIE JEAN O'CHESKEY, B.S., University of New Mexico. Department of Mathematics and Statistics.
- PHILLIP M. O'DELL, B.S., University of New Mexico. Department of Civil Engineering.
- JAMES WELDON OGLE, B.S., University of New Mexico. Department of Physics and Astronomy.
- JOHN MICHAEL O'NEILL, B.S., University of New Mexico. Department of Geology.
- RUTH ELIZABETH OREM, B.A., University of New Mexico. Department of English.

- GARY BOB PEELER, B.S., University of Texas; M.S., University of New Mexico. Department of Nuclear Engineering.
- NEWMAN SMITH PEERY, JR., B.A., University of New Mexico. College of Business Administration.
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- WINSTON LOREN ROETH, B.F.A., University of Illinois. Department of Art.
- LANNY STEPHEN ROMINGER, B.B.A., University of New Mexico. College of Business Administration.
- LARRY LEE ROSE, B.A., Adams State College. Department of Economics.
- BARRY ALAN ROSENBERG, B.A., Philadelphia College of Art. Department of Art.
- ROBERT PAUL ROST, B.A., M.A., University of New Mexico. Department of Guidance and Special Education.

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- EVE P. SONNEMAN, B.F.A., University of Illinois. Department of Art.
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- BOB NATHAN STRAUSS, B.S., Trinity University; M.S., University of Illinois. Department of Health, Physical Education, and Recreation.
- GARY LEE STRONG, B.S., Portland State College. Department of Biology.
- NADINE NICHOLLS SUMPTER, B.S., Pennsylvania State University. Department of Chemistry.
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- EDWARD JAMES TISHLER, B.S., University of New Mexico. Department of Chemistry.

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- RICHARD JOHN TUREK**, B.S., University of New Mexico. Department of Mathematics and Statistics.
- JOSEPH VINOVICH**, B.A., University of New Mexico. Department of Speech.
- SALLY ANN VOGEL**, B.A., M.A., University of New Mexico. Department of History.
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- NEIL STEPHEN WEBER**, B.S., Rutgers University. Department of Biology.
- ROBERT ALOIS WEBER**, B.A., University of Buffalo. Department of Anthropology.
- KENNETH WAYNE WEEKS**, B.S., University of New Mexico. Department of Biology.
- BASIL B. WEST**, B.S., Memphis State University. Department of Economics.
- JAMES ARTHUR WHITE**, B.S., University of New Mexico. Department of Biology.
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- DON ELLIS WILSON**, B.S., University of Arizona; M.S., University of New Mexico. Department of Biology.
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- RICHARD THOMAS WOODS**, B.S., Rensselaer Polytechnic Institute. Department of Physics and Astronomy.
- FUN-MIN WU**, B.S., Cheng Kung University, Taiwan. Department of Physics and Astronomy.
- HAN-HSIUNG WU**, B.S., National Taiwan University; M.S., Michigan State University. Department of Mechanical Engineering.
- GLADYS LE ETTA ZIEMER**, B.S., Mankato State College. Department of Health, Physical Education, and Recreation.

## GENERAL INFORMATION

**T**HE UNIVERSITY of New Mexico has as its primary responsibility the task of serving the citizens of the State of New Mexico by offering the opportunity of a well-rounded education at the higher level. The ultimate goal of college or university education is to equip the maximum number of citizens with the understanding and wisdom which will aid them in becoming useful and responsible members of a democratic society. The University also recognizes its duty to supply other services which foster the culture and welfare of the people.

### GENERAL EDUCATION

**PERSONAL DEVELOPMENT.** There are skills, intellectual abilities, and standards of behavior which are essential to the educational and moral progress of every individual. Therefore, the University recognizes its responsibility to help each student toward the highest possible personal development through the attainment and maintenance of skills of communication, skills of reasoning and critical thinking, good habits of study and of independent investigation, and sound standards of behavior in matters of health and of social responsibility.

**LIBERAL EDUCATION.** The University proposes also to bring the student to an awareness of current problems and a desire to aid in their solution, and above all, to give him the enlarged perspective that comes through an understanding of the social, scientific, artistic, literary, religious, and philosophical traditions—the cultural heritage of mankind.

### SPECIAL AND PROFESSIONAL EDUCATION

It is a further purpose of the University to provide opportunities for training in scholarly and technical fields. To serve the needs of the State and the welfare of its people, the University offers a variety of curricula for those students who desire and are capable of professional attainment. Training in the professions is intended to supplement the general education of the student and to equip him for a career.

### SCHOLARSHIP AND RESEARCH

A prime responsibility of the University is to make its contribution to the total body of knowledge through original investigation. A special obligation to give due concern to the problems of the State and region is also recognized. To these ends the University encourages its students and faculty to engage in research, scholarship, and creative activity by providing suitable facilities in an atmosphere conducive to achievement.

The findings of research are made available to the public through various bureaus, a program of publications, and technical advisory services.

### ADULT EDUCATION AND CULTURAL PROGRAMS

In order to extend its services to those not regularly enrolled as full-time students, the University offers extension, correspondence, and evening courses. In addition, by sponsoring exhibits, lectures, forums, and concerts on its campus and through the media of radio and television, the University seeks to make significant contributions to the cultural life of the State.

## ACCREDITATION

The University has been a member of the North Central Association of Colleges and Secondary Schools since 1922. The Extension Division was approved by the National University Extension Association in 1930. Approval of the Association of American Universities was given to the University in 1933, and the American Association of University Women recognized the University in the same year. The curricula in Civil, Electrical, and Mechanical Engineering have been fully accredited by the Engineers' Council for Professional Development since 1937. In 1948 the College of Pharmacy was accredited by the American Council on Pharmaceutical Education and in 1952 it was accepted into membership by the American Association of Colleges of Pharmacy. The School of Law was approved by the American Bar Association in February, 1948, and was admitted to membership in the Association of American Law Schools in December, 1948. In the same year, the College of Education was accredited by the American Association of Colleges for Teacher Education. In 1954 the Association transferred its list of accredited institutions to the National Council for Accreditation of Teacher Education. In 1961 the National Council conducted a full-scale examination of the teacher education programs and, as a result, granted full accreditation for all programs at this institution for the preparation of teachers, school administrators, and guidance counselors through the doctor's degree. The University was admitted to membership in the National Association of Schools of Music in 1950. The program of the Department of Journalism has been accredited by the American Council on Education for Journalism since 1955. The basic program of the College of Nursing, including public health nursing, was first accredited in 1959 by the National League for Nursing. The School of Medicine has been recognized as a provisional member of the Association of American Medical Colleges since 1963. Initial accreditation by the Liaison Committee on Accreditation of the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges was accorded in 1966. The Department of Architecture was accredited in 1967 by the National Architectural Accrediting Board.

The University is approved for veterans' training under the several Public Laws governing educational benefits.

## ACADEMIC PROGRAMS

The University is composed academically of eight undergraduate colleges, the Graduate School, the School of Law, and the School of Medicine. The undergraduate colleges include:

University College, an administrative unit which supervises the programs of all freshman students

College of Arts and Sciences

College of Business Administration

College of Education

College of Engineering

College of Fine Arts

College of Nursing

College of Pharmacy

Information about these colleges and their programs is contained in the individual college sections of this bulletin.



Summer and evening credit offerings are also a part of the University's academic program on the campus. Off-campus credit is offered by extension classes and correspondence courses and through off-campus residence centers at Gallup, and the Holloman and Los Alamos Graduate Centers.

## SITUATION

The University is situated in Albuquerque, the center of a metropolitan area of 350,000 inhabitants. The campus lies a mile above sea level on a plateau overlooking the Rio Grande, and about 12 miles from the lofty Sandia mountains. Albuquerque is noted for its dry and sunny climate. Although the weather undergoes the normal seasonal changes, temperatures are not extreme.

New Mexico is assuming a position of growing importance in the development of atomic and nuclear weapons and nuclear propulsion, and as a center for guided missile and rocket research and testing. The Los Alamos Scientific Laboratory, birthplace of the atomic bomb, is located 100 miles to the north; the Air Force Missile Development Center at Holloman Air Force Base and the Army's White Sands Proving Grounds are some 250 miles to the south; while in Albuquerque itself are the Air Force Special Weapons Center at Kirtland Air Force Base, the Field Command of the Armed Forces Special Weapons Project at Sandia and Manzano Bases, and one of the major research and development centers of the Atomic Energy Commission.

The city is on the A.T.&S.F. Railway and is served by transcontinental bus and air lines. Interstate Highways 40 and 25 intersect at Albuquerque.

Historic Santa Fe is approximately 60 miles to the north, and a number of Indian pueblos including picturesque Taos and Acoma are within easy driving distance.

## HISTORY

The University of New Mexico was created by an act of the Territorial Legislature in 1889, opened as a summer normal school on June 15, 1892, and began full-term instruction on September 21 of the same year. Its development since that time has been extraordinary. The 20 acres comprising the original campus have become more than 500; buildings have increased from a single structure to 94.

The development of new colleges and divisions has kept pace with the physical growth of the institution. The College Department became the College of Literature and Arts in 1898, later acquiring its present title of College of Arts and Sciences. The College of Engineering opened in 1906, and the Graduate School in 1919. In 1928 the College of Education was created; in 1935 the General College; and in 1936 the College of Fine Arts. A unit of the United States Naval Reserve Officers Training Corps was established May 20, 1941. In 1945 the following new divisions became an active part of the University program: the College of Pharmacy, the Division of Government Research, and the Bureau of Business Research. In 1946 the Institute of Meteoritics was added to the University's research program. The College of Business Administration and the College of Law were organized in the fall of 1947. The title "College of Law" was changed to "School of Law" in 1960. An Air Force Reserve Officers Training Corps unit was

established in 1949. Although extension work was offered as early as 1913, the Extension Division as a separate unit with a full-time director began operations in 1928. A reorganization took place in 1953 which combined the Division of Extension, the Summer Session, the credit and non-credit evening program, conferences, and short-course offerings under the single administrative unit, Division of Extension, Summer Session, and Community Services. This Division also administers the Community College (credit and non-credit sections). The College of Nursing was established in 1955, and in 1956 the Los Alamos Graduate Center and the University College were created. Upon the establishment of the University College, the General College was abandoned. The Holloman Graduate Center was created in 1957 and in 1966 was redesignated the Holloman Graduate and Continuing Education Center. The School of Inter-American Affairs, established in 1941, was known as the Division of Foreign Studies from 1959 to 1965 when it became the Division of Inter-American Affairs. A School of Medicine was established in 1961 and enrolled its first entering class in the fall of 1964. While initial plans were for a two-year school of the basic medical sciences, approval was received in 1965 to move to a four-year program. The University has 51 instructional departments or units; work leading to the master's degree is offered in 43 fields, and toward the doctor's degree in 20.

University administrators have for many years realized that the situation of The University of New Mexico provides it with a wealth of source material in the historical and archaeological background of the nation, and that its proximity to the Indian, Spanish, and Mexican cultures makes it a natural place for the study and appreciation of those cultures. They have, therefore, encouraged the development of Southwestern and Latin American studies and research. Some tangible evidences of this interest are found in the uniform architectural style (a modification of the Indian pueblo), which has been described as "the outstanding example of the effective use of regional architecture in the United States," the offering of a major in Latin American Studies, the annual Field Session in Anthropology, and the various examples of Indian, Mexican, and Spanish-American paintings, carving, and weaving to be found throughout the campus buildings.

## **GOVERNMENT AND SUPPORT**

The government of the University is vested in the Regents and the Faculty. Five Regents are appointed by the Governor of the State for a term of six years; the Governor and the Superintendent of Public Instruction are ex officio members of the Regents.

The University is supported chiefly by appropriations made by the State Legislature, by income from the rental of lands granted to it by the Federal Government, by the income from royalties on the oil taken from these lands, and by student fees.

## **DEVELOPMENT OFFICE**

The function of the Development Office is to encourage private support, both financial and non-financial, of the University of New Mexico, thereby enabling the University to increase its contributions to the State and to the Nation in terms of teaching, research, and service. Additional financial support obtained from

private sources enables the University to incorporate into its program those features which are essential to educational leadership and distinction, but which are beyond the financial responsibility of the State. Non-financial support—that is, understanding and goodwill—is essential to the successful execution of the programs and policies of the University.

The major objectives of the Development Program are: (1) to promote a better understanding of The University of New Mexico and to interpret its programs, its progress, and its needs to the public; (2) to develop and enlist the active interest and support of individuals and groups in its behalf; and (3) to provide these individuals and organizations with the opportunity to support voluntarily the University.

Although it operates as a separate unit, the Alumni Office is a part of the Development Office. This makes it possible to coordinate Alumni Association activities with the promotional activities of the overall development program.

#### ALUMNI ASSOCIATION

The Association is maintained through cooperative efforts of the University and the alumni body. All graduates and former students of The University of New Mexico are members of the Association. Programs and policies of the organization are determined by a board of directors, whose members are chosen with respect to college, graduation year, and geographic location.

The Association coordinates and directs Homecoming activities, arranges class reunions, organizes alumni clubs throughout the State and Nation, promotes citizenship among undergraduates, assists with student recruitment, provides advice to the University administration upon request, assists in the University's legislative relations program, and in other ways encourages alumni interest in and support of the University.

The Greater U. N. M. Fund was established in 1963 to help provide, through contributions from alumni and friends, certain features that are characteristic of a quality institution but which are often beyond the ability of the State to provide. These would include such benefits as scholarships, specialized equipment, library materials, and funds for faculty research.

The *Alumnus*, official organ of the Association, is published six times a year and is mailed to all members. Alumni Association file records include information on more than 30,000 persons who have attended the University since its opening. Master geographical and class files are maintained.

The Association's offices are located in the New Mexico Union, Suite 242.

#### CAMPUS AND BUILDINGS

The campus of the University of New Mexico is in the eastern section of the city of Albuquerque and comprises over 500 acres, landscaped with grass, giant cottonwoods, elms, and mountain evergreens. Most of the 94 buildings exemplify the University's distinctive architectural style, contemporary in treatment but with strong influence from the Spanish and Pueblo Indian cultures. The architecture is characterized by rectangular terraced masses, protruding vigas, patios, balconies, portals, and earth-color walls slightly inclined to recall ancient adobe houses. Within easy walking distance of the instructional and administrative cen-

ter of the campus are the dormitories, a 9-hole golf course (there is also an 18-hole golf course on the south campus), a swimming pool, tennis courts, campus theatre, faculty residences, and sorority and fraternity houses. (See the campus maps in the front of the Catalog for a listing of individual buildings.)

## THE ZIMMERMAN LIBRARY

**BUILDING.** The general University Library is housed in a building which is frequently cited as the best example of the modified pueblo style of Southwestern architecture unique to this campus. The building, enlarged by an addition completed in the summer of 1966, provides for a future collection of 650,000 volumes and seats for 1,725 readers. It contains 69 faculty studies and 207 carrels for graduate students. On separate floors are complete library services for the Social Sciences, Humanities, Science and Engineering, and the Information Center. The Special Collections Department is housed in second-floor rooms including a large vault and the Thomas Bell Room for rare materials.

**RESOURCES.** Library collections include 419,116 cataloged and processed volumes, several thousand other cataloged serials and pamphlets, 11,500 reels of microfilm, 138,828 microcards, 75,621 microfiches, 63,000 maps, several thousand pamphlets and pictures, and a large collection of archival material. These resources provide adequate study and research facilities for undergraduate work and for the special fields in which graduate work is offered.

**SPECIAL COLLECTIONS.** The Coronado Room contains an extensive collection of books and other materials concerning the history and culture of the Southwest in general and New Mexico in particular. It contains State publications and books about New Mexico, several hundred bound volumes of photostats of the archives of Spain, Mexico, and New Mexico, letters, manuscripts, documents and State archival materials assembled by the U. S. Historical Records Survey.

The business history collection contains records of the First National Bank of Santa Fe, 1871-1926; the Ilfeld Company, 1865-1907; Gross, Kelly & Co., 1880-1940; Bond & Son, Inc., 1900-1940; and several others.

The Van de Velde Collection of Mexican Materials, consisting of 8,686 bound volumes, 93 maps, and 50 linear feet of pamphlets was purchased in 1939 by a special appropriation of the State Legislature. It contains much rare and valuable material dealing with history, archaeology, ethnology, geology, folklore, literature, and art of Mexico.

The Catron Collection, of 9,574 volumes, is an extensive and valuable library begun by Julia W. and Thomas B. Catron and given to the University Library by their sons, C. C. Catron, T. B. Catron, F. A. Catron and J. W. Catron. Outstanding items are several hundred Spanish and Mexican publications of the 16th to 19th centuries, and 375 filing cases and boxes of letters and documents dealing with territorial New Mexico events, particularly the land grant system of the State.

The Otero Collection, given by former Governor and Mrs. Miguel A. Otero in 1939, contains 465 volumes on the Southwest and general fields, as well as a valuable manuscript and museum collection.

The Field Collection of old Spanish and Mexican Art, which includes 96 pieces

of silver and 69 other art objects, was given by the estate of Neill and Mary Lester Field in 1939.

**USE OF THE LIBRARY.** The Library is open to all students in all departments of the University. In addition to serving the students and faculty, and subject to their needs, the Library is available for use by citizens of the State, by permission.

Books withdrawn for home use may be kept two weeks. Reserved books may be used only according to rules posted at the Reserve desk. Fines are charged for the late return of books.

**HOURS.** The Library is open from 8 a.m. to 11 p.m., Mondays through Fridays; from 8 a.m. to 5 p.m., Saturdays; and Sundays from 1 to 11 p.m.

### **FINE ARTS LIBRARY**

The Fine Arts Library is located in the Fine Arts Center. This newly established library contains the library materials for art, music, drama, and architecture. Reference service in these areas is handled by the Fine Arts Library staff. A special room houses rare books and other valuable resources. Two practice rooms, with pianos, are located in the library complex. Library patrons use these facilities to perform works from scores.

The Fine Arts Library maintains its own complete card catalog. Separate divisions are provided for approximately 32,838 books and scores and 11,503 recordings and tapes. The audio materials, which include the Archive of Southwestern Music, are available for use through specially designed listening facilities.

A reference collection of 61,221 slides and 15,850 photographs and reproductions is maintained by the Fine Arts Library. The collections are particularly strong in American Indian art, Pre-Columbian art, Spanish Colonial art and architecture, and 20th-century art and architecture.

### **LAW LIBRARY**

The School of Law Library, housed separately with the law school, received an auspicious start through donation of the Francis C. Wilson, Francis E. Wood, and other private law library collections. It contains over 75,000 volumes and is being augmented by approximately 400 volumes each month. The library includes comprehensive collections of British, Federal, and State court reports, including special and annotated series, session laws, current State and Federal statutes, legal treatises, periodicals, encyclopedias and digests, administrative reports, and other classes of legal materials.

### **LIBRARY OF THE MEDICAL SCIENCES**

The Library of the Medical Sciences, housed in Medical School Building 2, 900 Stanford Dr. N.E., also houses the Bernalillo County Medical Society Library. The collection, now totaling over 45,000 volumes, is the largest medical collection in the Southern Rocky Mountain region. The Library subscribes to over 1400 biomedical serials. It is one of the most highly mechanized medical libraries in the United States, and was the first library awarded a research grant under the Medical Library Assistance Act of 1965. The staff is engaged in research

on applications of computers in medical libraries and also other research in medical communications and documentation.

## MUSEUMS, COLLECTIONS, AND EXHIBITIONS

### MAXWELL MUSEUM OF ANTHROPOLOGY

The collections and exhibits of the Maxwell Museum of Anthropology are located in the south wing of the Anthropology Building. Exhibits feature the life of the Palaeo Indians, Early Pueblo life, the Pueblo Golden Age, and two exhibits on late pueblo culture. In the latter is a full scale reproduction of a section of one of the famous painted kivas at the site of Pottery Mound. Other exhibits in the new Museum of Anthropology Hall include those of Navajo, Northwest Coast, Eskimo, Plains and South American Indians. A series of special anthropological exhibits feature Navajo silver, the Gallina culture, Mimbres pottery, Mound Builder cultures, Mexican and Andean archaeology, Navajo and Pueblo weaving, evolution, races of Man, linguistics, archaeological and ethnological techniques, cultures of Oceania, African tribal art, and cultures of the South Pacific and of various prehistoric periods of Europe and the Old World. These exhibits are available to the public. The museum wing is open 9 a.m. to 4 p.m. Tuesday through Saturday. School groups and others may make special arrangements. Director: Frank C. Hibben. Curator: J. J. Brody.

### UNIVERSITY ART MUSEUM

The University Art Museum, located in the Fine Arts Center Building, was opened in October, 1963. The Museum's physical facilities, among the finest in the Southwestern States, are of a size to permit concurrent presentation of a continuing series of major exhibitions, together with selections from the University's permanent collection. Notable among the exhibitions organized by the Museum during recent years were **Art Since 1889**, a survey of European and American painting, sculpture, drawing, and prints; **The Painter and the Photograph**, an exhibition tracing the relationships of painting and photography in 20th century art; and retrospective exhibitions of the distinguished New Mexico artists, **Kenneth M. Adams**, **Cady Wells**, **Andrew Dasburg**, **Raymond Jonson**, **Ward Lockwood** and **Georgia O'Keeffe**. Three major exhibitions, **Impressionism in America**, **20th Century Sculpture**, and **Cubism: Its Impact in the United States**, were organized in cooperation with the Junior League of Albuquerque. The gallery is open daily except Monday and Saturday from 9 a.m. to 5 p.m.; Sunday, 12 to 5 p.m. Director: Robert O. Parks.

### GEOLOGY MUSEUM

(Geology Building) The Geology Museum has a double purpose: it is designed to serve the general public and to supplement the instructional program. Exhibits include a systematic series of minerals, a stratigraphic series of fossil animals and plants, a paleontologic series of fossil and modern invertebrates, and systematic series of igneous, sedimentary, and metamorphic rocks.

Other notable features are an exhibit illustrating how fossils are preserved; an exhibit of New Mexico metallic and nonmetallic ores; rotating exhibits of various geological materials; a series of map displays; a geologic cross-section

through Mount Taylor and the Sandia Mountains, together with numerous rock samples; and an unusually fine fluorescence-phosphorescence exhibit of minerals under both long-wave and short-wave ultraviolet light. The Albuquerque Gem and Mineral Club maintains a case with rotating exhibits of specimens, including gems and precious stones. A visual seismic recorder, connected to a seismograph at the U.S. Coast and Geodetic Survey's Albuquerque Seismic Center in the Manzano Mountains southeast of Albuquerque, shows major earthquakes as they occur throughout the world. The museum is generally open 8 a.m. to 9 p.m. Monday through Saturday. Curator: Stuart A. Northrop.

#### HARWOOD FOUNDATION

The University of New Mexico maintains the Harwood Foundation in Taos, New Mexico. The Foundation has an excellent and extensive collection of paintings by artists who have lived and worked in New Mexico. Selections from the collections are frequently exhibited. Director: Mrs. Toni Tarleton.

#### INSTITUTE OF METEORITICS, DEPARTMENT OF GEOLOGY

The Institute of Meteoritics is a division within the Department of Geology, dedicated to the collection and investigation of meteoritic materials and related phenomena. The Institute's remarkable collection includes the world's largest known stoney meteorite, recovered in Norton County, Nebraska, in 1948.

The objectives of the Institute are as follows:

1. To recognize and acquire meteorites and related materials.
2. To preserve and exhibit meteoritic materials, and to make these materials available to scientists working in fields closely allied to meteoritics.
3. To analyze meteorites; to observe and analyze meteors and related atmospheric phenomena; to study the nature of the space environment with respect to meteoroids and meteorites; and to investigate other meteoritic phenomena significant for the earth sciences and astronomy.
4. To provide materials, facilities, and supervision for research by candidates for advanced degrees in geology or in other fields, and to offer instructional programs approved through usual academic procedures.

#### JONSON GALLERY

This gallery on the campus at 1909 Las Lomas Road, N.E. is open to the public daily from 12 noon to 6 p.m. The exhibition program features monthly one-man shows or group shows by New Mexico artists, with emphasis upon contemporary painting. During the summer, the gallery presents an annual exhibition of paintings by Raymond Jonson, Director of the gallery.

#### MUSEUM OF SOUTHWESTERN BIOLOGY

(Biology Building) The Department of Biology maintains the Museum of Southwestern Biology, the most important single source of New Mexican vertebrates and plants, including the J. Stokley Ligon bird collection. This is a research museum, maintained for the use of all serious students of Southwestern field biology,

although priority in the use of materials is reserved for University students and staff. Curators: Mammals, J. S. Findley; Birds, J. D. Ligon; Reptiles and Amphibians, W. G. Degenhardt; Fishes, W. J. Koster; Plants, W. C. Martin.

## RESEARCH AND FELLOWSHIP SUPPORT ACTIVITIES

### THE OFFICE OF RESEARCH AND FELLOWSHIP SERVICES

Harold L. Walker, Director

The Office of Research and Fellowship Services is an administrative agency of the Graduate School of the University.

The broad purposes of the Office of Research and Fellowship Services are:

- (1) to foster a more effective and more extensive program in research and other scholarly pursuits within the University;
- (2) to make a continuing survey of the research and other scholarly and creative interests, activities, and needs, as well as of the human and physical resources, within the University; and to disseminate this information to departments, the University administration, and possible sponsors of research;
- (3) to coordinate, insofar as possible and desirable, the various research and fellowship activities on campus;
- (4) to seek funds in support of research and other scholarly and creative activities and interests in the University, including faculty and student fellowships; and to disseminate to appropriate individuals, faculty, and administration information concerning application procedures for such financial aid;
- (5) to assist faculty members in determining that proposals are prepared in accordance with the policies of the University and of the sponsoring agency;
- (6) to act as the University's reviewing officer for all research proposals submitted to outside agencies, except for those emanating from the School of Medicine.

**RESEARCH ALLOCATIONS COMMITTEE.** The Research Allocations Committee supervises and allocates the University Research Fund. The Committee communicates with the Dean of the Graduate School and meets with him formally at least once each semester to discuss the availability and allocation of funds. The Committee receives requests from faculty members for grants-in-aid, determines faculty eligibility for grants from the Fund and the amount of such grants, and appraises the merits of proposed research projects as well as the productivity of the applicants.

### THE BUREAU OF BUSINESS RESEARCH

Arthur A. Blumenfeld, Assistant Professor of Business Administration, **DIRECTOR**; Ralph L. Edgel, Professor of Business Administration, Associate Director of Business Economics; William A. Shinnick, Associate Director for Technology Applications; William W. McKinstry, Associate Director for Community Development; A. David Sandoval, Economist; Carolyn G. Lindberg, Associate Economist; Eldon G. Marr, Assistant Economist; Margaret I. Meaders, Editor; Dora K. McGroth, Assistant Editor; Shirley J. Huzarski, Data Supervisor; Donald R. House, Program Coordinator; Linda L. DeBerry, Research Assistant; Gordon D. Besson, Programmer-Analyst; Donald B. Anderson, Field-Services Engineer, Technical Services.



The Bureau of Business Research, established in July 1945, cooperates closely with the College of Business Administration. Its purpose is to promote the economic welfare of the State through investigation and study of economic and business problems and through the dissemination of information. More specifically, its objectives are to promote the development and intelligent use of the State's resources and full employment for its people; to assist businesses in dealing with their problems of marketing, internal operations, and planning; to encourage the pursuit of business and economic research by students and faculty; and to provide a medium through which the skills and talents of the College of Business Administration and the University as a whole may be made of assistance to the community.

The basic activities of the Bureau consist of gathering, analyzing, and interpreting data concerning the economic life of the State—its population, natural resources, employment opportunities, income, business activities, and markets. Studies are initiated by the Bureau or are undertaken for business concerns, governmental agencies, or other interested organizations. So that the results of its studies may be used, information is disseminated through Bureau publications, the press, radio, and television. Bureau publications include these:

**New Mexico Business**, a monthly journal which regularly carries more than 70 indexes of business activity in New Mexico, a short article summarizing recent business activity, and a feature article on some business or economic problem or area.

**The Retail Food Price Bulletin**, a quarterly report presenting the results of the Bureau's survey of food prices at representative food stores in Albuquerque.

The "Business Information Series," which consists of numerous releases incorporating results of small studies and collections of information of current interest.

The "New Mexico Studies in Business and Economics," a series in which research monographs on various subjects are issued at irregular intervals.

The "County Economic-Background Series," individual reports on the development and nature of the economy of New Mexico counties.

Other activities include the Southwest Management Development Program, which embraces several types of intensified adult-education programs, including special courses and conferences tailored to the needs of specific groups and a series of week-long advanced executive conferences offered several times each year at pleasant Bishop's Lodge in the foothills of the Sangre de Cristo Mountains north of Santa Fe.

**TECHNICAL-SERVICES PROGRAM.** This program seeks to increase the technological competence of industry, business, and commerce in New Mexico through use of technological advancements resulting from national research. Services are primarily two: first, field counseling services for managers and technical personnel, including both a system for the retrieval, processing, and selective dissemination of appropriate information and also a referral service based on a compiled directory of scientific, technical, and managerial talent available to business and industrial clients in the State; and, second, a comprehensive professional

educational program featuring seminars, conferences, and short courses employing technical information likely to promote New Mexico's economic growth.

The Bureau also confers with groups and individuals desiring to avail themselves of Bureau services. In addition, it sponsors conferences at which businessmen, civic leaders, and scholars meet to exchange information and pool their resources toward the solution of common problems.

**TECHNOLOGY APPLICATION CENTER.** This Center provides the means of transferring newly developed product ideas, processes, innovations, and other new technology to private industry. In association with NASA's Office of Technology Utilization, TAC combines sophisticated techniques of handling information with a multidisciplinary staff of experienced engineers and business specialists, complemented by the faculty and the resources of the University and several other participating centers throughout the Nation. The four major areas of services offered are (1) a retrospective search, starting with identification of clients' problems and including a computerized search of some 200,000 data documents and an ultimate selection of all information relevant to each problem; (2) a selective dissemination service, consisting of making available to clients a bimonthly selection of reports on pertinent developments, new materials, and new products; (3) industrial applications, consisting of another series of bimonthly reports—these aimed at aiding clients to streamline their technological needs; (4) other services, including marketing information and access to a series of special bibliographies and a wide range of aids in management, engineering, and the sciences, with these aids being made available by numerous campus programs. Staff: William A. Shinnick, Director; Thomas R. Lyons, Assistant Director; Walter W. Long, Assistant Director; Eugene Burch, Walter W. Long, and Erland Frederickson, Applications Engineers.

**CENTER FOR COMMUNITY-ACTION SERVICES.** This Center operates several programs in the broad area of community development. Within the Economic Opportunity Program the staff provides technical assistance and training to selected communities in New Mexico, enabling them to develop and implement long range plans to alleviate poverty by encouraging participation of the poor, community organization, and mobilization of resources. The Center has sponsored numerous VISTA (Volunteers in Service to America) projects. In addition, the Center has held leadership training programs for Mexican rural youth in connection with the Agency for International Development Mission in Mexico.

**DATA BANK.** A new program of the Bureau, the Data Bank is the official repository of an enormous volume of statistical and other material on New Mexico and of pertinent regional and national data. Upon request from individual citizens, official agencies and departments, institutions, private business firms, etc., the Data Bank identifies, assembles, and forwards materials meeting precise needs. Free staff time on each request is limited; however, users may come to the Data Bank and gather their own materials.

**COMMUNITY-SERVICES PROGRAM.** The Community-Services Program, operating under Title I of the Higher Education Act of 1965, is administered by the Bureau. This program assists in solving community problems by applying college and

university resources to major community needs. Current programs deal with problems of local government, economic development, youth opportunities, poverty, and community development. Staff: William W. McKinstry, Director; Facundo B. Valdez, Assistant Director; Eugene Rey Hill and Gabriel Rodriguez, Field Representatives.

#### THE BUREAU OF ENGINEERING RESEARCH

W. W. Grannemann, Professor of Electrical Engineering, Director.

Established in 1937 as an Engineering Experiment Station, the Bureau of Engineering Research is an integral part of the College of Engineering. Research activities in the College of Engineering are directed toward (1) maintaining an engineering faculty who are leaders in the discovery and development of new engineering knowledge, (2) supporting the engineering graduate program by affording graduate students high-level research opportunities, and (3) service to the citizens and industry of the State of New Mexico.

It is the purpose of the engineering research program not only to train future research workers, but also to carry out a program of research that assures both sound investigations of a fundamental nature in the engineering sciences and work devoted to the solution of State problems and to greater utilization of the State's natural resources. Through publications, cooperative activity with New Mexico industry, and the conduct of sponsored contract research projects, it is the purpose of the Bureau of Engineering Research to play a prominent role in the industrial and technical development of New Mexico.

#### THE DIVISION OF GOVERNMENT RESEARCH

Acting Director: Dorothy I. Cline, Professor of Political Science. Supervisory Board: Richard F. Tomasson, Associate Professor of Sociology, Chairman; David B. Hamilton Jr., Professor of Economics; Albert H. Rosenthal, Professor of Political Science.

The Division of Government Research, created by the University in July 1945, has as its purpose the study of government and politics in New Mexico and the region.

The Division selects for study contemporary subjects of importance to the people of the State, publishes the completed studies, and makes them available to interested citizens and officials in New Mexico and elsewhere.

### LECTURES

#### THE ANNUAL RESEARCH LECTURESHIP

The Annual Research Lectureship of the University, established in 1954, was authorized by the General Faculty in order to encourage, recognize, and honor research and creative work and to acquaint the University community and the public with the achievements of faculty members. The Graduate Committee, in joint sponsorship and with the approval of the University Administration, makes the yearly nominations of the lecturer.

#### CARL GRABO MEMORIAL LECTURES

These lectures in memory of Carl Grabo, Visiting Professor at the University from 1947 to 1954, are offered each year under the auspices of the Department of English and are open to the public. They are supported by income from a fund established by friends of Carl Grabo.

**VISITING LECTURERS**

Funds are available to two faculty committees, under the sponsorship of the Graduate School, for the purpose of inviting noted scholars and public figures for occasional public lectures on the campus. One committee is concerned with lectures in the general area of the humanities and social sciences, the other in engineering, mathematics, and science.

**SPEAKERS COMMITTEE**

The Speakers Committee, a joint student-faculty committee, annually brings to the campus a number of public lectures on topics of current interest. These lectures are financed by student government.

**MILITARY TRAINING****AIR FORCE ROTC**

The purpose of Air Force ROTC is to select and train students who possess the character, intelligence, aptitude, and desire to become officers in the United States Air Force.

Air Force ROTC is a 2-year program for university students. Normally a student will begin during the fall semester of his sophomore year processing which includes written and physical tests as well as 6 weeks of field training during the summer preceding his junior year. All male students who have 2 years of academic work remaining for their degree, either at the baccalaureate or graduate level, are eligible for formal enrollment providing all processing has been completed the previous year.

Individuals must be able to be commissioned prior to reaching age 30 if programmed for other than flying training. If programmed for flying training, individuals must be commissioned prior to reaching 26½ years of age.

Uniforms and textbooks for Air Force ROTC courses are provided by the Air Force. Participants receive approximately \$130 for the six-weeks training period (in addition to six cents per mile travel pay) and \$50 per month for 20 months while participating in the program on campus. Total cadet pay for the 2-year program will be approximately one thousand dollars.

Cadets are required to attend Aerospace Studies courses for 3 hours per week. Credit for Air Force ROTC courses may be applied toward an academic degree except in the College of Business Administration. Most other undergraduate colleges of the University have made arrangements whereby Aerospace Studies courses may be used as elective courses. For cadets who have gained sufficient hours under the old 4-year program, the College of Arts and Sciences and the College of Education offer a minor study in Aerospace Studies.

**NAVAL ROTC**

A Naval Reserve Officers Training Corps Unit, established by the Navy Department, is in operation at The University of New Mexico. The NROTC offers the opportunity for NROTC students to obtain a commission in the U.S. Navy and Marine Corps and the U. S. Naval Reserve and Marine Corps Reserve upon completion of the baccalaureate requirements.

Three types of programs are included in the NROTC. Entering male freshmen

who have been selected by the Navy Department after nationwide competitive examination are enrolled as Regular NROTC students. Regular NROTC students receive \$50 per month and have their tuition, books and fees, and uniforms paid for by the Navy. Examinations for the Regular Program are given each winter by the Navy Department. Additional information concerning the Regular Program can be obtained from high school principals, Navy recruiters, and the Professor of Naval Science in the University NROTC Unit.

The 4-year Contract NROTC program is open to all entering male freshmen. The Professor of Naval Science will select applicants based on the results of a written examination and a required physical examination, both of which are given at the University during July, August, September, January and February. Contract NROTC students receive their Naval Science textbooks and uniforms without charge and are paid approximately \$50 per month during their junior and senior years. Additional information on the Contract Program can be secured from the Professor of Naval Science in the NROTC Unit.

The 2-year Contract NROTC program is open to male graduate and undergraduate students who have 2 more years of academic work remaining until the award of their baccalaureate degrees. Such students are required to attend a 6-week summer cruise prior to entering the program to make up the Naval Science academic and military training they would have taken in their first 2 years of college had they been in the NROTC program. While on this cruise the participants receive approximately \$117 for the 6-weeks training period. Upon entering the program at the beginning of their junior year they will commence to receive \$50 per month, which will be paid during their junior and senior years. Application for the two year program must be made early in Semester II of the Sophomore year.

Regular NROTC students are commissioned in the Regular Navy or Marine Corps, while Contract students are commissioned in the Naval or Marine Corps Reserve. Contract students may, however, be commissioned in the Regular Marine Corps, provided they so request and vacancies exist.

Students may enter the NROTC at other than freshman level provided their entry is approved by the Naval Science Department Chairman and they agree to "double up" in Naval Science courses in order to graduate in a total of 4 years of college-level work.

Naval Science courses are open to any student who is attending The University of New Mexico; however, registration as a "Naval Science student" must be approved by the Chairman of the Naval Science Department. Students desiring to take Naval Science for credit need not be members of the NROTC Unit.

# ADMISSION AND REGISTRATION

## APPLICATION AND CREDENTIALS

**A**LL COMMUNICATIONS regarding entrance to the undergraduate colleges of the University should be addressed to the Director of Admissions. The University requires that each new student file an application for admission (form to be obtained from the Office of Admissions and Records) and pay a \$10 application fee. In addition, he must have his credentials sent directly to the Director of Admissions from the high school or college(s) previously attended; transcripts in the possession of students are not acceptable for entrance purposes. All beginning freshmen and transfer students who have completed fewer than 26 semester hours of credit acceptable to this University are required also to take the American College Tests and to have official scores transmitted to the Director of Admissions. A former student in the University who was not enrolled here for the previous regular semester is required to file an application for readmission, except that students who complete work in the summer session are not required to file an application to re-enter in the fall. Transcripts of any college-level studies taken since the last regular attendance at the University will be required. **Deadlines for the receipt of application and credentials are July 15 for the fall semester and January 1 for the spring semester. The deadline for Dental Hygiene is April 1.**

Students are accepted for admission to the University for the second semester, which begins in February, as well as for the fall and summer sessions, except that students may enroll for the first semester of Law, Medicine, or Dental Hygiene only in the fall.

Applicants for the Graduate School, the School of Law or the School of Medicine and applicants for the Dental Hygiene or Dental Assisting programs are referred to those respective sections of this catalog.

### AMERICAN COLLEGE TESTS (ACT)

The American College Testing Program battery of tests is required for advisement and placement purposes of all students applying for admission as beginning freshmen and of transfer students applying with fewer than 26 semester hours of college credit acceptable by this University. Other national tests may not be substituted for the ACT. Although the American College Tests are given several times each year, it is recommended that they be taken on a fall testing date during the student's senior year in high school. Students are required to register with ACT in advance of the testing sessions. High school seniors should consult their counselors for registration deadlines and testing dates and places.

### APPLICATION FEE

An Application Fee of \$10 is payable when the application for admission is submitted. This fee is not refundable. The application and credentials of students who apply for admission but do not enroll are kept on file for one calendar year after the beginning of the session for which application was made. The Application Fee paid with the original application will be extended to cover a reapplication made within that time-limit.

**FRESHMEN****HOW TO APPLY**

Each freshman is required to:

1. Present an application for admission (see above).
2. Enclose with the application form the \$10 application fee.
3. Have ACT scores (see p. 77) sent to the Director of Admissions.
4. Request that his high school send an official transcript of his record to the Director of Admissions.

When the application, transcript, and ACT test results have been received, the Office of Admissions will send to the applicant notice of eligibility or ineligibility for admission. In some cases, a preliminary notice of eligibility will be issued prior to the final notice of admission. The final notice of admission will be accompanied by an advisement and registration appointment, a housing application form if the student requires dormitory accommodations, registration instructions, and a medical examination form.

**WHEN TO APPLY**

The University has a July 15 deadline for receipt of applications, all required credentials, and required test scores from students planning to enroll for the fall semester. The deadline for receipt of these items for the spring semester is January 1. To accommodate students desiring an early determination, applications from high school students will be accepted as early as the first semester of the senior year, provided ACT scores are also available at that time. From the University's standpoint, the ideal time for a student to file his application is shortly after the beginning of his final semester. At that time the student should arrange to have his ACT scores sent to the University (unless he has previously done so), and to have his high school mail directly to the Director of Admissions a transcript complete for his first seven semesters and including a list of all courses in progress. No application will be processed until all required items are available. The partial transcript will provide a basis for extending tentative admission to the apparently eligible applicant, subject to receipt of a final transcript showing grades and credit for the senior year, and the graduation date.

**UNIVERSITY COLLEGE**

All freshmen are enrolled in the University College until they have completed satisfactorily a minimum of 26 semester hours and have met specific requirements for admission to the degree-granting colleges of the University.

**ADMISSION BY CERTIFICATE**

The standard of preparation for admission to freshman status in the University is the 4-year high school course. High schools accredited by regional accrediting associations, state departments of education, or state universities, are recognized by The University of New Mexico.

Graduates of accredited high schools may be admitted to the University upon presentation of transcripts showing graduation from a 4-year high school with no fewer than 15 units (or graduation from a senior high school with a minimum of 11 units).



Main Campus Entrance



The minimum qualitative requirement for admission of New Mexico residents is a grade average of C in previous academic work, exclusive of grades in physical education activity and ensemble music courses. A higher average (2.5 on a 4.0 grading system) is required of applicants who are not legal residents of New Mexico. The applications of students whose records do not meet the indicated requirements may be subject to review by the Committee on Entrance and Credits.

Graduates of unaccredited or partially accredited high schools who present transcripts which meet admission requirements in all respects except accreditation may become eligible for admission upon validating the unaccredited high school work by qualifying scores on the ACT tests.

If the applicant is not a high school graduate but has completed a minimum of 15 required units in an accredited high school, has achieved an exceptional record, has satisfied the specified high-school-level subject-matter requirements of this University, makes a score satisfactory to the University on the ACT tests and has the unqualified recommendation of his principal or superintendent, he may be considered for early admission. A personal interview with the Director of Admissions is required before a decision is made. The University does not encourage early admission.

The University recommends that freshmen be at least 16 years of age.

**SUBJECT MATTER REQUIREMENTS.** In determining admission status, it is the primary concern of the University that the applicant have adequate preparation for successful college work. As evidence of adequate preparation, it is required that the applicant's transcript show within the 15 minimum required units successful completion of at least 13 units in specified subject-matter areas. Of these 13 units, 9 units must be distributed as follows:

English—3 units

Social Studies—2 units (including 1 unit in U. S. history)

Science—2 units, 1 unit of which must be in Biology, Chemistry, or Physics

Students intending to study nursing are advised to have completed at least 1 unit in chemistry.

Mathematics—2 units (Algebra, Geometry, Trigonometry, or higher mathematics)

The minimum 2-unit requirement may be satisfied with 2 units of algebra or 1 unit of algebra and 1 unit of geometry.

A student intending to study engineering or architecture will find it necessary, in order to complete his prescribed curriculum without loss of time, to have completed at least the following high-school mathematics: 2 units of algebra, 1 unit of plane geometry,  $\frac{1}{2}$  unit of trigonometry or college-preparatory mathematics. See "High School Preparation" in College of Engineering or Department of Architecture sections. These preparatory courses are also recommended for students planning to major in mathematics.

Students planning to enter the fields of pharmacy, pre-medicine, pre-dentistry, nursing, the sciences, or business administration are advised to

include in their preparation at least intermediate algebra and plane geometry.

The remaining 4 units of the specified 13 must be chosen from the following list of restricted electives. Not more than 2 units in Group A and 2 units in Group F may be used to satisfy restricted elective requirements.

Group A—English, Journalism, Speech

Group B—French, Spanish, Latin, German, and other foreign languages

Group C—Algebra, Plane Geometry, Solid Geometry, Trigonometry, or higher mathematics

Group D—General Science, Biology, Chemistry, Physics, Physiology, Geology

Group E—History, Geography, Sociology, Economics, Government, Psychology, Social Science

Group F—Fine Arts (Music, Art, Drama)

The 2 or more additional units may be from any of the above categories or in any other courses for which credit is granted by the student's high school.

#### ADMISSION WITH ENTRANCE DEFICIENCIES

An applicant who otherwise qualifies for admission to the University may be admitted with a high school record which shows no more than 2 units in subject-matter deficiencies, except that admission to the Dental Hygiene Program is not granted when deficiencies exist. Time limitations in that program preclude deficiency removal after enrollment.

#### REMOVAL OF ENTRANCE DEFICIENCIES

Applicants admitted to the University with subject-matter deficiencies are urged, when time permits, to enroll in an accredited high school for the specific courses in which they are deficient and to complete these courses before actual enrollment in the University.

A student admitted to the University with deficiencies in English or in mathematics may not enroll in a college-level course in these fields until he has satisfied the specified high school requirements. If he qualifies on the ACT tests for enrollment in college-level mathematics or for unrestricted enrollment in college-level English courses, the deficiencies in these subjects will be considered removed. If the student does not achieve qualifying scores on these tests in English and mathematics, deficiencies in these areas must be removed by high school correspondence courses or non-credit courses offered by this University.

A student admitted with deficiencies in areas other than English or mathematics may remove deficiencies by satisfactory completion of regular 3 or 4 semester-hour college courses in the areas of deficiency. Although a grade of D in a college course may be used to satisfy a high-school-level deficiency, college credit will be granted only for courses in which the student earns a grade of C or better.

All high school level subject-matter deficiencies must be removed within one calendar year of the student's first enrollment in regular status in this University.

#### ADMISSION BY EXAMINATION

A graduate of an accredited high school who is not eligible for admission because of excessive subject-matter entrance deficiencies may be admitted if he

has achieved a qualifying percentile on the University of New Mexico norms for the ACT.

A student 21 years of age or more who has not been graduated from high school may be admitted if he achieves standard scores averaging 61 or above on the high-school-level General Educational Development tests or standard scores averaging 22 or above on the ACT test.

The student admitted by examination will be held responsible for removal of deficiencies in the specified subject-matter areas. (See "Removal of Entrance Deficiencies" above.)

#### ADVANCED PLACEMENT PROGRAM

The University participates in the Advanced Placement Program of the College Entrance Examination Board. Credit may be granted for advanced placement examinations completed with grades of 3, 4, or 5 if recommended by the academic departments concerned.

### TRANSFERRING STUDENTS

#### HOW TO APPLY

Each new student who has attended other colleges or universities and who is seeking admission to an undergraduate college is required to file with the Office of Admissions and Records an application for admission (form to be obtained from that office) accompanied by the required \$10 Application Fee. He should also request the authorities at each institution attended to send an official transcript of his record to the Director of Admissions. The student who is applying with fewer than 26 semester hours of college credit acceptable by this University must also have sent to the Director of Admissions his official scores on the American College Tests (see p. 77) and a complete official transcript of his high school work. No application will be processed until all required items, including the ACT scores where applicable, are on file.

A student currently enrolled in another institution at the time he makes application and applying for admission for the following session to one of the undergraduate colleges of this University should arrange to have forwarded to the Director of Admissions an official transcript which includes a listing of courses in progress as well as all completed work. On the basis of these partial credentials, a determination of admission status will be made pending receipt of the final transcript, thus enabling the student to make definite his plans for transfer.

The student must indicate on the application all previous college attendance. An applicant is not permitted to ignore previous college attendance or enrollment even though he may prefer to repeat all of his previous college courses. A student found guilty of non-disclosure or misrepresentation in filling out the admission application form, or a student who finds after admission or enrollment that he is ineligible for academic or any other reason to return to his last institution and who fails to report this immediately to the Admissions Office, will be subject to disciplinary action, including possible dismissal from the University.

Applicants seeking admission to the Graduate School, the School of Law, or the School of Medicine of this University are referred for admission requirements and procedures to those respective sections of this catalog and to the **Bulletin** of the respective School.

#### WHEN TO APPLY

The application, required credentials, and ACT results (when applicable) must be on file in the Admissions Office not more than 6 months in advance of the session for which application is being made and not later than July 15 for the fall semester and January 1 for the spring semester.

#### UNIVERSITY COLLEGE

All students who have completed fewer than 26 semester hours of acceptable college credit will be required to enroll in the University College. (See p. 142.)

The student who has completed 26, but fewer than 64, semester hours of acceptable college credit and who is found admissible but who has not met the special admission requirements of the degree-granting college of his choice may be required to enroll in the University College until he has qualified for transfer to the degree-granting college. (See the respective college sections of this catalog for admission requirements.)

The University College will not accept students who have attempted 72 or more academic semester hours or who have earned 64 or more academic semester hours.

#### ADMISSION PROCEDURE

When the application, Application Fee, all required credentials, and the ACT results (if applicable) have been received, the Office of Admissions will send to the applicant a notice of eligibility, or ineligibility, for admission. In some cases preliminary notice of eligibility will be issued prior to the final notice of admission. The final notice of admission will be accompanied by an advisement and registration appointment, a housing application form if the student requires dormitory accommodations, registration instructions, and a medical examination form.

An evaluation of the transferred credit will be completed as soon as possible after the admission status has been determined. In some instances it will not be prepared until after the notification of admission has been issued. If the student receives his evaluation prior to registration, he should retain it for use at that time.

#### REGULATIONS

The minimum qualitative requirement for University admission of New Mexico residents is a grade average of C in all previous college work, exclusive of grades in physical education activity and ensemble music courses. A higher average (2.5 on a 4.0 grading system) is required of applicants who are not legal residents of New Mexico. The applications of students whose records do not meet the indicated requirements may be subject to review by the Committee on Entrance and Credits. A student under suspension from any other college or university will not be considered for admission during the period of disqualification.

A transferring student is required to meet the freshman entrance requirements (see p. 80) except that if he has completed in an accredited collegiate institution, which has granted him regular status, 2 semesters (26 semester hours minimum) of work which meets the University's qualitative admission requirements,

his preparatory record will be considered cleared even though the credits do not meet our requirements in full.

Students from fully accredited institutions ordinarily will be given full credit for work transferred, insofar as the courses taken are the same as, or equivalent to, courses offered in the college in which the student enrolls in this institution. Grades of D earned in other institutions are not acceptable for credit in The University of New Mexico.

Only an approximate evaluation can be made prior to registration, and all credit is tentative until the student has completed at least one semester of satisfactory work in residence.

Credits transferred from an accredited junior college will be accepted up to a maximum to be determined by the college in which the student is enrolled. In accepting junior college credits, no courses will be considered as above sophomore level.

No credit is accepted from technical institutes which are not members of regional accrediting associations. Only credit earned in non-technical subjects is accepted from technical institutes which are accredited by a regional accrediting association.

Applicants from unaccredited institutions must have the equivalent of a 2.5 University of New Mexico index to be eligible for admission by transfer. Credit earned in unaccredited institutions is usually accepted on the same basis as by the state university of the state in which the institution is situated. When acceptance of credit on a validation basis is indicated, the student will be required to validate such credit by at least a 2.0 index on his first 30 semester hours of residence study here. The maximum credit which will be allowed on a validation basis is 60 semester hours plus not more than 4 credits in physical education activity courses. Where it seems proper, examinations for the validation of credit may be required.

Correspondence and extension credit from institutions not accredited by regional accrediting associations is not accepted for transfer. A student who has completed such correspondence or extension work in a course comparable to one offered by this University has the privilege of establishing credit here under the regulations governing special examinations to establish credit.

**CONCURRENT ENROLLMENTS.** Credit will not be granted for college courses carried either through extension or correspondence, or in residence at another institution of college level, when a student is enrolled for residence credit in this University, except upon prior written approval of the dean or director of the college in which the student is enrolled here.

**UNCLASSIFIED STUDENTS.** Students transferring from unaccredited or partially accredited institutions are unclassified until they have validated credit in accordance with the University regulations. This designation is also used temporarily when the evaluation has not been made and definite classification cannot, therefore, be determined.

### **READMITTED STUDENTS**

A student who has previously enrolled in residence in the University but whose

attendance has been interrupted by one or more regular semesters is required to file an application for readmission whether he plans to attend in degree or in non-degree status. The degree student who, during his absence from the University, has attended another collegiate institution, or has taken college-level courses by correspondence or extension, must provide complete official transcripts of such studies. The Application Fee is not required of undergraduate students who have formerly attended the University in degree status. Students applying for readmission in regular status are required to meet the application deadlines.

A student enrolled in another institution at the time of application and applying for readmission to one of the undergraduate colleges should arrange to have forwarded an official transcript which includes a listing of courses in progress as well as all completed work. An applicant for readmission to the Graduate School, to the School of Law, or to the School of Medicine will have the required transcripts sent to the respective School. On the basis of these partial credentials, a determination of readmission status will be made pending receipt of the final transcript, thus enabling the student to make definite his plans for re-entry.

Credit earned during suspension from this University will not be accepted for transfer, but attendance at another institution during suspension must be indicated on the student's application for readmission and an official transcript of record must be furnished.

#### UNIVERSITY COLLEGE

The readmitted student in regular status who has not completed 26 semester hours of acceptable college credit will be required to enroll in the University College (see p. 142).

The readmitted student in regular status who has completed 26, but fewer than 64, semester hours of acceptable college credit and who is found readmissible but who does not meet the special admission requirements of the degree-granting college to which he is seeking readmission may be required to enroll in the University College until he has qualified for transfer to the degree-granting college. (See the respective college sections of this catalog for admission requirements.)

The University College will not accept students who have attempted 72 or more academic semester hours (including hours with grade of Incomplete) or who have earned 64 or more academic semester hours.

#### NON-DEGREE STUDENTS

Persons wishing to pursue credit courses, either evening or daytime, without meeting the full requirements for admission to undergraduate status, may apply for non-degree status in the University's Community College provided the following qualifications are met:

The applicant must be at least 21 years of age, or must have been graduated from high school. (High school graduates who have not been out of high school for a year or more may not enroll in non-degree status, but should file formal application for degree status in the University.)

A student who has exhausted his eligibility in the University College and who

is not academically eligible to enter a degree-granting college of this University may not enroll in non-degree status.

It is not the policy of the University to permit students from other countries to register in non-degree status.

The applicant who wishes to register in non-degree status is required to file a short application form with the Office of Admissions. These forms may be obtained from that office.

Previous academic records are not required of applicants for non-degree status. It is urged, however, that non-degree students planning to enroll in advanced courses requiring prerequisites bring with them at registration some evidence that prerequisites have been fulfilled.

Applicants for non-degree status are required to certify that they are not under suspension from any college or university. A student found guilty of non-disclosure or misrepresentation in filling out the admission application form, or a student who finds after admission or enrollment that he is ineligible for academic or any other reason to return to his last institution and who fails to report this immediately to the Admissions Office, will be subject to disciplinary action, including possible dismissal from the University.

The student registered in non-degree status is subject to all University regulations governing registration, attendance, and academic standing. Credit earned in non-degree status is recorded on the student's permanent record and may be applied in an undergraduate degree program when the student has satisfactorily established degree status by meeting the entrance requirements of the University and of the degree-granting college of his choice. Normally credit earned in non-degree status may not be allowed toward an advanced degree. For circumstances under which such credits may be applied towards a graduate degree at the University of New Mexico, see the **Graduate School Bulletin**. Students in non-degree status who do not have a bachelor's degree or equivalent may not enroll in 500-600 level courses.

The student in non-degree status may not enroll for more than 7 semester hours during a regular session without special approval of the Director of the Community College.

No undergraduate college of the University will accept in a degree program in excess of 30 semester hours earned while the student has been registered in non-degree status, nor is a college obligated to accept any hours earned in non-degree status which do not fulfill college degree requirements. The student who is approaching this 30-hour limitation in non-degree status, and who wishes to continue taking courses for credit, should consult the Admissions Office concerning procedures required to establish regular degree status. Regular status must be attained prior to the student's next registration. If regular status is not attained, the student will be allowed to register in courses as an auditor only, receiving no credit.

Non-degree students applying for regular status are required to follow admission procedures and to provide all items requested of transfer students (see p. 82).

## GRADUATE STUDENTS

Refer to "Graduate School" and to the **Graduate School Bulletin**.

## LAW STUDENTS

Refer to "School of Law" and to the **Law School Bulletin**.

## MEDICAL STUDENTS

Refer to "School of Medicine" and to the **Medical School Bulletin**.

## STUDENTS FROM OTHER COUNTRIES

The University admits qualified students who are citizens of other countries. The non-citizen is required, for visa purposes, to enter in regular status. He is, therefore, required to present, in addition to the application for admission: official certified transcripts from each secondary school attended; official certified transcripts from each college and university attended; American College Tests (ACT) scores, if applicable (see p. 77); official certifications of any state or national examinations taken; evidence of satisfactory results on the "Testing of English as a Foreign Language" (TOEFL) examinations in areas where these examinations are administered (in other areas, a certificate or statement from the American consul as evidence of a competent reading, writing, and speaking knowledge of the English language will be considered); and a certified statement which shows ability to meet financial responsibilities while in the United States.

To facilitate his admission procedure, the applicant should gather all credentials and send them in the same mail to the Director of Admissions, except that TOEFL and ACT results are sent direct to the University by the testing offices. Applications for graduate-level study (beyond a first college-level degree) and all the credentials listed above (excepting only the secondary school credentials) should be mailed to the Dean of the Graduate School.

## VETERANS

A veteran is defined as any person who served in the Armed Forces for a minimum of 90 days from September 16, 1940 to July 26, 1947, or who during a subsequent period of active duty, became eligible under one of the Public Laws governing educational benefits for veterans.

The veteran student should follow the requirements and procedures outlined in the "Admission and Registration" section of the catalog in seeking admission to the University. For certification of eligibility for educational benefits under one of the Public Laws, he should make application to the Regional Office of the Veterans Administration for his home state.

Credit for service training and experience is granted on the basis of measured educational achievement, in conformity with the procedures recommended by the North Central Association of Colleges and Secondary Schools and the American Council on Education. Students who were eligible for educational benefits under one of the Public Laws or who served on active duty during a period of



at least 1 calendar year after July 26, 1947 must apply for such credit during the first semester of enrollment in regular status. Any credit tentatively allowed will become a part of the student's permanent record after he has completed a minimum of 12 semester hours at this University. Total semester hours of military credit to be accepted in a specific degree program will be at the discretion of the degree-granting college of this University in which the student is registered. A maximum of 8 semester hours elective credit is allowed for basic or recruit training apportioned as follows: First Aid, 2 semester hours; Hygiene, 2 semester hours; Physical Education Activity, 4 semester hours. Eight semester hours, apportioned the same as credit granted for service in the U. S. Armed Forces, will be granted to foreign students who have completed military training, provided they can show official credentials in support of their statements. Credit earned in specialized army and navy programs conducted by college and university staffs is allowed in accordance with the recommendations of the administering institution. Credit for work done in formal training programs is allowed in accordance with the recommendations of the American Council on Education or on the basis of examinations here. U. S. Armed Forces Institute courses are acceptable if courses have been taken through university extension divisions accredited by regional accrediting associations. Other U.S.A.F.I. courses may be accepted if recommended by the American Council on Education and validated by successful scores on "End-of-Course Tests" or "Subject Standardized Tests." U.S. Armed Forces Institute correspondence courses not directly transferable or validated by these tests may be established by examination in this University. No credit is allowed for the College-Level General Educational Development Tests nor for the Comprehensive College Tests (General Examinations). The veteran has the opportunity, while enrolled in regular status in the University, to demonstrate his competence in any University subject, and to establish credit in that subject, by passing an examination as required by the Committee on Entrance and Credits.

## MEDICAL EXAMINATIONS

A student enrolling for 8 or more semester hours for the first time, or returning to the University after an absence of one year or more, is required to have a physical examination from his own doctor. This must be reported on the official University forms (provided at the time the student is notified of his admission) and must be filed with the Student Health Service **prior to his registration**. Students will be re-examined by the University physicians when such examinations are indicated. Health-seeking students may be accepted at the University if, in the judgment of the University physicians, their admission does not endanger themselves or their associates. The University may refuse enrollment to, or cancel the enrollment of, any student who is unfit to carry on class work, or whose condition might be a menace to the health of other students.

## REGISTRATION

### ORIENTATION

At the opening of each semester a new-student orientation period is conducted beginning with a new-student assembly (see the Calendar). The purpose of this program is to acquaint the new student with some of his fellows, to help him feel

more at home in new surroundings, to permit him to meet advisers and counselors, and to familiarize him with University methods and life.

After the student's arrival on the campus, the Student Council issues a **Freshman Handbook** which contains information on student organizations, library rules, campus regulations, suggestions for effective study, etc.

During his first registration, each new student is assigned by the dean or director of his college to a faculty adviser who assists him in planning his academic program. The adviser keeps a permanent file on each of his advisees and is available for consultation.

#### REGISTRATION PROCEDURE

Details of the registration procedure are contained in a special notice issued by the Admissions and Records Office, and distributed to students with their appointments for advisement and registration.

#### TIME OF REGISTRATION

Students are urged to register on the days set aside for registration (see University Calendar). A late registration fee is charged to each student who does not complete his registration on the specified days. No student may enroll late in any course unless he has the permission of the instructor concerned and of the dean or director of the college in which he is enrolled.

#### PAYMENT OF TUITION AND FEES.

Payment of tuition and fees is required in advance of registration. Instructions for payment and payment deadline dates are made available to the student in advance of each session. For specific information about tuition and fees, see pp. 90-93.

#### SELECTIVE SERVICE REGULATIONS FOR EDUCATIONAL DEFERMENT

Selective Service regulations place the responsibility for requesting educational deferment on the individual student. The request must be made in writing directly to the student's local draft board. The written request for deferment must be renewed at the beginning of each school year. The University, at the student's request, will confirm his enrollment. At each registration a Selective Service card is included in the registration packet of every male student. Completion of this card constitutes a request that confirmation of enrollment be sent to the student's local draft board. The University's notification is not a substitute for the student's own written request for deferment. When the student feels there are special circumstances his board should know about his enrollment, he should consult with the Records Office in the Administration Building. Draft eligible male students should familiarize themselves thoroughly with Selective Service regulations governing educational deferment.

#### STUDENT RESPONSIBILITY

The University will hold the student responsible for completion of the courses for which he has been enrolled, unless he obtains approval for a change in his registration, or files an official withdrawal from the University.

#### CHANGE IN ENROLLMENT

See "General Academic Regulations."

# STUDENT EXPENSES

## FEES (REGULAR SESSION)

**F**EEES ARE CHARGED according to the number of semester hours carried by a student; auditors (those enrolled in a course for no credit) pay the same fees as students enrolled for credit. All tuition and fee charges, as well as fees for special services, are subject to change without notice.

## REGISTRATION FEES (undergraduate, graduate, and Law):

	Per Semester	
	N.M. Residents	Non-Residents
Students carrying 12 or more hours:		
Tuition and Fees*	\$210.00	\$525.00
Student Group and Health and Accident Fee (optional) <sup>1</sup>	8.50	8.50
Total Tuition and Fees with Group Insurance	\$218.50	\$533.50
All students carrying 11 hours or fewer:		
Tuition and Fees, per semester hour	\$ 17.50	\$ 43.75

Graduate students who enroll for master's thesis or for doctoral dissertation will pay regular tuition rates.

Applied music fees of \$32 per credit hour, in addition to regular tuition, will be charged all full-time University students enrolling for applied music courses beyond their curriculum requirements. Part-time students should consult the Music Department for a schedule of applied music fees.

## REGISTRATION FEES (Medical School):

	Per Semester	
	N.M. Residents	Non-Residents
Tuition and Fees*	\$300.00	\$600.00
Student Group Health and Accident Fee <sup>2</sup>		

## TUITION AND FEE PAYMENT

All students are required to pay tuition and fees, or to make arrangements satisfactory to the University for such payment, **prior** to the beginning of the advisement and registration procedure.

Instructions for payment of tuition and fees are outlined in the Fee Announcement which is sent to the student with his other registration materials.

Checks or money orders should be made payable to THE UNIVERSITY OF NEW MEXICO and should be mailed to the Cashier, The University of New Mexico, Albuquerque, New Mexico, 87106. **Do not mail cash. To assure credit to the proper student account, it is mandatory that payment be accompanied by the Student Payment Record form and the Cashier's Record form.** These forms bear the student's name and identification number.

## HOUSING FEES

See Catalog section "Student Housing."

\* Tuition and fees in the case of all new students includes a \$5 matriculation fee; and in the case of all full-time students, includes fees for major athletic events.

<sup>1</sup> The group health and accident insurance is available only to students enrolling for 8 or more semester hours. Participation is at the student's option.

<sup>2</sup> Arranged by Medical School; fees to be determined.

## OTHER FEES FOR SPECIAL SERVICES

Application fee .....	\$10.00
Change in program after end of second week .....	1.00
Late payment penalty (tuition) .....	5.00
Late registration fee .....	5.00
Removal of Incomplete grade, per course .....	2.00
Advanced Standing Examination, and examination to establish credit, per credit hour .....	2.50
Examination to validate credit†, per course .....	2.00
Other faculty-administered special examinations‡ .....	2.00
Transcript of credit (per copy) .....	1.00
Deferred payment fee .....	5.00
Penalty for dishonored checks .....	2.00
Late ACT Testing .....	10.00
Graduate School Foreign Language Test .....	6.00
Miller Analogies Test .....	5.00
Air Force ROTC activity fee, per year payable in full Semester I .....	8.00
Graduation fee, all bachelor's and master's candidates .....	10.00
Master's thesis binding fee .....	8.00
Architectural thesis fee .....	8.00
Law students' dues for N.M. Student Bar Association, per yr. ....	10.00
English 010 .....	20.00
Mathematics 010 .....	20.00
Home Economics 445L (Home Management) .....	50.00
Horseback Riding (PE 131) .....	30.00
Men's Bowling (PE 137) .....	6.50
Women's Bowling (PE 130) .....	13.00
Ice Skating and Skiing (PE 141) .....	30.00
Applied Music (see p. 90).	
Use of practice rooms	
1 hour per day, per semester .....	4.00
Each additional hour per day, per semester .....	2.00

**RESIDENCE FOR TUITION PURPOSES.** A resident student, subject to the qualifications below, is defined as one who shall have maintained bona fide residence in the State of New Mexico for at least 12 consecutive months immediately preceding his or her registration or re-registration in The University of New Mexico and who can provide evidence satisfactory to the University of his or her intent to retain residence in New Mexico.

Any person unable to qualify as a resident for tuition purposes shall be required to pay the non-resident fee.

The following general rules govern:

**A Minor Student** is entitled to resident student status upon proof of the bona fide residence in New Mexico of his, or her, custodial parent or guardian for the one year immediately preceding the student's registration or re-registration.

**An Adult Student** is entitled to resident student status if he or she has maintained bona fide residence in New Mexico continuously for 12 months immediately preceding his or her registration or re-registration and if he or she can provide evidence satisfactory to the University of intent to retain residence in the State. The residence of a married woman is determined by the residence of her husband.

† Applies to college credit already earned in another college-level institution but not directly acceptable under University regulations.

‡ See definition of special examinations. p. 135.

**Teachers.** Any person who has taught in a public or parochial school system in New Mexico on a full-time basis for a full school year of approximately nine months immediately in advance of his registration or re-registration may qualify as a resident of New Mexico for tuition purposes, provided such person can give evidence satisfactory to the University of intent to continue to make New Mexico his home.

**Special Residence Problems.** Persons who have special problems concerning residence should arrange for a conference with the Director of Admissions.

**Changes in Residence Status.** A change in status from non-resident to resident for tuition purposes can be made only after satisfactory evidence has been presented in writing to the Director of Admissions that residence requirements have been met.

**BREAKAGE.** The tuition provides for a nominal or "normal" amount of breakage in laboratory or other courses. Excessive breakage will be billed separately to the students responsible therefor.

**INSURANCE PLAN.** See p. 122 for explanation.

**ASSOCIATED STUDENTS FEE.** The assessment of this fee is a voluntary action of the student body, through its organization, the Associated Students of The University of New Mexico, and the University collects this fee as an accommodation to the Associated Students. The fee is included in the fees paid by all full-time students. The Associated Students Fee is distributed to the student organizations as shown in the Constitution of the Associated Students. Copies of the Constitution may be obtained from the Office of the Deans of Men and Women.

**STUDENT ACCOUNTS.** Students are required to pay all accounts due the University during one semester **before** registering for a new semester.

#### REFUNDS UPON WITHDRAWAL

When a full-time student withdraws voluntarily from the University during the 1st week of the semester, \$5 of his tuition will be retained as a service fee. After the 1st week, registration fees will be refunded (where the student withdraws voluntarily) to the end of the 5th week of the semester as follows:

80% refund during the 2d week

60% refund during the 3d week

40% refund during the 4th week

20% refund during the 5th week

Students withdrawing after the 5th week of a semester, or those withdrawing at any time under discipline or because of academic deficiencies, will not be entitled to any refund. There is no refund for English 010 or Mathematics 010 after the first week of classes.

**PROGRAM CHANGE.** One dollar is charged for each change of program form processed after the second week of classes. Tuition, as applicable, is charged for all courses added. The refund schedule above, for withdrawal, applies when courses are dropped and a tuition adjustment is necessary. There is no refund for English 010 or Mathematics 010 after the first week of classes.

## ESTIMATE OF TOTAL EXPENSE

The minimum amount necessary for expenses of resident students while attending the University is estimated as follows, per semester:

Tuition and fees .....	\$210.00
Student health and accident insurance .....	8.50
Books and supplies .....	75.00
Board and room .....	429.00
Clothing, laundry, misc. ....	252.50
Total, per semester .....	<u>\$975.00</u>

Non-resident students must add \$315 per semester to the foregoing tuition.  
All charges are subject to change without notice.

# STUDENT HOUSING

## FACILITIES

**T**HE UNIVERSITY operates residence halls for full-time undergraduate students. All of these structures are modern, relatively new buildings with attractive living accommodations designed to meet the specific needs of University students. The convenience and economy of housing and dining facilities located on campus within easy walking distance of classroom and recreation facilities are welcomed by students carrying a full academic load.

The housing services are an integral part of the total educational experience provided by the University. Each hall is under the supervision of trained personnel who provide leadership, counsel, and a wealth of educational opportunities to the residents. Residents of each hall elect a governing body which plans and organizes a full program of cultural, intramural, and social activities. All residents are afforded the opportunity to enjoy and participate in a democratic type of group living.

## HOUSING POLICY

A proportion of the residence hall capacity is reserved for returning students. The remainder is available to students new to the University and is assigned in order of the receipt of room and board contracts and deposits.

Students enrolled in the University College, whose homes are not in Albuquerque, are required to live in University residence halls unless given permission to live elsewhere by the Dean of Men or by the Dean of Women upon authorization of the students' parents.

Women enrolled in degree-granting colleges may live off campus with parental authorization. Married women students must have permission of the Dean of Women to live in residence halls.

Wherever they live, students are expected to conduct themselves so as to bring no discredit to the University. Any change in address should be reported immediately to the Records Office which will in turn notify the Dean of Men or Women and the dean or director of the college in which the student is enrolled.

## GENERAL REGULATIONS

All students occupying rooms in residence halls are required to take their meals at the University dining halls.

Room and roommate assignments are made during the month preceding registration. Consideration will be given to the preference of the student when possible, but the University reserves the right to make room assignments and changes. Specific room assignments are issued only when a student checks into his hall.

The University reserves the privilege of closing its residence halls during the Christmas and spring recesses. When the halls are to be closed, they must be vacated by noon of the first day of the recess. They will be re-opened the day before classes resume.

All students who are not required to remain on campus for Commencement

activities must vacate their rooms not later than 24 hours after their last final examination in the spring semester.

Dogs or other pets are not permitted in University buildings or on University premises for sanitary reasons.

All questions concerning an exception to housing policy and regulations should be addressed to the Dean of Men or to the Dean of Women.

## **ADVANCE HOUSING DEPOSIT**

### **RESERVATION FEE AND PERSONAL LIABILITY FEE**

An advance deposit of \$25.00 is required of all students who desire University housing. The deposit is retained by the University against possible losses or damages incurred by the resident for as long as the student remains in the residence halls and renews his room and board contract for succeeding years.

### **FORFEITURE PROVISIONS**

The deposit is automatically forfeited if an applicant for housing fails to give notice of cancellation, or if notice of cancellation is received later than August 15 in the case of a fall semester reservation, or January 1, if the reservation is for the spring semester. The deposit is also forfeited if a student fails to complete residence for the period of his room and board contract.

## **RESERVATION PROCEDURE**

### **NEW AND READMITTED STUDENTS**

The Director of Admissions will study each student's application for admission or readmission and his high school or college transcript. When the applicant has been found admissible, the procedures will be as follows:

1. The student will be informed of his acceptance and if he is required to have, or desires, University housing, he will be sent a housing application which he should complete and return to the Housing Collections Office, Mesa Vista Hall.
2. When the student's housing application is received, a formal room and board contract will be issued according to room space available. The student should complete the contract (to include the signature of his parent or guardian if he is under 21 years of age) and return it with his advance housing deposit of \$25.00 to the Housing Collections Office. By the terms of this contract, the student agrees to reside in University housing for both fall and spring semesters of one academic year if he remains enrolled in the University.
3. When the student's completed contract and \$25.00 advance housing deposit are received, a residence hall assignment will be confirmed by the Housing Collections Office. Upon arrival at the University, the student should report directly to the hall to which he has been assigned. Both men and women should plan to arrive between 8:00 a.m. and 10:00 p.m.

### **STUDENTS CONTINUING IN ATTENDANCE**

Students living in the residence halls are required to make housing reservations for the following year not later than May 1 of the spring semester. Student



occupancy in residence halls is on a school year basis. Unless a contract is renewed with the Housing Collections Office, living space will be assigned to another student and the deposit will be automatically refunded by July 15.

#### CHANGES IN STUDENT'S PLANS

Should an applicant for admission or readmission to the University find it impossible to keep an advance reservation, he should notify the Director of Admissions. A reservation must be cancelled no later than August 15 for Semester I, or January 1 for Semester II, in order to receive a refund of the Advance Housing Deposit.

A student returning for the fall semester should notify the Housing Collections Office no later than August 15.

The deposit is automatically forfeited if notice of cancellation is received later than the applicable dates above.

#### ROOM AND BOARD CHARGES

Room and board fees are payable in advance to the Housing Collections Office, Mesa Vista Hall. Payment may be made in full or in four installments as described below.

##### Rates for Board and Room in Residence Halls

	Per Semester	Two Semesters
Single Room . . . . .	\$480.00	\$960.00
Double Room (per person) . . . . .	429.00	858.00

Rates include a \$3.00 residence hall social fee for each semester. These rates do not provide for meals during the official recesses listed in the Academic Calendar. All rates for University room and board are subject to change whenever necessary to defray operating costs.

All the foregoing rates for University housing for men or women provide for University-supplied bed linens. All other personal linens, pillows, towels, and blankets are provided by the student. The use of electric blankets is not permitted. A telephone is furnished in each student room.

#### PAYMENT OF ROOM AND BOARD

Room and board is payable on or before August 15 for Semester I, and January 5 for Semester II. Installment payments include a \$2.00 deferred payment fee and are due as follows:

	Double	Single	Semester I	Semester II
1st payment . . . . .	\$131.00	\$182.00	August 15	January 5
2nd payment . . . . .	\$100.00	\$100.00	September 15	February 15
3rd payment . . . . .	\$100.00	\$100.00	October 15	March 15
4th payment . . . . .	\$100.00	\$100.00	November 15	April 15

A student moving into a residence hall during a semester will make payment on or before the date he occupies his room.

**REFUNDS****ROOM REFUNDS**

If a student officially withdraws from the University, refunds for room rent are calculated on the following basis:

	Refund
During the first 2 weeks of classes .....	80%
During the 3rd and 4th weeks of classes .....	60%
During the 5th and 6th weeks of classes .....	40%
During the 7th and 8th weeks of classes .....	20%

A student who withdraws after the 8th week of classes will receive no rent refund.

**BOARD REFUNDS**

Board refunds are prorated on a weekly basis according to an established rate schedule.

**DINING HALLS**

To the extent that facilities permit, students living off-campus or in fraternity or sorority houses are permitted to eat at the University dining halls. Information concerning rates and types of meal tickets can be obtained from the Housing Collections Office, Mesa Vista Hall.

**MARRIED HOUSING**

The University owns and operates some furnished one-bedroom apartments for married students. An applicant for this type of housing must be enrolled in The University of New Mexico as a full-time student. Apartment residents may remain in University housing during the summer months if they plan to re-register for the fall semester. No dogs or other pets are permitted.

## FINANCIAL AID

The Student Aids Office is responsible for the administration of undergraduate student financial aid and financial counseling to students who apply for aid. Students who are interested in loans, scholarships, or Work-Study employment should apply to this office. Some of the programs administered by the Student Aids Office are: NDEA Loans, Nursing Student Loans, Cuban Loans, USA Loans, Federal Guaranteed Loans, University Short Term Loans, The Federal Work-Study Program, The University Scholarship Program, both Academic and Athletic, and the Educational Opportunity Grant Program. The Student Aids Office is located in Building Y-1 (Air-Force ROTC Building).

The Placement Center administers all student employment except the Federal Work-Study Program. The Placement Center Office is located in T-10.

### LOAN FUNDS

The University administers its own Student Loan Fund and cooperates in the administration of several others. Applications and information concerning all loan funds are available in the Student Aids Office.

The maximum amount available from this fund is \$100. General rules applying to the University loan funds are:

1. Applicant must have been in residence at The University of New Mexico for at least one semester.
2. Applicant must be receiving grades of "C" or better in subjects carried at the time of application.
3. Applicants desiring loans from the Student Loan Fund may be requested to have the signature of one substantial local citizen on the bank note.
4. In order for a student to be eligible to apply for a student loan, it will be necessary for him to have paid in full any previous loans which he has obtained.

Six other loan funds are available for small, short-term loans: The Mortar Board Loan Fund, the Khatali-Vigilante Loan Fund, the Joe L. Kramer Loan Fund, the Phikeia Loan Fund, the Donald R. Fellows Memorial Loan Fund, and the S. U. B. Club Loan Fund. These six funds are administered through the Office of the Dean of Men.

Other loan funds available to students at the University are: The American Association of University Women's Loan Fund; Revolving Loan Fund of the Ancient, Free and Accepted Masons of New Mexico; Educational Loan Fund of the Grand Commandery of Knights Templar of New Mexico; The McGaffey Memorial Loan Fund of the Albuquerque Rotary Club; The Women's Club Loan Fund; The Altrusa Club Loan Fund; The G. Perry Steen Memorial Student Loan Fund; Zonta Club of Albuquerque Loan Fund; A. & L. Rosenbaum Loan Fund; The Pharmacy Scholarship Loan Fund; The Kiwanis-Milne Loan Fund; the State Bar of New Mexico Loan Fund; the Lois and Harry Bruch Memorial Loan Fund; and the Walter B. Fuente Memorial Loan Fund.

## **NATIONAL DEFENSE STUDENT LOANS**

The National Defense Student Loan Program is one of the features of Public Law 85-864, the National Defense-Education Act of 1958. Under the terms of the act, funds are available for loans to qualified undergraduate and graduate students. The law provides that special consideration be given to students with superior academic backgrounds. The deadline for filing a loan application is July 15 for the fall semester and December 1 for the spring semester.

## **NURSING STUDENT LOANS**

Low interest loans, from Federal funds, are available to regularly enrolled students in the College of Nursing who are in need of funds to help finance their education.

**The student must be enrolled in the College of Nursing** to qualify for a loan under this program. Interested students should apply to the Director of Student Aids, Bldg. Y-1. Deadlines for applications are July 15 for the fall semester and December 1 for the spring semester.

## **STATE PROGRAM OF LOW-INTEREST INSURED LOANS TO STUDENTS**

The University participates in this program established under the Higher Education Act of 1965, PL 89-329. Loans made to students under this program are endorsed with Federal funds. This program, at present, is being operated within the framework of United Student Aid Funds. Applicants may secure these loans from commercial banks after being certified by the University. Repayment starts 9 months after the student leaves school. Interest will be paid by the Federal Government while the student remains in school and one-half after he leaves school if his adjusted family income is less than \$15,000 per year. Interested students should contact the Director of Student Aids, Building Y-1, for further information.

## **UNITED STUDENT AID FUND LOANS**

The University of New Mexico has established a reserve with United Student Aids Funds, so that students can obtain low-cost, long-term bank credit. This reserve enables United Student Aid Funds to endorse bank loans made to needy students by their hometown banks. The applicant applies to the loan officer at his hometown bank. Applications are available from either the bank or the Student Aids Office.

## **COLLEGE WORK-STUDY PROGRAM**

The University participates in the College Work-Study Program established under the Economic Opportunity Act of 1964. This program permits colleges and universities to employ students who are in need of earnings from part-time employment in order to pursue their courses of study. Students are limited to 15 hours per week while enrolled full time in the University. During summer, and periods when the University is not in session, they may work 40 hours per week. Interested students should apply to the Director of Student Aids, Building Y-1, for application forms and further information.

## OTHER STUDENT EMPLOYMENT

The part-time employment program administered by the Placement Center is quite extensive, including work both on and off the campus. Campus jobs are located in the various offices of the University, in the dining halls, and in the dormitories. A few students obtain work in private homes where they may earn their room and board in exchange for a few hours of work a day. The Center also has many calls from business and private citizens in Albuquerque for students to fill part-time jobs.

Any student wishing part-time employment is requested to file an application with the Placement Center. Applications for part-time employment must be renewed each year. For Placement Center Service to graduating students and alumni see p. 123.

## VOCATIONAL REHABILITATION

(For the Physically Handicapped)

Through the New Mexico Division of Vocational Rehabilitation which operates under the supervision of the State Board for Vocational Education, the State and Federal Government offer financial assistance for payment of tuition to those students who have physical disabilities. Other assistance may also be given to these physically handicapped students who are financially unable to provide the services for themselves.

The following are some of the requirements for acceptance for service by the program:

- (1) Applicant must be a resident of New Mexico and have a permanent physical disability, whether congenital or as a result of an accident or a disease, and
- (2) must be capable of carrying a course and maintaining at least a "C" average.
- (3) Training in the course chosen must offer an opportunity for employment for the individual without being injurious to his health and must be within his physical capacities.

Both men and women are eligible for the service. Those with military service who have acquired physical disabilities will be accepted only after their training under the Veterans Administration has expired.

The Rehabilitation Service is a part of our system of public education as are our grammar schools, high schools, colleges and universities. Those who can qualify should apply for this service.

**HOW TO APPLY.** Those students having disabilities who wish to apply should do so by writing to one of the New Mexico Rehabilitation Offices at the National Building, 5th and Marquette, N.W., Albuquerque, New Mexico; P.O. Box 2406, Santa Fe, New Mexico; Petroleum Building, Roswell, New Mexico; Denison Building, 1480 N. Main Street, Las Cruces, New Mexico; Petroleum Center Building, Farmington, New Mexico; or P.O. Box 328, Las Vegas, New Mexico. A counselor will arrange an interview to discuss the program in detail with those who have applied. Application must be made and case accepted before obligation for tuition has been made.

## SCHOLARSHIPS AND AWARDS

The University awards scholarships to a substantial number of its entering freshmen and upperclassmen each year. The qualifications expected of the recipients and the amounts of the awards vary. Some carry special stipulations or require that the student major in a specific field, but the majority of awards require only a strong scholastic record and a need for financial assistance.

Announcements of awards for scholarships, prizes, medals, and certificates are made after approval by the Faculty Scholarships, Prizes, and Loans Committee. Information on all scholarships and awards may be obtained from the University Student Aids Office.

Students holding University sponsored scholarships must reapply for them each semester. Deadlines are April 15 for the fall semester and December 1 for the spring semester.

Application for admission to the University of New Mexico, and scores on the American College Tests (in the case of freshman applicants), must be on file in the Admissions Office before a student can be awarded a scholarship (see "Admissions" section of this catalog). A scholarship application must also be submitted to the Student Aids Office; only one scholarship application is required regardless of the number of scholarships in which a student may be interested. Scholarship application forms may be obtained from the Student Aids Office. High school seniors may also obtain forms from their high school counselors or principals. April 1 is the deadline for applying for scholarships for the following fall semester.

These factors are considered in awarding scholarships: (1) the academic record; (2) scores on the ACT tests, if applicable; (3) need for financial assistance; and (4) the recommendation of the student's counselor or principal (in the case of freshman applicants).

The Thomas S. and Louise Freeman Bell and the Daniel C. Jackling Scholarships are for students with outstanding academic records. The Bell and Jackling Scholarships vary in amount from \$300 to \$800, with a financial evaluation by College Scholarship Service used as the criterion for determining the amount of the award. Tuition scholarships are awarded to students with outstanding academic records. Financial need is not so important a consideration in the awarding of these scholarships as in the Bell and Jackling awards.

A few scholarships are available for students who are not residents of New Mexico. These students are required to file statements with College Scholarship Service regardless of the award sought.

For information on scholarships in Latin American Studies, Law, Naval R.O.T.C., and Pharmacy, see those respective sections of this catalog.

Fellowships and Assistantships for graduate students are also available. Application for these may be made to the Dean of the Graduate School.

A listing of the scholarships and prizes available to University of New Mexico students follows.

### EDUCATIONAL OPPORTUNITY GRANTS

The University of New Mexico, under provisions of the Higher Education Act of 1965 PL 89-389, awards several Educational Opportunity Grants each

year to incoming freshmen and enrolled students. In order to be selected a student must:

- (1) Be accepted for enrollment and be in good standing;
- (2) Show evidence of academic or creative promise and capability of maintaining good standing in his course of study;
- (3) Be of **exceptional financial need** and unable to pursue a course of study without the Grant.

Students who think they are qualified should write or see the Director of Student Aids, Bldg. Y-1, for application forms and further information.

Scholarships are listed by Freshmen and Upperclass as well as by College or Department. Scholarships not specific as to major field of study are listed as Miscellaneous.

#### FRESHMAN SCHOLARSHIPS Miscellaneous

**Albuquerque Breakfast Lions Club Scholarship.** A \$200 annual scholarship given to a student who suffers a handicap of vision not correctable to a reading level. Recipient may be resident or non-resident.

**The Albuquerque City Panhellenic Scholarships.** Each year the Albuquerque City Panhellenic provides a number of scholarships for entering freshman women from the Albuquerque public high schools. The awards are based on recommendations from the high school principals, scholastic aptitude, participation in extracurricular activities, and financial need.

**The Albuquerque Downtown Lions Club Scholarship.** The awards cover full tuition costs for instate students. The recipients must be graduates of New Mexico high schools, must signify their intention of taking, or must be pursuing, a course in the field of physical therapy. They must show need for financial help and have demonstrated ability to do college work.

**American Legion Auxiliary Department of New Mexico Scholarship.** A \$100 scholarship is given to the finalists in the American Legion Department Oratorical Contest.

**The Clayton C. and Agnes May Barber Memorial Scholarships.** A trust fund established in 1956 by the wills of the late Clayton C. Barber, former employee of the University, and of his wife, Agnes May Barber, provides scholarships for children of the employees of the physical plant.

**The Thomas S. and Louise Freeman Bell Scholarships.** Income from a trust fund is used for scholarships for worthy students. The purpose of this gift is solely to help promote and encourage among the students a higher grade of scholarship and application to studies.

**The Philo S. Bennett Scholarship.** The income from a trust fund of \$1,200 is awarded annually to a woman student, at the beginning of the second semester of her freshman year, who is most worthy, who has resided in New Mexico for at least the preceding 4 years, and who will continue as a resident student in the University.

**The Bernalillo County Veterinary Practitioners Association Scholarships.** Two \$250 scholarships will be awarded annually to applicants demonstrating financial need and/or expressing interest in the study of veterinary medicine. Selection of the recipients shall be left to the Committee on Scholarships, Prizes, and Loans. Recipients may be freshmen or upperclass.

**The Burkhardt-Parsons Memorial Scholarships.** The income from a trust fund established by the late Mrs. Miriam P. Burkhardt provides approximately \$800 for scholarships to be awarded annually to freshmen students who are graduates of the Albuquerque public schools. The scholarships are awarded for Semester II of the current academic year.

**The Department of Chemical Engineering Scholarships.** Income from a trust fund is awarded to worthy second semester freshmen interested in Chemical Engineering to encourage scholarship.

**The Christian Science Organization Tuition Scholarship.** The fund for this scholarship was established by Dr. Marie Pope Wallis in honor of the late Dr. Dorothy Woodward. A full tuition scholarship, it is available to any student who is a Christian Scientist and who demonstrates financial need. Recipients may retain the award for as long as 5 years on maintenance of a C average.

**The Vera Darnall Memorial Student Assistance Fund.** A short-term student assistance fund established by friends in the memory of the late beloved Mrs. Vera Darnall, Administrative Assistant to Director of Admissions and Registrar at The University of New Mexico. The fund is to be used for students with financial need and is administered by the Office of Student Aids.

**The James M. Doolittle Memorial Scholarship.** The interest from a trust fund of \$1,000 established by Mrs. J. M. Doolittle in memory of her husband, Mr. James M. Doolittle, is awarded each year to a student who has made a high scholastic average in a New Mexico high school, who enters The University of New Mexico as a freshman, and who is in need of financial assistance.

**The Joe Feinsilver Student Assistance Fund.** Mr. Feinsilver set up a \$36,000 trust, income from which is to be used to help students in financial need. The program is administered through the Student Aids Office.

**The General Motors Scholarship.** A scholarship sufficient to supplement fully the resources of the student so that he will be assured of 4 years of college is made available annually to an entering freshman by the General Motors Corporation. The award is made by the University.

**The Simon and Maud Herzstein Scholarship.** Awarded to a legal resident of Union County, New Mexico, who has demonstrated qualities of character and intellect which will enable him to lead a life of useful, devoted, and cheerful service. Recipient is designated by Committee on Scholarships, Prizes, and Loans at end of freshman year; scholarship awarded at beginning of Semesters I and II of sophomore year.

**The Daniel C. Jackling Scholarships.** Income from a trust fund is used for scholarships for worthy students. The purpose of this gift is solely to help promote and encourage among the students a higher grade of scholarship and application to studies.

**The Frederick Herbert Kent and Christina Kent Scholarships.** Three scholarships are awarded annually to high school students, residents of the State, on the basis of high school grades, recommendation of the principal, and financial need.

**The Kirtland Air Force Base Officers' Wives Scholarships.** Two tuition scholarships awarded to children of Armed Services personnel assigned to Kirtland Air Force Base or to children of retired Air Force personnel living in the immediate area. The recipients are selected on the basis of their academic achievement, recommendations, and citizenship. The award is renewable if the student's academic achievement is outstanding. Selection is made by the Scholarships, Prizes, and Loans Committee of The University of New Mexico.

**The Kiva Club Scholarships.** A few tuition awards are made to Indian students each year by the University of New Mexico Kiva Club.

**The Kiwanis Club of Highland Scholarship.** The Kiwanis Club of Highland each year awards a year's tuition scholarship to a deserving student who is a resident of Albuquerque.

**Kiwanis Club of Sandia Scholarship.** A scholarship awarded by the Sandia Kiwanis Club to a member of the Highland High School Key Club. The award is for \$300 and goes to a young man who has shown leadership ability, good citizenship, and has established a good high school record.

**The Carlisle Kruger Memorial Scholarship.** A \$500 scholarship is awarded annually to a male student who is in good academic standing and who participates in intercollegiate track.

**Pueblo of Laguna Scholarship.** The governing body of the Pueblo has established a scholarship fund to assist students who are members of the pueblo to obtain their college education. The size of the award varies according to the student's needs. Final selection is in the hands of a committee set up by the Governor of the Pueblo. Applications can be obtained directly from the Pueblo Governor's Office.

**The Louis A. McRae Scholarship Fund.** Established in the name of Mr. Louis A. McRae, a pioneer of New Mexico and long-time friend of The University of New Mexico, the income from a trust fund is awarded to a first-semester freshman, resident of New Mexico.

**National Merit Scholarship.** A supplemental grant to the public colleges attended by National Merit Scholars for assistance to students who are not Merit Scholars. For National (unsponsored) Merit Scholars the grant is \$100 a year, up to a maximum of 20 annual grants at any one college.

**The New Mexico Philosophical Society Tuition Scholarship Essay Contest.** New Mexico high school students may win a tuition scholarship for one year at one of five state institutions of higher learning by writing an essay on "the doctrine of human equality." The contest is sponsored jointly by the Philosophical Society and the five schools.

**Monica A. Novitski Scholarship.** Awarded to a first year dental hygiene student with financial need and scholastic ability. Selection is made by the Director of the Dental Hygiene Programs.

**The Osoff Scholarship and Loan Fund.** An organization of Albuquerque women grant financial assistance in the memory of Frieda Osoff, prominent Albuquerque humanitarian and philanthropist. The aid is in the form of either scholarship or loan available to a varied number of students and is granted on the basis of need and scholastic ability. Applications may be obtained at the Student Aids Office with the selection of recipient and amount of award determined by the organization.



**Premcco Track Scholarship.** An award of \$500 made to a regularly enrolled student who participates in intercollegiate track and field. Selection is made by the Committee on Scholarships, Prizes, and Loans based on recommendation of the Director of Athletics.

**Sandia Base Woman's Club Scholarships.** The Sandia Base Woman's Club awards two \$250 tuition scholarships, one for an entering freshman and the other for a second-year student. The awards are to be made on the basis of financial need and scholarship. Students applying for the scholarships must be legal dependents or wards of Armed Forces personnel attached to Sandia Base, or of personnel employed at Sandia Base by the Sandia Corporation, or of personnel employed at Sandia Base by A.E.C.

**The Santa Fe Motor Company Scholarship.** The scholarship is awarded to a dependent of an employee of the Santa Fe Motor Company covering full tuition, fees and board and room.

**Dr. Joseph Franklin Schoen Scholarship.** A tuition scholarship established by the Contractors' Equipment and Supply Company in honor of Dr. Schoen. The award goes to an entering freshman in any of the professional colleges of the University. Selection of the recipient is based on scholastic ability and need for financial assistance.

**Sam Stratton Scholarship.** Granted by the New Mexico High School Coaches Association in the name of Sam Stratton, former coach and president of the Coaches Association. Recipient must be physically handicapped, attend a New Mexico college or university and show financial need. Application may be made through local high school coach.

**The United Daughters of the Confederacy Scholarship.** The Nora Mitchell McDowell Chapter of Albuquerque awards a \$100 scholarship for the second semester of each academic year to a male or female student who is the lineal descendant of a Confederate soldier.

**The Universal Constructors Scholarship.** Universal Constructors of Albuquerque established several annual scholarships of \$700 each for sons and for daughters of weekly employees. The scholarships may be renewed to the original recipients each semester until graduation, provided that they maintain a satisfactory academic record and have financial need.

#### Arts and Sciences

**Helene Wurlitzer Foundation of New Mexico Arts and Sciences Scholarship.** An annual \$250 scholarship awarded by the Wurlitzer Foundation is made to a Taos High School graduate who will enroll in the College of Arts and Sciences here at the University. The recipient is recommended to the Foundation by the principal of Taos High School.

#### Engineering

**The Associated General Contractors of New Mexico Scholarships.** The Associated General Contractors of New Mexico present a number of scholarships yearly to Civil Engineering students. These scholarships are in the amount of \$200 per year for 4 years and may be granted to freshmen at The University of New Mexico or at New Mexico State University.

**The Caroline Thornton Carson Memorial Scholarship.** The income from a trust fund of \$20,000 established by Mr. James G. Oxnard and Mr. Thornton Oxnard in memory of their mother provides a scholarship for a freshman engineering student who has high academic record, and who is of high moral character and in need of financial assistance. There shall be no restrictions as to race, color, religion, or sex.

**The Contractors' Equipment and Supply Company Scholarship.** A tuition scholarship established by the above company for an entering freshman who intends to major in engineering. Selection of the recipient is based on scholastic ability and need for financial assistance.

#### Music

**Band Grant-In-Aid.** Awards of \$100 made to students selected by the Music Department to participate in The University of New Mexico "Pep" Band.

**John Albert Butteri Memorial Scholarship.** An annual \$150 award to a freshman music major during his/her sophomore year. Selection is made by the music faculty based on scholastic and musical ability and financial need.

**The Music Performance Awards.** From the proceeds of departmental concerts, the faculty of the Department of Music in 1956 established a number of awards to be given freshman students on the basis of auditions conducted among New Mexico high school seniors in piano, voice, stringed instruments, and wind instruments, the judges to be faculty members of the Department of Music. The scholarships are paid in two installments; in order to receive the second half of his scholarship a recipient must maintain creditable grades as defined by the Department of Music. Interested high school seniors may obtain information about auditions from the Department of Music.

### Nursing

**The Allstate Insurance Company Foundation Scholarship in Nursing.** The recipient is to be a first-year nursing student selected on the basis of financial need, interest in a nursing career, and scholastic ability. Preference will be given to students who have residence in New Mexico, or secondly, in the Rocky Mountain states.

**Carlsbad Memorial Hospital Auxiliary.** A nursing scholarship for freshman or upperclass. Applicants should apply direct to the Auxiliary and selection is made by the Auxiliary.

**The Forty and Eight Grand Voiture of New Mexico Scholarships in Nursing.** The following scholarships are given annually to freshmen in the College of Nursing upon the recommendation of the Dean of the College: **Bob Mullin Memorial Scholarship**, \$300 per year for 4 years; **Earle Stark Memorial Scholarship**, \$150 per year for 4 years; **Grand Voiture Scholarship**, \$150 per year for 4 years.

**The Forty and Eight Voiture 703 Scholarship in Nursing.** A scholarship sponsored by Voiture 703 in Albuquerque for a student in nurse's training. The award pays \$150 per year for 4 years.

**The Jessie Smith Noyes Foundation Scholarship.** Merit type scholarships for graduating seniors of New Mexico high schools who are entering the field of nursing. Scholarships are renewable based upon grades and financial need.

**The Osoff Nursing Loan Fund.** A short-term loan fund has been established by an organization of Albuquerque women in the memory of Frieda Osoff, prominent Albuquerque humanitarian and philanthropist. No interest rates are charged with individual stipulations established for re-payment of loans. Applicants may apply through the College of Nursing.

### Pharmacy

**The New Mexico Allied Pharmaceutical Scholarship.** A scholarship of \$300 a year for 5 years is awarded on the basis of scholarship, ability, and need to a graduate of a New Mexico high school who enrolls in the pharmacy program. This scholarship was established and is maintained by the contributions of New Mexico pharmacists.

### Speech

**The Department of Speech Forensic Scholarship for Freshmen.** A scholarship awarded annually to a worthy freshman. The basis for awarding the scholarship is forensic excellence, good scholarship, and need. The Department of Speech is to make recommendations to the Scholarships, Prizes, and Loans Committee.

### FRESHMAN AWARDS AND PRIZES

**High School Achievement Award.** Presented to entering freshmen from the UNM Alumni Association and Greater University of New Mexico Fund on the basis of scholastic achievement and recommendation of their high school principals.

**Kappa Alpha Theta Poetry Awards.** To stimulate interest in creative writing, Kappa Alpha Theta annually presents awards in amounts of \$15 and \$10 for the two outstanding poems presented to the English Department.

**The Kappa Kappa Gamma Alumnae Memorial Prize for Poetry.** An annual prize of \$25 to be awarded as a first prize for poetry in the undergraduate literary contests in the English Department. This prize was established by the Kappa Kappa Gamma Alumnae Association in memory of all deceased members of the Association and of the New Mexico Chapter of Kappa Kappa Gamma.

**The Phi Kappa Phi Freshman Prizes.** Cash prizes of \$25 are awarded to the man and woman who, while carrying a full-time course of study, rank highest in general scholarship for the freshman year.

**Pickett and Eckel Slide Rule Prize.** A prize consisting of a slide rule is awarded annually to an outstanding freshman student in architecture.

**The Vemco Prize in Architectural Engineering.** A prize consisting of a set of Vemco drawing instruments and Vemco Tec pencil is awarded to the outstanding regularly enrolled freshman in engineering drawing upon recommendation of the faculty of the Department of Architecture.

### UPPERCLASS SCHOLARSHIPS

#### Miscellaneous

**Air Force Reserve Officers Training Corps Cadet Scholarships.** Two scholarships, in the amounts of \$100 and \$50, are awarded annually to cadets in AFROTC. The awards are based on academic ability, leadership, and financial need.

**Albuquerque Breakfast Lions Club Scholarship.** A \$200 annual scholarship given to a student who suffers a handicap of vision not correctable to a reading level. Recipient may be resident or non-resident.

**Albuquerque Chapter of the National Secretaries Association Scholarship.** An annual award of \$150 made to a female student at the University. Selection of the recipient is made by the association.

**The Albuquerque Downtown Lions Club Scholarships.** The awards cover full tuition costs for instate students. The recipients must be graduates of New Mexico high schools, must signify their intention of taking, or must be pursuing, a course in the field of physical therapy. They must show need for financial help and have demonstrated ability to do college work.

**The American Association of University Women Scholarship.** A \$200 scholarship granted by the Albuquerque branch of the A.A.U.W. to promote advanced training for women. It is given to a graduate woman student, selected on the basis of scholarship, financial need, and ability as indicated by recommendation from professors.

**The American Petroleum Institute Scholarships.** The Institute each year awards a number of scholarships of \$500 to outstanding students.

**The Ballut Abyad Scholarship.** The interest from a trust fund of \$2,500 is given annually to either a man or woman student at The University of New Mexico who is in need of financial assistance.

**The Clayton C. and Agnes May Barber Memorial Scholarships.** A trust fund established in 1956 by the wills of the late Clayton C. Barber, former employee of the University, and of his wife, Agnes May Barber, provides scholarships for children of the employees of the physical plant.

**The Thomas S. and Louise Freeman Bell Scholarships.** Income from a trust fund is used for scholarships for worthy students. The purpose of this gift is solely to help promote and encourage among the students a higher grade of scholarship and application to studies.

**The Bernalillo County Veterinary Practitioners Association Scholarships.** Two \$250 scholarships will be awarded annually to applicants demonstrating financial need and/or expressing interest in the study of veterinary medicine. Selection of the recipients shall be left to the Committee on Scholarships, Prizes, and Loans. Recipients may be freshmen or upperclass.

**The Eva Boegen Newman Center Memorial Scholarships.** Two \$50 scholarships awarded annually by the Aquinas Hall Newman Center in memory of Mrs. Eva Boegen, one to a student who maintains at least a B average and has financial need and one to a student who maintains at least a C average and has financial need. (See also the Eva Boegen Newman Center Prize listed below.)

**The Chi Omega Alumnae Scholarship.** A scholarship equal to one semester's resident tuition given each year by the Chi Omega Alumnae to a woman student who has earned a minimum of 30 semester hours at The University of New Mexico, who has creditable scholarship, and who has need of financial assistance.

**The Christian Science Organization Tuition Scholarship.** The fund for this scholarship was established by Dr. Marie Pope Wallis in honor of the late Dr. Dorothy Woodward. A full tuition scholarship, it is available to any student who is a Christian Scientist and who demonstrates financial need. Recipients may retain the award for as long as 5 years on maintenance of a C average.

**Lena C. Clauve Scholarship of the Maia Chapter of Mortar Board.** A scholarship established in honor of Lena C. Clauve by the Maia Chapter of Mortar Board. It is to be awarded to a woman student who has completed 3 semesters of creditable work at the University and is in need of financial assistance. The recipient is selected by a special Mortar Board Committee.

**The Lou Beverly Damron Memorial Scholarship.** At least \$100 of the proceeds from a trust fund established by the parents of Lou Beverly Damron, Class of 1952, as a memorial to their son, is awarded annually to a member of Sigma Chi Fraternity above the rank of freshman who has the highest scholastic record during the year.

**The Vera Darnall Memorial Student Assistance Fund.** A short-term student assistance fund established by friends in the memory of the late beloved Mrs. Vera Darnall, Administrative Assistant to Director of Admissions and Registrar at the University of New Mexico. The fund is to be used for students with financial need and is administered by the Office of Student Aids.

**El Encanto Chapter of the American Business Women's Association.** Tuition scholarship awarded each semester on the basis of financial need. Applications may be obtained at the Student Aids Office with selection of recipient determined by the organization.

**The Joe Feinsilver Student Assistance Fund.** Mr. Feinsilver set up a \$36,000 trust, income from which is to be used to help students in financial need. The program is administered through the Student Aids Office.

**The Edward Grisso Memorial Scholarship Fund.** A trust fund established by Mr. W. D. Grisso of Oklahoma City as a memorial to his son provides a scholarship each fall for a junior male student who has made the most improvement in grades during his sophomore year over his freshman year. The recipient is selected by a special advisory board.

**The Gwinn Henry Memorial Scholarship Fund.** A \$500 fund established by the University of New Mexico Alumni Letterman's Association as a memorial to the late Coach Gwinn Henry is used to assist in the education of a worthy student athlete who is regularly enrolled at The University of New Mexico.

**Russell E. Herbert Memorial Scholarship.** Granted by the Mesa Lodge #68, Ancient, Free and Accepted Masons of New Mexico, a tuition scholarship for one year for a deserving student of high moral character and graduate of an Albuquerque high school. Recipient is selected by the Mesa Lodge #68.

**The Daniel C. Jackling Scholarships.** Income from a trust fund is used for scholarships for worthy students. The purpose of this gift is solely to help promote and encourage among the students a higher grade of scholarship and application to studies.

**The Kappa Kappa Gamma Memorial Scholarship.** A scholarship of \$150 is given each year by Kappa Kappa Gamma Sorority to a woman student who has earned a minimum of 30 semester hours at The University of New Mexico, who has creditable scholarship, and who has need of financial assistance.

**The Kennecott Copper Corporation Scholarships.** The Chino Mines Division provides a number of \$500 scholarships to students in New Mexico institutions. Two of these scholarships are awarded to students who are sophomores or upperclassmen at the University, who are majoring in certain specified fields, who have acceptable scholarship and financial need, and who are recommended to the Chino Mines Scholarship Committee by the University through the Scholarships, Prizes, and Loans Committee.

**The Kirtland Air Force Base Officers' Wives Scholarships.** Two tuition scholarships awarded to children of Armed Services personnel assigned to Kirtland Air Force Base or to children of retired Air Force personnel living in the immediate area. The recipients are selected on the basis of their academic achievement, recommendations, and citizenship. The award is renewable if the student's academic achievement is outstanding. Selection is made by the Scholarships, Prizes, and Loans Committee of The University of New Mexico.

**The Kiva Club Scholarships.** A few tuition awards are made to Indian students each year by the University of New Mexico Kiva Club.

**The Kiwanis Club of Highland Scholarship.** The Kiwanis Club of Highland each year awards a year's tuition scholarship to a deserving student who is a resident of Albuquerque.

**The Carlisle Kruger Memorial Scholarship.** A \$500 scholarship is awarded annually to a male student who is in good academic standing and who participates in intercollegiate track.

**Pueblo of Laguna Scholarship.** The governing body of the Pueblo has established a scholarship fund to assist students who are members of the pueblo to obtain their college education. The size of the award varies according to the student's needs. Final selection is in the hands of a committee set up by the Governor of the Pueblo. Applications can be obtained directly from the Pueblo Governor's Office.

**Marshall Scholarships.** These are offered by the British Government in gratitude for the Program for European Recovery. Graduating seniors and graduate students of either sex under 26 years of age are eligible for the 24 new awards made annually. The scholarships are for two years, and may be extended for a third year. They are tenable in any university in the United Kingdom for study leading to a degree in any field. The stipend covers tuition, fees, transatlantic passages, and a maintenance grant of \$1,540.

**The Abraham Lincoln Mitchell Scholarship.** Miss Dorothy Coulter of Albuquerque has established a trust fund in the amount of \$4,000 in honor of Abraham Lincoln Mitchell. The income from this fund is to be awarded to a man or woman student of The University of New Mexico who has completed the freshman year of college. First consideration will be given second or third-year students in the School of Law. Students interested in the field of race relations will be given special consideration.

**National Merit Scholarship.** A supplemental grant to the public colleges attended by National Merit Scholars for assistance to students who are not Merit Scholars. For National (un-sponsored) Merit Scholars the grant is \$100 a year, up to a maximum of 20 annual grants at any one college.

**Monica A. Novitski Scholarship.** Awarded to a first year dental hygiene student with financial need and scholastic ability. Selection is made by the Director of the Dental Hygiene Programs.

**The New Mexico Petroleum Industries Scholarships.** Each year the N.M.P.I.C. awards two scholarships for \$250 to students of the six state institutions.

**The Osoff Scholarship and Loan Fund.** An organization of Albuquerque women grant financial assistance in the memory of Frieda Osoff, prominent Albuquerque humanitarian and philanthropist. The aid is in the form of either scholarship or loan available to a varied number of students and is granted on the basis of need and scholastic ability. Applications may be obtained at the Student Aids Office with the selection of recipient and amount of award determined by the organization.

**Pi Beta Phi Arrowcraft Scholarship.** An annual scholarship is awarded to a University of New Mexico student, either a graduate or undergraduate, for summer study in Gatlinburg, Tennessee. Credit is given through the University of Tennessee. The program includes concentrated study in all major areas of crafts. The award covers room, board and tuition and is awarded in the spring.

**The Piggly Wiggly Scholarship.** The Piggly Wiggly Stores of Albuquerque award biennially a scholarship which includes a full year's tuition and all necessary textbooks.

**Premcco Track Scholarship.** An award of \$500 made to a regularly enrolled student who participates in intercollegiate track and field. Selection is made by the Committee on Scholarships, Prizes, and Loans based on recommendations of the Director of Athletics.

**Residents Housing Council Scholarships.** Two annual scholarships, each in the amount of \$300, will be available to dormitory residents. One scholarship will be awarded to a female student, the other to a male student, upon the recommendation of the Residents Housing Council.

**The Rhodes Scholarship.** The trustees of the will of Cecil Rhodes provide for a maximum of 32 scholars each year, each scholar to receive an honorarium of \$2,000 per year and to study 2 or 3 years in Oxford University, England. Early in the fall semester a representative of the University nominates candidates to the state committee for selection. This committee may select 2 men to represent the State of New Mexico before the district committee, which in turn selects no more than 4 scholars to represent the 6 states which compose a district. The scholarship is for graduate students and applications should be directed to the Graduate School.

**Sandia Base Woman's Club Scholarships.** The Sandia Base Woman's Club awards two \$250 tuition scholarships, one for an entering freshman and the other for a second-year student. The awards are to be made on the basis of financial need and scholarship. Students applying for the scholarships must be legal dependents or wards of Armed Forces personnel attached to Sandia Base, or of personnel employed at Sandia Base by the Sandia Corporation, or of personnel employed at Sandia Base by A.E.C.

**The Santa Fe Motor Company Scholarship.** The scholarship is awarded to a dependent of an employee of the Santa Fe Motor Company covering full tuition, fees and board and room.

**The Wilma Loy Shelton International Fellowship for Women.** This annual fellowship, established in 1951 by The University of New Mexico Chapter of Mortar Board, senior women's honorary society, to promote international understanding through the education of women leaders, awards \$400 provided by the active chapter of Mortar Board plus tuition and fees provided by the University to a foreign woman student, preferably in the Graduate School, to be chosen by a special committee.

**Sigma Chi Mothers Club Scholarships.** Two \$120 scholarships, one to be awarded in the spring semester and one in the fall, to members of the Sigma Chi Fraternity who are above the rank of freshman, have financial need, and have satisfactory scholarship.

**Sam Stratton Scholarship.** Granted by the New Mexico High School Coaches Association in the name of Sam Stratton, former coach and president of the Coaches Association. Recipient must be physically handicapped, attend a New Mexico college or university and show financial need. Application may be made through local high school coach.

**Student Affairs Scholarships.** An amount equal to full resident tuition given in the name of the Vice-President for Student Affairs, to the elected President and Vice-President of Associated Students of The University of New Mexico. These scholarships are to be awarded during the year of service.

**The United Daughters of the Confederacy Scholarship.** The Nora Mitchell McDowell Chapter of Albuquerque awards a \$100 scholarship for the second semester of each academic year to a male or female student who is the lineal descendant of a Confederate soldier.

**The Universal Constructors Scholarship.** Universal Constructors of Albuquerque established several annual scholarships of \$700 each for sons and for daughters of weekly employees. The scholarships may be renewed to the original recipients each semester until graduation, provided that they maintain a satisfactory academic record and have financial need.

**University Dames Club Scholarship.** A scholarship is awarded annually by the University Dames Club to an active member or the husband of an active member of the Dames Club. Recipient must be a full-time student.

**University Golfer's Association Scholarship.** A \$375 scholarship is given to a student participating in the intercollegiate golf program of the University. The recipient will be selected by the coach of the golf team, who will make his recommendation to the Scholarships, Prizes, and Loans Committee of the University.

**Eric L. Williams Memorial Scholarship.** The University of New Mexico Golf Course has established in memory of Eric L. Williams an annual scholarship consisting of tuition and fees, awarded to a student active in the collegiate golf program.

#### Archaeology

**The Archaeological Society of New Mexico Scholarship.** A scholarship is awarded to a student majoring in archaeology. The recipient of this scholarship will be selected by the members of the Department of Anthropology.

#### Architecture

**The American Institute of Architects Scholarship.** A scholarship and a book on architecture are awarded to an outstanding junior student in Architecture, the scholarship to be applied toward the student's tuition in his fifth year.

**Kinney Brick Company Scholarship in Architecture.** The Kinney Brick Company of Albuquerque, New Mexico, has established two awards of \$250 each for students in the Architecture Department who have completed at least 2 years. The scholarship is renewable, and the recipient is selected by the Scholarships, Prizes, and Loans Committee of the University based on recommendations received from the Chairman of the Architecture Department.

**New Mexico Chapter of The American Institute of Architects Scholarship.** A scholarship and a book on architecture are awarded to an outstanding junior student in Architecture, the scholarship to be applied toward the student's tuition in his fourth year.

**New Mexico Concrete Masonry Association Award in Architecture.** Dividends earned from a fund established by the New Mexico Concrete Masonry Association awarded annually as a tuition scholarship to a promising student in architecture.

#### Arts and Sciences

**The George A. Kaseman Memorial Scholarship.** A trust fund established by Mrs. George A. Kaseman as a memorial to her late husband, to perpetuate his interest in the development of New Mexico by aiding young people in obtaining a university education, provides an annual scholarship of \$750 or more to be awarded to a student in the College of Arts and Sciences, preferably a resident of New Mexico, who shall rank in the upper one-fifth of his high school graduating class and who shall have economic need for this scholarship.

#### Botany

**Gertie May Barnes Memorial Scholarship.** Presented by the New Mexico Iris Society an award of \$125 to a senior or graduate student in the field of botany.

**The Dora Lewis Sanders Scholarship.** An annual scholarship of \$100 established by the New Mexico Federation of Garden Clubs in 1951 is awarded to a junior or senior student majoring in botany.

#### Business Administration

**Albuquerque Advertising Club Scholarship.** The scholarship in the amount of \$150 per semester to a major in the College of Business Administration with a concentration in advertising, or if that is not available, an expressed desire to enter some aspect of the advertising profession. Recipient will be selected by the College with approval of the Club.

**Albuquerque Legal Secretaries Association Scholarship.** The scholarship in the amount of \$100 is awarded to a female student enrolled in the College of Business Administration. The award may be made to the same student in successive years. Preference may be given to a student who plans to stay in New Mexico after graduation. Financial assistance must be a factor in making the selection. Recipient shall be selected by the Committee on Scholarships, Prizes, and Loans upon the recommendation of the Dean of the College of Business Administration.

**The Sam Angell, Jr. Memorial Scholarship in Business Administration.** A \$250 scholarship awarded each semester by the New Mexico Association of Independent Insurance Agents, Inc., to a junior or senior in the College of Business Administration who desires to pursue insurance industry as an independent agent; selection to be made by Dean.

**Auxiliary of the New Mexico Society of Certified Public Accountants Scholarship.** The award is given to a senior man or woman on the basis of academic standing in the College of Business Administration. The scholarship is for \$200 for one semester only. Organization requests a brief letter expressing why applicant is interested in the field of study to accompany application. Applications are supplied by the Dean of Business Administration and selection is made by the auxiliary.

**The Credit Women's Breakfast Club of Albuquerque Scholarship.** This scholarship of \$50 is awarded to a woman student in the College of Business Administration upon recommendation of the Dean of that College.

**The Duke City Business and Professional Women's Club Scholarship.** A scholarship of \$200 is awarded annually to a sophomore or junior woman student in the College of Business Administration or the College of Education on the basis of scholarship, need, and the recommendation of the dean of the college involved.

**Ernst & Ernst Account Firm Scholarship.** A \$500 scholarship to a full-time student majoring in accounting, either an undergraduate at the upperclass level, or a graduate student working for a master's degree. Selection will be made by the College of Business Administration through the scholarship committee.

**The Alonzo Bertram McMillen Memorial Scholarship.** The Occidental Life Insurance Company established this scholarship as a memorial to the late Alonzo Bertram McMillen, a founder of the company, to cover the cost of room, board, and tuition. The scholarship is awarded annually to a student in the College of Business Administration who is a resident, is of excellent character, shows active interest in good citizenship and in general student activities, has an average academic record, and is in need of financial assistance.

**The New Mexico Society of Certified Public Accountants Scholarship.** Awarded on basis of a competitive examination. Information available at the Student Aids Office.

**The Southern Union Gas Company Scholarships.** Three scholarships of \$500 each, one for a student in the College of Business Administration and two for students in the Department of Mechanical Engineering. Recipients must be male students, preferably juniors or seniors. They shall be of good character and proven ability and shall be in need of financial assistance.

#### Drama

**The University Theatre Training Scholarship.** The Department of Dramatic Art provides a scholarship of \$150 each semester which is awarded in the spring of each year upon recommendation of the faculty of the Department on the basis of need, scholarship, and suitability for the training involved.

#### Education

**The Albuquerque Classroom Teachers Association Scholarship.** A scholarship awarded annually to a student in the College of Education who is preparing to teach in the elementary schools of New Mexico.

**The Alpha Delta Kappa—Gamma Chapter Scholarship.** A \$50 annual scholarship to be given to a woman in her junior or senior year who is training to become a teacher.

**Bandelier Parent-Teacher Association Scholarship.** Awarded for the second semester to a junior or senior in the College of Education. The recipient shall have indicated a sincere desire to enter the teaching profession, be of high moral character, have a high academic standing and financial need.

**John E. Beck Memorial Scholarship.** A \$500 scholarship awarded annually to a student enrolled in the College of Education by the family of the late Otha E. Beck in memory of their son and brother, John E. Beck. Recipient must be a resident of New Mexico with demonstrated academic and financial need. Selection is made upon recommendation from the Dean of the College of Education.

**The Bernalillo County Council of Parent-Teacher Association Scholarships.** Several annual scholarship of \$250 each have been provided for juniors or seniors in the College of Education preparing to teach in the elementary schools of New Mexico.

**Ward Curtis Scholarship Fund.** An award of \$200 granted by the New Mexico State Congress of Parent Teachers Association to an upperclass student in Education and a graduate from a New Mexico high school. Need, scholastic ability and devotion to ideals of democracy and education shall be stipulations to this award.

**The Daughters of Penelope Memorial Scholarship.** An annual scholarship in the amount of \$50 established in memory of all deceased members of the Helen of Troy Chapter 19, to be awarded to a man or woman student who is a resident of New Mexico and who plans to teach in the elementary or secondary schools. Scholarship and need are determining factors.

**Delta Kappa Gamma Grant-in-Aid in Education.** A scholarship of \$75 awarded for the spring semester by the Albuquerque Chapter of Delta Kappa Gamma Society, an international honorary for women educators. The recipient must be a junior or senior in the College of Education who needs financial assistance.

**The Duke City Business and Professional Women's Club Scholarship.** A scholarship of \$200 is awarded annually to a sophomore or junior woman student in the College of Business Administration or the College of Education on the basis of scholarship, need, and the recommendation of the dean of the college involved.

**The Ives Memorial Scholarships.** These scholarships were established in memory of Mrs. Julia Louise Ives and Mrs. Helen Andre Ives. The income from a \$15,000 fund provides three scholarships for women students. Candidates must be residents of New Mexico, preferably living in Albuquerque, in good health, of good moral character, of high scholastic standing, and they must intend to teach. The scholarships are awarded by the President of the University in July of each year.

**Kappa Kappa Iota—Beta Conclave Scholarship.** An annual scholarship of \$50 to be given to a worthy senior from the College of Education, upon recommendation of the Dean of the College.

**The Kathleen McCann Memorial Scholarship of Pi Lambda Theta.** Alpha Mu Chapter of Pi Lambda Theta, women's honorary society in education, has established a scholarship of \$100 as a memorial to the late Professor Kathleen McCann. The scholarship is awarded to a woman student above freshman rank who is preparing to teach.

**The John Milne Memorial Scholarship Fund.** A trust fund of \$5,000 established as a memorial to the late John Milne, Superintendent of Albuquerque Public Schools for 45 years, provides scholarships for students who plan to be teachers.

**The Millicent A. Rogers Foundation Scholarship in Education.** This scholarship of \$500 is awarded annually to a resident above the rank of freshman in the College of Education, on the basis of need and scholastic achievement. The Millicent A. Rogers Foundation has been established by the sons and friends of the late Mrs. Millicent A. Rogers, who was for many years a resident of Taos and who was deeply and actively interested in the people and the culture of the region.

**The Dr. C. R. Spain Memorial Scholarship.** A scholarship based upon the income from a trust in memory of the late Dr. C. R. Spain in the field of education. Recipient may be upperclass or graduate student. Applications may be obtained from the Student Aids Office.

### Engineering

**The American Society for Quality Control Scholarship.** A scholarship of \$200 established by the Albuquerque Section of the American Society for Quality Control is awarded annually to a junior or senior in the College of Engineering on recommendation of the Dean of that college. The scholarship has been established to promote interest in the application of statistical methods and quality control in the engineering field.

**The Associated General Contractors of New Mexico Scholarships.** The Associated General Contractors of New Mexico present a number of scholarships yearly to Civil Engineering students. These scholarships are in the amount of \$200 per year for 4 years and may be granted to freshmen at The University of New Mexico or at New Mexico State University.

**The Carter Scholarships.** Income from a trust fund established by Mr. and Mrs. Rufus H. Carter, Jr., provides scholarship awards for qualified students in the Colleges of Engineering and Nursing. Recipients are selected on the basis of financial need and scholarship.

**The Hewlett-Packard Company/Neely Sales Division.** The scholarships are open to electrical engineering or physics students above the rank of freshman who are residents of California, Arizona, Nevada, or New Mexico.

**The Harry and Mable F. Leonard Scholarship Fund.** This is a scholarship established by the Leonards for an undergraduate student in engineering or geology. The recipient must be a resident of the State of New Mexico. The need for financial aid is the primary factor in selection and scholarship is the second.

**The Phillip D. Miller Memorial Scholarship.** Mrs. Kathleen P. Miller has established a scholarship in memory of her husband, Mr. Phillip D. Miller. The scholarship is given annually to an upperclass student interested in a career in engineering, with the opportunity of having the award renewed if his academic work is satisfactory. The award is for \$350.



**The Rust Tractor Company Scholarship.** The Rust Tractor Company has established a scholarship of \$250 to go each year to a sophomore in Civil Engineering. The award is open to residents of New Mexico and can be renewed each year until graduation if the recipient's academic work is good and he continues to progress satisfactorily toward a degree in Civil Engineering.

**The Southern Union Gas Company Scholarships.** Three scholarships of \$500 each are provided, one for a student in the College of Business Administration and two for students in the Department of Mechanical Engineering. Recipients must be male students, preferably juniors or seniors. They shall be of good character and proven ability and shall be in need of financial assistance.

**The Standard Oil Company of Texas Scholarship in Chemical Engineering.** A scholarship of \$500 is awarded to a junior or senior in the Department of Chemical Engineering on recommendation of the faculty of that department on the basis of scholarship, extracurricular activities, and good citizenship. A matching grant of \$500 is made to the Department of Chemical Engineering. Available periodically on a rotational basis.

**Universal Oil Products Scholarship.** Chemical Engineering scholarship of \$500 established by the Universal Oil Products Company of Des Plaines, Illinois is awarded to a junior or senior in the Department of Chemical Engineering on recommendation of the faculty of that department on the basis of scholarship, extra-curricular activities and good citizenship. A matching grant of \$500 is made to the Department of Chemical Engineering.

**The Western Electric Fund Scholarship.** Through this fund, Western Electric provides an annual scholarship to a student in the College of Engineering. The award is for tuition, fees, and books.

**Western Electronic Educational Funds Scholarships.** Two scholarships of \$250 to electrical engineering majors of sophomore or higher rank. Selection is based on academic achievement, and financial need. The University Scholarships, Prizes, and Loans Committee will make the final selection based on recommendations received from the Electrical Engineering Department.

#### Fine Arts

**The Alpha Delta Pi Alumnae Scholarship in Art.** The Albuquerque Alumnae Club of Alpha Delta Pi sorority has established a scholarship to be awarded to a sophomore woman in the Department of Art, who has attended the University at least one year and who is recommended by the faculty of the Department of Art on the basis of need and creative ability. The scholarship is paid to the recipient at the beginning of her junior year.

**Art Fund Scholarships.** The Art Department receives a limited amount of funds each year from projects it sponsors. This income is used for scholarships for students in the Art Department.

**The New Mexico Art League Scholarship.** A scholarship of \$100 provided to promote art education is awarded on the basis of scholarship, need and ability to a junior or senior student on recommendation of the faculty of the Art Department.

**Helene Wurlitzer Foundation of New Mexico Fine Arts Scholarship.** The foundation offers a scholarship of \$250 to a student in the College of Fine Arts at the University of New Mexico. Selection of the recipient will be made by the Governing Board of the Foundation in connection with the College of Fine Arts.

#### Geology

**The Albuquerque Gem and Mineral Club Scholarship.** An annual scholarship of \$200 to be awarded to a deserving geology major with special interest in mineralogy.

**The Aztec Oil and Gas Company Scholarship.** Aztec Oil and Gas Company annually awards \$400 to a geology major on the basis of need, scholarship, and interest in following a career in petroleum exploration. The recipient preferably will be a New Mexico resident at the junior or senior level. Selection is made by the Department of Geology.

**C. L. Herrick Memorial Fellowship in Geology.** A fellowship granted in geology to a graduate student. Applicants should inquire at the Department of Geology.

**The Harry and Mable F. Leonard Scholarship Fund.** This is a scholarship established by the Leonards for an undergraduate student in engineering or geology. The recipient must be a resident of the State of New Mexico. The need for financial aid is the primary factor in selection and scholarship is the second.

#### History

**The Alfred and Miriam N. Grunsfeld Scholarships.** The income from a \$10,000 trust fund provides two scholarships for men and two for women. The conditions governing the Grunsfeld Scholarships are as follows: (1) recipients must be legal residents of the State of New Mexico; (2) recipients must have been in full-time attendance at the University during their sophomore year;

(3) recipients shall not have completed more than 66 semester hours by the end of the semester in which they are awarded the scholarships; (4) at least three of the four scholarships shall be awarded to students who declare at the time of application their intention to major in the Department of History or the Department of Political Science (a subsequent change in the major from either of these two departments to another department may terminate the award); (5) in selecting the recipients, consideration shall be given to their general scholarship and to their financial need.

**The John F. Kennedy Memorial Scholarship.** Income from a trust fund is awarded to a student or students engaged in original and scholarly research in the humanities or social sciences, preferably in the history of New Mexico and the Southwestern United States. Recipients shall be designated by the Scholarships, Prizes, and Loans Committee upon recommendation by the chairmen of the humanities and social science departments. Neither race nor creed is a factor in the selection of recipients. Two distinguished citizens of New Mexico, Calvin P. Horn and Senator Clinton P. Anderson, were instrumental in the establishment of this fund which is financed by private contributions and by the income derived from the sale of a book written by Mr. Horn entitled *New Mexico's Troubled Years*.

#### Home Economics

**Albuquerque Food Service Association Scholarship.** A scholarship in honor of Dr. Charles R. Spain, former Superintendent of Albuquerque Public Schools, is given a graduate of an Albuquerque public high school. Financial need and potential for completing degree with a major in Home Economics are necessary. Applicant must have completed 13 hours in Home Economics and have enrolled in 13 additional hours.

**The Albuquerque Home Economics Club Scholarship.** An annual scholarship of \$100 awarded to a sophomore majoring in home economics. The scholarship will be awarded on the basis of financial need, scholarship and interest in following a career in home economics. The award will be announced in May of the academic year.

**The Kappa Omicron Phi Scholarship.** Pi Chapter of this national professional honorary in home economics provides a \$60 scholarship for a senior who is a major in home economics. It is awarded on the basis of scholarship and financial need.

**New Mexico Extension Homemakers Council.** Two scholarships of \$150 awarded annually to upperclassmen majoring in Home Economics. Recipients must be residents of New Mexico and shall have been members of a 4-H Club, in the upper third of their class during the previous school year and must be in need of financial assistance. Applications may be obtained from the Student Aids Office. The deadline is April 1 of each year with selection to be announced by June 1 of the same year.

**The Elizabeth P. Simpson Scholarship.** A scholarship equal to one semester's resident tuition given each year by Chi Omega Alumnae of Albuquerque in honor of Mrs. Elizabeth P. Simpson, Professor Emeritus of Home Economics and Chi Omega member. The award is granted to a woman student who has earned a minimum of 30 semester hours at The University of New Mexico, who has creditable scholarship, and is in need of financial assistance.

#### Journalism

**The Toppino-Golden Scholarship in Journalism.** A scholarship of \$100 which was established to encourage students to pursue a career in journalism is awarded in the fall of each year by the Journalism Department.

#### Medicine

**Bernalillo County Chapter of National Infantile Paralysis Foundation Scholarship.** Two annual scholarships are provided for students in the School of Medicine or related field. Recipients must be New Mexico residents and are selected upon recommendation from the Dean of the School of Medicine or department chairman.

**The Bernalillo County Medical Association Scholarship.** A scholarship in the amount of \$300 given to a first-year medical student who must be a resident of Bernalillo County.

**The Clarence Milton Botts, Jr., Memorial Scholarship.** The income from a trust fund of \$5,000, given by Dr. W. R. Lovelace as a memorial to Lieutenant Colonel C. M. Botts, Jr., who was killed in action near Manila, Philippine Islands, May 15, 1945, is awarded each year to a premedical student of junior or senior rank who is outstanding in scholarship and who gives promise of being a good medical student.

**The Dr. Eric P. Hausner Memorial Scholarship.** The income from a trust fund established by the Santa Fe Chapter of the Heart Association is awarded annually to a junior or senior student who has been accepted for admission to an approved medical college.

**Charles May Memorial Scholarship Fund.** A memorial scholarship fund established by Mr. May's wife. The interest from a \$5000 trust fund is awarded each year to a premedical student with outstanding scholarship and the promise of being a good medical student.

**The Thomas M. Wilkerson Memorial Scholarship.** The income from a trust fund of \$5,000 established by Dr. W. R. Lovelace in honor of Major Thomas M. Wilkerson, who was killed January 29, 1946 while in the service of his country, is awarded each year to a junior or senior premedical student who is outstanding in scholarship and who gives promise of being a good medical student.

**The Women's Club of Albuquerque Scholarship.** The Women's Club of Albuquerque has established an annual \$100 scholarship for a first-year woman student in the University's School of Medicine. Selection, made upon the recommendation of the Dean of the School of Medicine, is based on scholastic ability and financial need.

#### Music

**Band Grant-In-Aid.** Awards of \$100 made to students selected by the Music Department to participate in The University of New Mexico "Pep" Band.

**Beta Sigma Phi Scholarship in Music.** A \$250 scholarship established by the Albuquerque chapters of Beta Sigma Phi for a woman student majoring in music who is a resident of Albuquerque. The recipient must be of high moral character, have a satisfactory academic record, and have genuine financial need. Preference will be given members or relatives of members of Beta Sigma Phi. The scholarship is renewable each year.

**The Carl Cramer Memorial Band Scholarship.** Friends of the late Carl Cramer have established this scholarship to be awarded to a member of the University band. Primary selection criteria are scholastic and musical ability and financial need.

**Mu Phi Epsilon Scholarship, Albuquerque Alumnae Chapter.** A scholarship of \$75 awarded each spring, to be applied toward tuition for the following fall semester by this national professional music sorority. The recipient, who must be a music major, is selected by a committee from the Music Department and Mu Phi Epsilon.

**The Presser Foundation Scholarship in Music.** A scholarship of \$400 is awarded by The Presser Foundation of Philadelphia to a student in music upon recommendation of the President of the University and the Chairman of the Music Department.

**The Sigma Alpha Iota Patroness Scholarship.** The Albuquerque Patroness chapter of Sigma Alpha Iota will make available one or more scholarships to qualifying applicants in the field of Music. There will be a Patroness Scholarship Committee appointed yearly to organize and review qualifications with the University of New Mexico Scholarships, Prizes, and Loans Committee. Application is restricted to members of Alpha Sigma Chapter of S.A.I. National Honorary Music Fraternity, and they must apply direct to the sponsors of the scholarship.

**The Albert Gallatin Simms Music Scholarship Fund.** A trust fund established by music lovers who have enjoyed the June Music Festivals for many years has been established as a means of expressing their gratitude to Mr. Simms. The income from the fund will provide one or more scholarships for students majoring in music and studying stringed instruments.

**The Berta Hurt Van Stone Memorial Scholarship.** Mr. and Mrs. Walter M. Mayer of Santa Fe, New Mexico, have established a scholarship of \$100 to be given annually in memory of Mrs. Berta Hurt Van Stone, Mrs. Mayer's mother, to a student majoring in the field of music.

#### Nursing

**The Allstate Insurance Company Foundation Scholarship in Nursing.** The recipient is to be a first-year nursing student selected on the basis of financial need, interest in a nursing career, and scholastic ability. Preference will be given to students who have residence in New Mexico, or secondly, in the Rocky Mountain states.

**Army Nurse Corps Candidate Program.** An effort by the Army to train nurses for the Army Nurse Corps. The Army pays the tuition, fees, room, board, books, and supplies. Application is made through the Dean of the College of Nursing.

**Bernalillo County Medical Association Women's Auxiliary Scholarship.** A \$300 scholarship based on financial need is given to a student in the College of Nursing. Preference is given to a Bernalillo County resident. Scholarship is awarded to the university on alternate years.

**Carlsbad Memorial Hospital Auxiliary.** A nursing scholarship for freshman or upperclass. Applicants should apply directly to the Auxiliary and selection is made by the Auxiliary.

**The Carter Scholarships.** Income from a trust fund established by Mr. and Mrs. Rufus H. Carter, Jr., provides scholarship awards for qualified students in the Colleges of Engineering and Nursing. Recipients are selected on the basis of financial need and scholarship.

**The Gerald Champion Memorial Hospital Auxiliary Nursing Scholarship.** An annual award of \$100 is made to a student from Otero County who is following the program in Nursing. Recipient is selected by the Auxiliary.

**The Forty and Eight Voiture 703 Scholarship in Nursing.** A scholarship sponsored by Voiture 703 in Albuquerque for a student in nurse's training. The award pays \$150 per year for 4 years.

**The Forty and Eight Voiture 1377 Scholarship in Nursing.** The Los Alamos Voiture of the Society of Forty and Eight provides a scholarship of \$100 to be awarded to a student in the College of Nursing upon recommendation of the faculty of that College.

**The Portia Irick Nursing Scholarship.** A fund established under the joint sponsorship of the Altrusa Clubs and Business and Professional Women's Clubs throughout New Mexico in honor of Portia Irick, who was an outstanding public health nurse in New Mexico.

**The Marjorie Little-Emily Hines Memorial Scholarship.** Provided by the New Mexico Nurses Association, District #12, of Grant County, this \$200 scholarship is for a nursing student who is a resident of New Mexico, preferably from Grant County.

**The Florence Knapp Nursing Scholarship.** A \$100 scholarship provided by the New Mexico Nurses Association, District #19, of San Juan County, for a Nursing student who is a resident of that county.

**The Reverend Uvaldo Martinez Memorial Scholarship.** A scholarship provided by the New Mexico Health Foundation as a memorial to the late Reverend Uvaldo Martinez is awarded to a student who desires to enter the field of public health nursing in New Mexico, is Spanish-speaking, needs financial assistance, and shows creditable scholarship.

**Navy Nurse Corps Candidate Program.** An effort by the Navy to train nurses for the Navy Nurse Corps. The Navy pays the tuition and fees, room and board, and books and supplies. Application is made through the Dean of the College of Nursing.

**New Mexico Nurses Association District #1.** A scholarship of \$150 is awarded every three years to the University of New Mexico to a student in the College of Nursing. Selection is based upon academic achievement, nursing aptitude, and the recommendation of the Dean of the College of Nursing.

**New Mexico Nurses Association District #14.** A \$400 scholarship to a senior student from New Mexico based upon financial need to enter or finish his education in the field of nursing. Applications must be received prior to January 1 of the academic year. Beginning or transfer students must have a letter of acceptance from the school they plan to enter.

**New Mexico Nurses Association District #16.** A tuition scholarship in the amount of \$300 to a student enrolled in the College of Nursing and approved by the Dean of the College of Nursing. Scholastic ability and financial need must be shown. Scholarship is renewable provided recipient meets the required qualifications.

**New Mexico State Medical Society Women's Auxiliary Scholarship in Nursing.** A \$300 scholarship awarded annually to a student in the College of Nursing upon recommendation of the Dean of that College.

**The Jean Norris Scholarship in Nursing of the Progress Women's Club of Albuquerque.** This scholarship provides \$300 for a student in the College of Nursing upon recommendation of the Dean of that College. It was established to honor Jean Norris who was a nurse and a past president of the club.

**The Jessie Smith Noyes Foundation Scholarship.** Merit type scholarships for graduating seniors of New Mexico high schools who are entering the field of nursing. Scholarships are renewable based upon grades and financial need.

**The Osoff Nursing Loan Fund.** A short-term loan fund has been established by an organization of Albuquerque women in the memory of Frieda Osoff, prominent Albuquerque humanitarian and philanthropist. No interest rates are charged with individual stipulations established for re-payment of loans. Applicants may apply through the College of Nursing.

**The Progress Women's Club of Albuquerque Scholarship in Nursing.** This scholarship provides \$300 per year for a student in the College of Nursing. The recipient is selected upon recommendation of the Dean of the College.

**Millicent A. Rogers Foundation Scholarship in Nursing.** An award of \$500 is made to a student in the College of Nursing.

**The Student Nurse Association Scholarship.** The Student Nurse Association of The University of New Mexico offers a scholarship each year to a nursing student who is active in the Association.

### Pharmacy

**The American Foundation for Pharmaceutical Education Scholarships.** These scholarships are awarded to third-, fourth- or fifth-year students in the College of Pharmacy who rank in the upper quarter of their classes scholastically and who can demonstrate need. The scholarships vary in value and are made possible by an annual grant from the American Foundation for Pharmaceutical Education.

**The John W. Dargavel Foundation Scholarship.** The John W. Dargavel Foundation, sponsored by the National Association of Retail Druggists, annually provides a \$200 scholarship for a third-, fourth-, or fifth-year student in the College of Pharmacy. The award is made by the College of Pharmacy.

**The Davis Brothers Scholarship.** A scholarship of \$350 provided by the Albuquerque Division of Davis Brothers, Inc., is awarded annually to a student in the College of Pharmacy on the basis of scholarship, ability, and need.

**The Eva M. Farone Memorial Scholarship.** A scholarship of \$500, established in memory of the late Eva M. Farone by her husband, is awarded annually to a qualified and deserving student in the College of Pharmacy. Preference will be given to women students.

**The Fox-Vliet Senior Scholarship.** Two scholarships of varying amounts are awarded annually by the Fox-Vliet Drug Company of Albuquerque to needy and deserving fifth-year students in the College of Pharmacy.

**Health Professions Scholarship Program.** A series of grants from the United States Public Health Service has enabled the College of Pharmacy to award scholarships in varying amounts to third-, fourth-, and fifth-year students in the College of Pharmacy. The program will continue through the 1969-70 academic year.

**McKesson and Robbins, Inc. Pharmaceutical Scholarship.** A scholarship of \$300 established by the El Paso and Amarillo Divisions of McKesson and Robbins, Inc., to be awarded annually to a student in the College of Pharmacy.

**The New Mexico Allied Drug Travelers Association Scholarship.** A scholarship of \$300 is awarded annually to a junior or senior student in the College of Pharmacy who has creditable scholarship and who has need of financial assistance.

**The New Mexico Allied Pharmaceutical Scholarship.** A scholarship of \$300 a year for 5 years is awarded on the basis of scholarship, ability, and need to a graduate of a New Mexico high school who enrolls in the pharmacy program. This scholarship was established and is maintained by the contributions of New Mexico pharmacists.

**Pharmacy Alumni Association Scholarship.** The Pharmacy Alumni Association of New Mexico annually awards a \$300 scholarship to a pharmacy student of junior or senior rank. The recipient is selected by a committee composed of Pharmacy Alumni Association members.

**The Women's Pharmaceutical Auxiliary Scholarship.** A scholarship established by the Women's Pharmaceutical Auxiliary in New Mexico to cover the cost of tuition is awarded annually to a student in the College of Pharmacy upon the recommendation of the Dean and the approval of a committee of the Auxiliary.

### Philosophy

**The Theo Karvelas Scholarship in Philosophy.** Mr. Theo Karvelas, longtime Albuquerque resident and friend of the University, has established a \$250 annual scholarship for students majoring in philosophy. Criteria for selection of recipients are financial need and academic ability.

### Speech

**The Don Kirby Forensic Scholarship.** A scholarship of \$100 established by Mr. Kirby because of his belief that participation in forensic activities is of extreme importance to college students. Selection of the recipient is based on forensic excellence, good scholarship, and need. The award is made by the University Scholarships, Prizes, and Loans Committee upon the recommendation of the Department of Speech.

### UPPERCLASS AWARDS AND PRIZES

**The ACF Industries Prizes in Technical Writing.** Prizes of \$50, \$30, and \$20 are provided by ACF Industries for winners in a University-wide competition in technical writing.

**The Allied Arts Competition of the Illuminating Engineering Society.** Prizes of \$25, \$15, and \$10 are awarded to students in Architecture for the winning entries in a competition in illumination design.

**The Student Branch of the American Pharmaceutical Association Sophomore Award in Pharmacy.** The University of New Mexico Branch of the American Pharmaceutical Association annually awards an appropriate book and certificate to the sophomore student in the College of Pharmacy who ranks highest in scholarship in his class.

**American Society for Testing Materials Membership Awards.** Two student memberships in the American Society for Testing Materials are awarded to two outstanding senior students in architecture.

**Evelyn Duffett Ancona Prize (Music).** A \$25 prize is awarded each April to an active member of Alpha Sigma Chapter of Sigma Alpha Iota who has made a valuable contribution to the group through her active interest and participation.

**The Architectural Design Faculty Awards.** Three prizes, each consisting of a current architectural book, are awarded annually to the outstanding sophomore, junior, and senior student in Architecture.

**The Eva Boegen Newman Center Prize.** An annual prize of \$50 is awarded to the student who renders outstanding service to the Newman Center.

**The George E. Breece Prize in Engineering.** A cash prize consisting of the income from a \$600 trust fund is awarded to a graduating senior in engineering, who is enrolled for a full time course of instruction, upon the basis of character, general ability, and excellence of scholastic record as shown during the last 2 consecutive years of residence in the University.

**The Chemical Rubber Company Handbook Award in Physics.** A current copy of the *Handbook of Chemistry and Physics* will be awarded annually to the student in Physics 260, 261, or 262 selected as most capable by the Chairman and staff of the Physics Department.

**The Chi Omega Prize in Economics.** Twenty-five dollars is awarded each year to the regularly enrolled woman student (Chi Omega members excepted) who has done the best work in economics during the academic year. Selection is made on the basis of scholarship.

**The Charles Florus Coan Prize.** The income from a trust fund donated by faculty and friends as a memorial to Charles Florus Coan, Ph.D., Professor of History and Political Science, is awarded annually, for excellence in scholarship, to a worthy student whose major field of study is history.

**The Marian Coons Prize.** A memorial prize consisting of the interest from a \$750 trust fund is given each year to the regularly enrolled senior in the Department of Home Economics who is voted the most kind by her classmates and teachers in that department.

**The Harry L. Dougherty Memorial Prize in Engineering.** A cash prize consisting of the income from a trust fund contributed by colleagues, students, and friends, as a memorial to Mr. Harry L. Dougherty, Assistant Professor of Civil Engineering, is awarded each year to the student in the College of Engineering who has made the highest scholastic average in residence during his freshman and sophomore years while carrying a normal course of study.

**Faculty Award in Pharmacy.** The Faculty of the College of Pharmacy annually makes an appropriate award to the graduating senior in the College of Pharmacy who has attained the highest grade average for the entire course in pharmacy.

**Faculty Womens Club Award.** \$100 is awarded each February to a junior or senior woman who has been outstanding on the UNM campus.

**Dr. Reginald Fisher Award.** A memorial prize given to an outstanding student in Inter-American Affairs. Preference is given to a student from Mexico or one studying some phase of Mexico.

**The Charles LeRoy Gibson Memorial Prize.** The interest from a trust fund created by students and colleagues of Charles LeRoy Gibson, Ph.D., Associate Professor of Chemistry, is given to the senior student, major or minor in chemistry, who is judged most outstanding by the faculty of that department.

**Robert P. Goodkin Prize.** An annual prize of \$25 to be awarded to an Indian student majoring in Sociology. The award was established by Mr. and Mrs. R. P. Goodkin to recognize outstanding achievement in this area.

**The H. J. Hagerman Prize.** An annual \$50 cash prize was established by the New Mexico Taxpayers Association in 1938. This is awarded to the regularly enrolled student who presents the best original study in the field of taxation and public finance in New Mexico. The study should be submitted by December 1 to the faculty of the Department of Economics.

**The Hamilton Watch Award.** Each year the Hamilton Watch Company presents a watch to an outstanding senior in the College of Engineering. The recipient is selected by the College of Engineering Scholarship, Prizes, and Awards Committee.

**R. E. "Jake" Haverstock Award in Art.** An award of \$150 will be made each year to a student in the Art Department who has demonstrated some form of unusual ability or progress in any field of that Department.

**The Telfair Hendon, Jr., Memorial Prize.** The interest from a trust fund of \$500 established by John F. Hendon in memory of his brother, Mr. Telfair Hendon, Jr., Instructor in English, is given to the graduating senior who has achieved the highest scholastic record as a major in the Department of English.

**The H. E. Henry Award in Pharmacy.** A pocket watch appropriately engraved is presented annually to a male student in the graduating class of the College of Pharmacy on the basis of scholarship, ability, and promise in the field of pharmacy.

**Kappa Alpha Theta Poetry Awards.** To stimulate interest in creative writing, Kappa Alpha Theta annually presents awards in amounts of \$15 and \$10 for the two outstanding poems presented to the English Department.

**The Kappa Kappa Gamma Alumnae Memorial Prize for Poetry.** An annual prize of \$25 to be awarded as a first prize for poetry in the undergraduate literary contests in the English Department. This prize was established in memory of all deceased members of the Association and of the New Mexico Chapter of Kappa Kappa Gamma.

**The Barbara Kiker Memorial Prize.** Friends of the late Mrs. Barbara Kiker have established a trust fund at the University to support a memorial prize in Dance. Recipients shall be either male or female students who are regularly enrolled at the University and who have made contributions toward the excellence of the Dance Program of the University. Recipients shall be selected by the Faculty Committee on Scholarships, Prizes, and Loans based upon recommendations received from the Chairmen of the Department of Music. The \$50 prize shall be awarded annually near the end of the Spring Semester.

**Langell Art Supply Stores Award.** The recipient of this \$25 award is selected by the faculty of the Art Department for the best creative work of art, in painting, submitted in the annual student art show.

**Law Prizes, see School of Law Bulletin.**

**The Mike S. Millican Memorial Prize.** The interest from a trust fund established by colleagues of Mike S. Millican, members of the Chemistry Department, and friends of the University, is given to a senior student with a B.S. major in chemistry who is judged outstanding by the faculty of the department.

**New Mexico Home Builders Competition.** Prizes of \$100, \$75, \$50, and \$25 are awarded annually to students in the Department of Architecture who are winners in a competition for the best residential designs.

**The New Mexico Section of the American Society of Civil Engineers Award.** A certificate of merit with entrance dues paid for junior membership in the A. S. C. E., together with a membership badge, is given to a graduating student in civil engineering who excels in scholarship, holds membership in the student section of the engineering society, is active in student engineering organizations, and who, in the opinion of his professors, shows promise of becoming a successful engineer.

**New Mexico Section of the American Vacuum Society.** In order to stimulate and encourage interest in vacuum science and technology, the New Mexico Section of the American Vacuum Society has established a \$100 award for a qualified graduate or undergraduate student submitting a brief essay. Included in the award will be a one year student membership in the American Vacuum Society and the New Mexico Section.

**The New Mexico Society of Professional Engineers' Wives Award.** The Women's Auxiliary of the New Mexico Society of Professional Engineers awards each spring to a graduating senior in the College of Engineering a cash prize equivalent to the registration fee for the New Mexico Engineer-in-Training Examination. The prize is awarded on the basis of need, scholarship, and interest in Professional Engineering Registration.

**The Phi Kappa Phi Senior Prize.** Fifty dollars is given each year by the local chapter of Phi Kappa Phi to the graduating senior of any of the colleges of the University who makes the highest scholastic record of his class.

**Phi Sigma Kappa Prize in Creative Play Writing.** Phi Sigma Kappa has established an award of \$30 annually for the best one-act play submitted in the creative writing contest.

**Carl Redin Memorial Prize for Drawing.** An award of \$25 to be made for the best creative work of art submitted in the annual student art show.

**Reynolds Metals Company Competition.** An annual award of \$200 to the student submitting the best original design for a building component in aluminum.

**The Rose Rudin Roosa Prize.** The income from a \$1,000 trust fund is awarded each year to the upperclassman or graduate student in the Department of Political Science who has indicated in the opinion of his professors, the most positive interest in the development of good citizenship. A paper is required.

**The George St. Clair Memorial Prize.** The interest from a trust fund established by colleagues, students and friends of George St. Clair, Professor of English, Department Head and Dean of the College of Fine Arts, is granted to the student who has made the greatest contribution in acting, stage design, lighting, or production in the Department of Dramatic Art.

**The Katherine Mather Simms Memorial Prize.** A \$50 prize as a memorial award is made each year to a regularly enrolled undergraduate, who has been in residence at least one semester preceding the time of the contest, on the basis of excellence in prose composition and on the quality of a competitive essay.

**The Smead Manufacturing Company Prize.** For outstanding achievement in business education a student is annually awarded a prize consisting of membership in the United Business Education Association, a subscription to the U.B.E.A. Forum, and a binder embossed with the student's name.

**The Student Nurse Association Award.** The Student Nurse Association gives a cash award each year to the nursing student who is chosen the Student Nurse of the Year.

**The Tile Council of America Award in Architectural Engineering.** Prizes of \$25, \$15, and \$10 are awarded by the Tile Council of America to the winning students in a competition in architectural design.

**The Lenna M. Todd Memorial Prize.** The interest from a trust fund of approximately \$2,000 is awarded annually to the student or students doing the best work in creative writing in the Department of English. This endowment was created by the will of Dana Paul Todd, as a memorial to his mother, Mrs. Lenna M. Todd. Dana Todd, Class of '33, served in the United States Army in the Philippines and died in a Japanese prison camp at Osaka, on or about August 15, 1943.

**The Wall Street Journal Award.** A prize consisting of a one year's subscription to the *Wall Street Journal* and a suitably engraved medallion are given annually to the graduating senior in the Finance Concentration of the College of Business Administration who has the highest scholastic average.

**The Eric H. Wang Memorial Fund.** Because of Mr. Wang's interest in the improvement of the engineering profession, the interest from a trust fund established in his name is used to help senior engineering students either to pay for special refresher courses taken prior to the Engineer-in-Training examination or to pay the EIT examination fee.

**The Irene R. Wang Memorial Prize.** Two annual prizes (\$50 plus accrued interest) established by Mrs. Eric H. Wang in memory of her daughter, to two freshmen enrolled in the General Honors Program who have excelled in written work.

#### MEDALS AND CERTIFICATES

**The Beta Alpha Scholarship Key in Accounting.** A certificate of achievement and a gold key are awarded annually by Beta Alpha, honorary accounting fraternity, to the graduating senior in the College of Business Administration with the highest grade in all his accounting courses.

**Delta Sigma Pi Scholarship Key.** This key is awarded annually by Delta Sigma Pi, national professional fraternity in business administration, to that male senior who upon graduation ranks highest in scholarship for the entire course in commerce and business administration.

**The C. T. French Medal.** The medal is awarded to a graduating senior of the College of Arts and Sciences who has obtained, during his last two years of continuous residence, the highest general average for scholarship in a program of not less than 14 credit hours a semester.

**The Kappa Psi Award in Pharmacy.** A certificate is awarded annually to the male student who has the highest scholastic average in the senior class of the College of Pharmacy. If the student is a member of Kappa Psi, a key is awarded in addition to the certificate.

**The Kappa Psi Junior Award in Pharmacy.** Gamma Rho Chapter of Kappa Psi pharmaceutical fraternity annually awards an appropriate book and certificate to the junior student in the College of Pharmacy who ranks highest in scholarship in his class.

**The Kappa Psi Scholarship Honors Certificate.** The Grand Council of Kappa Psi pharmaceutical fraternity awards annually a certificate to each member of Kappa Psi who completes the full junior and/or senior year (last 2 years of the professional curriculum) with a minimum grade-point average of 3.0 for each year. A member may qualify for a certificate for each of the 2 years.



**The New Mexico Pharmaceutical Association Award in Pharmacology and Other Biological Sciences.** The New Mexico Pharmaceutical Association annually awards an appropriate book, or books, and certificate to the graduating senior in the College of Pharmacy who ranks highest in scholarship in the required courses in Pharmacology and other biological sciences.

**The College of Pharmacy Alumni Association Award in Pharmaceutical Chemistry and Chemistry.** The Alumni Association of the College of Pharmacy annually awards an appropriate book, or books, and certificate to the graduating senior in the College of Pharmacy who ranks highest in scholarship in the required courses in pharmaceutical chemistry and chemistry.

**The Phi Gamma Nu Scholarship Key.** This key is awarded annually to the senior woman student, not necessarily a member of the fraternity, who upon completion of seven semesters of college work ranks highest for the entire course in Business Administration or Business Education. The award is made by the Dean of the College of Business Administration and the Dean of the College of Education.

**The Phi Sigma Certificates in Biology.** Each year the National Society of Phi Sigma awards a certificate to a regularly enrolled undergraduate student and another certificate to a graduate student in The University of New Mexico for excellence in biology and promise of future achievement.

**Pickett and Eckel Slide Rule Prize.** A prize consisting of a slide rule is awarded annually to an outstanding freshman student in architecture.

## STUDENT SERVICES

**A**LL divisions of the University concerned with student welfare and activities are under the coordinating supervision of the Vice President for Student Affairs. There follow descriptions of some of the services and programs which supplement the University's educational program and assist the student in his academic and personal development.

Information in regard to Admission and Registration, Student Housing, and Financial Aid will be found in those respective sections of this catalog. An explanation of the orientation and advisement program is given on p. 88-89.

### DEANS OF MEN AND OF WOMEN

The Deans of Men and of Women and their staffs are responsible for most of the personal counseling of individual students. Records of the extracurricular activities of students are compiled and kept in this office.

The Deans are responsible for the counseling programs in the residence halls and for the supervision of social fraternities and sororities. They also serve as advisers to the student honorary organizations.

### COUNSELING AND TESTING SERVICES

See "University College and Counseling Center," pp. 142-145.

### OFFICE OF INTERNATIONAL SERVICES

**INTERNATIONAL STUDENT PROGRAM.** The University of New Mexico is committed to the support and encouragement of an international student program. The Director of International Services acts in a liaison capacity with faculty and administrative departments of the University on behalf of the foreign students. His staff also endeavors to assist the student from abroad by counseling with him and by encouraging him to use the services offered by the University in areas such as academic advising, student health, insurance, counseling and testing, housing, and employment.

In addition to making proper referrals, the Office of International Services provides orientation programs, community hospitality, and immigration assistance to the student from abroad. The Director attempts, moreover, to give a maximum of personal attention to the unique problems of the foreign students.

**FULBRIGHT PROGRAM.** The Director of International Services acts as Fulbright Program Adviser. His duties in this capacity include publicizing the Fulbright competition, announcing grants offered, providing application forms, counseling American students, and arranging faculty committees for interviews and evaluations.

**AMERICAN STUDENTS ABROAD.** Information may be obtained on institutions of higher education throughout the world, admission practices, equivalence of credentials, costs, and living accommodations. Also available are awards and special programs abroad during the academic year, summer opportunities, organizations in the U.S. providing services to Americans going abroad, and government regulations affecting U.S. citizens overseas.

## HEALTH SERVICE

The Student Health Service provides facilities for medical advice, treatment, and if necessary, bed care, for acute illnesses of relatively short duration. The Student Health Service is not a teaching department and is staffed by experienced physicians and graduate nurses. Consultation with the physicians is available at regular morning and afternoon office hours, and the Service is open for emergency care 24 hours a day.

The Student Health Service is supported by a budgeted allocation from fees and is available to all students carrying 8 or more semester hours. Beyond this there is no charge for medical services rendered. It should be noted, however, that drugs ordered on prescription must be purchased by the student from any drugstore. Should the services of a specialist be required, the student will be referred for treatment at his own expense.

Each student enrolling for the first time, or re-enrolling after an absence of a year or more, is required to arrange for a physical examination by his own physician prior to enrollment or re-enrollment. The examination is to be reported on a form prepared by the Health Service. Evaluation of the health of a student whose medical examination reveals a condition affecting his eligibility, or his ability to perform satisfactorily, is the responsibility of the Health Service. A student whose condition indicates the need for a limitation of activity in physical education, or an excuse from the physical education requirement, may obtain such an excuse from one of the University physicians. The Health Service is authorized to exclude from residence halls or classrooms a student suffering from contagious or communicable disease.

The Health Service maintains constant supervision over sanitary conditions in residence halls, dining halls, swimming pools, and classrooms.

Full information is contained in the brochure, "This Is Your Health Service," which is issued at registration and should be preserved for reference.

## INSURANCE PLAN

The University, after study and consultation with representatives of insurance companies, has adopted an insurance plan designed to protect students against those burdensome expenses which may result from unexpected severe illness, injury, or major surgery. Participation is optional on the part of the student.

The University plan provides low-cost coverage, through a national insurance company, while the student is in school and while he is away during interim vacation periods. It provides for medical, surgical, and hospital benefits to apply against expense incurred for necessary care **beyond that provided by the Student Health Service**. Benefits under this plan are payable in addition to those the student may receive from any other policy.

Any student enrolled during a regular semester for 8 or more semester hours is eligible to participate in the plan during that semester upon payment of a special fee (see Student Expenses). Arrangements may also be made for protection during the summer session or summer vacation period.

Details of this insurance plan, including a schedule of benefits, are mailed to new and readmitted students as a part of the admissions procedure.

## **PLACEMENT CENTER**

The Placement Center is maintained to assist students in finding part-time employment to supplement their incomes while they are in school, and to aid graduating seniors and alumni in finding suitable and satisfactory employment in permanent positions. For information concerning service to enrolled students see p. 100.

The Placement Center acts as a general clearing house for registrants seeking employment and for employers and school administrators seeking college-trained personnel. Seniors who are graduating, alumni who are seeking a change, and students who are seeking part-time employment are urged to register with the Center, Building T-10, 1910 Roma, N.E.

For career placement, the Center keeps on file a complete record of each registrant's scholarship, employment experience, activities, and personal qualifications and seeks the proper placement of the individual, commensurate with his training and background. The Center maintains constant contact with the conditions and trends of the nation's job market. Representatives from industry and school administrators are urged to visit the campus to interview seniors for possible employment.

No fee is charged for services rendered. Graduates are invited to use the services of the Center in the years following their graduation.

**STUDENT AIDS OFFICE** (See p. 98).

## **DIVISION OF VETERANS AFFAIRS**

The University of New Mexico is fully approved for the training of students eligible under the Veterans Administration educational assistance programs. The Division of Veterans Affairs was established to provide every possible service to these students, and to aid in the solution of any problems that might arise in the students' relations with the University and the Veterans Administration. The student is given assistance in obtaining a certificate of eligibility from the Veterans Administration, certification of his registration so that training allowance may start, proper withdrawal or interruption of his educational program, and information of any changes in procedures and regulations of the University and the Veterans Administration. This Division also has the authority to provide educational or vocational counseling to any student under the Veterans Administration educational program, and to assist students in the selection of an objective and in the development of a program of education. All documentary forms necessary for these government programs are available in this office.

## **NEW MEXICO UNION**

The New Mexico Union is planned to provide a focal point for the cultural and recreational activities of the University. It is the center of a consolidated program enlisting the joint efforts of student government, programming committees, student organizations, and staff to bring about a balance of activities providing the greatest values and benefits for the University community. All students are members of the Union, and their cooperation and contributions are depended upon to assure its total success. The Union Board, made up of students,

faculty, and administrative representatives, formulates policy for the operation of the Union. The Program Directorate, working with the Union staff, has the responsibility of planning and executing a program of activities for the Union.

The Union Activities Center is the hub of out-of-class activities at the University. A feature of the Activities Center is the Master Calendar, which lists all campus events of student interest. The Associated Students' Bookstore, located in the Union, has available all the books and materials required by University students. Union food services include several snack bar areas, cafeteria, dining room, catering facilities. Also included are a hobby-crafts area, music listening rooms, barber shop, a 200-seat auditorium, and complete games facilities, including bowling, table tennis, and billiards. Eight guest rooms, lounges, a ballroom, many meeting rooms, and the Alumni Offices round out the facilities which enable the Union to serve the University community.

## ATHLETICS

The University's intercollegiate athletic program is conceived to be an extension of the work offered in the Physical Education Department, which, in turn, shares a responsibility with all other segments of the University to maintain general academic standards of high quality. Athletes are expected to participate, first and primarily, as full members of the student community. The faculty of the University, within its powers, assumes responsibility for keeping the environment conducive to these objectives.

Intercollegiate athletics are governed by regulations of the Western Athletic Conference, the general athletic policy of the University, the North Central Association of Colleges and Secondary Schools, and the National Collegiate Athletic Association.

Varsity sports include football, basketball, track and field, baseball, tennis, golf, swimming, wrestling, and gymnastics.

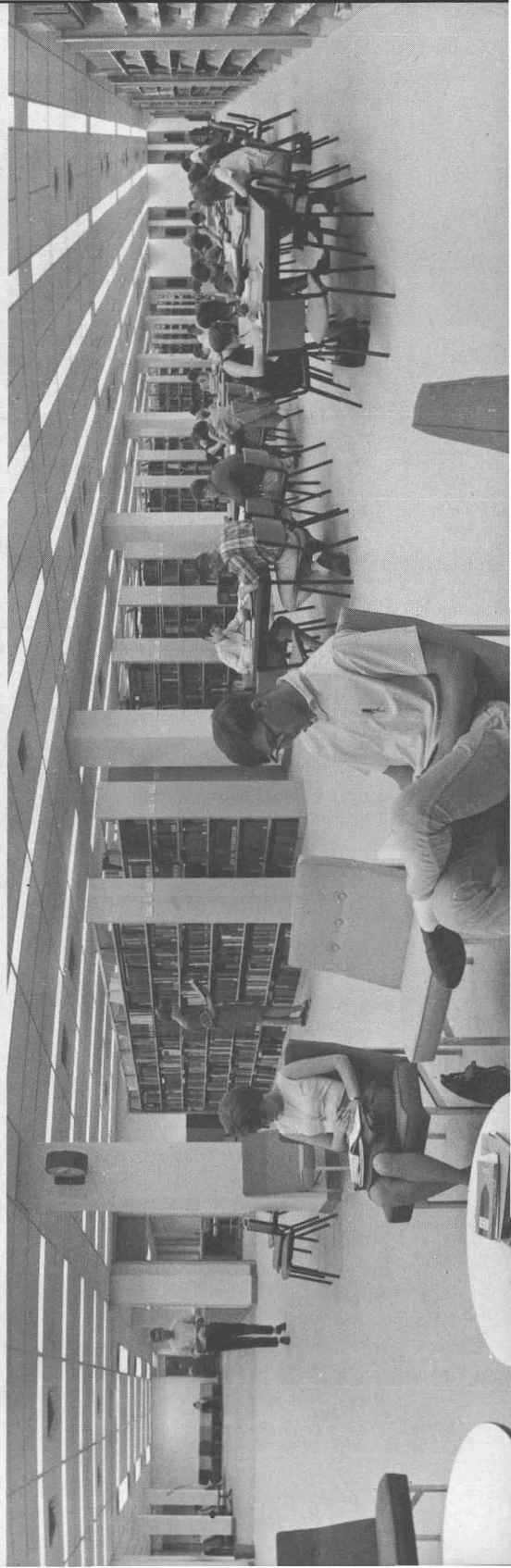
The University also sponsors an intramural program designed to supplement the prescribed courses in physical education. The intramural program includes swimming, tennis, handball, golf, cross-country, track and field, volleyball, touch football, bowling, baseball, lacrosse, softball and basketball. A parallel program of sports appropriate for women is sponsored by the Women's Recreational Association.

Many indoor sports are centered on the main campus in Johnson Gymnasium, which includes an indoor pool, two large arenas, handball courts, and other specialized areas. The recently completed Basketball Arena, with a seating capacity of 15,000, is located on the south campus. Outdoor recreational facilities maintained by the University include a golf course, a swimming pool, rifle range, tennis courts, and numerous playing fields.

## CULTURAL OPPORTUNITIES

The Associated Students, through the Cultural Program Committee, present a varied fare of concerts, theater, and lectures. Students may also purchase season tickets for Community Concerts, the Civic Symphony, and the Albuquerque Little Theater, in some instances at reduced rates.

The University Art Museum in the Fine Arts Center presents masterworks of



traditional and contemporary art as well as the work of faculty and students. The Jonson Gallery, also on the campus, offers one-man shows by contemporary artists. New Mexico has a long tradition in the visual arts. Museums and galleries abound in the State. Those in Albuquerque and Santa Fe are readily accessible to the interested student.

### RELIGIOUS ACTIVITIES

Practically all religious denominations are represented in the city of Albuquerque. The churches all welcome the University students and invite them to share in their religious life and services. The University maintains a policy of non-sectarianism, but encourages its students to affiliate with the religious organizations of their choice and to attend services regularly.

The following religious organizations invite student affiliation: Baha'i Student Association, Baptist Student Union, Canterbury Association, Chi Alpha, Christian Science Organization, Christian Student Center, Deseret Club, Gamma Delta, Hillel Counselorship, The Islamic Society, Lobo Christian Fellowship, Lutheran Student Association, Newman Club, United Campus Christian Fellowship, and Wesley Foundation.

### STUDENT ORGANIZATIONS

#### ASSOCIATED STUDENTS

All students enrolled for 12 or more semester hours are affiliated as "The Associated Students of The University of New Mexico." The Associated Students function under a constitution approved by student referendum, by the Faculty, and by the Regents of the University. The government of the Associated Students has three principal branches: the executive, consisting of the President and certain appointed executive officers; the legislative, consisting of the Student Senate composed of 25 senators elected at large; and the judicial, consisting of the Student Court appointed by the President and approved by the Senate.

#### ASSOCIATED WOMEN STUDENTS

The Associated Women Students is composed of all regularly enrolled undergraduate women students of the University. The purpose of the organization is to govern women students in women's affairs, to maintain standards of conduct, and to promote broad social interests for all women students. It is governed by a council, the members of which are representatives of all women's organizations on the campus.

#### HONORARY AND SERVICE ORGANIZATIONS

The following organizations are active: Phi Beta Kappa, Phi Kappa Phi, Blue Key, Mortarboard, Alpha Phi Omega, Chakaa, Las Campañas, Spurs, Vigilante, Circle K, and Apowa.

Many professional and departmental organizations are also active on the campus.

#### SOCIAL GROUPS

Fraternities: Alpha Epsilon Pi, Alpha Kappa Lambda, Alpha Tau Omega, Delta Sigma Phi, Kappa Alpha, Kappa Sigma, Lambda Chi Alpha,

Omega Psi Phi, Phi Gamma Delta, Phi Delta Theta, Phi Sigma Kappa, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Phi Epsilon.

Sororities: Alpha Chi Omega, Alpha Delta Pi, Chi Omega, Delta Delta Delta, Delta Gamma, Kappa Alpha Theta, Kappa Kappa Gamma, Phi Mu, Pi Beta Phi.

Fraternity and sorority relations are controlled by the Interfraternity Council and the Panhellenic Council respectively. These organizations also take prominent places in student activities.

Other social groups: Town Club.

For information in regard to other student organizations and activities, see the **Student Handbook**.

## STUDENT PUBLICATIONS

The **New Mexico Lobo**, the campus newspaper, is published four times each week, and **The Mirage** is the campus yearbook issued at the end of the spring semester each year. **The Thunderbird**, a literary magazine issued twice during each semester, carries literary contributions submitted by students.

The publications are edited and managed by students under the supervision of the Student Publications Board comprised of both student and faculty members, the majority of the Board, however, being student members.

The student editors and managers of these publications are elected by the Publications Board for a period of two semesters.



## GENERAL ACADEMIC REGULATIONS

**T**HE STUDENT is advised to familiarize himself with the academic regulations of the University. He is solely responsible for complying with all regulations of the University, of his respective college, and of the departments from which he takes courses, and for fulfilling all requirements for his particular degree.

### CLASS HOURS AND CREDIT HOURS

A class hour consists of 50 minutes. One class hour a week of recitation or lecture, throughout a semester, earns a maximum of one credit hour. One class hour a week of laboratory, orchestra, chorus, studio, or physical training, throughout a semester, earns from one-third to one-half credit hour.

### GRADES

The grades awarded in all courses are indicative of the quality of work done. Their significance in most courses is as follows:

A, Excellent. 4 grade points per credit hour.

B, Good. 3 grade points per credit hour.

C, Average. 2 grade points per credit hour.

D, Barely Passed. 1 grade point per credit hour.

F, Failed. F is also given in any course which the student drops after the fourth week of a semester or second week of a summer session while doing failing work.

In the Graduate School, only A and B are considered passing grades.

### GRADES IN HONORS COURSES

Grades assigned in General Honors courses, some departmental honors courses, and a few seminars are as follows:

A, Honors. 4 grade points per credit hour.

CR, Grade of Pass. Gives credit for the course but is not computed in the scholarship index.

NC, No Credit. Not computed in scholarship index.

### OTHER GRADES

I, Incomplete. The grade of I is given only when circumstances beyond the student's control have prevented his completing the work of a course within the official dates of a session. (See grade of PR.) The I automatically becomes an F if not removed (1) within the first 12 weeks of the next semester of residence, (2) within the next 4 semesters, if the student does not re-enroll in residence. The student may change the I to a passing grade by satisfactorily performing the work prescribed by the instructor. (Arrangements should be made with the instructor within a reasonable time in advance of the planned date of completion.) The student obtains from the office of his dean or director a permit to remove the I, pays the \$2 fee, and takes the card to the instructor, who completes it and returns it to the Office of Admissions and Records where official entry on the student's record is made. A student may re-enroll in a course for which a grade of I still stands on his record only upon petition to, and approval by, the

Committee on Entrance and Credits for change of the Incomplete grade to a grade of W.

W, Dropped Without Discredit. W is given in any course which the student drops officially after the fourth week of the semester or second week of the summer session, while doing passing work, subject to the regulations for dropping a course or for withdrawal from the University. These regulations appear under "Change in Program of Studies" below, and under "Withdrawal from the University" on p. 131.

CR, Credit. At the graduate level CR is used to report satisfactory completion of a master's thesis or doctor's dissertation.

NC, No Credit. At the graduate level NC is used to report unsatisfactory completion of master's thesis or doctor's dissertation.

PR, Progress. This grade is used to indicate that a thesis or dissertation is in progress but not complete. When the thesis or dissertation is complete, CR or NC is reported. When, in the judgment of an instructor, the nature of a 500-level course does not permit meaningful eight-weeks' grades, the symbol PR may be used to indicate satisfactory progress.

CHANGE IN GRADE. No grade except I can be raised by a special examination. A grade of I can be changed to a passing grade in a manner to be determined in each case by the instructor concerned with the approval of the dean or director of the college. (See I above.)

Any other change in grade, after the grade is on record in the Office of Admissions and Records, may be made only after reasons for such change have been submitted in writing by the instructor concerned, and approved by the Committee on Entrance and Credits.

#### GRADE REPORTS

At mid-semester (normally the end of the eighth week of the semester), and at the end of the semester, grades are reported for all courses to the Admissions and Records Office.

Copies of end-of-semester grades are mailed to parents of undergraduate students, with the exception of married students and students over 21 years of age.

#### SCHOLARSHIP INDEX

A student's academic standing is referred to in terms of a scholarship index obtained by dividing the total number of grade points earned at The University of New Mexico by the total number of hours attempted at The University of New Mexico.\* Hours given a grade of W or I will be excluded in this computation, but hours of F will be counted. All honors and prizes depending upon scholarship are determined by ranking students according to this index.

#### CHANGES IN ENROLLMENT

CHANGE IN PROGRAM OF STUDIES. The student who desires to add a course to, or drop a course from, his program of studies should obtain from his college office the form for change in program of studies. The student obtains signatures

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\* Exclusive of hours in nonprofessional physical education and ensemble music.

called for and returns the form to the Office of Admissions and Records where official entry is made on the student's record. A course may not be added to a student's program after the second week of the semester or the first week of the summer session (see the Academic Calendar). A student has the right to withdraw from a course, or courses, during the first four weeks of the semester or the first two weeks of the summer session without a grade, except that a grade of F assigned by an instructor on the basis of University regulations relating to student dishonesty will be shown and counted on the official transcript. When a student exercises the right of withdrawal after the first four weeks of the semester or the second week of the summer session up to and including the last day of the twelfth week of the semester or the sixth week of the summer session he will receive a grade of W if he is passing the course or a grade of F if he is failing the course at the time of withdrawal, as determined by the instructor in the course. The effective date of withdrawal is the date of issuance as entered on the Change of Program of Studies by the student's college or school office. A student cannot withdraw from a course, or courses, after the end of the twelfth week of the semester or the sixth week of the summer session and receive a grade of W without petition to, and approval by, the dean or director of his college or school, which approval is limited to hardship cases involving circumstances beyond the student's control. For regulations governing withdrawal from all courses for which a student is enrolled, refer to "Withdrawal from the University" below. In the School of Law, a student desiring to drop a course after the first 8 weeks must petition the faculty of that School in writing to drop the course and receive a grade of W therein.

The student is responsible for the completion of every course for which he has registered; if he drops a course at any time without filing the official change of program form, he will receive a grade of F in the course. A fee of \$1 is charged for any change made in the student's program of studies after the end of the second week of the semester or after the end of the first week of the summer session.

Transfer from one section to another section of the same course is effected by application to, and approval by, the department chairman involved. By use of the Section Change Authorization form, the department chairman notifies the Records Office of the approved change. No withdrawal grade is assigned in a section change.

**CHANGE IN COLLEGE.** A student who desires to change his registration from one college to another within this University shall petition the dean or director of the college in which he is currently enrolled. This petition requires approval of both colleges and is then filed in the Office of Admissions and Records.

**CHANGE IN ADDRESS.** Each student is expected to keep the University authorities informed as to his address. Any change in address should be reported immediately to the Office of Admissions and Records.

**ADDITION OF CORRESPONDENCE OR EXTENSION COURSES TO PROGRAM.** A resident student may enroll for correspondence and extension courses only when the

addition of such courses does not cause his program to be in excess of the maximum load allowed, and only after permission has been given by the dean or director of his college.

#### WITHDRAWAL FROM THE UNIVERSITY

When a student wishes to withdraw from all the courses in which he is enrolled during a semester, or summer session, he should secure a withdrawal card from the office of the Dean of Men or Women. Any unmarried undergraduate student under 21 years of age must have a letter of permission from parents to withdraw from the University. No grades are assigned when a student withdraws officially from the University during the first 4 weeks of the semester or the first 2 weeks of the summer session, except that grades of F assigned on the basis of University regulations relating to student dishonesty will be shown. Grades of W or F are shown on the student's record if he withdraws officially from the University after the first 4 weeks of the semester or first 2 weeks of a summer session, except that a student may withdraw from the University after the twelfth week of the semester or the sixth week of the summer session with a grade or grades of W only on petition to, and approval by, both the dean or director of his college or school and the personnel dean, which approval is limited to hardship cases involving circumstances beyond the student's control. When a student leaves the University during a semester and does not carry out his withdrawal according to this regulation, he becomes liable for a grade of F in all his classes, even though he is passing his courses up to the time of leaving.

#### REPETITION OF COURSE

A student may repeat a course without special permission (but may receive credit only once), except for one in which a grade of Incomplete was earned (see p. 128). When a student repeats a course in which he has previously made a D or F, hours and points for all attempts will be counted in his scholarship index. Hours and points for repetition of a course in which the student has previously earned a grade of C or better will not be counted in his scholarship index.

#### AUDITED COURSES

A student may register for a course as an auditor, without credit, provided he obtains the permission of the instructor concerned and of the dean or director of the college having jurisdiction over his program of studies. The fee for audited courses is the same as for credit courses.

A student may not change from audit to credit basis after the first 2 weeks of the semester or the first week of the summer session.

He may change from credit to audit basis within the first 4 weeks of the semester or the first 2 weeks of the summer session regardless of his grade at the time the change is made. Change from credit to audit between the end of the fourth week and the end of the twelfth week of the semester or between the end of the second week and the end of the sixth week of the summer session can be made only if the undergraduate student is earning a passing grade. The student

enrolled for graduate credit may change from credit to audit after the fourth week of the semester or the second week of the summer session only if he is earning a grade of A or B. After the twelfth week of the semester or the sixth week of the summer session, a student enrolled for undergraduate credit may, subject to approval by the dean or director of his college, change from credit to audit only if he is earning a grade of C or better.

### CLASSIFICATION

A student admitted to one of the degree-granting colleges from the University College will be classified on entry into the degree-granting college as a sophomore. Classification beyond sophomore status will be determined by the college on the basis of the student's progress toward his chosen degree.

### SCHOLASTIC REGULATIONS

#### DEAN'S LIST

At the end of each semester all the undergraduate colleges and the School of Law recognize excellence in scholarship by publishing the names of students who have achieved outstanding academic records. These Deans' Lists are made available to University and outside news media.

#### SCHOLASTIC STANDING

The standing of all students (including those who withdraw from the University during the session) with respect to scholarship is checked at the end of each semester and summer session (or at the time of withdrawal). At such times, all students who are deficient in scholarship are placed on probation, or suspended, in accordance with the following regulations. A student placed on probation at any time will remain on probation until the next final examination period.

#### PROBATION

**UNIVERSITY COLLEGE.** The minimum scholarship index to remain in good academic standing in the University College is 1.40 through the semester or summer session in which a student has equaled or exceeded the limit of 30 hours attempted. Thereafter the minimum scholarship index required shall be 1.70. A student is placed on academic probation at the end of any semester or summer session in the University College if his scholarship index falls below the applicable minimum indicated above.

**DEGREE-GRANTING COLLEGES AND NON-DEGREE STATUS.** A student in a degree-granting college or in non-degree status is in good academic standing if his academic record shows either: (1) a scholarship index (as defined in this catalog) of 2.0 or better, or (2) a grade-point average of 2.0 or better on all work taken while enrolled in a degree-granting college or in non-degree status. A student will be placed on academic probation at the end of any semester or summer session when his academic record fails to equal one of the two minimums set out above. (The student is reminded that the grade-point average required for graduation from some colleges may be, in certain individual cases, higher than the grade average necessary to avoid probation.)

## SUSPENSION

UNIVERSITY COLLEGE. A student is subject to suspension at the end of any semester or summer session in which he was carried on academic probation as defined above, unless he has succeeded in removing himself from such probation by acquiring the minimum scholarship index. No student, however, is subject to suspension or dismissal because of his grade-point index until the end of the semester or summer session in which the cumulative number of hours attempted exceeds 16.

DEGREE-GRANTING COLLEGES AND NON-DEGREE STATUS. A student in a degree-granting college or in non-degree status whose name has appeared on a probation list at the end of any semester or summer session is subject to suspension at the end of his next semester or summer session if he has not qualified for removal from probation status by that time.

A student who has been suspended is not eligible to re-apply for admission for a period of one calendar year from the date of suspension. The readmission of a suspended student to the University after the expiration of the suspension period is contingent upon the approval of the dean or director of the college to which he is seeking admission or readmission. A student who is suspended for poor scholarship or who, after having been placed on probation, fails to re-register for the following semester, shall be considered as on probation upon his return to the University. The same regulation applies to a student who withdraws from the University while on probation (unless his withdrawal grades make him subject to suspension). A dean may require a student who is on probation at the time of registration to enroll for the minimum number of hours, and he may at any time require a student on probation to drop as many hours as seem to be in excess of the student's ability.

College of Business Administration: For additional regulations, see section "College of Business Administration."

College of Nursing: For additional regulations, see section "College of Nursing."

College of Pharmacy: For additional regulations, see section "College of Pharmacy."

SUSPENSION BY SCHOLARSHIP COMMITTEES OR DEANS. Regulations on probation and suspension as described above apply only at the end of a semester or summer session. However, during the progress of any semester or summer session the dean of a college may refer the case of a delinquent student to a college committee on scholarship; and such committee may recommend to the dean probation or suspension from the University for such student.

Attention is called also to the possibility of suspension as a result of excessive absence. See below.

## GRADUATE SCHOOL DISQUALIFICATION

See the **Graduate School Bulletin**.

## ATTENDANCE

Students are expected to attend all meetings of the classes in which they are enrolled. No extensions of the vacation periods are given to any students,

regardless of the location of their homes. Non-attendance at classes due to late registration is considered the same as absence incurred after registration.

Instructors will keep a record of class attendance, and will report excessive absences to the dean or director of the college concerned. A student with excessive absences may be dropped from a course with the grade of F, by the dean or director of the college upon recommendation of the instructor. The dean or director may suspend a student from the University, on the grounds of neglected duty, when he has thus been dropped from two courses.

Absences due to illness, field trips, athletic trips, etc., are to be reported by the student to the instructor and to the Personnel Dean. Such report does not relieve the student of responsibility for lost work. It is the duty of the student to take the initiative in arranging with his instructors to make up work missed.

Students who are absent and unexcused from final examinations, or other closing exercises of the classes in which they are enrolled shall be given the grade of F. A grade of I may be given when there is a valid reason for absence from the examination.

#### DISHONESTY IN ACADEMIC MATTERS

Every student is expected to abide by the highest standards of honorable conduct in academic matters. Dishonest action in connection with tests, quizzes, or assignments, whether in the classroom or out, generally will be cause for dismissal from the University.

Non-disclosure or misrepresentation in filling out applications or other University records will make a student liable for disciplinary action, including possible dismissal from the University.

#### TRANSCRIPTS OF CREDIT

A student is entitled to one official transcript without charge at undergraduate and at graduate level prior to graduation. He is entitled to a second transcript without charge after graduation. A student who has not requested a free transcript before graduation is entitled to two transcripts without charge after graduation. After a student has secured the transcripts to which he is entitled without charge, additional transcripts are charged for at the rate of \$1 each. No charge will be made for transcripts submitted to the New Mexico State Department of Education for teacher certification purposes. Transcripts of credits cannot be issued until all accounts with the University are settled.

If the student requires special statements to be made concerning his record, or if special forms are to be filled out, the transcript fee of \$1 will be charged for such service.

**SCHOLASTIC STATUS.** An undergraduate student has the status: "in good standing," "on probation," or "under suspension." The University's period of suspension is one calendar year. At the expiration of the suspension period, the student may apply for readmission; but re-enrollment requires the approval of the college dean or director.

**HONORABLE DISMISSAL.** The status "in good standing," or "on probation," entitles the student to honorable dismissal, and on transcripts no separate statement

of honorable dismissal is necessary. Whether he completes a semester, or withdraws with permission before the end of the semester, a student is entitled to honorable dismissal provided that he has the necessary scholastic status and is in good standing regarding conduct and financial obligations. Honorable dismissal implies that the University will permit the student to re-register in the next session.

## EXAMINATIONS

**REGULAR EXAMINATIONS.** Examinations in each course are held at the close of each semester, and at intervals during the semester at the discretion of the instructor. All students, including graduating seniors, are required to take semester final examinations.

**ENGLISH PROFICIENCY EXAMINATION.** See p. 142.

**SPECIAL EXAMINATIONS.** A special examination is one taken at a time other than regularly with the class. Classified as special examinations are: examinations given to make up missed regular course examinations, Advanced Standing examinations, examinations to establish credit, examinations to validate unaccredited, or otherwise unacceptable, credit earned at other college-level institutions, examinations to remove a grade of I, examinations for the removal of entrance deficiencies.

A fee is charged for all special academic examinations administered by the faculty. Examinations for Advanced Standing and all examinations to establish credit are charged for on a per-credit-hour basis. (See p. 91). For fees charged for other types of special examinations, see p. 91.

Before the student is admitted to a special examination, he must present to the instructor a permit signed by the dean or director of his college. For those examinations where a fee is required, the permit must show the Comptroller's receipt of the fee.

**EXAMINATION FOR ADVANCED STANDING.** A student in residence in an undergraduate college shall have the privilege of passing a course in the University by special examination without attendance upon the course, and receive undergraduate credit therefrom, such privilege to be subject to the following restrictions:

1. He shall not have been previously registered in the course in any division of any college or university.

2. The applicant shall have a scholarship index of 3.0 or more in a normal program of studies completed during the last semester (or last 2 summer sessions) in residence, and he shall be doing superior work at the time of taking the examination.

3. The examination shall have the approval of the dean or director of the college, the chairman of the department, and the instructor concerned.

4. The applicant shall obtain from the dean or director of his college a permit for the examination, and shall pay in advance the required fee of \$2.50 per credit hour.

5. The student shall obtain in the examination a grade not lower than C, and shall show a mastery of the course acceptable to an examining committee



of three, appointed by the dean or director, including the instructor and the chairman of the department concerned.

6. Credits earned through advanced standing examinations do not apply to residence requirements.

## DEGREE REQUIREMENTS

The student may graduate under the catalog requirements for the year in which he was enrolled for the first time in the degree-granting college of The University of New Mexico from which he is seeking a degree, provided he completes graduation requirements within a continuous six-year period. If a student interrupts his attendance, or transfers from one degree-granting college to another within the University, he must graduate under the catalog in effect at the time of his readmission or transfer.

For information concerning the various degrees offered, and for course and scholastic requirements leading to these degrees, students should refer to those sections of the catalog devoted to the colleges.

The student is solely responsible for knowing the rules and regulations concerning graduation requirements and for registering in the courses necessary to meet specifications for the degree.

**THE ENGLISH PROFICIENCY REQUIREMENT.** Every student at The University of New Mexico is required, by the General Faculty of the University, to demonstrate a command of the fundamentals of English by making a qualifying score on the English Proficiency Examination administered by the University, or by earning a grade of "C" or better in a remedial English course (English 010). Normally, all students will take this test during their first semester of attendance, and those who do not make a qualifying score will enroll in English 010 during their second semester of attendance. All freshmen whose ACT scores qualify them for English 102 during their first semester will be considered to have completed the EPE requirement. Students who place in English 010 upon entrance may satisfy the requirement by completing this remedial, non-credit course with a grade of "C" or better or by "testing out," that is, making a passing score on the examination when it is offered. Students admitted to University College must satisfy this requirement before they will be allowed to transfer to any degree-granting college of the University. Transfer students admitted to degree-granting colleges from other institutions must pass this examination at the earliest possible date after enrolling at the University. The examination will be given once each semester. It is the student's responsibility to obtain information regarding the date(s) of the test.

**TWO UNDERGRADUATE DEGREES.** Two undergraduate degrees may not be granted a student until he has earned the equivalent of 5 years' college work (as represented by a minimum of 30 semester hours above the requirements for the first degree) and has fulfilled all requirements for both degrees, including senior residence requirements. A transferring graduate should notify the Director of Admissions when applying for admission if he plans to work for a second undergraduate degree.

**SCHOLASTIC REQUIREMENT.** The minimum University requirement for a bachelor's degree is at least a 2.0 cumulative grade-point average on the last 124 semester hours of degree work or such greater number as is required for the degree sought. The individual colleges, however, have the privilege of requiring for their respective degrees an average higher than this minimum. The student is referred to the various college sections for individual college requirements.

**SPECIFIC COURSES REQUIRED.** Four semester hours of nonprofessional activity physical education shall be completed by all undergraduate students in the University. Veterans, NROTC students, students over 30 years of age, and handicapped students excused by the University Physician are exempted from the physical education requirement. Exemption for NROTC and for medical excuse is on a semester-by-semester basis. Not more than 1 semester hour per semester nor more than 4 total hours of nonprofessional physical education may be credited toward a degree.

For specific requirements leading to degrees in the various curricula, students should refer to the courses of study outlined in the listings of the different colleges.

**DIVIDENDS AND PENALTIES.** For every 15 semester hours of A, or for every 30 semester hours of B, the hours required for graduation are reduced by one. The maximum of such dividends allowed is four. For every 15 semester hours of D, the hours required for graduation are increased by one. Dividends and penalties are awarded or assessed only on work done in residence at The University of New Mexico. No dividends or penalties are given in the Colleges of Business Administration, Engineering, Fine Arts, Nursing, and Pharmacy.

**SENIOR ON-CAMPUS RESIDENCE CREDIT REQUIREMENTS.** A student who has earned less than 60 semester hours of residence credit previous to classification by his college as a senior (see "Classification") shall earn 30 semester hours of residence credit on the Albuquerque campus during the senior year.

A student who has earned 60 semester hours, but less than 90, of residence credit previous to senior status shall earn 24 semester hours of residence credit on the Albuquerque campus in the senior year.

A student who has earned 90 or more semester hours of residence credit previous to senior status shall earn 15 semester hours of residence credit on the Albuquerque campus in the senior year.

In no case is the number of hours specified to be earned in the senior year to be interpreted as necessarily the last hours.

A student may fulfill part or the whole of this on-campus residence requirement by summer session attendance.

The student who has completed a baccalaureate degree and who is seeking a second undergraduate degree will be reclassified by the degree college in accordance with the hours and requirements completed toward the new degree. Senior on-campus residence credit requirements for the second degree will be determined on the same basis as those for the first degree.

**DEFINITION OF RESIDENCE CREDIT.** Residence credit is defined as credit earned by attendance in regular classes on the University of New Mexico main campus, in any of its field sessions, or up to 60 semester hours of credit earned in any of

the University's off-campus residence credit centers. Credits earned in extension or correspondence courses, by examination, or credits transferred from other accredited collegiate institutions are not considered residence credit at the University of New Mexico.

**RESIDENCE REQUIREMENTS IN MAJOR AND MINOR.** At least one-half of the minimum number of credit hours required for major study and one-fourth of the minimum number of credit hours required for minor study must be class or laboratory work earned in residence in the University. When a senior transfer student plans to complete a major by presenting credit hours earned in residence at another institution, the major department, or the director of the interdepartmental major, may modify this ruling, not, however, below one-fourth of the total minimum hours required for the major (or the interdepartmental major).

#### EXTENSION AND CORRESPONDENCE HOURS ALLOWED TOWARD DEGREE

1. Credit is allowed for correspondence and extension courses completed at this University or through other colleges and universities accredited by regional accrediting associations.
2. As many as 40 semester hours in correspondence and extension courses will be allowed toward the bachelor's degree provided that at least 10 of the 40 have been earned in extension courses taught by regular resident instructors of the University. Of this 40-hour maximum, no more than 30 hours will be allowed in correspondence work.
3. Credit for extension and correspondence courses completed in institutions not accredited by regional accrediting associations is not accepted for transfer. A student who has completed such correspondence or extension work in a course comparable to one offered by the University has the privilege of establishing credit here under the regulations governing special examinations to establish credit.
4. The hours earned by correspondence or extension from accredited institutions other than The University of New Mexico may be counted towards degree requirements but the grades will not be included in the grade-point average of the student. (See "Scholarship Index," p. 129.)
5. Courses taken from other institutions must correspond to those offered at The University of New Mexico.
6. Any graduating senior not in residence who expects to offer credits earned by correspondence toward fulfillment of degree requirements must have prior approval of the dean of his college.  
For regulations governing the addition of correspondence or extension courses to the student's program while he is in residence, refer to p. 130.
7. No credit will be given for a course taken by correspondence if the student has previously received a grade of F in the course at this University. Exceptions to this rule can be made only upon petition to, and approval by, the Committee on Entrance and Credits.
8. The student is solely responsible for complying with all regulations stated in the current **Correspondence Bulletin**.

## COMMENCEMENT

Commencement exercises are held only at the end of Semester II. Students who complete their requirements in an off-session are awarded their degrees at the next regular commencement.

Students must participate in the commencement exercises unless excused by the dean of the college concerned.

## HONORS WORK AND GRADUATION WITH HONORS

It is possible for a student to graduate with General Honors (Honors in General Studies), or with Departmental Honors, or with both. The designations for the various levels of Honors in General Studies are as follows: **cum laude** in General Studies, **magna cum laude** in General Studies, **summa cum laude** in General Studies. The student becomes a candidate for Honors only; the level of Honors with which he is graduated is determined by the General Honors Council. Designations for graduation with Departmental Honors are as follows: **cum laude**, **magna cum laude**, and **summa cum laude**. In Departmental Honors also the student is a candidate for Honors and the level of Departmental Honors with which he graduates is determined by his department (or college, in colleges which are not departmentalized).

Graduation with Honors, either General or Departmental, is in no sense automatic. The student is required to make application for candidacy. Information regarding Honors in General Studies and the method of gaining admission to this program can be obtained in the office of the Director of General Honors.

High school graduates who intend to enter the University in the fall and who would like to be considered for admission to the General Honors program should make application for admission to the University as early in the spring as possible and should request of their high school principals that their full transcripts be sent to the University as promptly as possible after their high school graduation. Chances of being accepted into the Honors program will be greatly enhanced if students arrange to have their ACT scores sent to the Director of Admissions in the early spring (see p. 77). No freshman (or transferring student required to have ACT scores), even if fully qualified, can be assured of a place in the General Honors program in the first semester of his enrollment unless his application for admission and ACT scores are on file well in advance of registration.

Information regarding the Honors Program in a specific department or college can be obtained in the main departmental or college office.

**THE GENERAL HONORS PROGRAM.** The General Honors Program (leading to graduation with Honors in General Studies) is available to students in any undergraduate degree-granting college or division of the University. Normally, the student enters this program in his freshman year. Requirements for graduation with Honors in General Studies are as follows: (a) an over-all grade point average of 3.2; (b) completion of 15 to 21 hours in courses listed under "General Studies" in the section of this catalog entitled "Courses of Instruction," including normally the program for the junior and senior years; (c) certification by the General Honors Council; (d) completion at The University of New Mex-

ico of all of the last 60 hours of the work for the bachelor's degree. In addition to these minimal requirements, the General Honors Council may set such additional qualitative requirements as are approved by the University Faculty. Completion of the required General Studies courses does not necessarily mean that the student will graduate with General Honors.

The major purposes of the program of General Honors are as follows: (1) to supply additional breadth to the student's general education; (2) to put the able student more directly into competition with other able students so that his achievement may be more nearly *in line* with his potentialities; (3) to give the able student full opportunity to express himself in writing and in vital discussions in small groups; (4) to thrust the abler student into an environment that will offer improved intellectual opportunity and a greater challenge.

To better fulfill these purposes and to take emphasis off grades as such, the faculty of the University has adopted the following system of grading in General Studies (General Honors) courses: A (grade of "Honors") is computed in the scholarship index like any other A; CR (grade of "Pass") gives credit for the course but does not compute this credit in the scholarship index; NC (grade of "No Credit") neither gives credit nor computes the hours in the scholarship index. If a student performs at Honors (A) level, he gets full credit in every way for his performance. At the same time, the student is not penalized in any way if he attempts Honors work and does not perform at the highest level.

Performance and the level of achievement in the General Honors Program will not be judged by mechanical quantitative standards. The student will be under constant surveillance in small groups by a variety of faculty members. The program, in short, is designed to offer the student an opportunity; and the student is expected to respond with liveliness, imagination, and complete conscientiousness.

The candidate for General Honors may be dropped from the program at any time when his performance shows that he is not responding fully to the opportunities being offered him.

Special advising is available to all students who are candidates for General Honors. Information about advising of Honors students can be obtained in the office of the Director of General Honors.

Students in General Honors will be constantly encouraged to undertake also Departmental Honors.

**THE DEPARTMENTAL HONORS PROGRAM.** A Departmental Honors program is available to the qualified student in many departments of the University and will ultimately be available in nearly all departments. The student should inquire of the chairman of his major department (or the dean of the college in colleges which are not departmentalized) as to the availability of a program. Normally, the student enters a Departmental Honors program in his junior year. He should at least make his intention of graduating with Departmental Honors known to his chairman or dean early in his junior year. Admission to Departmental Honors candidacy can in no case be granted later than the beginning of the student's senior year.

Minimal requirements for graduation with Departmental Honors are as fol-

lows: (a) an over-all grade point average of 3.2; (b) not less than 6 credit hours in independent study, senior thesis, or special courses open only to candidates for graduation with Honors in the department (or college, if the college is not departmentalized).

Departments or colleges may have differing additional quantitative and qualitative requirements. The prospective Departmental Honors student should confer with the chairman of the department (or the dean of the college) regarding the requirements above the minimum requirements set forth just above.

The purposes of departmental honors programs are as follows: (1) to intensify and deepen the student's knowledge in his major field; (2) to put this specialized knowledge into better relationship with knowledge in related fields and in the larger general area of the student's specialization; (3) to bring the student under closer guidance of, and into closer acquaintance with, teachers in his field.

Graduation with Departmental Honors shall never be a matter solely of performance in standard courses or of grade-point averages in either the field of specialization or the entire program of the student. Continuance in departmental honors programs and the level of honors at which the candidate shall be graduated are both in the discretion of the department.

#### SCHOOL OF LAW GRADUATION HONORS

The J.D. degree may, in the discretion of the Law School faculty, be awarded with the honors indicated to graduating students who have achieved the following over-all grade-point averages in their law school work: 3.4, **cum laude**; 3.6, **magna cum laude**; 3.8, **summa cum laude**.

#### GRADUATION WITH DISTINCTION

Students graduating with a scholarship index which ranks them in the upper 5 per cent of the graduating class of the University will automatically receive the degree "with Distinction." Ranking will be based only upon work taken by the student at The University of New Mexico. Eligible senior students who have taken all of their work at this University will automatically receive this honor. Transferred students must present a minimum of 45 semester hours earned at this University in order to be eligible for the "Distinction" list; however, their transfer records shall be subject to review by the Scholarships, Prizes, and Loans Committee for the purpose of determining the quality of their over-all academic accomplishment.

## UNIVERSITY COLLEGE AND COUNSELING CENTER

**A**LL FRESHMEN entering the University are enrolled in the University College. The primary purpose of the College is to give each student the maximum opportunity to select a course of study suited to his needs, interests, and aptitudes. To this end the College has counselors who are available to assist a student through an individual program of testing, counseling, and guidance.

A freshman who HAS decided to prepare for admission to a particular degree-granting college of the University will be assigned an adviser from the faculty of that college. With his adviser's approval, he should undertake the program of courses recommended by his chosen college for the freshman year. These programs are described in the sections of this catalog devoted to the several colleges.

A freshman who has NOT decided on a particular college should develop, with the aid of his adviser, a program of first-year courses designed to help him discover areas of interest and special competence. He should also request vocational guidance. The student who uses this exploratory approach should understand that if he later chooses to enter one of the colleges having a very specific freshman program, more than 4 years may be required to earn a degree.

Students who have decided on an academic major and meet the admission requirements of their chosen degree-granting college are urged to transfer from the University College without delay. Students who wish further to explore differing areas of interest may remain in the University College through the sophomore year, subject to the scholastic regulations of the College.

For those students who do not find a 4-year course leading to a degree advisable, the University College can provide a variety of 2-year programs leading to a certificate of completion.

### ADMISSION REQUIREMENTS

For admission requirements to the University College, see the "Admission" section of this bulletin. The University College will not accept students who have attempted 72 or more academic semester hours or who have earned 64 or more academic semester hours.

No student may enroll in the University College after he has been admitted to any degree-granting college of The University of New Mexico.

### CONTINUATION IN UNIVERSITY COLLEGE

No student will be permitted to re-enroll in the University College if at the end of his previous semester or term of enrollment he had attempted a total of 72 or more semester hours (including hours with grade of Incomplete) or earned a total of 64 or more semester hours.

### THE ENGLISH PROFICIENCY EXAMINATION

All University College students must satisfy the English Proficiency requirement before being accepted into any degree-granting college of the University. It is strongly recommended that the student take this examination during his first semester and, if he fails the examination, take English 010 during his sec-

ond semester, as described on page 136. Delay in this schedule can result in ineligibility to transfer to the degree-granting college of the student's choice at the end of the freshman year. Also, further delay in meeting the requirement may result in a student's exhausting his University College eligibility and not qualifying to transfer to a degree college. All questions regarding the EPE should be directed to the University College office.

### SCHOLASTIC REGULATIONS

See pp. 132-134.

### ADMISSION TO A DEGREE-GRANTING COLLEGE

The minimum requirements for transfer from the University College to any degree-granting college are:

1. Twenty-six hours of earned credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted;  
or  
(b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.
3. (a) A satisfactory score on the English Proficiency Examination (administered by The University of New Mexico);

or

- (b) A grade of C or better in a remedial English course offered on a non-credit basis by The University of New Mexico English department.

For additional admission requirements of a particular degree-granting college, refer to the admission regulations set forth in the section of this catalog devoted to that college.

### CERTIFICATE OF COMPLETION

Upon application to the University College Office, a University College Certificate will be awarded to any student who meets the following requirements: (1) completion of 60 semester hours of college work with a passing grade, of which at least 30 hours have been earned in The University of New Mexico with 15 of these 30 hours earned in the University College of The University of New Mexico; and (2) a cumulative average of 1.70 on all work attempted through the semester or session in which the total of college credits earned first becomes 60 or more. (Nonprofessional courses in physical education may not be counted in these totals.)

Students seeking the University College Certificate may pursue courses in the Department of Naval Science only with the permission of the Director of the University College and the Professor of Naval Science.

### COUNSELING

A variety of guidance counseling services for students is available at the University. For assistance with problems related to scheduling or to specific



courses, students may contact their academic advisers during the office hours scheduled by the adviser for consultation.

Students desiring assistance with educational, personal, or vocational matters are invited to contact the Counseling Center. The Center, a division of the University College, offers counseling services without charge to all students of The University of New Mexico. Students are assisted through conferences with counselors and special advisers, and through the use of standardized tests, such as aptitude, vocational, study habits, and personal adjustment inventories. All such test results and personal information is considered confidential.

Pre-enrollment counseling for non-university students is provided at a nominal charge.

A reading clinic is available within the Counseling Center for any student who feels that his reading deficiencies detract from his ability to derive maximum benefit from his university experience. This service is conducted individually, in small groups, and in supervised laboratory practices. All sessions are non-grade, non-credit, and require no additional fee.

Students wishing to make use of the Counseling Center are invited to telephone (277-2631) or to stop in at the University College office in the Student Health Center and University College Building to arrange for an appointment.

#### **DIVISION OF VETERAN AFFAIRS**

See p. 123.

#### **TESTING DIVISION**

The Testing Division of the University College and Counseling Center is located in the Student Health Center and University College Building. The Division coordinates special group testing required by the University and gives individual tests as requested by the Counseling Center and the Office of Veterans Affairs. The Division also serves as a testing center for national programs such as the Graduate Record Examinations, Miller Analogies Test, Law School Admission Test, American College Test, GED (high school equivalency test), and numerous others. Information concerning these programs may be obtained from the Division.

In addition to testing services, the Division performs institutional research related to the University testing programs and provides consulting services to UNM faculty and staff in the area of measurement and evaluation. By special arrangement, Division personnel are available to assist non-UNM institutions or agencies with problems related to the field of testing. The Division has a test library which contains most of the standardized tests published in the areas of intelligence, achievement, aptitude, interest, and personality. The library is open to faculty, staff, qualified students, and qualified non-students.

#### **TWO-YEAR SECRETARIAL PROGRAM**

In recognition of the increasing demand for trained office personnel, this program is designed to give students not only the basic knowledge and skills necessary for initial employment, but also a solid background in the liberal arts. In recent years greater appreciation of the value of well-planned and well-

directed office services has opened an attractive field of employment for college-trained men and women. Those who choose this curriculum are able to advance more rapidly toward positions requiring managerial and supervisory responsibility.

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrtnng w/Rdgs in Expos	3	Engl 102 Wrtnng w/Rdgs in Lit	3
Hist 101 Western Civ	3	Hist 102 Western Civ.	3
Bus Ed 112 Interm Typ	3	Bus Ed 114 Begin Dicta	3
Bus Ed 113 Shorth Theory	3	Bus Ed 262 Adv Typ	3
Spch 101 or 255 Fund of Spch or Pub Spkg	3	Elective	3
PE Activity	1	PE Activity	1
	<u>15 + PE</u>		<u>15 + PE</u>
Sophomore Year			
Bus Ad 105 Prin of Acctg	3	Bus Ed 257 Sec Off Prac	3
Bus Ed 117 Off Mach & Filing	2	Bus Ed 265 Bus Communications	3
Econ 200 Prin of Ec	3	Electives	9
Bus Ed 253 Transcription	3	Physical Ed	1
Electives	4		
PE Activity	1	PE Activity	1
	<u>15 + PE</u>		<u>15 + PE</u>

Electives would be taken from the following areas as determined by the student's major adviser:

English

Fine Arts

Mathematics

Political Science

Psychology

Sociology

A student who has had business subjects in high school would be advised to omit Bus Ed 112, 113, and 114. This arrangement would enable the student to select 9 more hours from the list of electives.

## COLLEGE OF ARTS AND SCIENCES

**T**HE COLLEGE OF ARTS AND SCIENCES offers instruction in subjects or fields which relate to man's cultural, social, and scientific achievements, with more regard to historical and philosophical backgrounds and developments than to immediate practical use. Although the fields of study offered in the College underlie the more specialized work of the graduate, professional, or vocational school, the degrees and courses of study are designed as ends in themselves, supplying knowledge of mankind's and the student's own potentialities which will enable him to live better and later to perform better in his chosen field.

### DEGREES

Upon the recommendation of the faculty and the President of the University, the degree of Bachelor of Arts or Bachelor of Science is conferred by the Regents upon those candidates who have completed all specified requirements. Differing requirements are specified for the Bachelor of Arts degree and for the Bachelor of Science degree if biology, chemistry, geology, or psychology is the subject of major study; the student must choose beforehand the degree for which he wishes to work. A candidate who completes the requirements for a major in dietetics, mathematics, or physics will receive the degree of Bachelor of Science unless special request is made for the Bachelor of Arts degree. (Bachelor of Science in Medical Technology is the only choice of degree in that field.) A candidate who completes requirements with a major in any other subject will receive the Bachelor of Arts degree.

### RELATION TO PROFESSIONAL AND VOCATIONAL COURSES

Courses preparatory to law, medicine, and the other professions are planned and taught as cultural subjects and do not infringe upon the work of the professional school. Concerning the limited acceptance of work in business administration, education, engineering, law, medicine, nursing, pharmacy, and fine arts, see "Electives" and "Special Curricula."

### ADMISSION

All freshman students are admitted to the University College. A detailed statement of entrance requirements is in the "Admission" section of this catalog.

#### ADMISSION FROM UNIVERSITY COLLEGE

Requirements for transfer from the University College into the College of Arts and Sciences are as follows:

1. Twenty-six hours of earned credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted;  
or  
(b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.

3. Completion of the English Proficiency Examination (administered by The University of New Mexico) with a satisfactory score or a grade of C or better in a remedial English course offered on a non-credit basis by the University's English Department.
4. Of the 26 hours mentioned in "1" above, 23 hours must be acceptable towards graduation from the College of Arts and Sciences.
5. A student planning to major in one of the departments in the College of Arts and Sciences should transfer to the College from University College at the end of his second semester, if he has fulfilled the minimum requirements listed in points 1, 2, 3, 4 above.

#### TRANSFER FROM OTHER COLLEGES IN THIS UNIVERSITY

Transfer to the College of Arts and Sciences from another degree-granting college of The University of New Mexico requires a scholarship index of 2.0 on all work attempted while the student was enrolled in the other degree-granting college(s).

#### TRANSFER FROM OTHER ACCREDITED INSTITUTIONS

A student seeking to transfer to the College of Arts and Sciences from another accredited institution must meet the University's general qualitative admission requirements for transfer and, in addition, must present a minimum of 26 semester hours, 23 hours of which must be in courses acceptable toward graduation from the College of Arts and Sciences. Transfer students must complete admission requirement No. 3 (immediately above) during the first semester of enrollment in this University.

**TRANSFERRED GRADE OF D.** Courses with grade of D transferred from another institution cannot be allowed for credit in The University of New Mexico. In certain sequences of courses in the College of Arts and Sciences, however, where grades of D from another institution are involved, it is possible for a student to secure a waiver of certain lower-division requirements. For information upon this possibility, the student may consult the Dean of the College.

### GRADUATION REQUIREMENTS

Candidates for the degree of Bachelor of Arts or Bachelor of Science are required to complete a total of 124 semester hours in academic subjects, and 4 semester hours in physical education, with a grade-point average of 2.0.

In the first 2 years, whether the student is technically enrolled in the College of Arts and Sciences or not, he is expected to acquire certain basic essentials and to explore several different fields to determine where his interests lie. In the last 2 years the student devotes himself to the completion of his group requirements, to his major and minor, and to the permitted electives that he may wish to take.

As soon as the student has earned as much as 80 semester hours toward his degree, he should pick up a degree application from the Dean's office, have it completed, and return it to the Dean's office. A summary showing exactly what is required for completion of the degree will be prepared and sent to the

student. The student is solely responsible for completing all requirements for graduation.

Specific graduation requirements are as follows:

1. Completion of 124 semester hours in academic subjects and 4 semester hours in physical education.

2. Either (a) a grade-point average of 2.0 on all college level work ever attempted, or (b) a grade-point average of 2.0 on the last 124 semester hours. Grades in non-professional physical education and ensemble music are not counted under either option.

3. Completion of at least 40 hours in courses numbered 300 or above, with at least a 2.0 average in all such hours attempted.

4. Completion of the English Proficiency Examination with a satisfactory score. (Normally, this is a requirement for admission.)

5. Completion of at least 1 major and 1 minor, or 2 majors; or fulfillment of all requirements in one of the combined curricula of the College of Arts and Sciences definitely specified in the catalog.

6. Completion of the Group Requirements described below.

7. A student expecting to graduate in June, 1969, must make application for his degree in the College of Arts and Sciences office by January 6, 1969.

#### GROUP REQUIREMENTS

The purpose of the following group requirements is to insure that the student will explore various fields of knowledge before beginning to concentrate too heavily in a field of his choice. The group requirements also aim to give a certain guarantee of the breadth of the student's knowledge regardless of the specialty he may wish to choose in taking his degree. The student should arrange his program so that he will be able to fulfill these group requirements as early in his career as possible. He has not earned the right to concentrate in his specialty until he has made a reasonable effort to fulfill the group requirements. The following rule, therefore, is extremely important:

**A student may not take any courses numbered 300 or above (junior-senior courses) until he has completed 30 hours in the 5 groups and unless he is also concurrently enrolled in 1 course in a majority of the groups in which he still has deficiencies.** (If there are deficiencies in 4 or 5 groups, at least 1 course in each of 3 of those groups must be taken; deficiencies in 2 or 3 groups, at least 1 course in each of 2 of those groups; deficiency in 1 group, 1 course in that group.) Exceptions to this rule can be made only with the written permission of the Dean of the College.

The acceptability of transferred work toward fulfilling group requirements lies in the judgment of the Director of Admissions and the Dean of the College.

No course may be counted toward the satisfaction of requirements in more than one group, but a course may be counted toward the fulfillment of both a group requirement and a major or minor requirement.

Courses in General Studies, taken in the Honors Program, may, with the approval of the Dean, be counted toward the satisfaction of requirements in similar areas in Groups III, IV, and V.

The requirements in the groups are as follows:

**I. English.** Six semester hours must be earned in English 101, 102 (unless English 101 has been waived), and 3 additional credit hours must be earned in a course in literature numbered above 200. A student deficient in writing skill may at any time be referred to English Workshop for remedial aid. Normally English 101 and 102 should be completed within the first 2 semesters of enrollment in the University.

**II. Foreign Language.** The student is required to take as many semesters of one foreign language as he needs to complete the fourth semester course in that language. For the student who chooses a language which he has not previously studied, this ordinarily means a minimum of 4 semesters, as well as a minimum of 12 semester hours.

Students who have studied a language in high school, or those who believe they have proficiency in a language, may determine the level at which they should begin language study by consulting the Chairman of the Department of Modern Languages. See individual language for details.

To receive credit hours toward graduation for demonstrated competence in a foreign language, without actually taking courses in the language, a student must take advanced standing examinations. (See p. 135.)

**III. Humanities.** Nine semester hours (not more than 6 from any one area) must be completed in courses in the following areas: (a) History; (b) Literature (either English or foreign); (c) Philosophy; (d) Art History or Music History or Speech (to the extent of 3 semester hours).

**IV. Social Science.** Nine semester hours (not more than 6 from any one area) must be completed in courses in the following areas: (a) Anthropology; (b) Economics; (c) Geography; (d) Political Science; (e) Sociology.

**V. Mathematics and Natural Science.** Fourteen semester hours (not more than 8 from any one area, and including 2 semesters in courses that require laboratory work) must be completed in courses in the following areas: (a) Astronomy; (b) Biology; (c) Chemistry; (d) Geology; (e) Mathematics; (f) Physics; (g) Psychology.

#### MAJOR AND MINOR STUDIES

At the beginning of his junior year a student shall select and declare (1) a major and a minor subject or (2) two major subjects, or (3) one of the special curricula of the College, and his program of studies thereafter shall meet with the approval of the chairman of his major department or the supervisor of the special curriculum.

Only work of at least C quality is accepted toward the major and the minor; in the case of a special curriculum, all work within the general area of the specialization must be of at least C quality. (Courses in which grades of D are earned in the University of New Mexico may be accepted as electives and in fulfillment of group requirements.)

For the Bachelor of Science degree in the College of Arts and Sciences in departments requiring a major and a minor, the major department may specify in lieu of a single minor in one department a distributed minor in courses in related departments. The distributed minor shall consist of not less than 30 semester hours nor more than 36 semester hours. With the permission of the Dean, some relaxation may be allowed in the rules relating to number of hours required in courses numbered 300 or above and to penalties for excessive hours in freshman courses when these rules are in conflict with distributed minor requirements. In all cases, however, the student will be expected to have at least 35 hours in courses numbered 300 or above. The student should consult the chairman of his major department if he wishes to take a distributed minor.

A distributed minor in Comparative Literature or in Russian Studies may be elected by candidates for either the Bachelor of Science or Bachelor of Arts degree. A distributed minor in American Studies is also available for students majoring in Anthropology, Economics, English, History, Philosophy, Political Science or Sociology. A distributed minor in Paleoecology is offered to students majoring in Anthropology, Biology, Chemistry, or Geology.

#### CERTIFICATION TO TEACH IN HIGH SCHOOL

It is often possible for a student taking a degree in the College of Arts and Sciences to achieve certification as a secondary school teacher in New Mexico on the same basis as students graduating from the College of Education and without going beyond the 124 semester hours required by the College of Arts and Sciences for graduation. To do this, however, requires careful planning of the program. In certain major-minor combinations a student cannot achieve the B.A. or B.S. degree from the College of Arts and Sciences and also achieve teacher certification without taking more than 124 semester hours. The plan is possible only when the major-minor combination (or double major) is in subject areas usually offered in high school (see p. 185 for approved areas). All students at the University of New Mexico who expect to follow a course of study leading to certification are subject to the requirements for admission to teacher education listed on pp. 168-169 in the College of Education section of this catalog.

In selecting courses to meet group requirements, students seeking both teacher certification and a bachelor's degree in Arts and Sciences must include the following courses:

1. A course in speech and a course in general psychology.
2. Hours offered in laboratory science must be taken in biology, chemistry, geology, physics, or astronomy.
3. At least 6 hours in fine and practical arts, of which one course in art or music history may also be counted toward fulfillment of the A&S requirement in humanities.

Students interested in following this plan should consult the office of the Dean of the College of Arts and Sciences as early as possible, preferably at the beginning of the sophomore year but at least by the beginning of the junior year. Additional time may be required to complete the program if advice is sought too late.

## ELECTIVES

A student who has fulfilled all other requirements for graduation may use electives to complete his total of 124 hours for graduation, subject to the restrictions stated below.

Subject to approval by the Dean, a maximum of 24 hours in any combination, earned in courses offered in the Colleges of Business Administration, Engineering, Law, Education,\* Fine Arts,\*\* Nursing, and Pharmacy, or in Naval Science and Aerospace Studies, is acceptable as electives in the College of Arts and Sciences, with the following exceptions:

- (1) Courses in typing or in office machines and filing in the College of Business Administration.
- (2) Ensemble music in excess of 4 hours.
- (3) Shop work in excess of 3 hours.
- (4) Courses in health, physical education, and recreation in excess of 7 hours, the 7 permissible hours to be chosen from courses Health Education 171, Physical Education 397, 398, 399, 461, 489, Recreation 303, 374, 452.
- (5) Courses in educational methods, supervision, and practice teaching, except 3 hours of high school methods and 6 hours of high school practice teaching. (If the student has taken the full 24 hours in Education plus the additional courses required for certification to teach in a New Mexico high school, these 24 hours will be accepted in the College of Arts and Sciences. See "Certification, etc.," immediately above.)
- (6) All courses in elementary education, nursing, and pharmacy which are primarily vocational or directed toward professional practice.

## GENERAL RULINGS

1. Students with less than junior standing may not carry more than 8 hours in one department during one semester.

2. Not more than 50 hours in courses open to freshmen may be taken without a penalty of 1 hour for every 3 excessive hours.

Exceptions to these rules may be made only by the Dean.

## NORMAL FRESHMAN-SOPHOMORE PROGRAMS

A student wishing ultimately to enter the College of Arts and Sciences should take the following standard program while enrolled as a freshman in the University College. Deviations from this program should be made only with the permission of the University College adviser.

First Semester		Second Semester	
†Engl 101 (Group 1)	3	Engl 102	3
At least 9 hours from		At least 9 hours from	
Groups II, III, IV, or V	9-10	Groups II, III, IV or V	9-10
Elective	3	Elective	3
PE Activity	1	PE Activity	1
	15 - 16 + PE		15 - 16 + PE

\* Except in the case of a Home Economics Major, when a maximum of 34 hours will be accepted.

\*\* Except in the case of an Art major, when a maximum of 32 hours will be accepted.

† If the student fails to make a satisfactory score on the ACT, he will be required by his adviser to take remedial work or tutoring.



If a student intends to take a degree in the College of Arts and Sciences, his program as a sophomore (whatever college he is enrolled in as a sophomore) should be as follows. Deviations should be made only with the permission of the student's adviser.

First Semester		Second Semester	
At least 12 hours from Groups I, II, III, IV, or V	12-13	At least 12 hours from Groups I, II, III, IV, or V	12-13
Elective	3	Elective	3
PE Activity	<u>1</u>	PE Activity	<u>1</u>
	15 - 16 + PE		15 - 16 + PE

### PRE-PROFESSIONAL AND OTHER CURRICULA

Students are cautioned against assuming that 4-year college courses always prepare for professional work. At least 1 year of specialized graduate work is advisable, even if not actually required.

#### COMBINED CURRICULUM IN ENGINEERING AND ARTS AND SCIENCES

Degrees in both the College of Arts and Sciences and the College of Engineering may be obtained by following a 5-year curriculum to be outlined in each case, jointly, by the deans of the two colleges. Any student interested in this curriculum should confer with the deans before the end of the sophomore year. For students interested in careers in countries to the south of the United States, attention is called to a major in Latin American Studies along with engineering.

#### COMBINED 6-YEAR PROGRAM IN LAW AND ARTS AND SCIENCES

It is possible for the properly qualified student to gain admission to a combined 6-year program in Law and Arts and Sciences leading to the Bachelor of Arts or Bachelor of Science degree from the College of Arts and Sciences and to the Juris Doctor degree in the School of Law. Such a student fulfills all requirements of the College of Arts and Sciences by using certain of his Law courses as a minor in the College. See "School of Law," and the **School of Law Bulletin**.

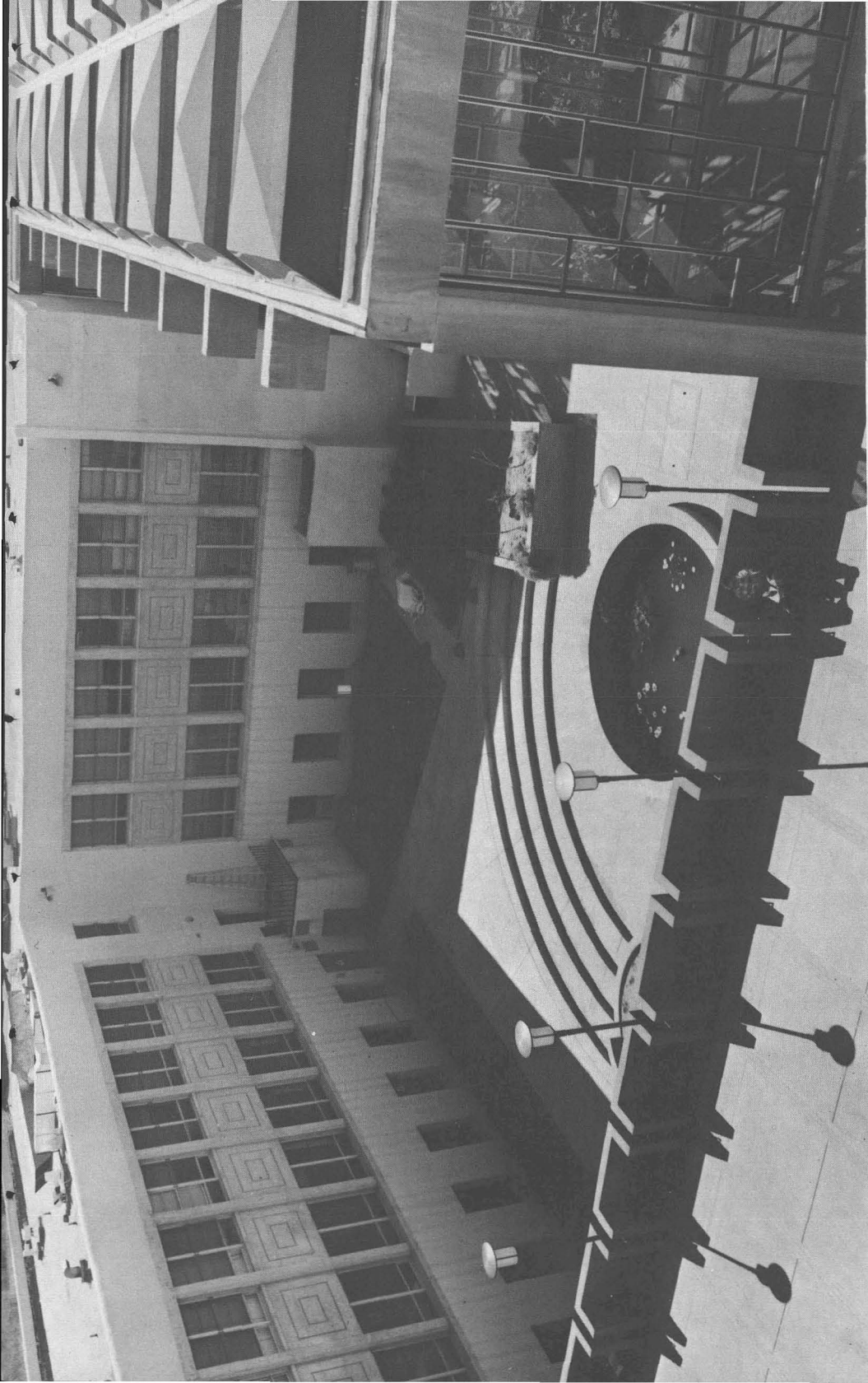
#### FOR STUDENTS WHO PLAN TO STUDY LAW

See "School of Law."

#### CURRICULUM PREPARATORY TO MEDICINE

The requirement for admission to medical schools approved by the Association of American Medical Colleges and by the Council on Education of the American Medical Association is ordinarily at least 90 semester hours in a college of arts and sciences. However, because of the large number of applications to medical schools in recent years, it is difficult to gain admission without a bachelor's degree.

Although the requirements for admission to the various medical schools in the United States vary somewhat, there are certain basic minimum science requirements common to all. These include one year of general biology, general chemistry, a year of organic chemistry, a year of physics, and a year of mathe-



Biologav Building

matics with calculus. In addition, 27 of the 96 approved schools specifically require quantitative analysis, 11 require embryology, and 18 require qualitative analysis or physical chemistry. A few include specific language requirements and courses in the social and behavioral sciences. Exact requirements for each school are included in **Medical School Admission Requirements, U.S.A. and Canada**, a volume put out each year by the Association of American Medical Colleges. Students interested in a particular school should consult this volume.

In recent years medical schools have increasingly tended to give equal consideration for admission to students majoring in the humanities or social sciences. A liberal background and breadth of education are felt to be desirable for anyone seeking a professional career. Good performance in the minimum science requirements is particularly important for these students, however, since they must demonstrate that they can handle the quantitative scientific material which is crucial in the modern medical curriculum.

Students interested in medical school generally take the Medical College Admissions Test in the spring of their junior year or the fall of their senior year. Hence it is advisable to complete the minimal basic science requirements by the end of the junior year. Because there are many more applicants for admission than there are places available, there is no assurance that a given student will qualify. Students should, therefore, select their major fields on the basis of their own interests, rather than from the limited viewpoint of specific pre-professional education.

Premedical students expecting to major in biology or chemistry are advised to complete the following course of studies during the first two years. Those majoring in the humanities or social sciences will need to take the same basic science courses before admission to medical school, but they will be able to spread them over a somewhat longer period.

First Year		Second Year	
Engl 101, 102	3-3	Engl Lit, Psych 101	3-3
French, German, or Russian	3-3	French, German, or Russian	3-3
Chem 101L, 102L	4-4	Chem 253L, Biol 371L or 386L or 393L	4-4
Biol 101L, 102L or 121L, 122L	4-4	Humanities or Social Science	3-3
Math 120 or 121 or 150 or 162, or 180-181	4-5	Physics 111, 112, 113L, 114L	4-4
PE Activity	1-1	PE Activity	1-1

Further information and advice may be obtained from the Premedical Advisory Committee. Professor Martin Fleck, department of Biology, is chairman of the committee.

#### CURRICULUM PREPARATORY TO DENTISTRY

The minimum requirement for admission to accredited dental schools is 2 years of acceptable academic work with a scholarship index of 2.5.

Because of the varying requirements of different dental schools, it is not possible to formulate a definite predental program. However, among the courses required for admission are English, social science, biology, physics, inorganic and organic chemistry.

The student should select the dental school(s) to which he plans to seek admission, and then, with the assistance of the predental adviser, plan a course

of study which will meet the admission requirements of the school(s) in which he is interested. A student who plans to do more than 2 years preparatory to entering a dental school should select courses which will give him a broad liberal arts background as well as courses which will prepare him for the more technical requirements of dental school.

Ordinarily, the student will be expected to plan his academic program in such a manner that, if his plans to go to dental school do not materialize, he will still have made progress towards a baccalaureate degree.

#### CURRICULUM PREPARATORY TO FORESTRY

Because of the variable admission requirements of different schools of forestry, the student is advised to seek admission information from the Department of Biology. Two years of preforestry are available.

#### MEDICAL TECHNOLOGY CURRICULUM

##### **Certification as Medical Technologist**

For requirements relating to certification as a medical technologist without a bachelor's degree, write to Registry of Medical Technologists, Box 44, Muncie, Indiana. Required college academic training, preceding 12 months in an approved School of Medical Technology, is 90 semester hours including 4 semesters of chemistry, 4 semesters of biology, and 1 semester of mathematics, with physics recommended.

##### **Degree of Bachelor of Science in Medical Technology**

The curriculum and requirements leading to the degree of Bachelor of Science in Medical Technology are listed below. Following the prescribed academic work, candidates for the degree must satisfactorily complete a 12-month medical technology program at a school of medical technology approved by the American Society of Clinical Pathologists. Before completing the year's work at the school of medical technology, for which 16 hours of credit are allowed, the student must satisfactorily complete a minimum of 108 academic hours, of which at least 45 shall be earned while the student is in residence on the campus of the University of New Mexico. Thirty of these 45 hours shall be earned at the University of New Mexico after the student has attained junior status. Of the 53 hours of specified courses in science and mathematics, not fewer than 21 hours shall be earned in residence on the campus of the University of New Mexico.

The order of courses in the prescribed program should be followed as closely as possible. Students wishing to follow this program should make their intention known to the Medical Technology adviser, Dr. John Beakley, Department of Biology as early in their student careers as possible.

The program described below meets all Group Requirements and all requirements as to major and minor in the College of Arts and Sciences.

The number of hours from outside the College of Arts and Sciences which can be counted towards this degree is reduced from the usual 24 hours to 12 hours (not counting the 16 hours of credit from the hospital course).

## PRESCRIBED PROGRAM—MEDICAL TECHNOLOGY

First Semester		Freshman Year		Second Semester	
Chem 101L Gen	4	Chem 102L Gen	4		
Engl 101 Wrtnng w/Rdgs in Expos	3	Engl 102 Wrtnng w/Rdgs in Lit	3		
Biol 121L Princ	4s	Biol 122L Princ	4		
Math 120 or 121 or 150 or 162	4-5	*Humanities	3		
PE Activity	1	†Soc Sci	3		
		PE Activity	1		
	<u>15-16 + PE</u>		<u>17 + PE</u>		
Sophomore Year					
Chem 253L Quant Anal	4	Biol 393L Gen Bact	4		
Chem 301-303L Organic	4	Chem 302-304L Organic	4		
Engl (Lit)	3	Foreign Language	3		
Foreign Language	3	*Humanities	3		
Elective	4	‡Social Science	3		
PE Activity	1	PE Activity	1		
	<u>18 + PE</u>		<u>17 + PE</u>		
Junior Year					
Biol 429L Cellular Physiol	4	Physics 112-114L Gen	4		
Physics 111-113L Gen	4	Chem 323 Intro Biol Chem	3		
†Soc Sci	3	Chem 324L Intro Biol Chem Lab	1		
Foreign Language	3	Foreign Language	3		
Electives	0-4	†Social Science	3		
		Electives	0-4		
	<u>14-18</u>		<u>14-18</u>		
Senior Year					
*Humanities	3	12 months in			
Electives	10-13	School of Medical			
		Technology			
	<u>13-16</u>		<u>16</u>		
				Total Number of Hours Required—124 + PE	

The program can be accelerated by completion of two summer sessions and entrance to the school of medical technology in June or September.

After completing the above course program and completion of a 12-months' course in medical technology at an approved school, the student will submit a transcript of his work (to complete his application) for the degree of Bachelor of Science in Medical Technology from The University of New Mexico.

## FOR CURRICULA RELATING TO FOREIGN STUDIES

See "Language and Area Center for Latin America," "Division of Inter-

† Any course in the social sciences that is allowed in the stated Group Requirements of the College of Arts and Sciences.

\* For this particular requirement only, "Humanities" may include courses in the departments of English, History, Modern and Classical Languages, and Philosophy, and in the College of Fine Arts. History courses may be counted as either Humanities or Social Science, but not as both.

‡ For this particular requirement only, "Social Science" shall include courses in the departments of Anthropology, Economics, Geography, History, Political Science and Sociology. History courses may be counted as either Humanities or Social Science, but not as both. (Of the 9 hours required in the social sciences, not more than 6 may be from one department.)

American Affairs," "Department of Political Science," "Western European Studies," and "Russian Studies."

### **LANGUAGE AND AREA CENTER FOR LATIN AMERICA**

Marshall R. Nason, Professor of Modern Languages, Director

Committee in Charge: Professors Nason (Chairman), E. Lieuwen (History), R. R. MacCurdy (Modern and Classical Languages), M. C. Needler (Political Science, Inter-American Affairs).

The Language and Area Center for Latin America, partially supported by federal funding under NDEA Title VI, is an administrative unit of the College of Arts and Sciences and the Graduate School. It does not directly offer any degree programs or courses, but it is responsible for coordinating and technical services in connection with the University's total program of academic work in the Latin American field. It prepares studies, reports, and proposals, and is concerned with plans for course offerings, staffing needs, coordination of library purchases, the interchange of scholars, and the arrangement of lecture series.

Applications for NDFL Title VI and for Fulbright-Hayes fellowships are also received and processed by the Center.

Students interested in pursuing courses of study related to Latin America should consult the catalog listings under "Division of Inter-American Affairs" (immediately below), "Ibero-American Studies," and the Departments of History and Modern and Classical Languages, as well as offerings in the social-science fields of anthropology, economics, political science, and sociology.

### **DIVISION OF INTER-AMERICAN AFFAIRS**

Martin C. Needler, Associate Professor of Political Science, Director

The Division of Inter-American Affairs is an administrative unit of the College of Arts and Sciences and of the Graduate School. Founded in 1941, the division offers the Bachelor of Arts and Master of Arts degrees in the field of Latin American Studies.

The undergraduate curriculum in Latin American Studies is designed to provide basic training in fundamental subjects and a choice of supplementary courses to meet individual needs and preferences. The emphasis is upon language study and the social sciences, with particular attention to the important countries of the area. Proficiency in Spanish and a reading knowledge of Portuguese are basic requirements for the Latin American major and students are expected to use the languages as tools in various advanced courses in the program. For degree requirements, see course listings under "Latin American Studies."

**SCHOLARSHIP AID.** Several tuition scholarships are reserved for students in Latin American Studies, the number awarded in any one year depending on the availability of funds. Undergraduates should apply to the Director of the Division; graduate students should submit the regular scholarship forms provided by the Graduate School.

### **N.R.O.T.C. CURRICULUM**

(Suggested curriculum for the first 2 years.)

First Year		Second Year	
English	3-3	English	3
Foreign Language	3-3	‡Physics	4-4
Social Science	3-3	Foreign Language	3-3
†Math	3-2	*Naval Science§	3-3
*Naval Science	3-3	Social Science	3
Elective	2-3	Electives	6

## DEPARTMENTS OF INSTRUCTION

The College of Arts and Sciences offers work in the fields listed below:

American Studies	Journalism
Anthropology	Latin-American Studies
Biology	Mathematics and Statistics
Chemistry	Modern and Classical Languages
Comparative Literature	Paleoecology
Economics	Philosophy
Economics-Philosophy	Physics and Astronomy
English	Political Science
English-Philosophy	Psychology
Geography	Russian Studies
Geology	Sociology
History	Speech
Ibero-American Studies††	Western European Studies

Major and minor requirements and descriptions of the courses offered will be found, listed by departments, in the catalog section "Courses of Instruction." The student is referred also to the Departments of Art, Dramatic Art, Home Economics, and Music for major or minor studies acceptable in the College of Arts and Sciences.

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\* One laboratory drill period, at hours indicated in the final Schedule of Classes, must also be reserved in student's program of studies.

† See NROTC adviser.

‡ Required for all NROTC regular students; must include laboratory.

§ Regular and contract midshipmen must take a general psychology course during the spring semester.

†† Ph.D. program only.

## COLLEGE OF BUSINESS ADMINISTRATION

**C**URRICULA in the College of Business Administration are designed to give broad experience in the liberal arts and applied sciences as preparation for productive living and progress toward executive responsibilities. The student will find his studies spread over diverse disciplines throughout his four years that he may maximize his opportunities to apply wide-ranging facts, opinions, and techniques to the art of decision-making. Whether a student's objective be that of proprietor or partner in a firm, executive in a private corporation, or officer in a public or quasi-public institution, the core work presented is basic to the appreciation and practice of the administrative function.

The program of studies designed to achieve these objectives has three main divisions. The first division includes courses in a number of areas of knowledge outside the fields of economics and business and comprises 40 percent or more of the entire 4-year program; the second division is that of a group of courses in managerial controls, organizational sciences, operations and environment specifically required of all students in the College; the third division comprises a group of courses in a specialized field (concentration) of the student's own choosing. Thus a student graduating with a degree in the College of Business Administration will have had the opportunity to gain a broad knowledge of the institutions and culture of the society in which he will live and work, a special understanding of the economic institutions with which almost inevitably he will become connected, and a reasonable competence in one or more of the major administrative functions present in the organization and direction of economic activities.

The College would not wish to impart to any student a feeling of security in his path toward executive responsibilities. He may hold confidence in his ability to advance more rapidly toward such goals in consequence of his academic background; yet he should recognize that success in any field of endeavor depends upon many factors. One of these, obviously, is experience gained through diligent work in preparatory jobs.

The College of Business Administration includes within its framework a Bureau of Business Research (see p. 71).

### ADMISSION

All freshman students are admitted to the University College. A detailed statement of entrance requirements is in the "Admission" section of this catalog.

ADMISSION FROM THE UNIVERSITY COLLEGE. The minimum requirements for transfer from the University College to the College of Business Administration are:

1. Twenty-six hours of earned credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted;  
or  
(b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.



3. A scholarship index of at least 2.0 on all Business Administration and Economics hours attempted.
4. Completion of the English Proficiency Examination (administered by The University of New Mexico) with a satisfactory score, or a grade of C or better in a remedial English course offered on a non-credit basis by the University of New Mexico English Department.
5. The successful completion of Mathematics 122.

#### TRANSFER FROM OTHER COLLEGES IN THIS UNIVERSITY

Students seeking to transfer from other degree-granting colleges of the University must present at least 26 semester hours of acceptable credit with a grade-point average of 2.0 or better on all work attempted. Transfer students must meet the minimum requirements for transfer from the University College (see above) except that qualification **2(b)** under these requirements shall not apply; non-resident transfers must meet the qualitative admission requirement set forth on p. 83 as well as the specified requirements above. Any student admitted to the College of Business Administration lacking mathematics, statistics, or accounting will be required to take certain of these courses the first semester of enrollment.

#### TRANSFER FROM OTHER ACCREDITED INSTITUTIONS

Transfers must meet normal requirements for admission to this University. In view of the rather distinctive nature of our Business Administration program, it is the general policy of the College of Business Administration not to accept as transfer credit work in Business Administration completed elsewhere at the junior and senior levels.

#### DEGREES OFFERED

For the degree of Bachelor of Business Administration, the student is required to complete satisfactorily a 4-year course including a chosen field of concentration and to maintain a 2.0 cumulative grade-point average as specified under "Scholastic Regulations" below. To receive the degree, the student must have completed satisfactorily at least 128 semester hours, including 4 semester hours of physical education, and to have met all the requirements of the University and of the College of Business Administration.

For the degree of Master of Business Administration, the student should consult the **Graduate Bulletin**.

#### DEGREES IN COMBINATION WITH OTHER COLLEGES

If a student wishes to secure a degree in another college, he is urged to seek advice early in his college career from the deans of the colleges concerned. With care in selecting his program of studies, it is possible for a student to secure two degrees in one to two extra years, depending on the degrees he seeks.

#### SCHOLASTIC REGULATIONS

The student should become familiar with the general academic and scholastic rules which apply to all students enrolled in the University (see pp. 132-134). Special attention is called to the rules on probation and suspension. Special rules for the College of Business Administration are as follows:

1. To graduate with the B.B.A. degree a student must have a scholastic index of 2.0 on all his semester hours attempted at The University of New Mexico, except that those University College hours with grade points that had not been certified for entrance to the College of Business Administration may be excluded.

2. To graduate with a B.B.A. degree a student must have a grade-point average of 2.0 on all Business Administration and Economics hours attempted.

3. To graduate with the B.B.A. degree a student must have earned a minimum of 124 hours of degree work.

4. To graduate with a B.B.A. degree a student must have earned a minimum of 54 hours in courses in Business Administration and Economics.

5. The normal load for students in the College of Business Administration shall be 16-17 hours (not counting PE).

6. The following will count as laboratory science: Physics, Chemistry, Biology, and Geology.

7. To graduate with a B.B.A. degree a student must have completed successfully the Proficiency Examination in English or have attained a grade of C in the non-credit remedial English course offered by the University's Department of English.

8. To receive the B.B.A. degree, transfer students must take a minimum of 18 hours in Economics and Business Administration subjects while enrolled in the College of Business Administration.

9. The College of Business Administration will accept as free electives credits earned in other colleges of the University with the following exceptions:

A. All theory and methods courses in Physical Education.

B. All courses in Education in methods and supervision. (Student Teaching will be accepted to the extent of 6 hours.)

C. More than 4 hours in ensemble music.

D. More than 3 hours of shop work.

E. Mathematics 111.

10. Credit is not allowed toward a degree in the College of Business Administration for type-writing.

## DEGREE REQUIREMENTS

Requirements for the degree of Bachelor of Business Administration (for description of courses, see section "Courses of Instruction"):

### A. GENERAL REQUIREMENTS

	Credit
1. English 101 and 102 (6 hrs.); Literature (6 hrs.)*	12
2. History 101, 102 (6 hrs.); Political Science 102	9
3. Behavioral Science (Psychology 102, Sociology 101, and Anthropology 102)	9
4. Option. Either one of the following:	
(a) A single foreign language (12 hrs.)	
(b) An approved 12-hour program outside the College of Bus. Adm.**	12
5. Mathematics 121 and 122	8
6. Philosophy 375 or 255 or History 306 (or 6-8 hrs. of lab science exclusive of Psych)	3
7. Fine Arts elective	3
8. Physical Education	4
Total	60

### B. SPECIFIC REQUIREMENTS IN ECONOMICS AND BUSINESS COURSES COMMON TO ALL CONCENTRATIONS

BA 105, 106, Fundamentals of Accounting	3-3
BA 202, Data Processing	3
BA 225, Accounting for Management Control (for non-accountants)***	3
BA 289, Statistical Analysis	3
BA 306, 307, Man, Society, and Law; Law of Contracts	3-3
BA 308, Principles of Marketing	5
BA 310, Business Finance	3
BA 329L, Quantitative Analysis for Mngt	3
BA 330, Organization Theory	5

\* 3 hrs. of literature must be upper-division.

\*\* Approval by the Dean or his designated representative ordinarily requested at beginning of junior year.

\*\*\* Not open to students with second semester junior standing or above.

BA 492, Senior Seminar	3
Ec 200, 201, Prin of Economics	6
Ec 315, Money and Banking	3
Total	<u>49</u>
C. CONCENTRATION REQUIREMENTS (varies with concentration)	15-18
D. FREE ELECTIVES	<u>1-3</u>
Total hours of credit for degree	128

**General Studies.** Students who accept an invitation to join the General Studies program (see p. 139) may apply their various seminars to satisfying appropriate General Requirements as approved by the Dean of the College.

**English.** The beginning freshman will take either English 101 or English 102, depending on the scores made on the ACT English area.

**Laboratory Science.** Laboratory science means laboratory courses in Chemistry, Physics, Geology, and Biology.

**Option.** If a student chooses option (a) and is admitted with high school language credits and wishes to enter courses above the elementary level, he should consult the Chairman of the Modern and Classical Languages Department (in the College of Arts and Sciences).

**Mathematics.** During the freshman year the student must take Mathematics 010 (Intermediate Algebra—non-credit) as a prerequisite to Mathematics 121 if his ACT score in Mathematics is not satisfactory.

#### FRESHMAN PROGRAM (Taken in the University College)

1st Semester		2nd Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
Math 121 Intro Math for the Sci	4	Math 122 Intro Finite Math	4
BA 105 Fund of Acct	3	BA 106 Fund of Acct	3
Foreign Lang (if elected)	3	BA 202 Data Processing	3
General Requirements at the 100 level	3	Foreign Lang (if elected)	3
PE Activity	1	PE Activity	1
	<u>16 + PE</u>		<u>16 + PE</u>

#### SOPHOMORE PROGRAM

1st Semester		2nd Semester	
BA 289 Statistical Analysis	3	Econ 201 Prin of	3
BA 225 Acct for Mngt Control	3	Foreign Lang (if elected)	3
(BA 263 in Acct and in Finance)		General Requirements at 100	
Econ 200 Prin of	3	or 200 level	9
Foreign Lang (if elected)	3	PE Activity	1
General Requirements at 100			
or 200 level	3		
PE Activity	1		
	<u>15 + PE</u>		<u>15 + PE</u>

#### JUNIOR AND SENIOR YEARS

During the first semester of the junior year students should file in the Dean's office an application for the B.B.A. degree. This application will include a declaration by the student of his field of concentration. A graduation summary sheet will then be prepared and a copy will be supplied the student. No student will be included on a list of candidates for graduation unless an application for degree has been approved.

During the junior and senior years students in the College of Business Administration must take any of the General Requirements, as listed on p. 161, which were not taken in the first 2 years. General prerequisites to all upper-division courses are Economics 200, 201, BA 105, 106, 202, 225, and 289, but any course may have a specific prerequisite which will be stated in its description.

## CONCENTRATIONS

### 1. ACCOUNTING. Advisers: Mr. Mori, Mr. Christman, Mr. Seaton, Mr. Yeakel, Mr. Caplan.

Those students who are looking toward careers in either private accounting or public accounting should follow the Accounting concentration. Knowledge of accounting principles and practices is basic to any business venture both for the purpose of internal control and for guiding policy. The proper keeping of records and their analysis, a proper function of the accountant, is especially necessary in tax matters, both federal and local. Those students who aspire to become Public Accountants probably should take more than the minimum number of courses required in the Concentration.

Concentration requirements in addition to specific requirements: BA 321, 384, 447, 449.

**Note:** Students in this concentration probably will have enrolled in BA 263 and BA 264 during their sophomore year. Students who begin accounting in their sophomore year may enroll in BA 264 and BA 384 concurrently in their junior year.

**Recommended Electives:** BA 265, 327, 328, 422, 487, and 450.

### 2. FINANCE. Adviser: Mr. Brown

A survey of the courses offered in this concentration will reveal that they have been carefully selected to give the student a sound basic understanding of the principles and practices of both private and public finance. Thus the program serves not only those who plan to enter the banking, insurance, investment security, and similar businesses; it will also provide highly useful training for the average citizen who will almost certainly deal with banks, buy life insurance, make some investments, vote on fiscal proposals, and pay the tax collector. To provide the student with an informed and intelligent approach to such problems is the aim of the concentration.

Concentration requirements in addition to specific requirements: BA 363, 366, 469.

**Note:** Students in this concentration are required to take 6 hrs. from the recommended electives.

**Recommended Electives:** BA 263, 264; Econ 303, 330.

### 3. GENERAL BUSINESS. Advisers: Mr. Huber, Mrs. Saner.

If a student has developed no special interest in one of the other concentrations, he should choose General Business. As the title implies, this program gives a student a broader and more diversified training than the other programs but with no less emphasis on the basic knowledge and principles which are common to all good business practices. For those students who plan to take a graduate degree in business administration this concentration is suggested, as a field of specialization may be chosen after receiving the bachelor's degree. Likewise those students planning to enter the School of Law or other professional schools, after graduation, should give careful consideration to choosing this concentration.

Concentration requirements in addition to specific requirements:

- a. 12 hours in BA including one advanced course from each of the four functional areas.
- b. 6 hours in Economics from the following: Econ 300, 303, 320, 350, 360, 407, and 450.

### 4. INDUSTRIAL ADMINISTRATION. Advisers: Mr. Finston, Mr. Dillman, Mr. Nolan.

This concentration is designed to foster an understanding of managerial functions and responsibilities in a changing world. Emphasis is upon developing management perspective, improving decision-making ability, and broadening perception of inter-personal and organization relationships. The importance of administration is steadily growing in recognition, whether the enterprise is large or small, and whether it is industrial, commercial, governmental, educational, or philanthropic. Students planning careers in general management, personnel, or labor relations administration should select this concentration.

Concentration requirements in addition to specific requirements: BA 493, 496, 497L; Soc 341; Econ 320.

### 5. MARKETING. Advisers: Mr. Winter, Mr. Slate.

The major function of marketing executives is to make decisions. In order to do this, they need authority to implement decisions, alternative decisions from which to choose, and information upon which to base their actions. Administrators need facts concerning the world-wide marketing system. They need to know about consumer wants and means of satisfying these wants

in an efficient but profitable manner. The modern marketing management concept provides a systems approach to the analysis of marketing problems. It insures a more rational means of solving problems through the use of new analytical tools and a framework conceived to provide interdisciplinary action. The principal task of marketing management today is the adoption of this modern concept in light of the many fundamental changes now taking place in marketing within the United States and abroad. The area will consist of a survey of normative models for decision-making in different marketing situations. It will discuss the various analytical tools available to the marketing executive in planning, organizing, and controlling marketing programs.

Concentration requirements in addition to specific requirements: BA 305, 410, 483, 486; Econ 332.

## **AIR FORCE AND NAVAL ROTC**

Students enrolled in the Air Force ROTC and Naval ROTC may receive the degree of Bachelor of Business Administration and their commissions at the end of 4 years. To do this the student must use his required Naval and Air Force courses as his "free electives." Thus, each student enrolled in the College of Business Administration must be sure he is taking the required courses for the degree. Naval students are not required to take Physical Education; however, the requirement is not automatically waived.

## COLLEGE OF EDUCATION

ONE of the most important and urgent responsibilities of the University of New Mexico is the effective preparation of teachers and other school personnel (e.g., principals, counselors, supervisors, and superintendents). In this connection, the University's College of Education plans, develops, coordinates, and evaluates the preparation programs for these teachers and other school personnel. The College of Education is solely responsible for all the courses, seminars, and professional laboratory experiences which constitute the professional education portions of these programs.

The College of Arts and Sciences and the College of Fine Arts work closely with the College of Education both in determining and meeting the educational needs of those expecting to serve, or already serving in elementary and secondary schools. The University of New Mexico Advisory Committee on Teacher Education, a group of faculty members and administrative officers representing these colleges, has agreed upon and now supports the following principles, procedures, and requirements with respect to undergraduate teacher education programs offered by the University.

There shall be at this institution **only one approved** preparation program leading to **any one teaching** objective. (This principle does not preclude flexibility and elective possibilities in a program.)

**Every** teacher education program at the University shall include at least: 48 semester hours of general (liberal) education; 50 semester hours of subject-matter specialization (subject area or areas in which the person expects to teach); and 24 semester hours of professional education.\*

**All** University of New Mexico students requesting admission to a teacher education program shall be subject to the same admission requirements, irrespective of the college in which enrolled.

**Every** University of New Mexico student who expects to teach in an elementary or secondary school after receiving the bachelor's degree at this University is required to submit formal application for admission to the teacher education program he wishes to pursue. Admission to such a program is separate from: 1) admission to the University; and 2) admission to a degree-granting college.

### CERTIFICATION

Every University of New Mexico program which leads to teacher certification for New Mexico elementary and secondary schools includes at least four years of college work. The completion of a bachelor's degree in one of these programs at the University makes the person eligible to apply for a **4-year Provisional Certificate†** in New Mexico. This certificate entitles the holder initially to teach in the State for four years and may be renewed only once for an additional four years. Forms for application for a New Mexico certificate are available from the Graduation Clerk in the College of Education.

By the end of the eight year period of Provisional Certification the holder

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\* In certain programs, some work may count for both professional education and subject-matter specialization.

† Detailed information concerning curriculum may be found in other sections of this catalog, and in the **Graduate School Bulletin**.

must qualify for either the Continuing Certificate or the Professional Certificate or other special field certificates. Persons interested in these certificates should consult the **Graduate School Bulletin**, department chairmen in the College of Education, or the dean of that college.

**CONTINUING CERTIFICATE.**<sup>†</sup> Students desiring the **Continuing Certificate** must complete a 30 semester-hour graduate program not necessarily culminating in a master's degree. The major portion of credits in this program must be in subject-matter areas.\*\* Each student desiring this certificate must plan a program **with** an adviser. This is a five-year certificate and may be renewed for five-year periods.

**PROFESSIONAL CERTIFICATE.**<sup>†</sup> Students desiring the **Professional Certificate** must complete a master's degree, the major portion of which must be graduate credit earned in subject matter areas.\*\* All master's degree programs at the University of New Mexico do not necessarily meet such requirements. Students interested in obtaining this certificate should consult the **Graduate School Bulletin** and their advisers in the College of Education **before** planning a master's degree program. This certificate does not need to be renewed.

#### ACCREDITATION

The University of New Mexico is **fully** accredited by the National Council for the Accreditation of Teacher Education (NCATE). This full accreditation covers all bachelor's degree programs described in this section of the catalog and **all** graduate programs for teachers and other school personnel listed in the current **Graduate School Bulletin**, including those offered at the master's, sixth-year, and doctoral levels.

This **full** accreditation means that graduates of this institution's teacher education programs are eligible to apply not only for appropriate certification to teach in New Mexico, but also for comparable certification (same level and/or same subject field) in all of the 28 states of the United States which have entered voluntarily into a reciprocity agreement for certification based upon NCATE accreditation of institutional programs.

The University is also an active member of the American Association of Colleges for Teacher Education.

#### UNDERGRADUATE PROGRAMS

All the University of New Mexico undergraduate programs accredited by NCATE are devoted solely to the preparation of regular classroom teachers (elementary or secondary) and of teachers in special areas (e.g., Art Education; Health and Physical Education; Music Education; Industrial Education; Special Education; and Home Economics) who may teach in grades 1 through 12. (See curricula for all these programs in later sections of the catalog.) An undergraduate major is also offered in the field of Recreation.

<sup>†</sup> Detailed information concerning curriculum may be found in other sections of this catalog, and in the **Graduate School Bulletin**.

\*\*With the exception of the Language Arts and Children's Literature area, only courses listed under a specific subject (usually offered in the College of Arts and Sciences) in the catalog are considered "subject matter" areas.

**DEPARTMENTAL HONORS.** A departmental honors program is offered in several of the departments of the College of Education. Application for participation in the program must be made during the junior year. The program may consist of any one of the following: (1) a senior thesis, (2) a reading and tutorial program under the major adviser, (3) honors in student teaching. All students permitted to enter the honors program will meet University regulations as described on pp. 139-141. Permission of the major adviser is required for enrollment in course 497, Reading and Research in Honors.

#### GRADUATE PROGRAMS

The College of Education offers through the Graduate School programs leading to the master's degree, the Doctor of Philosophy degree, and the Doctor of Education degree. Consult the current **Graduate School Bulletin** for details of these programs. Sixth-year graduate programs leading to "Certificate of Education Specialist" are also available. Consult the current **Graduate School Bulletin** and appropriate departments for details of these programs.

#### ADMISSION TO THE COLLEGE OF EDUCATION

All freshman students are admitted to the University College. A detailed statement of entrance requirements is in the "Admission" section of this catalog.

#### ADMISSION FROM UNIVERSITY COLLEGE

Requirements for transfer from the University College to the College of Education are as follows:

1. Twenty-six hours of earned credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted;  
or  
(b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.
3. Completion of the English Proficiency Examination (administered by the University of New Mexico) with a satisfactory score; or a grade of C or better in a remedial English course offered on a non-credit basis by the University's English Department.
4. Formal application and successful completion of the process required for **Admission to Teacher Education**, (see p. 168).

#### TRANSFER FROM OTHER COLLEGES IN THIS UNIVERSITY

A student will be eligible for transfer to the College of Education from other degree-granting colleges of the University if he has a scholarship index of 2.0 or better on all work attempted in the other degree-granting college, and has completed successfully the process for **Admission to Teacher Education**. (See p. 168).



## TRANSFER FROM OTHER ACCREDITED INSTITUTIONS

All students transferring from another accredited institution who have met the University's general qualitative admission requirements for transfer may be enrolled conditionally for two semesters (or one semester and summer session) in the College of Education, during which time they must complete all the admission requirements referred to above. All students must take the English Proficiency Examination and complete the process for admission to teacher education during their first semester of enrollment. Transfer students who, during their first semester (or summer session) of conditional enrollment, pass the English Proficiency Examination, complete successfully the process of **Admission to Teacher Education**, and who have a grade point index or at least 2.0 at the end of their first period of enrollment in the College may then be enrolled in regular status in the College.

Students who fail the English Proficiency Examination during this first period of conditional enrollment must enroll in the remedial English course 010 during their next period of enrollment. Students who fail to complete successfully the process of **Admission to Teacher Education** must go through the entire process again and complete it successfully during their next period of enrollment in order to be eligible for continued enrollment in the College and in upper division professional education courses. Two semesters of conditional enrollment constitute the maximum period during which a student is allowed to complete all requirements for full **Admission to Teacher Education**.

## MAXIMUM NUMBER OF HOURS

No student in the College of Education may enroll for more than 17 semester hours during a regular semester or 9 semester hours during a summer session, plus 1 hour of physical education (or military drill in the case of NROTC students), unless his standing for the previous semester was at least B in two thirds of his studies, with no grade below C; and then only by presenting a written petition to the chairman of his department, who may, at his discretion, grant permission to enroll for extra hours, not to exceed 21 including physical education in a regular semester or 11 semester hours in a summer session.

## ADMISSION TO TEACHER EDUCATION

All students wishing to pursue Teacher Education at this University must make formal application and complete successfully the process required for admission to Teacher Education. No students will be eligible to enroll in any course numbered 300 or above offered by the College of Education, unless they have been admitted to Teacher Education at the University of New Mexico.

## Requirements for Admission to Teacher Education

Any student who wishes to apply for admission to Teacher Education must first have fulfilled all the requirements listed on p. 167 under **Admission to the College of Education** with the following exception: provision 2 (b) does not apply to students enrolled in the College of Arts and Sciences or the College of Fine Arts. Additional requirements are the following:

1. Completion of an Application to Teacher Education form, available in the

Office of the Dean of the College of Education at the beginning of each semester. This form should be completed **during the semester** in which a student is enrolled in his first professional course (usually Ed. Fdns. 290)

2. Attendance at the Screening Session which is held once each semester, usually in February, July and October.
3. Successful completion of all tests administered at the Screening Session.
4. Evidence of satisfactory performance on an academic aptitude test (SCAT or ACT).
5. A successful interview with a College of Education faculty member, in which the student indicates a positive desire and intent to enter the teaching profession; and gives evidence of physical, personal and emotional qualities deemed adequate for successful teaching.
6. Completion of a departmental Physical Fitness Test for all men physical education majors.

**Note:** Any student admitted to a teacher education program **after the first semester of his junior year**, may be required to spend one or more **additional** semesters beyond the usual four-year period, in order to complete the desired program.

#### PROGRAMS OFFERED ONLY IN THE COLLEGE OF EDUCATION

The following teacher education programs are available only through the College of Education: a) Business Education; b) Elementary Education; c) Health and Physical Education; d) Home Economics; e) Industrial Education; f) Composite in Science (Secondary level); g) Composite in Social Studies (Secondary level); and, h) Composite in Communication Arts (Secondary level). Also, the bachelor's degree with a major in Recreation is offered only through the College of Education.

#### PROGRAMS OFFERED JOINTLY

Persons wishing to pursue either the Art Education Curriculum or the Music Education Curriculum may enroll in either the College of Education or the College of Fine Arts.

All students expecting to complete teaching majors in general subject areas usually found in the secondary school curriculum (e.g., English, Mathematics, History, Biology, Chemistry, Physics, Foreign Languages, Political Science and Speech) and wishing to be recommended and certified to teach in one or more of these areas at the junior or senior high school level may enroll in either the College of Education or the College of Arts and Sciences.

**NOTE:** It is urged that all University of New Mexico students who are not enrolled in the College of Education but who are expecting to be certified keep in close touch with the College of Education in the planning of programs and in the choice of electives.

#### PROFESSIONAL LABORATORY EXPERIENCES

All degree programs offered through the College of Education include organized and sequential experiences with children and youth. These required

experiences (usually referred to as **professional laboratory experiences**) include directed observation of pupils at work and at play, guided participation with groups of children, and, the formal student teaching assignment(s).

**OBSERVATION AND PARTICIPATION.** Selected elementary and secondary schools in the Albuquerque Public Schools, other nearby school systems, and selected community agencies, are used for observation and participation with children and youth. These pre-student teaching experiences are carefully planned and directed cooperatively by University faculty members and representatives of the cooperating school systems and agencies.

**STUDENT TEACHING.** The student teaching assignment, usually occurring during the senior year\*, is the culminating experience of the entire undergraduate preparation program, and is considered one of the most important prerequisites to graduation and certification for teaching. The student teaching assignment is carried on under the personal direction of selected cooperating teachers in the Albuquerque area public and private school systems and professors from the University. The University of New Mexico is indebted to the cooperating teachers in Albuquerque who help to supervise the student teachers during their assignments. Because of the importance of this experience, specific requirements are set up for admission to student teaching. Every student must complete these requirements before his admission to student teaching, and it is recommended, therefore, that he read and thoroughly understand them **before** he makes formal application for a student teaching assignment.

### **Requirements for Admission to Student Teaching**

For admission to student teaching the student must have:

1. Been regularly admitted and be in good standing in the college in which enrolled **at the time** of application. This requirement means specifically that the English Proficiency Examination must have been passed and that the student is not on probation at the time of application. Also, any stipulations indicated at the time of admission must have been removed.
2. Been admitted to teacher education at the University of New Mexico.
3. Applied for admission to student teaching with the University supervisor of student teaching (elementary or secondary) the **spring before** the actual student teaching begins.
4. Passed a physical examination, including a chest x-ray, as required of regular teachers in the elementary and secondary schools. Evidence of the examination and its findings, completed within three months of the date of application, must be filed with the Directors of Secondary or Elementary School Student Teaching at the time application is made.
5. Achieved a general grade-point average of at least 2.0 (c) in all courses attempted at The University of New Mexico. Graduate students must also meet these requirements and maintain a 3.0 grade-point average.
6. Achieved a grade-point average of at least 2.3 in all courses attempted in the major teaching area. Some departments may and do require a higher grade-point average.

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\*Most students majoring in elementary education have a junior year student teaching experience also. See the Department of Elementary Education for information.

7. Completed Speech 255 (or approved substitute).
8. Completed satisfactorily all prerequisites for student teaching listed in the current University catalog.
9. Demonstrated ability to use effectively appropriate audio-visual equipment.
10. Planned a total semester schedule of no more than 15 hours of course work, including student teaching. (A course load of 12 hours is highly recommended.) Elementary student teachers must be available between 8:30 a.m. and 12 noon daily during one semester of the junior year and the entire school day during one semester of the senior year. Secondary student teachers must have a block of three hours daily (between 8:30 a.m. and 3:00 p.m.) clear for assignment in the schools.
11. Arranged his personal schedule in order to be available to start an assignment in the fall when public school students report for the start of school (usually late in August or early September). When applying for student teaching assignments in the spring, students should carefully check starting dates with an adviser.
12. Filed application for degree in the office of the dean of the college.

#### **Each Elementary Student Teacher Must Also Have:**

1. Completed at least one semester or summer session in residence study, including at least one course in the Department of Elementary Education.
2. Attained at least a 2.2 grade-point average overall prior to entering junior level courses in Elementary Education; attained at least a 2.5 grade-point average in all junior level courses in Elementary Education.

#### **Each Secondary Student Teacher Must Also Have:**

1. Submitted recommendations from three faculty members indicating that the student is believed ready for student teaching.
2. Completed a major portion of work in his teaching major and minor.
3. Attained at least a 2.5 grade-point average in a major (teaching) concentration and at least a 2.2 grade-point average overall.

#### **Laboratories Located in the College of Education**

**LEARNING MATERIALS CENTER.** The Learning Materials Center has been developed to serve education students, teachers, and faculty members by providing a comprehensive collection of materials and media to be used in the teaching-learning process. This collection includes textbooks used in elementary and secondary schools, courses of study, curriculum guides, resource units, globes, charts, maps, films and filmstrips, tapes and other teaching materials. The center also provides a preview conference room, an audio-visual laboratory and a production laboratory.

**MANZANITA CENTER.** Manzanita Center is a laboratory where both undergraduate and graduate students may, under supervision, observe and participate with children and youth in a variety of educational activities. The College's nursery and kindergarten groups are housed here. Also available for research and study purposes are other special groups of children, as well as selected

individual children and youth who have been referred to this Center for diagnosis of educational deficiencies and for remedial services.

**INDUSTRIAL EDUCATION LABORATORIES.** Industrial Education laboratories are maintained for the use of students in various Industrial Education courses in woodworking, sheet metal, and machine shop.

**HOME ECONOMICS LABORATORIES.** Modern food and clothing laboratories are available to both undergraduate and graduate students.

**SCHOLASTIC REQUIREMENTS.** See pp. 132-134.

## REQUIREMENTS FOR GRADUATION

Upon the completion of all specified requirements, including approval by the general faculty, candidates will be awarded the following degrees in the College of Education:

Bachelor of Science in Education for those who major in business education, elementary education, mathematics, or a science;

Bachelor of Science in Home Economics Education for those who major in home economics;

Bachelor of Science in Health and Physical Education for those who major in health and physical education;

Bachelor of Arts in Recreation for those who major in recreation;

Bachelor of Science in Industrial Arts Education for those who major in industrial education;

Bachelor of Music Education for those who major in music education;

Bachelor of Arts in Education for majors in all other subjects.

Specific graduation requirements are as follows:

1. Completion of an application for degree **no later than the last semester of the junior year**. Application can be obtained from the Office of the Dean.

2. Completion of a minimum of 124 semester hours plus physical education (or equivalent NROTC credits). No more than 5 semester hours of credit earned in workshops may be used towards any bachelor's degree. (See course 429 listed with each of the Education departmental offerings).

3. A scholarship index of 2.0 or higher on the 124 semester hours being counted for graduation, at least a 2.0 grade-point average on all work attempted at the University of New Mexico, and at least a 2.3 grade-point average in the major teaching fields.

4. Completion of 40 semester hours in courses numbered 300 or above.

5. Successful completion of the English Proficiency Examination. Normally, this is a requirement for admission.

6. Removal of all high school deficiencies.

7. For minimum residence requirements, see p. 137.

8. Registration with the UNM Placement Bureau.

9. Completion of the prescribed curriculum which leads to the desired degree (see CURRICULA, pp. 175-187). **The student is solely responsible for completing all requirements for graduation, as described in this catalog.**

10. Students who plan to teach in the State of New Mexico must complete

the Application for New Mexico Certificate form available from the Graduation Clerk.

NOTE: Students who plan to teach in the secondary schools must complete a teaching major or minor in subjects usually taught in secondary schools. See description of programs in Secondary Education for details. Students who plan to teach in the elementary schools must complete a major or minor of at least 24 semester hours in a subject area. They must follow the curriculum as outlined on p. 171.

#### GENERAL (LIBERAL) EDUCATION REQUIREMENTS

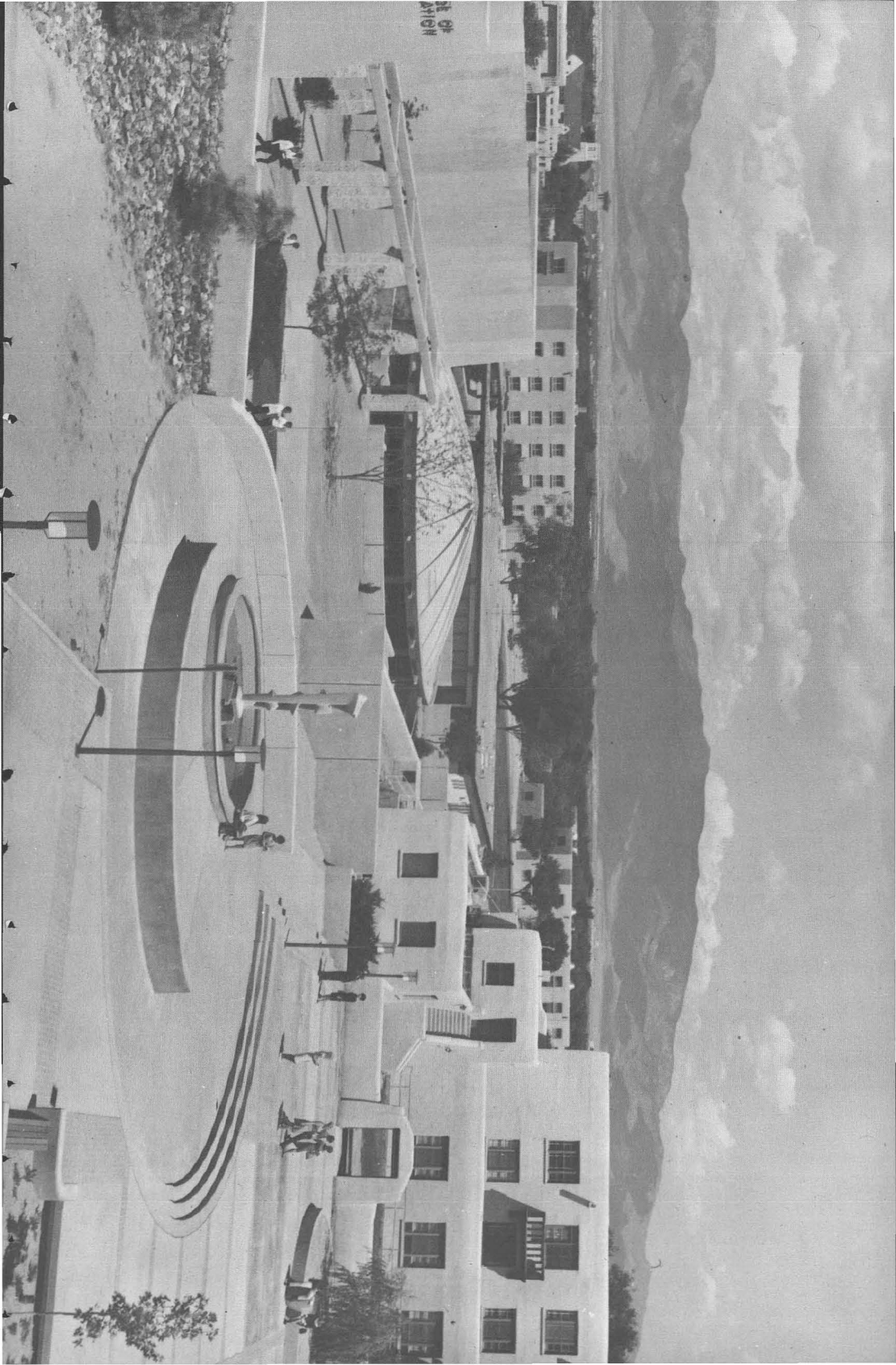
All prospective teachers should be broadly educated as a foundation for a successful professional career. It is required, therefore, that each UNM student expecting to teach include in his preparation program a minimum of 48 semester hours of general education. In general, the group requirements as currently listed for the College of Arts and Sciences and for the College of Fine Arts will satisfy the general education requirements for those expecting to teach, but there are some minor exceptions which will be explained by the Dean of the College of Education. The College of Education requires **all** its graduates to complete the general education requirements as follows. Minimum requirements in items # 1, 2, 3, 4, 5, and 8 below **must** be met. Others are optional, but a total of 52 semester hours is required.

Semester  
hours

1. **Humanities and Social Science.** The following fields are accepted in this area: anthropology, economics, geography, history, literature, philosophy, political science, and sociology. At least one course in literature and work in two other areas are required. 9-15
2. **Behavioral Science.** A course in General Psychology is required. 3-6
3. **Biological and/or Physical Science.** At least 8 hours in laboratory sciences are required. Work acceptable for meeting this requirement is offered in the following departments: Astronomy, Biology, Chemistry, Geology, Nuclear Engineering, or Physics. 8-12
4. **Communicative Arts.** English 101 and 102 and Speech 255\* are required. 9-15
5. **Fine and Practical Arts.** Work in art, art education, industrial education, music, architecture, music education, creative dance, dramatic art, business education, and home economics may be taken to meet this requirement. At least one course in history or appreciation (e.g., of music, art, or of architecture) is required. 6-12
6. **Mathematics.** 3-6
7. **Foreign Language.** Two semesters of a language are required if this area is represented. 6
8. **Health, Physical Education, and Recreation.** 4 semesters of activity courses in physical education are required. An additional 4 semester hours of work in courses other than activity courses may be included. 4-8

Total required. . . . 52 sem. hrs.

\* Or approved substitute



### PROFESSIONAL EDUCATION REQUIREMENTS

All students pursuing teacher education curricula must complete the three professional education courses listed below:

1. **Educational Foundations 290:** Foundations of Education
2. **Educational Foundations 300:** Human Growth and Development\*
3. **Educational Foundations 310:** Learning and the Classroom\*

In addition to these three courses (the professional core) every student must take other professional education courses as prescribed in the curriculum he is following. A minimum of 24 semester hours in professional education is required.

### CURRICULA

Curricula are outlined on the following pages under the respective departments for the purpose of directing students in their chosen fields of work. There are curricula for students preparing to teach in secondary schools and for students who wish to teach in the elementary schools.

Special curricula are provided for students preparing to teach art, music, physical education, home economics, business subjects, or industrial arts in elementary or secondary schools.

NROTC students may substitute required naval science courses for courses in required Physical Education. The courses in naval science may also be substituted for certain courses in several of the curricula when approved by the appropriate department chairman.

Descriptions of the courses offered will be found, listed by departments, in the catalog section "Courses of Instruction."

### ART EDUCATION

#### MAJOR STUDY (TEACHER CERTIFICATION FOR ART AND PROVISIONAL SECONDARY CERTIFICATES)

A student may enroll in either the College of Education or the College of Fine Arts and satisfy requirements for teacher certification at the secondary level.

The candidate for the B.A. in Education must complete at least 40 semester hours in courses numbered 300 or above.

The following curriculum prepares the student to teach art and a second subject area in grades 7-12. The successful completion of this curriculum entitles the graduate to apply for the Provisional Secondary Certificate endorsed for the teaching of art issued by the New Mexico Department of Education.

Students wishing to qualify for a special certificate endorsed for the teaching of art in Grades 1-12 must include in the curriculum outlined on this page Art Education 400 (3 cr.) and Elementary Education 400 (3 cr.). Credits earned in these courses may be substituted for an equal amount of the General Elective credits required. In the case of a student desiring 1-12 certification in art education no minor is required.

\* Or approved substitute.



## CURRICULUM FOR SECONDARY TEACHERS\*

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrtnng w/Rdgs in Expos	3	Engl 102 Wrtnng w/Rdgs in Lit	3
†Hum & Soc Sci	3	†Hum & Soc Sci	3
†Biol & Phys Sci	4	†Biol & Phys Sci	4
Art 103 Visual Funda	3	Art 104 Visual Funda	3
Art 105 Funda of Draw	3	Art 270 Hist of Art I	3
PE Activity	1	PE Activity	1
	<u>16</u>		<u>16</u>
	16 + PE		16 + PE
Sophomore Year			
Engl (Lit)	3	Spch 255 Pub Spkg	3
†Hum & Soc Sci	3	Ed Fdns 290 Fdns of Ed	3
Gen Elective	3	Psych 101 Gen Psych I	3
Art Ed 210 Creat Art in Sec Sch	3	Art Ed 211 Creat Art in Sec Sch	3
Art 271 Hist of Art II	3	Art 270 Hist of Art III	3
PE Activity	1	PE Activity	1
	<u>15</u>		<u>15</u>
	15 + PE		15 + PE
Junior Year			
Ed Fdns 300 Hum Grwth & Dev	3	Ed Fdns 310 Learn & Classrm	3
Sec Ed 301 Fdns of	3	Art Ed 434 Tchg Art in Sec Sch	3
Art Ed 320 Pre-Tchg Exp in Art	3	Art, Studio	6
Art, Studio	6	Art Electives (above 300)	2
Art Electives	2	‡Gen Electives	3
	<u>17</u>		<u>17</u>
Senior Year			
Ed Fdns 415 Philos of Ed	3	††Sec Ed 461 Student Tchg	6
Art Electives (above 300)	7	‡Gen Electives (above 300)	6
‡Gen Electives	6		
	<u>16</u>		<u>12</u>

## MINOR STUDY IN ART EDUCATION

Elementary Education students only: Art 103, 104, 105, and 270 or 271; Art Education 110, 115, 400, and 320.

## BUSINESS EDUCATION

## COMPREHENSIVE CURRICULUM INCLUDING OFFICE EDUCATION

(Leading to the degree of Bachelor of Science in Education)

Freshman Year		Sophomore Year	
Engl 101 Wrtnng w/Rdgs in Expos	3	Engl (Lit)	3
Engl 102 Wrtnng w/Rdgs in Lit	3	Spch 255 Pub Spkg	3
†Laboratory Science	8	Ed Fdns 290 Founda of Ed	3
Math 121 Intro Math for Sci	4	Psych 101 Gen Psych I	3
**Bus Ed 112 Interm Typ	3	Econ 200 Princ	3
Bus Ed 262 Adv Typ	3	Bus Ad 105, 106 Fund of Acctg	6
Bus Ed 117 Office Mach & Filing	2	**Bus Ed 113 Shorthand Theory	3
Gen Elect or Minor	6	**Bus Ed 114 Begin Dictation	3
PE Activity	2	Gen Elect or Minor	3
		PE Activity	2
	<u>32</u>		<u>30</u>
	32 + PE		30 + PE

\* Students enrolled in College of Fine Arts must meet group requirements listed on pp. 203-204.

† Electives are to be used to meet departmental minor requirements. A minor is required and may be selected from approved list shown on p. 185.

†† Student teaching may be divided between the 2 semesters of the senior year.

‡ Choose from General Education requirements listed on p. 173.

\*\* Certain elementary courses may be waived if student has had typewriting or shorthand in high school.

Junior Year		Senior Year	
Ed Fdns 300 Hum Grwth & Dev	3	Fine or Prac Arts (not Bus Ed)	3
Ed Fdns 310 Learn & Classroom	3	*Soc Sci	3
Sec Ed 301 Founda of	3	Bus Ad 306, 307 Man, Society, and	
Sec Ed 310 Mater & Meths of Tchg	3	Law; Law of Contracts	6
Sec Ed 439 Tchg of Bus Subjs	3	Econ 330 Consumer Econ	3
Bus Ad 202 Data Processing	3	Sec Ed 461 Stu Tchg	6
Bus Ed 253 Transcription	3	Gen Elect or Minor	9
Bus Ed 257 Secl Office Prac	3		
Bus Ed 265 Bus Comm	3		
Minor	6		
	<u>33</u>		<u>30</u>

## GENERAL BUSINESS CURRICULUM

(Leading to the degree of Bachelor of Science in Education)

Freshman Year		Sophomore Year	
Engl 101 Wrting w/Rdgs in Expos	3	Engl (Lit)	3
Engl 102 Wrting w/Rdgs in Lit	3	Spch 255 Pub Spkg	3
*Laboratory Science	8	Econ 200, 201 Princ	6
Math 121 Intro Math for Sci	4	Ed Fdns 290 Founda of Ed	3
**Bus Ed 112 Intern Typ	3	Bus Ad 105, 106 Fund of Acctg	6
Bus Ed 262 Adv Typ	3	Bus Ad 289 Statistical Anal	3
Psych 101 Gen Psych 1	3	Bus Ad 202 Data Process	3
Gen Elect or Minor	3	Gen Elect or Minor	6
PE Activity	2	PE Activity	2
	<u>30 + PE</u>		<u>33 + PE</u>
Junior Year		Senior Year	
Ed Fdns 300 Hum Grwth & Dev	3	Fine or Prac Arts (Not Bus Ed)	3
Ed Fdns 310 Learn & Classroom	3	*Soc Sci	3
Sec Ed 301 Founda of	3	Bus Ad 306, 307 Man, Society and Law;	
Sec Ed 310 Mater & Meths of Tchg	3	Law of Contracts	6
Sec Ed 439 Tchg of Bus Subjs	3	Sec Ed 461 Stu Tchg	6
Bus Ad 330 Org Theory	5	Bus Ad Electives	3
Bus Ad Electives	6	Gen Elect or Minor	9
Gen Elect or Minor	6		
	<u>32</u>		<u>30</u>

Majors in any Business Education Curriculum must earn a minor of 18 hours outside the field of business.

## MINOR STUDY IN BUSINESS EDUCATION (Comprehensive)

Bus Ed 253 and 262 and 15 additional hours in Business Administration courses.

## MINOR STUDY IN BUSINESS EDUCATION (General Business)

BA 105 and 106 and 15 additional hours in Business Administration and Economics courses.

## GRADUATE COURSES

See course listings under Education, Secondary. See Department Chairman for course of study.

## EDUCATIONAL ADMINISTRATION

See pp. 278-279 for course descriptions and the **Graduate School Bulletin** for all graduate programs.

\* Choose from General Education requirements listed on p. 173.

\*\* Certain elementary courses may be waived if student has had typewriting or shorthand in high school.

## EDUCATIONAL FOUNDATIONS

See pp. 280-281 for course descriptions and the **Graduate School Bulletin** for all graduate programs.

## ELEMENTARY EDUCATION

## CURRICULUM FOR STUDENTS PREPARING TO TEACH IN ELEMENTARY SCHOOLS

Freshman Year		Sophomore Year	
Engl 101 Wrting w/Rdgs in Expos	3	Hist 161, 162 US	6
Engl 102 Wrting w/Rdgs in Lit	3	Phys Sci 261 Intro or Geol 101 Physical	3
Biol 101L, 102L Gen	8	Phys Sci 262 Intro or Geol 102 Historical	3
Soc 101 or Econ 100 Intro	3	Math 212 Struc of Arith	3
Math 111 Arith El Sch Tchrs	3	Psych 101 Gen Psych I	3
Art Ed 110 Creat Art in El Sch	3	Spch 255 Pub Spkg	3
Art Ed 115 Creat Craft in El Sch	3	Mus Ed 293 Mus Skills for El Classrm	
§Electives	6	Tchr	2
PE Activity	2	Mus Ed 294 Tchng of Mus in El Sch	2
		Ed Fdns 290 Founda of Ed	3
		§Electives	6
		PE Activity	2
	32 + PE		34 + PE
Junior Year		Senior Year	
Geog 101 or 102 Gen	3	Engl (Lit) Elective	3
H Ed 171 Pers & Commun Hlth	3	Pol Sci 303 Probs of Democ	3
El Ed 319 PE in El Sch	2	El Ed 353 Tchng of Science in El Sch	3
Ed Fdns 300 Hum Grwth & Dev	3	El Ed 361 Tchng of Math in El Sch	2
B Ed Fdns 310 Learn & Classrm	3	El Ed 441 Child Lit	2
El Ed 321 Tchng of Soc Studies in El Sch	2	El Ed 400 Stu Tchng in El Sch	6
El Ed 331 Tchng of Reading in El Sch	3	§Electives	9
El Ed 333 Tchng Oral-Writ Engl in El Sch	2		28
El Ed 400 Stu Tchng in El Sch	3		
§Electives	6		
	30		

B. Methods and Student Teaching Block.  
(These courses to be taken concurrently.)

Students who successfully complete the curriculum for elementary education and earn a bachelor's degree are eligible to apply for a Provisional Elementary Certificate. This is a four-year, grades 1-8 certificate, renewable **only once**.

By the end of the eight-year period of Provisional Certification the holder must qualify for either the Continuing Certificate, the Professional Certificate, or other special-fields certificates. For information regarding these certification programs see pp. 165-166.

## GUIDANCE AND SPECIAL EDUCATION

This Department offers graduate programs (Master's) in the fields of Guidance and Counseling and Special Education, the Education Specialist (sixth year) in Guidance and the Doctorate in Pupil Personnel Services. An undergraduate minor is offered in the field of Special Education at both the elementary and secondary levels with emphasis on Mental Retardation. Students wishing to pursue any of these programs should consult the Chairman of this Department for details. See pp. 282-284 for course description.

§ Students must use these hours toward a minor of at least 24 sem. hrs. in a subject area or a 30 sem. hr. composite minor approved by the Department of Elementary Education. Students wishing to complete both a major in elementary education and a second major in another field should consult both departments concerned. Students wishing to work with mentally retarded or emotionally disturbed children should consult a staff member in Special Education.

## MINOR STUDY IN SPECIAL EDUCATION

Psych 102 General Psychology II	3	Spec Ed 440 Soc & Psych Problems of	
Psych 313 Mental Subnormality	3	Spec Ed	3
Spec Ed 250 Intro to Spec Ed	1	Spec Ed 473 Teaching the M.R.	3
Spec Ed 371 Educ of Except Child	3	El Ed 400 Student Teaching	6
		Elective	<u>3-6</u>
			25-28

## HEALTH, PHYSICAL EDUCATION, &amp; RECREATION

## MAJOR STUDY IN HEALTH AND PHYSICAL EDUCATION FOR MEN

(Leading to the degree of Bachelor of Science in Health and Physical Education.)

## Freshman Year

First Semester		Second Semester	
Engl 101 Wrtg w/Rdgs in Expos	3	Engl 102 Wrtng w/Rdgs in Lit	3
†Soc Sci	3	†Soc Sci	3
PE 160 Phys Fitness Prog	2	PE 163 Swim	2
Biol 101L Gen or 121L Prin	4	H Ed 171 Pers & Commun Hlth	3
PE Elective	2	PE Elective	2
H Ed 164 First Aid	2	Fine Arts Elective	3
PE Activity	<u>1</u>	PE Activity	<u>1</u>
16 + PE		16 + PE	

## Sophomore Year

Engl (Lit)	3	Spch 255 Pub-Spkg	3
Soc Sci Elective	3	Psych 102 Gen Psych II	3
Biol 136-139L Hum Anat & Physiol-Lab	5	PE 203 Combatives	2
PE 201 Gymnastics	2	Fine Arts Elective	3
PE Elective	2	PE Elective	2-3
PE Activity	<u>1</u>	Elective	3
15 + PE		PE Activity	<u>1</u>
		16-17 + PE	

## Junior Year

Biol 326L Phys of Exercise	3	Ed Fdns 290 Founda of Ed	3
PE 301 Recrea Sports	2	PE 373 Treat of Athl Injuries	2
PE 319 PE in El Sch	2	PE 397 Kinesiology	4
H Ed 370 Sec Sch Hlth and Hlth Ed	3	PE 399 Org & Adm of PE	3
PE 398 Prin of	3	PE 302 Recrea Sports	2
Elective	<u>3</u>	Elective	<u>3</u>
16		17	

## Senior Year

Ed Fdns 300 Hum Growth & Dev	3	*El Ed 400 Stu Tchg in El Schs	
Sec Ed 461 Stu Tchg	3-6	or Sec Ed 462 in Sec Schs	3
H Ed 301 Gen Safety Ed	3	Recrea 452 Org of Sports Progs	3
PE 461 Adapt & Corr PE	3	Ed Fdns 310 Learn & Classrm	3
PE 489 Tests & Meas PE	<u>3</u>	Electives	<u>6-7</u>
15-18		15-18	

## MINOR STUDY IN ATHLETIC COACHING FOR MEN

PE 203 Combatives	2	PE 161 Fund of Bsktball	2
PE 162 Fund of Football	2	PE 202 Th & Prac of Baseball	2
PE 204 Th & Prac of Tr & Fld	2	PE 397 Kinesiology	4
PE 373 Treat of Ath Injuries	2	Recrea 452 Org of Sports Progs	<u>3</u>
PE 398 Prin of	3		24
PE 160 Phys Fitness Prog	2		

† Choose from General Education requirements listed on p. 173.

\* Students wishing to be certified on kindergarten through 12 basis must take El Ed 400 (PE). For certification at the secondary level only, Sec Ed 461 is required.

## MINOR STUDY IN PHYSICAL EDUCATION FOR MEN

H Ed 171 Pers & Commun Hlth	3	PE 301 Recrea Sports	2
PE 163 Swimming	2	PE 399 Org & Adm of	3
H Ed 164 First Aid	2	PE 397 Kinesiology	4
PE 201 Gymnastics	2	PE 398 Prin of	3
PE 160 Phys Fitness Prog	2		
PE 203 Combatives	2		<u>25</u>

## MAJOR STUDY IN HEALTH AND PHYSICAL EDUCATION FOR WOMEN

This curriculum leading to a degree of Bachelor of Science in Health and Physical Education is designed to prepare the student to teach health and physical education in the schools and to supervise physical education in the elementary schools.

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
Biol 101L Gen or 121L Prin	4	PE 210 Folk Dance	1
PE 151 Body Mech & Self Test Activ	1	PE 211 Indiv & Dual Sports	1
PE 152 Team Sports	1	†Soc Sci	3
Art	3	Fine Arts Elective	3
†Soc Sci	3	H Ed 171 Pers & Commun Hlth	3
PE Activity	1	H Ed 164 First Aid	2
		PE Activity	1
	<u>15 + PE</u>		<u>16 + PE</u>
Sophomore Year			
PE 307 Team Sports-Sec Sch	2	PE 308 Indiv & Dual Sports-Sec	2
PE 310 Folk Dance-Sch Prog	2	PE 309 Aquatics & Gym	2
Engl (Lit)	3	Speech 255 Pub Spkg	3
Biol 136-139L Hum Anat & Physiol-Lab	5	Psych 102 Gen Psych II	3
†Soc Sci	3	Ed Fdn 290 Founda of	3
PE Activity	1	PE 345 Prof Lab Exo	1
		Elective	2
		PE Activity	1
	<u>15 + PE</u>		<u>16 + PE</u>
Junior Year			
PE 444 Tchg of PE	3	H Ed 370 Sec Sch Hlth & Hlth Ed	3
Biol 326L Physiol of Exercise	3	Ed Fdn 310 Learn & Classrm	3
Ed Fdn 300 Hum Grwth & Dev	3	PE 399 Orgn & Adm	3
PE 360 Officiating or 366		PE 319 PE in El Sch	2
Tchg of Contemp Dance	2	PE 345 Prof Lab Exp	1
PE 345 Prof Lab Exp	1	PE 397 Kinesiology	4
PE 398 Prin of PE	3		
Elective	2		
	<u>17</u>		<u>16</u>
Senior Year			
El Ed 400 Stu Tchg-El	3	Sec Ed 461 Stud Tchg	6
PE 461 Adapt & Corr PE	3	H Ed Elective	3
Recrea 452 Organ of Sports Prog	3	Elective	3
Ed Elective	3	Ed Elective	3
PE 489 Tests & Meas PE	3		
	<u>15</u>		<u>15</u>

## MINOR STUDY IN PHYSICAL EDUCATION FOR WOMEN

PE 151, 152, 210, 211	3	PE 398 Prin of	3
H Ed 164 First Aid	2	PE 399 Org & Ad of PE or 319 PE in	
PE 345 Prof Lab Exp in H PE & R	2	Elem Sch	3 or 2
PE 310 Folk Dance and PE 309 Aqua &		PE Electives	5-6
Gymst	4		
Recrea 452 Org of Sports Progs	3		<u>24-26</u>

† Choose from General Education requirements listed on p. 173.

## MINOR STUDY IN HEALTH EDUCATION

This minor in Health Education is designed to prepare the student to teach health education.

H Ed 171 Pers & Com Hlth	3	H Ed 164 First Aid	2
H Ed 370 Sec Sch Hlth & Hlth Ed	3	H Ed Elective	3
Home Ec 325 Nutrition	3	Electives	8
H Ed 301 Gen Safety Ed	3		<u>25</u>

## MAJOR STUDY IN RECREATION

(Leading to the degree of Bachelor of Arts in Recreation.)

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
†Soc Sci	3	†Soc Sci	3
Art, Art Ed, or I Ed	3	†Nat Sci	4
†Nat Sci	4	Art, Art Ed, or I Ed	3
Elective	3	Elective	3
PE Activity	1	PE Activity	1
	<u>16 + PE</u>		<u>16 + PE</u>
Sophomore Year			
Engl (Lit)	3	Spch 255 Pub Spkg	3
†Nat Sci	3	Psych Elective	3
Mus 295 Mus in Recrea	2	†Soc Sci	3
†Soc Sci	3	Mus 296 Mus in Recrea	2
Psych 101 Gen Psy I	3	Recrea 290 Social Recreation	2
H Ed 164 First Aid	2	Elective	2-3
PE Activity	1	PE Activity	1
	<u>16 + PE</u>		<u>15-16 + PE</u>
Junior Year			
Recrea 303 Prin of Recrea	3	Recrea 331 Prin & Prac of Camp	3
Sociology Elective	3	Ed Fdns 300 Hum Grwth & Dev	3
DA Elective	3	Recrea 301 Recrea Sports or PE 308	
PE 160 Phys Fitness Progs	2	Indiv & Dual Sports in Sec Sch	2
PE 163 Swim or 360 Officia in Sports	2	Recrea 374 Org of Commun Recrea	3
Elective	3	PE 201 Gymnastics or Elec	2-3
	<u>16</u>	Elective	2
			<u>15-16</u>
Senior Year			
Recrea 475 or 476 Fld Wk in Recrea	3	Recrea 475 or 476 Fld Wk in Recrea	3
Psych Elective	3	Pol Sci (City, State, or Nat'l Govt)	3
Recrea 452 Org of Sports Progs	3	Sociology Elective	3
Electives	7	Recrea 478 Outdoor Recrea	3
	<u>16</u>	Electives	4
			<u>16</u>
MINOR STUDY IN RECREATION			
Recrea 290 Social Recrea	2	Supporting Electives for minor from	
Recrea 303 Prin of Recrea	3	following areas:	
Recrea 374 Org of Commun Recrea	3	Arts and Crafts	
Recrea Electives (331, 351, 475, 477, 478)	5-6	Dramatics	
		Music	
		Sports and Dance	
	<u>13-14</u>		<u>6</u>

† Choose from General Education requirements listed on p. 173.

**HOME ECONOMICS****MAJOR STUDY**

See curriculum. For requirements for a major in dietetics in the College of Arts and Sciences, see p. 290.

For a combined major in Home Economics Education and Dietetics, an additional semester of courses is required plus those listed in the "Curriculum for Students Preparing To Teach Home Economics".\*\*

**MINOR STUDY**

A total of 23 or 24 hours, at least 9 hours numbered above 300, chosen from the following 4 areas and from the following courses:

1. Family Relations and Child Development, 6 hours: H Ec 102, 408L, 418.
2. Clothing and Textiles, 6 hours: H Ec 150, 252, 254L, 456L.
3. Foods and Nutrition, 6 hours: H Ec 120L, 222L, 325.
4. Housing, House Furnishings, Home Management and Health, 5-6 hours: H Ec 240, 341, 443.

Any substitutions must be approved by the Chairman of the Department.

**CURRICULUM FOR STUDENTS PREPARING TO TEACH HOME ECONOMICS**

This curriculum leading to a degree of Bachelor of Science in Home Economics Education is designed to prepare the student to teach Home Economics in junior and senior high schools, for Home Economics Extension work, and for a career in Home Economics in business. The curriculum for students preparing to teach in public schools is approved by the State Department of Vocational Education for positions in the federally-aided schools of the state. Such students must do their student teaching in reimbursed home economics departments and may have to go out of the Albuquerque area to do this for a period of about 6 weeks. Costs for such assignments are to be assumed by students.

At least 36 hours of home economics subject-matter for a major and 18 hours in a teaching minor are required for a 4-year provisional vocational home economics certificate or a 4-year provisional secondary certificate in New Mexico. Some suggested minors are: Art Education, Biology, Business Education, English, Journalism, History, Modern Languages, and Music.

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
Art Ed 130 Tech of Design Ed	3	Biol 136 Human Anat & Physiol	3
H Ec 150L Cloth Selec & Constr	3	Art Elective	3
H Ec 102 Infant Growth & Dev	3	H Ec 120L Food Science	3
*Humanities & Soc Sci	3	*Humanities & Soc Sci	3
PE Activity	1	PE Activity	1
15 + PE		15 + PE	
Sophomore Year			
Chem 141L Elem of Gen Chem	4	Chem 281 Int Org Chem & Bio Chem	4
Psych 101 Gen Psych I	3	Spch 255 Pub Spkg	3
H Ec 222L Meal Management	3	H Ec 240 Pers & Fam Hlth	2
H Ec 254L Tailoring	3	Ed Fdns 300 Hum Grwth & Dev	3
Elective	3	Ed Fdns 290 Founda of Ed	3
PE Activity	1	PE Activity	1
16 + PE		15 + PE	

\*\* See adviser for selection of courses to meet the requirements for Plan III, Emphasis I, II, or III and Concentration A or C of the American Dietetic Association.

\* Choose from Humanities and Social Science requirements listed on p. 173.

## Junior Year

Ed Fdns 310 Learn & Classroom	3	Sec Ed 310 Mater & Meth of Tchg	3
Ec 330 Consumer Ec	3	Sec Ed 437 Tchg of H Ec	3
H Ec 252 Textiles	3	H Ec 341 House & Its Furnishings	3
H Ec 443 Home Management	3	H Ec 325 Nutrition	3
H Ec 418 Family Relationships	3	H Ec 326L Nutrition Lab	1
H Ec 408L Child Growth & Dev	3	Engl (Lit)	3
	<u>18</u>		<u>16</u>

## Senior Year

Electives	16	H Ec 445L Home Management Resid	4
		H Ec Ed 465 H Ec Seminar	2
		Sec Ed 461 Student Teaching	6
	<u>16</u>		<u>12</u>

## INDUSTRIAL EDUCATION

## CURRICULUM FOR STUDENTS PREPARING TO TEACH INDUSTRIAL ARTS

(Leading to the degree of Bachelor of Science in Industrial Arts Education.)

## Freshman Year

Engl 101 Wrtnng w/Rdgs in Expos	3
Engl 102 Wrtnng w/Rdgs in Lit	3
**Soc Sci	6
Psych 101 Gen Psych I	3
I Ed 101 Shop Computation	3
I Ed 105 Intro to I Ed	2
I Ed 110L Machine Woodworking	3
I Ed 111L Drafting I	2
I Ed 112L Drafting II	3
I Ed 120L Machine Metalworking	3
Art Ed 120 Tech of Craft Ed	2
PE Activity	2
	<u>33 + PE</u>

## Sophomore Year

Engl (Lit)	3
Spch 255 Pub Spkg	3
**Science & Lab	4
Ed Fdns 290 Founda of Ed	3
I Ed 225 Design in I A	2
I Ed 230L Power Mechanics	3
I Ed 261L Drafting III	2
I Ed 262L Drafting IV	3
I Ed 265L Finishing & Maint	3
I Ed 280L Elect & Electronics I	3
I Ed 285L Welding	3
Art Ed 121 Tech of Craft Ed	2
PE Activity	2
	<u>34 + PE</u>

## Junior Year

Ed Fdns 300 Hum Grwth & Dev	3
Ed Fdns 310 Learn & Classrm	3
**Science & Lab	4
**Soc Sci	6
I Ed 315L Pat Mkg & Foundry	3
I Ed 335L Int Power Mechanics	3
I Ed 350L Cabinet Making	2
I Ed 365L Adv Machine Metalworking	3
I Ed 380L Elect & Electronics II	3
I Ed 386L Metal Fabrication	3
	<u>33</u>

## Senior Year

Sec Ed 461 Student Tchg	3
Sec Ed 462 Student Tchg	3
Ed Elect (over 300)	3
Sec Ed 433 Tchg of I A	3
I Ed 462L Carpentry	3
I Ed 466 Theory & Orgn	3
Elective	6
	<u>24</u>

## MUSIC EDUCATION

## NASM MEMBERSHIP

The University of New Mexico is a member of the National Association of Schools of Music. The requirements for entrance and for graduation as set forth in this catalog are in accordance with the published regulations of the National Association of Schools of Music.

CURRICULUM FOR STUDENTS PREPARING TO TEACH MUSIC  
IN GRADES 1-12 (133 hours) See p. 214.

(Leading to the degree of Bachelor of Music Education.)

\*\* Choose from General Education requirements listed on p. 173.



Freshman Year			
First Semester		Second Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
*Science	4	*Science	4
Mus 105 Music Theory I	2	Mus 106 Music Theory II	2
Mus 107 Ear-Training I	2	Mus 108 Ear-Training II	2
Applied Mus Elective	3	Applied Mus Elective	3
Ensemble Elective	1	Ensemble Elective	1
PE Activity	1	PE Activity	1
	<u>15 + PE</u>		<u>15 + PE</u>
Sophomore Year			
Engl (Lit)	3	Speech 255 (or substitute)	3
*Soc Sci	3	*Soc Sci	3
Mus 205 Music Theory III	2	Mus 206 Music Theory IV	2
Mus 207 Ear-Training III	2	Mus 208 Ear-Training IV	2
Applied Music Elective	3	Applied Music Elective	3
Psych 101 Gen Psych I	3	***Ed Fdns 290 or Mus Ed 214	2-3
Ensemble Elective	1	Ensemble Elective	1
PE Activity	1	PE Activity	1
	<u>17 + PE</u>		<u>16-17 + PE</u>
Junior Year			
Mus Ed 294 Tchg Mus El Sch	2	Mus Ed 444 Sup Mus El School	2
Mus Ed 446 Sec Sch Mus	2	Mus 451 Fdns of Mus Behavior	3
Mus 309 Form and Comp	2	Mus 310 Form and Comp	2
***Ed Fdns 290 or Ed Fdns 300	3	***Ed Fdns 300 or Mus Ed 313	2-3
Mus 271 Music Lit I	2	Mus 272 Music Lit II	2
Mus 363 Conducting	2	Mus 364 or 365 Cho-Instru Cond	2
Applied Music Elective	3	Applied Music Elective	3
Ensemble Elective	1	Ensemble Elective	1
	<u>17</u>		<u>17-18</u>
Senior Year			
Mus Ed 366 Beg Stu Tchg in Mus	2	**El Ed 400 (Music) Stu Tchg	3
*Elective	3	**Sec Ed 461 (Music) Stu Tchg	3
Mus 453 Instrumentation	2	Mus 405, 406, 409, or 463	2
Mus 311 Mus Lit III	2	Mus 312 Mus Lit IV	2
D A 315 Theatre Prod for Tchrs	3	D A 316 Theatre Prod for Tchrs	3
Applied Music Elective	2	Applied Music Elective	2
Ensemble Elective	1	Ensemble Elective	1
	<u>15</u>		<u>16</u>

All students pursuing the curriculum listed above are also subject to all requirements pertaining to Music Education listed on p. 361.

#### MINOR IN MUSIC EDUCATION

Mus 105, 106 Mus Theory I and II	4	Music, voice (or orch instrument)	2
Mus 107, 108 Ear-Training I and II	4	Mus Ed 293, 294, 444, 445, 446 or 451	4-5
Mus 139-140 or Mus Hist	3-6	Ensemble	2
Music, piano	4		<u>23-26</u>

#### PHYSICAL EDUCATION

See Health, Physical Education, and Recreation, pp. 179-181.

\* To be chosen from General Education requirements listed on p. 173.

\*\*\* Student must enroll in Ed Fdns 290 and 300.

\*\* Student teaching may be scheduled in either semester of the senior year.

## SECONDARY EDUCATION

### CERTIFICATION REQUIREMENTS

Successful completion of any of the following programs under the heading of Secondary Education prepares the graduating senior for application for a four-year, provisional teaching certificate issued by the State Department of Education, Santa Fe, New Mexico. University departmental approval is given to all students successfully completing the following programs. Non-degree students and students already holding their bachelor's degrees but taking work in Professional Education may or may not be on approved programs. **All** students working towards certification should consult with their advisers in Professional Education if they are interested in meeting certification requirements.

Certification beyond the four-year provisional certificate depends upon additional academic and professional course work, See p. 165 for a description of teaching certificates.

Since it is possible to earn a master's degree in Secondary Education without meeting certain certification requirements related in some instances to undergraduate preparation, graduate students need to consult with their advisors in Professional Education as do undergraduate students. See **Graduate School Bulletin** for further details.

### PROGRAMS FOR TEACHERS IN SECONDARY SCHOOLS

The following curricula, leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Education, are designed for students preparing for junior and senior high school teaching. Each student should select one of these curricula no later than 4 semesters prior to his expected date of graduation. The general conditions under which students may select these curricula are to be found under "Degree Requirements" of the "General Academic Regulations."

For graduation from the College of Education in Secondary Education the candidate must have successfully completed, in conformity with the regulations prescribed for the several major and minor concentrations, not less than one departmental major concentration and one departmental minor concentration. These concentrations shall total at least 51 semester hours of credit.

Acceptable as major or minor concentrations are: Biology, Chemistry, English, French, Geology, German, Political Science, History, Mathematics, Physics, Spanish, and Speech. Acceptable as minor concentrations **only** are: Naval Science (if the major concentration is an acceptable science), Anthropology, Astronomy, Business Administration, Dramatic Art, Economics, Geography, Journalism, Latin, Library Science, Philosophy, Portuguese, Psychology, and Sociology. All teaching minors must include at least 18 semester hours.

Students who wish to elect teaching major and minor concentrations not listed above will consult the Chairman of the Department of Secondary Education and the department concerned for information as to detailed requirements.

### SPECIAL FIELDS FOR TEACHING

1. Art Education: For details see p. 175.
2. Business Education: For details see p. 177.
3. Home Economics: For details see p. 182.
4. Industrial Education: For details see p. 183.
5. Music Education: For details see p. 183.

6. Health and Physical Education for Men: For details see p. 179.
7. Health and Physical Education for Women: For details see p. 180.
8. Health Education: Minor teaching subject only. For details see p. 181.

GENERAL EDUCATION. The General Education program for students in Secondary Education is the same as that required of other undergraduate students in Education (see p. 173 of this catalog).

DEPARTMENTAL REQUIREMENTS FOR STUDENT TEACHING. Students under jurisdiction of this department must present an over-all grade-point average of at least 2.2 and a grade-point average in a major (teaching) concentration of at least 2.5 at the time of enrollment in student teaching.

#### PROFESSIONAL EDUCATION

	Semester Credits
Ed Fdns 290 Foundations of Education	3
Ed Fdns 300 Human Growth & Development	3
Ed Fdns 310 Learning & The Classroom	3
Sec Ed 301 Foundations of Sec Ed	3
Sec Ed 310 Materials & Methods of Tchg	3
Sec Ed 430-443 Special Methods of Tch in Sec Schs or Ed Substitute	3
*Sec Ed 461 Student Tchg	6
<hr/>	
**Total Professional Education	24

#### COMPOSITE TEACHING AREAS

The composite teaching major area is designed to enable the prospective teacher to acquire unified learning within a broad field of closely related subject matter disciplines which would not be possible in a single subject-matter major teaching area.

The application of this unified knowledge to the teaching of currently unified or generalized secondary school subjects (e.g., Communication Arts, General Science, Social Studies) is an avowed purpose of this form of preparation.

The composite is also designed to prepare students to teach adequately in several closely related subjects. This type of preparation will be of advantage to novice teachers beginning their careers in small secondary schools in which they must expect multiple rather than single subject teaching assignments.

COMPOSITE IN SOCIAL STUDIES IN SECONDARY EDUCATION. The composite major in general social studies shall consist of at least 54 hours, including freshman courses, of which at least 24 hours must be in the Department of History, including 2 courses in United States and 2 courses in European or World History; 9 hours in the Departments of Political Science or Economics; 12 hours in the Departments of Anthropology, Geography, Philosophy, or Sociology; and 9 hours in electives from these departments. No minor is required with the general social studies major, but one is strongly recommended.

COMPOSITE IN SCIENCE. The composite major in science shall consist of at least 54 hours in the broad fields of science and mathematics. No minor is required, but one is strongly recommended. Three areas of concentration are available in the composite major.

\* See p. 170 for admission requirements. Secondary Education 462 may be included as a second experience in student teaching, with the approval of the adviser.

\*\* Ordinarily, students may enroll in not more than 9 hours of work in this kind of course in any one registration period.

**Physical Science:** This program requires 8 hours of mathematics above 160, 30 hours selected from the combined areas of physics and chemistry (a minimum of 11 hours from each field). Three to four hours of industrial education may be selected from I.E. 115L, 116L, 245, or 280L. The balance of the 54 hours may be selected from chemistry, physics, mathematics, geology, astronomy, or biology. Eight hours of biology are recommended.

**Earth Science:** This program requires 8 hours of mathematics above 160, 3 hours of astronomy, 8 hours of chemistry, 11 hours of physics (including 103), geography 251, and 20 hours of geology. The balance of the 54 hours may be selected from any of the areas above or from biology.

**Life Science:** This program requires 4 hours of mathematics, 8 hours of chemistry, 24 hours of biology. Six hours may be selected from Anthropology 307L, Psychology 295 and 493, and Health Education 164 and 171. The balance of the 54 hours can be selected from chemistry, biology, physics, or geology.

**COMPOSITE IN COMMUNICATION ARTS IN SECONDARY EDUCATION.** The composite major in communication arts shall consist of at least 54 hours, including freshman courses, in the Departments of English, Speech, Dramatic Art, and Journalism. At least 24 of these hours must be in English: English 101, 102, 253, 254; 6 hours in upper-division courses in American or World Literature; 3 hours in an upper-division course in British literature; and 3 hours in creative or informative writing. At least 12 hours must be in the Department of Speech: Speech 255 and 9 additional hours or Speech 101 and 102 and 6 additional hours in courses numbered above 200. Nine hours must be in the Departments of Dramatic Art or Journalism. The remaining 9 hours of electives must be in upper division courses from any one or any combination of the departments concerned. No minor is required with the communication arts major, but one is strongly recommended.

#### SECONDARY EDUCATION CURRICULUM

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrtn g w/Rdgs in Expos	3	Engl 102 Wrtn g w/Rdgs in Lit	3
*Math or Sci	4	*Math or Sci	4
*Soc Sci	3	*Soc Sci	3
Electives or Major	3-6	Psych 101 Gen Psych I	3
PE Activity	1	Electives or Major	3
		PE Activity	1
	13-16 + PE		16 + PE
Sophomore Year			
Engl (Lit)	3	Speech	3
Ed Fdns 290 Founda of Ed	3	*Soc Sci	3
Elective	3	‡Fine Arts or Major	3
*Soc Sci	3	Ed Fdns 300 Hum Grwth & Dev	3
‡Fine Arts or Major	3	Electives, Major or Minor	3
PE Activity	1	PE Activity	1
	15 + PE		15 + PE

\* Choose from General Education requirements listed on p. 173.

‡ The required 6-12 semester hours in Fine Arts may be taken during any semester of the first 2 years. One course in history or appreciation must be included.

Junior Year			
Ed Fdns 310 Learn & Classrm	3		
Sec Ed 301 Founda of	3	Sec Ed 310 Mater & Meth of Tchg	3
Electives, Major or Minor	8-11	Electives, Major or Minor	11-14
	<u>14-17</u>		<u>14-17</u>
Senior Year			
Sec Ed 430-443 Tchg of Sec Sch Subj or		Electives, Major or Minor	14-17
Ed Elec	3		
**Sec Ed 461 Student Tchg in Sec Sch	6		
Electives	3-6		
	<u>12-15</u>		<u>14-17</u>

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\*\* See p. 170 for admission requirements. Student Teaching may be taken during either or both of the semesters in the senior year, but must be arranged not later than the Spring semester of the junior year.

## COLLEGE OF ENGINEERING

**T**HE ENGINEER is a creator and a builder. He directs his imagination, ingenuity, resourcefulness, and intelligence to the economical usage of our natural resources. He is beginning to probe the mysteries of cosmic space. Few professions offer the individual greater challenge, stimulation, and satisfaction of creative accomplishment. In these days, when breathtaking technological advances are commonplace, the engineer requires ever greater breadth and depth of mathematical and scientific cognition. Of increasing importance is the ability for clear self-expression and a sympathetic appreciation of the social, economic, and human values of the world in which we live. The engineer is not only an interpreter of science and mathematics to the producers of human material needs, but he is also a manager of men, money, materials, and machines in effecting the satisfaction of these needs.

The continued growth of American industry and technology has created a demand for engineers far in excess of supply. Present and predicted enrollments in schools of engineering indicate that the shortage will continue for many years to come. Certainly, no profession offers greater challenges or a more promising future. Surveys show that the income of the engineer compares very favorably with that of the other professions. American industry and commerce are increasingly utilizing engineers in top administrative positions.

The several curricula of the College of Engineering are designed to give the student suitable education, attitudes, and motivations for his entry into a successful career as a practicing engineer, administrator, researcher, or educator. The undergraduate programs are solidly founded on mathematics and the natural sciences with additional emphasis being placed upon human values and relations. This broad grounding in itself is not sufficient, however, and these curricula strive to develop the beginnings of sound judgment, perspective, and a penetrating curiosity. Many graduates continue their formal education at the post-graduate level and work toward the master's or doctor's degree. The student must realize, however, that education does not stop with the completion of college. More truthfully, this is when education really begins. The true professional engineer never stops learning; he is continually broadening his intellectual horizons. One indication of continued growth and development is registration as a professional engineer. Every state has established criteria of education and experience which must be met before an engineer can enjoy this status.

In the College of Engineering, the student is afforded an opportunity for scholarly study, laboratory exercise, and research participation. He daily rubs shoulders with engineers nationally recognized in their fields. The University of New Mexico strongly believes that engineering teachers must be competent engineers in their own right, and faculty members are encouraged to participate actively in professional practice and research. This experience keeps the faculty informed on new developments, increases their understanding of subjects taught, and gives the student the benefit of their findings and personal experiences. Faculty and students work side by side in research and instructional laboratories.

The College of Engineering maintains a Bureau of Engineering Research. For details of the Bureau's purposes and activities, see p. 74.

Students intending to study engineering should take in high school all of the mathematics and English possible as well as chemistry and physics. The mathematics should include a minimum of 2 units of algebra, 1 unit of geometry, and  $\frac{1}{2}$  unit of trigonometry or college-preparatory mathematics.

## ADMISSION

ADMISSION FROM UNIVERSITY COLLEGE

1. Completion of 26 semester hours of the freshman engineering program.
2. (a) A scholarship index of at least 2.0 on all hours attempted;

or

3. A satisfactory score on the English Proficiency Examination (administered by the University of New Mexico) or a grade of C or better in a remedial English course offered on a non-credit basis by the English Department of the University of New Mexico.

## TRANSFERS

\* Refer to p. 83 for the qualitative admission requirement for non-resident transfers.

## COURSES OF STUDY

The College of Engineering offers 4-year programs of study leading to the degrees of Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, and Bachelor of Science in Mechanical Engineering. These 4-year curricula are designed for the student who enters without deficiencies and who is capable of carrying the required scholastic loads indicated under the respective departmental programs. Otherwise, the student should plan on spending more than 8 regular semesters to complete requirements for his degree.

The College of Engineering is a member of the American Society for Engineering Education. The curricula in Civil, Electrical, and Mechanical Engineering are accredited by the Engineers' Council for Professional Development.

### SPECIAL FIELDS

In addition to the major fields of study listed above, it is possible for the student to specialize in some degree by choosing appropriate elective courses within the basic curriculum of his major department. A few of the many possibilities are: Aerospace Engineering, Electronic Computers, Fuel Processing, Structural Engineering, and Theoretical and Applied Mechanics. All departments make use of the modern, high-speed electronic computers located in the University of New Mexico Computer Center.

### DEGREES IN COMBINATION WITH OTHER COLLEGES

If a student wishes to secure a degree in another college together with his engineering degree, he is urged to seek advice early in his college career from the deans of the colleges concerned. With care in selecting his program of studies, it is possible for a student to secure two degrees in one additional year.

### AEROSPACE STUDIES, NAVAL SCIENCE

It is possible for students enrolled in the Air Force ROTC or the Naval ROTC to complete their degree program in 4 years. However, students may need an extra semester to complete the requirements for both a degree and a commission. The student should consult the department chairman concerned in planning his program.

## GRADUATE STUDY

A program of graduate studies is offered by the College of Engineering leading to the Master of Science degree with a major in Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering and Nuclear Engineering. A fifth year of study leading to the Master's degree is strongly recommended for students of more than usual ability who believe that they can profit from the additional study.

The College of Engineering offers through the Graduate School a program leading to the degree of Doctor of Philosophy in Engineering, under which study concentrations may be pursued in a variety of engineering fields. Consult the current **Graduate School Bulletin** for details of these programs.



## SCHOLASTIC REGULATIONS

The student should become familiar with the general academic and scholastic rules which apply to all students enrolled in the University. (See pp. 132-133.) Special attention is called to the rules on probation and suspension.

### COURSES NUMBERED 300 OR ABOVE

A student may be admitted to courses numbered 300 or above in the College of Engineering (1) if he is not more than 8 hours short of completing all freshman and sophomore requirements, (2) if he has completed all prerequisites for the course in question, (3) if the remaining lower-division requirements appear on his program, or (4) at the discretion of the Dean of the College. If a student fails a required lower-division course while enrolled in a 300-level course, he will not be eligible to enroll in additional 300-level courses until all required freshman and sophomore courses have been completed.

The College of Engineering will not accept 300 level or above engineering courses which have been taken by extension or correspondence.

### MAXIMUM SEMESTER HOUR LOAD

The maximum semester hour load for students in the College of Engineering is 20 hours, including physical education. Only in exceptional cases and with approval of the Dean of the College will a student be permitted to carry 21 hours.

## GRADUATION REQUIREMENTS

Specific graduation requirements are as follows:

1. Candidates for the Bachelor of Science in any of the engineering departments must complete all of the work outlined in their respective curricula. The student is solely responsible for completing all requirements for graduation.
2. Each candidate for a degree must have at least a 2.0 grade-point average on work taken at The University of New Mexico which is counted toward his graduation. Three-fourths of the semester hours offered toward a degree must be of C grade or better.
3. All students in the College of Engineering, including transfer students, must either have passed the English Proficiency Examination (administered by the University of New Mexico) or have earned a grade of C or better in a remedial English course offered on a non-credit basis by the English Department of the University.
4. For minimum residence requirements, see p. 137.
5. If a beginning student is placed in Mathematics 163 because of high ACT test scores in that area and completes the course with a grade of C or better, the hours required for graduation will be reduced by four.
6. If a student is placed in English 102 because of high ACT test scores in that area and completes the course with a grade of C or better, the hours required for graduation will be reduced by three.

## CURRICULA OFFERED BY THE COLLEGE OF ENGINEERING

The College of Engineering offers work in the departments listed in alpha-

betical order on the following pages. Curriculum requirements are set forth under each department. Descriptions of the courses offered will be found, listed by departments, in the catalog section "Courses of Instruction."

### COURSE OF STUDY FOR ALL ENGINEERING STUDENTS

Freshman Year					
First Semester			Second Semester		
	Cr.	Hrs. Lect.-Lab.		Cr.	Hrs. Lect.-Lab.
Math 162 Intro Math for Phys Sc	4	(4-0)	Math 163 Intro Math for Phys Sc	4	(4-0)
Engl 101 Wrtnng w/Rdgs in Expos	3	(3-0)	Engl 102 Wrtnng w/Rdgs in Lit	3	(3-0)
Chem 101L Gen	4	(3-3)	Chem 102L Gen	4	(3-3)
CE 101L Engr Graphics	3	(2-4)	CE 102L Engr Comp Meth	3	(2-4)
CE 103 Engr Lectures	1	(1-0)	Physics 260 Gen	3	(3-0)
	15	(13-7)		17	(15-7)
PE Activity	1		PE Activity	1	

#### NOTES:

1. High school preparation for Mathematics 162 should include at least 2 units of algebra, 1 of geometry, and  $\frac{1}{2}$  of trigonometry or college preparatory mathematics. Students who do not qualify for Mathematics 162 on the ACT mathematics test will be required to take remedial mathematics.

2. Students with unsatisfactory scores in the ACT English area will be required to take remedial English.

3. For a description of the freshman courses refer to p. 340 for Mathematics; to p. 318 for English; to p. 265 for Chemistry; to p. 301 for Civil Engineering; and to p. 374 for Physics.

### CHEMICAL ENGINEERING

Chemical engineering is that branch of engineering concerned with the development and application of manufacturing processes in which chemical or certain physical changes of material are involved.

The course in Chemical Engineering is designed to afford the student broad training in the fundamentals of mathematics, physics, chemistry, and engineering to meet the needs of the chemical or related industries where men competent to design, develop, and operate new processes and to improve existing processes are required. The chemical engineer is not specifically trained for only one industry. The distinctly professional courses of Unit Operations and Unit Processes enable him to apply his knowledge to any chemical or process industry with relatively little difficulty.

The graduate chemical engineer will find many avenues of opportunities in research and development; production, operation, and maintenance; management and administration; design, construction, and installation; technical service and sales; consulting; teaching, and technical writing, etc., in such industries as industrial chemicals, petroleum, explosives, plastics, rubber products, paper and allied products, synthetic rubber, food products, drugs, insecticides, glass, cement, clay, iron and steel, paints and varnishes, oils, soaps, rayon and synthetics.

**CHEMICAL ENGINEERING LABORATORY.** The Chemical Engineering building has a floor space of over 8,000 sq. ft. and contains a laboratory adequately equipped with pilot plant equipment for use in the study of Unit Operations of Chemical Engineering such as fluid flow, heat flow, evaporation, distillation, air condition-

ing, absorption, filtration, crystallization, etc., and Unit Processes such as nitration, sulfonation, hydrogenation, etc.

The process development laboratory is well equipped for the study of small scale manufacture of chemical products.

Adequate classroom space and design laboratory are available. Shop facilities are in conjunction with the well-equipped Engineering Shop.

#### CURRICULUM IN CHEMICAL ENGINEERING

Hours required for graduation: 140 $\frac{1}{2}$  + 4 PE.

Sophomore Year							
First Semester				Second Semester			
		Cr.	Hrs. Lect.-Lab.			Cr.	Hrs. Lect.-Lab.
Math 264 Calc w/Coord Geom	4		(4-0)	Math 265 Calc w/Coord Geom	4		(4-0)
Physics 261 Gen	3		(3-0)	Physics 262 Gen	3		(3-0)
Physics 263L Gen Lab	1		(0-3)	Physics 264L Gen Lab	1		(0-3)
Chem 301 & 303L Organic	4		(3-3)	Chem 302 & 304L Organic	4		(3-3)
Ch E. 251 Chem Calc	3		(3-0)	Ch E 252 Ind Stoichiometry	3		(3-0)
Ec 200 Prin of	3		(3-0)	CE 202L Engr Statics	3		(2-3)
	18		(16-6)		18		(15-9)
PE Activity	1			PE Activity	1		
Junior Year							
Ch E 401 Prin of Thermo I	3		(3-0)	Ch E 402 Prin of Thermo II	3		(3-0)
Ch E 411 Unit Oper I	3		(3-0)	Ch E 412 Unit Oper II	3		(3-0)
Chem 311 & 313L Physical	4		(3-3)	Ch E 414L Unit Oper Lab I	2		(0-6)
Ch E 302 Mech of Mater	3		(3-0)	Chem 312 & 314L Physical	4		(3-3)
†Elective	6		(6-0)	EE 203 Intro to EE I	3		(3-0)
	19		(18-3)	†Elective	3		(3-0)
					18		(15-9)
Senior Year							
Ch E 413 Unit Oper III	3		(3-0)	Ch E 398 Field Trip	0		(0-0)
Ch E 415L Unit Oper Lab II	2		(0-6)	Ch E 452 Seminar	1		(1-0)
Ch E 451 Seminar	1		(1-0)	Ch E 472 Ch E Econ	3		(3-0)
Ch E 481L Proc Lab I	2		(0-6)	Ch E 482L Proc Lab II	2		(0-6)
†Elective	3		(3-0)	Ch E 494L Ch E Design	3		(2-3)
*Elective	6		(6-0)	*Elective	9		(9-0)
	17		(13-12)		18		(15-9)

#### CIVIL ENGINEERING

Civil Engineering is an extremely broad professional field. Areas of interest may include such seemingly diverse subjects as the theory of traffic flow, the language of computers, microbiology, the chemistry of polymers, electrical network theory, earth physics, the stresses and strains induced in aerospace structures, the psychology of automobile driver behavior, the problems of air and water pollution, and the effects of earthquakes on structures. Civil Engineering problems involve the physical, mathematical, life, earth, social and engineering sciences, and may involve many other professional areas. However, Civil Engi-

‡Reduced for students placed ahead in freshman mathematics and/or English.

† Technical electives may be chosen from ChE 317, 353, 354L, 361, 362, 454, 470, Chem 253L, Chem 454L. Students enrolled in the ROTC programs may, with the approval of the Department Chairman, substitute Aerospace Studies or Naval Science for up to 6 hours of technical electives.

\* Electives are to be chosen from the humanities and social sciences. See Department Chairman for list of approved courses.

neering does have a unique and unified role; in particular, Civil Engineering is concerned with the engineering (planning, design and construction) of systems of constructed facilities related to man's basic needs and desires. The facilities are often large or extensive and must be engineered as operational systems involving the complex interaction of many components with each other as well as with the physical and social environment. Typical Civil Engineering facilities may include transportation systems, water conservation and distribution systems, pollution control and waste disposal projects, and various structural systems such as buildings, bridges, and aerospace vehicles and launching facilities.

The scope and complexity as well as the interdisciplinary involvement of Civil Engineering continues to increase rapidly with the development of modern science and technology, and the population growth with its spiraling demands upon the air-land-water environment. The future challenges to the profession are immense. The preparation of the Civil Engineering student is aimed toward meeting these challenges through innovative application of known principles, creative research to discover new approaches, and imaginative design to fulfill society's needs. Civil Engineers with advanced education beyond the baccalaureate are in increasing demand. Students with sufficiently high grades should continue to the master's degree or beyond.

**CIVIL ENGINEERING LABORATORIES.** The Civil Engineering Laboratories have been designed to be an integral part of the educational process as well as an introduction to modern industrial laboratory practice in materials quality control, design, and research. Well-equipped instructional laboratories are provided for engineering measurements, mechanics of materials, concrete and bituminous materials, soil mechanics, fluid mechanics, and sanitary engineering. Modern experimental equipment and techniques are utilized in all laboratories.

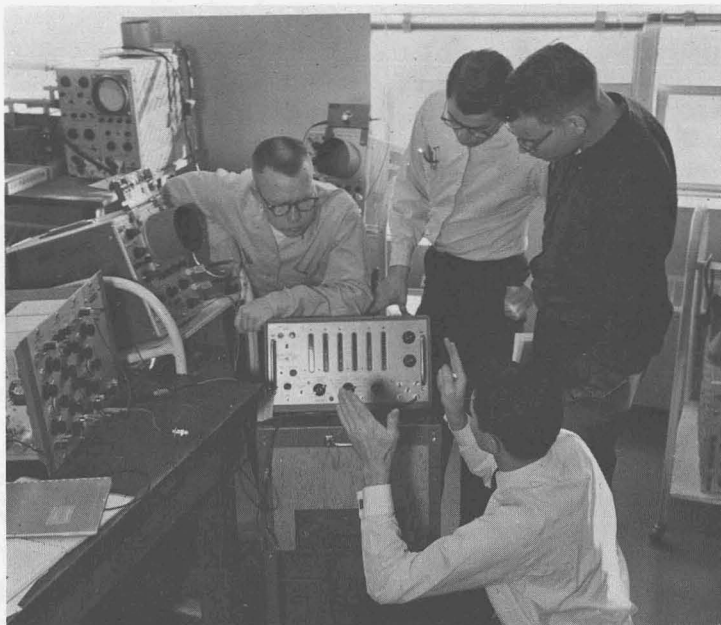
**COMPUTATIONAL FACILITIES.** Freshmen engineering students are introduced to the IBM 360 Computer. Sophomore and upper division classes have access to key punch machines and the computer. In addition the Civil Engineering Department provides analog computer facilities. The use of modern digital and analog computers is an integral part of the instruction at all levels.

#### CURRICULUM IN CIVIL ENGINEERING

Hours required for graduation:  $130^* + 4$  PE.

First Semester				Sophomore Year		Second Semester			
			Hrs.					Hrs.	
		Cr.	Lect.-Lab.				Cr.	Lect.-Lab.	
Math 264 Calc w/Coord Geom		4	(4-0)		Math 265 Calc w/Coord Geom		4	(4-0)	
Phys 261 Gen		3	(3-0)		Phys 262 Gen		3	(3-0)	
Phys 263L Gen Lab		1	(0-3)		CE 270L Constr Mater		1	(0-3)	
CE 202L Engr Statics		3	(2-3)		CE 282L Engr Surveys		2	(1-3)	
CE 281L Engr Meas		3	(2-3)		ME 206L Dynamics		3	(2-3)	
Engr Elective		3	(3-0)		EE 203 Intro to EE I		3	(3-0)	
or									
Speech 255 Pub Spkg		3	(3-0)						
		17	(14-9)				16	(13-9)	
PE Activity		1			PE Activity		1		

\* Reduced for students placed ahead in freshman mathematics and/or English.



ENGINEERING  
LABORATORY  
INSTRUCTION

ENGINEERING  
RESEARCH



## Junior Year

Math 311 Engr Math	3	(3-0)	CE 360L Soil Mech	3	(2-3)
CE 302 Mech of Materials	3	(3-0)	CE 306 Struc Anal II	3	(3-0)
CE 303L Mech of Mater Lab	1	(0-3)	CE 332 Water Res & Hydr E I	3	(3-0)
CE 305 Struc Anal I	2	(2-0)	CE 324L Struc Des in Metals	3	(2-3)
CE 331L Fluid Mech	3	(2-3)	CE 336L Sanitary Engr I	2	(1-3)
CE 382 Transp Engr	2	(2-0)	**Elective	3	(3-0)
**Elective	3	(3-0)			
	17	(15-6)		17	(14-9)

## Senior Year

CE 411 Rein Concr Des	3	(3-0)	CE 490 Prof Probs in Engr	2	(2-0)
CE 370 Engr Mater Science	3	(3-0)	Econ 200 Prin of	3	(3-0)
ME 301 Thermodynamics	3	(3-0)	†Electives	7	(7-0)
†Elective	4	(4-0)	**Elective	3	(3-0)
**Elective	3	(3-0)			
	16	(16-0)		15	(15-0)

## ELECTRICAL ENGINEERING

The technology of electrical engineering is changing extremely rapidly. Common practice one year is obsolete the next. To prepare the student for the technology with which he will work, the Electrical Engineering curriculum stresses fundamental rather than current practice. Thus, the student is prepared to understand future developments with a minimum of background reading.

AREAS OF SPECIALIZATION. The curriculum provides considerable freedom in choice of electives, particularly during the senior year. The student can pursue his interests in such areas as computers, control systems, communications, electronics, energy conversion, microwaves, solid state, and systems. The student may also choose to develop a strong supporting program in such areas as business administration, life sciences, and mathematics.

An increasing number of students are continuing their studies beyond the bachelor's degree. Such students should select their elective courses in the senior year so that they form a coherent pattern with the graduate courses in their area of specialty.

ELECTRICAL ENGINEERING LABORATORIES. Laboratories are available in the major specialty areas of Electrical Engineering. Laboratory courses are organized around design and the solution of engineering problems rather than a pattern of routine experiments. Students interested in pursuing individual study may do so under the departmental honors program or courses in individual problems.

## CURRICULUM IN ELECTRICAL ENGINEERING

Hours required for graduation: 130† + 4 PE.

\*\* Electives are to be chosen from the humanities and social sciences. See Department Chairman for list of approved courses.

† See Department Chairman for list of approved technical electives. Students enrolled in the ROTC programs may, with approval of the Department Chairman, substitute Aerospace Studies or Naval Science for up to 6 hours of technical electives.

‡ Reduced for students placed ahead in freshman mathematics and/or English.

Sophomore Year			
First Semester		Second Semester	
	Hrs.		Hrs.
	Cr. Lect.-Lab.		Cr. Lect.-Lab.
EE 203 Intro to EE I	3 (3-0)	EE 211 Circ & Systems I	3 (3-0)
EE 206L EE Lab I	2 (1-3)	EE 207L EE Lab II	2 (1-3)
Math 264 Calc w/Coord Geom	4 (4-0)	Math 265 Calc w/Coord Geom	4 (4-0)
Physics 261 Gen	3 (3-0)	Physics 262 Gen	3 (3-0)
Physics 263L Gen Lab	1 (0-3)	Physics 264L Gen Lab	1 (0-3)
Elective	3 (3-0)	Elective	3 (3-0)
	16 (14-6)		16 (14-6)
PE Activity	1	PE Activity	1
Junior Year			
EE 361 Electromag Fields and Waves I	3 (3-0)	EE 362 Electromag Fields and Waves II	3 (3-0)
EE 311 Elec Circ Anal	3 (3-0)	EE 306L Traveling Waves Lab	1 (0-3)
EE 305L EE Lab III	1 (0-3)	EE 312 Elec Circ Anal	3 (3-0)
Math Elective	3 (3-0)	EE 321 Electronic Circ I	3 (3-0)
CE 202L Engr Statics	3 (2-3)	EE 325L Electronics Lab I	1 (0-3)
Physics 330 Atomic & Nuclear	3 (3-0)	ME 206L Dynamics	3 (2-3)
		Elective	3 (3-0)
	16 (14-6)		17 (14-9)
Senior Year			
EE 322 Electronic Circ II	3 (3-0)	EE 498 Seminar	2 (1-3)
EE 326L Electronics Lab II	1 (0-3)	Elective	15 (15-0)
ME 301 Thermodynamics	3 (3-0)		
Elective	9 (9-0)		
	16 (15-3)		17 (16-3)

**ELECTIVES:**

1. At least 15 hours of electives are to be taken in the humanities and social sciences.
2. Normally, at least 12 hours are taken in Electrical Engineering to form a coherent program.
3. The remaining electives may be taken in any field with departmental approval. Students completing the ROTC programs may, with the approval of the Department Chairman, substitute up to 6 hours of Aerospace Studies or Naval Science for free elective.

**MECHANICAL ENGINEERING**

Mechanical engineering is concerned with engineering research, development, design, production, and operation of mechanical systems, as well as with the management of these activities. Typical mechanical systems include power plants, exemplified by central power stations, jet and rocket engines, and nuclear reactors; environment control systems; automated production plants; all kinds of machines and mechanism for power transmission or motion control; and mechanical structures.

In view of the rapidly expanding and changing technology, the preparation of the engineering student must be broad and hence the program of study is designed to give the engineer not only the tools of his trade, in the narrow sense of the word, but also a general education with built-in flexibility to adapt to the changing needs of his profession. The undergraduate curriculum begins with a thorough preparation in mathematics and physical sciences together with studies in the humanities and social sciences. The basic science courses are followed by the fundamental courses of engineering science: theoretical and applied mechanics; thermodynamics; electricity and magnetism; and materials

science. These courses are followed by courses in which the student has an opportunity to analyze and design important engineering systems.

The laboratory content of the curriculum provides instruction in the basis and the techniques of making engineering measurements and the methods of experimental engineering.

In the senior year, students have the opportunity to choose technical electives which apply the principles previously learned. Students may choose electives in preparation for graduate study, to enhance their preparation for a broad career in mechanical engineering, or they may choose sequences of technical electives to gain proficiency in selected areas.

#### CURRICULUM IN MECHANICAL ENGINEERING

Hours required for graduation: 130 $\frac{1}{2}$  + 4 P.E.

First Semester			Sophomore Year		Second Semester		
	Cr.	Hrs. Lect.-Lab.				Cr.	Hrs. Lect.-Lab.
Math 264 Calc w/Coord Geom	4	(4-0)	Math 265 Calc w/Coord Geom	4	(4-0)		
Phys 261 Gen	3	(3-0)	Phys 262 Gen	3	(3-0)		
Phys 263L Gen Lab	1	(0-3)	Phys 264L Gen Lab	1	(0-3)		
Econ 200 Prin of	3	(3-0)	ME 206L Dynamics	3	(2-3)		
ME 201L Intro to Design	3	(2-3)	EE 203 Intro to EE I	3	(3-0)		
CE 202L Engr Statics	3	(2-3)	*Elective	3	(3-0)		
	17	(14-9)			17	(15-6)	
PE Activity	1		PE Activity	1			
Junior Year							
Math 311 Engr Math	3	(3-0)	ME 302 Thermochem & Gas Dyn	3	(3-0)		
ME 301 Thermodynamics	3	(3-0)	ME 320 Heat Transfer	3	(3-0)		
ME 317 Fluid Mech	3	(3-0)	ME 357L Anal of Mech Comp	3	(2-3)		
ME 314L Dyn of Mech Sys	3	(2-3)	ME 318L ME Lab I	2	(0-6)		
EE 204 Intro to EE II	3	(3-0)	ME 370 Engr Mater Science	3	(3-0)		
CE 302 Mech of Materials	3	(3-0)	*Elective	3	(3-0)		
	18	(17-3)			17	(14-9)	
Senior Year							
ME 358L Design of Sol Sys	3	(2-3)	*Elective	6	(6-0)		
ME 363L Anal of Fluid Sys	3	(2-3)	†Elective	9	(9-0)		
ME 351L ME Lab II	2	(0-6)					
*Elective	3	(3-0)					
†Elective	3	(3-0)					
	14	(10-12)			15	(15-0)	

#### NUCLEAR ENGINEERING

Nuclear engineering is concerned with the release, control and utilization of energy from all types of nuclear processes; and with the control and utilization of radiation interaction with matter. It is a relatively new branch of engi-

‡ Reduced for students placed ahead in freshman mathematics and/or English.

\* Electives are to be chosen from the humanities and social sciences, with the approval of the Department Chairman.

† Technical electives may be chosen from the following courses: ME 350, 352L, 355, 356, 359L, 365, 414, 480, 482, 490, 491, 492, and other engineering and science courses, with approval of the Department Chairman. Students enrolled in the ROTC programs may, with approval of the Department Chairman, substitute Aerospace Studies or Naval Science for up to 6 hours of technical electives.



neering with rapid changes and frequent breakthroughs which requires men capable of developing new ideas and new concepts.

Graduate nuclear engineers find many challenging opportunities in projects concerned with fission reactors, controlled nuclear fusion, space propulsion, direct energy conversion, water desalination, etc. In these new areas, basic research relating to the end product is equally as important as the development, design and production of the product.

In order to prepare students with sufficient flexibility to develop new ideas and new concepts in accord with the ever changing needs, the nuclear engineering curriculum emphasizes an advanced background in the fundamental areas of mathematics, science and engineering, as opposed to emphasis on current technology.

Elective courses in nuclear engineering are available to all seniors; and graduate programs are available leading to a Master of Science in Engineering and to a Doctor of Philosophy in Engineering. A student expecting to do graduate work in nuclear engineering should concentrate on physics and mathematics in his undergraduate program in addition to acquiring a high competence in one of the other branches of engineering or in science.

**NUCLEAR ENGINEERING LABORATORIES.** The principal equipment in the nuclear engineering laboratories includes the following: AGN 201 critical reactor; pulsed neutron generators; water moderated, natural uranium, subcritical reactor; reactor simulator; recording gamma-ray spectrometer; multi-channel analyzers; graphite pile; and supporting radiation counting equipment.

In addition to the well-equipped laboratories on campus, the advanced reactors and radiation equipment of the Sandia Laboratory and Los Alamos Scientific Laboratory are utilized for both instruction and research.

**UNDERGRADUATE COURSE WORK.** Undergraduate course work in the following areas is highly recommended for the student expecting to do graduate work in nuclear engineering:

- Atomic and Nuclear Physics
- Advanced Applied Mathematics
- Thermodynamics and Heat Transfer
- Fluid Mechanics
- Principles of Circuits
- Properties of Materials

In addition, it is recommended that senior year electives be chosen from the following:

- NE 430 Intro to Nucl Engr
- NE 460 Fund of Nucl Engr I
- NE 461 Fund of Nucl Engr II
- NE 463L Radiation Measurements and Analysis

## COLLEGE OF FINE ARTS

**T**HE COLLEGE OF FINE ARTS offers instruction in architecture, art, dance, drama and music. Its courses are designed to advance understanding of the arts as a vital force in civilization, to promote scholarship, and to provide advanced instruction for those who wish to enter professional careers in architecture and in the fine arts.

The professional curricula are designed for students of high ability who have serious professional intentions in architecture or the fine arts. Admission to these curricula is limited and is separate from: (1) admission to the University; and (2) admission to the College of Fine Arts. Requirements for admission to the professional curricula are stated below. Students completing all specified requirements in the professional curricula receive one of the following degrees:

- Architecture: Bachelor of Fine Arts in Architecture
- Art: Bachelor of Fine Arts in Art
- Dramatic Art: Bachelor of Fine Arts in Dramatic Art
- Music: Bachelor of Music

The general (or liberal arts) curricula place principal emphasis upon the historical and philosophical background of the arts, and are designed for students who seek a liberal education centered upon the arts. Students completing all specified requirements in the general curricula receive the degree of Bachelor of Arts in Fine Arts.

The curricula in art education and music education and the program leading to teacher certification with a major in dramatic art are offered in cooperation with the College of Education. These curricula lead to the degrees of Bachelor of Fine Arts in Art, Bachelor of Fine Arts in Dramatic Art, and Bachelor of Music Education.

For information regarding graduate study in architecture, art and music, leading to the degrees of Master of Architecture, Master of Arts, Master of Fine Arts, Master of Music and Master of Music Education, the **Bulletin** of the Graduate School should be consulted.

### ADMISSION

All freshman students are admitted to the University College. A detailed statement of entrance requirements is in the "Admission" section of this catalog.

#### ADMISSION FROM UNIVERSITY COLLEGE

Any student enrolled in the University College who wishes to transfer to the College of Fine Arts is advised to follow during the freshman year the suggested first-year curriculum in the particular field of his interest. The various curricula are set forth in this section of the catalog.

The requirements for transfer from the University College to the College of Fine Arts are:

1. Twenty-six hours of earned credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted;  
or  
(b) A scholarship index of at least 2.0 on all hours attempted in the

previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.

3. A satisfactory score on the English Proficiency Examination (administered by The University of New Mexico), or a grade of C or better in English 010, a non-credit course offered by the Department of English.

#### TRANSFERS

A student will be eligible for transfer to the College of Fine Arts from other degree-granting colleges of the University or from other accredited institutions if he has completed at least 26 hours of acceptable college credit, and has a scholarship index of 2.0\* or better on all work attempted in the other degree-granting colleges or institutions. Students wishing to enter the Teacher Education Programs or the Professional Curricula offered by the College of Fine Arts may make application for admission to these programs and curricula during the first semester after admission to the University.

#### ADMISSION TO THE PROFESSIONAL CURRICULA

The requirements for admission to the professional curricula of the College of Fine Arts are:

1. Completion of a minimum of 12 hours of specified prerequisite courses (see departmental listings below) with a grade average of 2.5.
2. Satisfaction of such additional proficiency requirements as may have been established by the major department.

Applications for admission to the professional curricula must be filed with the Dean of the College of Fine Arts no less than eight weeks prior to the beginning of the semester in which such enrollment is to be effective.

If after a student is admitted to the professional curricula he fails to maintain an average of 2.5 in all courses attempted in his major field of study, or if he is placed on academic probation, the student will be excluded from the program. While excluded from the professional curriculum the student may enroll in certain advanced courses (see department listings) **only** with permission of the department chairman. Upon improvement in his grade average, the student may petition the Scholarship Committee of the College for readmission to the professional curricula.

#### ADMISSION TO TEACHER EDUCATION PROGRAMS

In addition to the above requirements, students expecting to follow and complete a curriculum leading to certification to teach are subject to the requirements for admission to teacher education listed on p. 168 in the College of Education section of this catalog.

#### GRADUATION REQUIREMENTS

1. Completion of all course requirements outlined in one of the several curricula offered by the College.

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\* Refer to p. 83 for the University's qualitative admission requirement for non-resident transfers.

2. Completion of at least 40 hours in courses numbered 300 or above.
3. A scholarship index of 2.0 or higher, except that University College hours not considered for admission to the College of Fine Arts and not used in satisfaction of degree requirements may be excluded.
4. If enrolled in a Teacher Education program other than music, a grade-point average of at least 2.3 in the major teaching field; if in music, a grade-point average of at least 2.5.
5. If enrolled in one of the Professional Curricula, a grade-point average of at least 2.5 in all courses taken in the major field of study.
6. Completion of the English Proficiency Requirement (see item 3 under Admission, above).
7. Completion of the Group Requirements appropriate to the program or curriculum in which the student is enrolled. These are described below.
8. Completion of an application for degree at the beginning of the first semester of the senior year. This application is made in the Office of the Dean.

The student is solely responsible for completing all requirements for graduation.

The College of Fine Arts will not grant two undergraduate degrees to a student unless he has completed a minimum of 30 semester hours in residence subsequent to completion of all requirements for the first such degree.

#### GROUP REQUIREMENTS

##### PROFESSIONAL CURRICULA

Candidates for graduation in these curricula must have completed no fewer than 48 hours in the following areas:

English 101 and 102	6 hours
Natural Science or Mathematics	8
Social Science	6
Humanities and Fine Arts (including a minimum of 2 hours in each area)	9
Additional hours chosen from fine arts, foreign languages, humanities, mathematics, natural science, speech, and social science	15
PE Activity	4
	<hr/> Total 48 hours

##### GENERAL (LIBERAL ARTS) CURRICULA

Candidates for graduation in these curricula must have completed no fewer than 60 hours in the following areas:

English 101 and 102	6 hours
Natural Science or Mathematics	8
Social Science	9
Humanities	9

Fine Arts	6
Additional hours chosen from fine arts, foreign languages, humanities, mathematics, natural science, speech, and social science	18
PE Activity	4
Total	<u>60</u> hours

## TEACHER EDUCATION PROGRAMS

Candidates for graduation in these programs must have completed no fewer than 48 hours in the following areas:

English 101 and 102	6 hours
Dramatic Art 101 or a course in Speech*	3
Natural Science (including 3 hours in psychology and 8 hours of laboratory science chosen from courses offered by the Departments of Biology, Chemistry, Geology, and Physics and Astronomy)	11
Humanities and Social Science (including 3 hours in English literature)	12
Fine Arts	3
*Additional hours chosen from fine arts, foreign languages, humanities, mathematics, natural science, speech and social science	9
PE Activity	4
Total	<u>48</u> hours

A student may not take courses numbered 300 or above until he has completed at least 24 hours in satisfaction of the group requirements; a student who has completed more than 24 hours but fewer than 44 hours may take courses numbered 300 or above provided that he is concurrently enrolled in at least one course (excluding P.E.) which will serve to reduce the remaining deficiency. Exception to this rule can be made only with the written permission of the Dean of the College.

The acceptability of transferred work toward fulfilling group requirements will be determined by the Director of Admissions and the Dean of the College. Students who accept an invitation to join in the General Studies program (see p. 139) may apply their various seminars to satisfying appropriate requirements as approved by the Dean of the College.

To clarify these requirements, the following definitions are given:

**Natural Science.** Astronomy, Biology, Chemistry, Geology, Physics, and Psychology; History 305, 306 (History of Science), Philosophy 375 (Philosophy of the Natural Sciences), and Nuclear Engineering 230.

**Social Science.** Anthropology, Economics, Geography, Sociology, and Political Science.

**Humanities.** English literature, literature courses offered by the Department of Modern and Classical Languages, History (except courses 305 and 306), and Philosophy (except course 375).

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\* Majors in Music Education may include 6 hours of music history or literature in satisfaction of this requirement.

**Fine Arts.** Architecture, Art, Dance, Drama, Fine Arts, and Music; except that students may not use courses in the field of their major in satisfaction of such requirements.

#### DEPARTMENTAL HONORS

A departmental honors program is offered in each of the departments of the College of Fine Arts. A student who wishes to enter one of these programs should so inform his department chairman prior to beginning his senior year.

Minimal requirements for graduation with Departmental Honors are as follows: (a) an over-all grade point average of 3.2; (b) completion of Fine Arts 490, an *interdepartmental proseminar*; and (c) completion of the Senior Thesis course offered by the student's major department.

For general information about departmental honors programs, see p. 140.

#### SCHOLASTIC REGULATIONS

Students in the College of Fine Arts will be governed by the scholastic regulations given under "General Academic Regulations."

Students wishing to enroll for more than 18 hours in a given semester must first secure the written permission of the department chairman and then the approval of the Dean of the College.

#### DEPARTMENTS OF INSTRUCTION

The College of Fine Arts offers work in four departments as listed below. Descriptions of the courses will be found, listed by department, in the catalog section, "Courses of Instruction." Courses in Dance are offered in the Department of Music. Certain interdepartmental courses are listed under "Fine Arts."

#### ARCHITECTURE

The professional curriculum described below is designed to meet the academic requirements of a student who is undergoing training to enter the practice of architecture.

Students intending to study architecture should take in high school all of the mathematics and English possible, as well as chemistry and physics. The mathematics should include a minimum of 2 units of algebra, 1 unit of plane geometry, and  $\frac{1}{2}$  unit of trigonometry or college-preparatory mathematics.

Students intending to major in architecture are required to take the Architectural School Aptitude Test before being admitted to the College of Fine Arts. Information on the administration of this test may be obtained from the Department office.

#### CURRICULA IN ARCHITECTURE

The 5-year curriculum leading to the degree of Bachelor of Architecture has been replaced by a 6-year curriculum, described below.

Students enrolled in the 5-year curriculum prior to June 1966, should note carefully the first paragraph under **Degree Requirements**, page 136 in this catalog. Students who have completed 10 credits in Arch. 441L may proceed toward graduation under the five-year curriculum provided that there is no interruption in their studies and provided further that Arch. 491L is scheduled in 1968-69.

For degree requirements in the 5-year curriculum, students are referred to the catalog which, in terms of the paragraph cited, governs their graduation.

The Department does not offer a major in architecture under the General (Liberal Arts) Curriculum of the College of Fine Arts. Students enrolled in the Combined Curriculum prior to June 1966, should consult their advisers with respect to degree requirements.

#### PROFESSIONAL CURRICULUM

The professional curriculum leads to the degree of Bachelor of Fine Arts in Architecture, granted upon completion of 128 hours in the prescribed courses listed below.

The student majoring in Architecture is required to minor in another field as provided for in the catalog under each department. He is expected to declare his minor by the beginning of his junior year. Courses taken in fulfillment of the group requirement may be counted toward satisfaction of the minor requirement.

Upon successful completion of the professional curriculum a student may apply for admission to the graduate program in Architecture leading to the degree of Master of Architecture. For admission requirements into the Master's program, consult the **Bulletin** of the Graduate School.

#### PRE-ARCHITECTURE REQUIREMENTS

- |   |                       |
|---|-----------------------|
| 1. Partial fulfillment of group requirements, including Art 130, Engl 101, 102, Math 122, 162, Phys 111 and 6 hours chosen from Humanities and 6 hours from Social Sciences | 32-38 hours           |
| 2. Major in architecture including courses 101, 201, 202, Art 103 and 6 hours chosen from Art 104 or Arch 104, Art 105 and Art 287.   | 18-24                 |
| 3. Electives including courses taken in satisfaction of the minor requirement.  | 7                     |
|   | Total <u>63 hours</u> |

Students applying for admission to the professional curriculum in Architecture must have achieved a grade average of 2.5 or higher in courses taken in the major (18-24 hours).

#### PROFESSIONAL CURRICULUM

- |  |                       |
|--|-----------------------|
| 1. Completion of group requirements  | 10-16 hours           |
| 2. Major in architecture including courses 261 and 262 (if not previously taken), 301, 302, 361, 362, 385, 386, 401, 402, 465, 485, 486 and C.E. 211L, 212L, 315L, 316L. | 43-49                 |
| 3. Electives   | 6                     |
|  | Total <u>65 hours</u> |

#### ART

The majors in art and art education offered by the College of Fine Arts are described below. For a description of the major in art in the College of Arts

and Sciences and for minor study requirements, refer to the "Courses of Instruction" section, p. 250.

#### PROFESSIONAL CURRICULUM

A studio major is offered under the professional curriculum. The following courses must be completed with a grade average of 2.5 or higher as prerequisites for admission to the professional curriculum: 103, 104, 105, 130, 183, 270, 271; and 6 hours chosen from 213, 257, 268 and 287. This curriculum leads to the degree of Bachelor of Fine Arts in Art.

- |   |                  |
|---|------------------|
| 1. Group requirements, including 6 hours in a single modern or classical language   | 48 hours         |
| 2. Major in art, including the prerequisite courses listed above; 205, 272; 9 hours chosen from courses in art history and criticism numbered 300 or above; a minimum of 6 hours in advanced courses in a single studio field; and 2 hours in courses 493 and/or 498. | 60               |
| 3. Electives  | 20               |
| Total   | <u>128 hours</u> |

#### GENERAL (LIBERAL ARTS) CURRICULUM

A major in the history and criticism of art is offered under the general curriculum. It is also possible under this curriculum to combine study of art history and criticism with a limited specialization in the studio area. Students enrolled in the general curriculum may not use more than 30 hours in studio courses in satisfaction of degree requirements. This curriculum leads to the degree of Bachelor of Arts in Fine Arts.

- |  |                  |
|--|------------------|
| 1. Group requirements, including as many semesters of one foreign language as needed for completion of the intermediate courses (251, 252) in that language. For the student who chooses a language which he has not previously studied, this ordinarily means a minimum of 4 semesters (12 semester hours). | 60 hours         |
| 2. Major in art, including courses 103, 104, 105, 130, 270, 271, 272; 3 hours chosen from 183, 213, 257, 268, and 287; and a minimum of 12 hours chosen from courses in art history and criticism numbered 300 or above.   | 48               |
| 3. Electives   | 20               |
| Total  | <u>128 hours</u> |

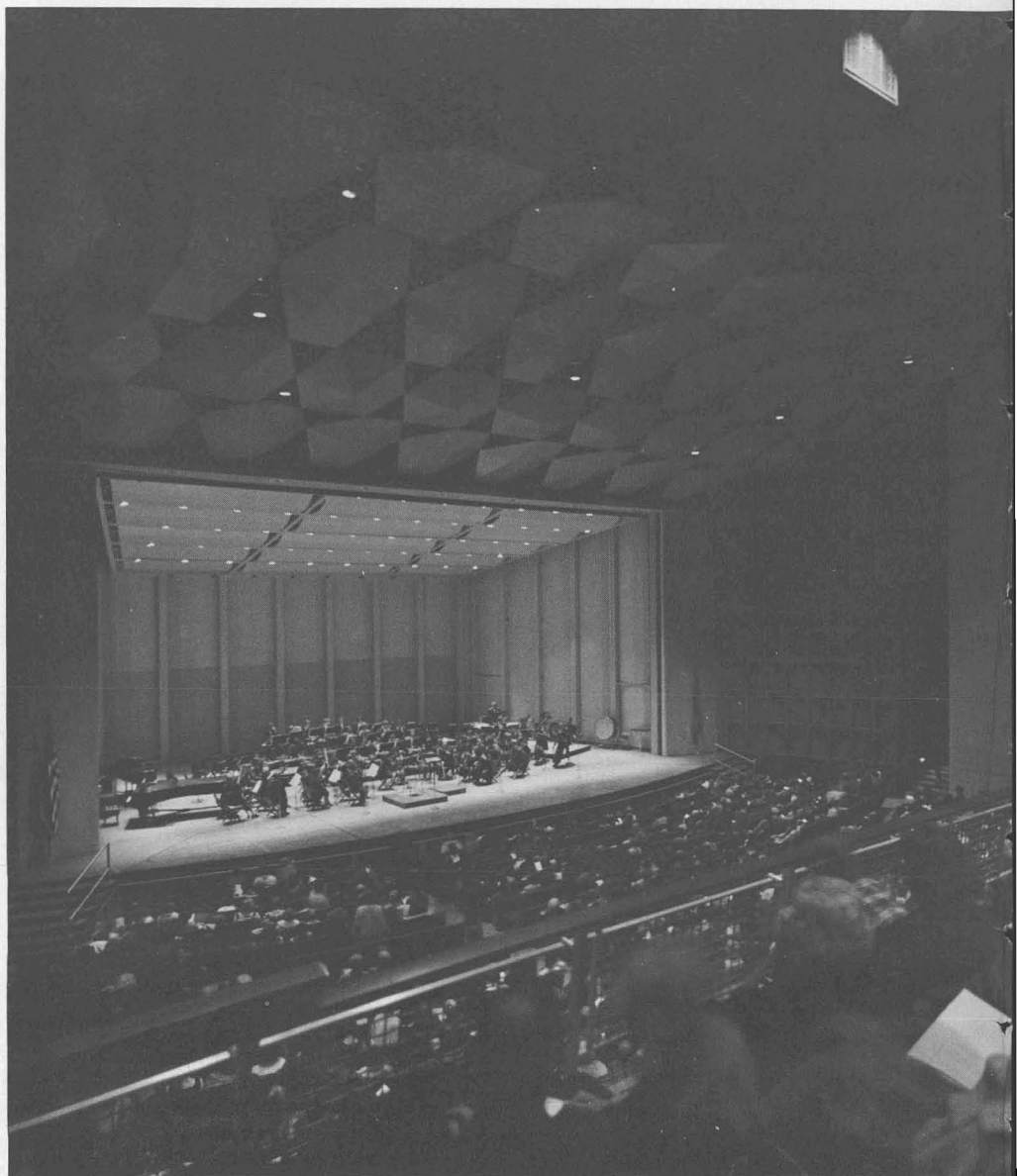
#### CURRICULUM FOR SECONDARY TEACHERS

Total 128 hours

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
*Soc Sci	3	*Soc Sci	3
*Natural Science	4	*Natural Science	4
Art 103 Visual Fund	3	Art 104 Visual Fund	3
Art 105 Fund of Drawing	3	Art 270 Hist of Art I	3
PE Activity	1	PE Activity	1
16 + PE		16 + PE	

\* The student enrolled in the College of Fine Arts must satisfy all Group Requirements as listed on pp. 203-204. Electives are also to be used to meet departmental minor requirements. A minor may be selected from approved list shown on p. 185.





Concert Hall in the Fine Arts Center

## Sophomore Year

Engl Lit	3	Spch 255 Pub Spkg	3
*Soc Sci	3	Ed Fdns 290 Founda of Ed	3
*Gen Elective	3	*Psych 101 Gen Psych I	3
Art Ed 210 Creat Art in Sec Sch	3	Art Ed 211 Creat Art in Sec Sch	3
Art 271 Hist of Art II	3	Art 272 Hist of Art III	3
PE Activity	1	PE Activity	1
	15 + PE		15 + PE

## Junior Year

Ed Fdns 300 Hum Grwth & Dev	3	Ed Fdns 310 Learn & Classrm	3
Sec Ed 301 Founda of	3	*Gen Elective	3
Art Ed 320 Pre-tchg Exp in Art	3	Art Ed 434 Tchg Art in Sec Sch	3
Art, Studio	6	Art, Studio	6
Art Elective	2	Art Elective (above 300)	2
	17		17

## Senior Year

Ed Fdns 415 Philos of Ed	3	†Sec Ed 461 Stu Tchg in Sec Sch	6
*Gen Electives	6	*Gen Electives (above 300)	6
Art Electives (above 300)	7		
	16		12

## DRAMATIC ART

For curricula leading to the B.F.A. in Dramatic Art and the B.A. in Fine Arts, see below.

For major study in the College of Education, and for minor study requirements, refer to the "Courses of Instruction" section, p. 271.

In addition to the planned courses of study, students of the Department are required to participate in all phases of production of three-act and one-act plays. So far as is possible, this work is correlated to class work.

In lieu of courses not offered during certain terms, substitutions made with the advice of the Chairman of the Department will be accepted.

## PROFESSIONAL CURRICULUM

(Leading to the degree of Bachelor of Fine Arts in Dramatic Art. Hours required for graduation, 132.)

Requirements for admission to the professional curriculum: satisfactory completion of all courses specified for the freshman and sophomore years with a grade average of 2.5 in all courses in Dramatic Art.

## Freshman Year

First Semester		Second Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
Soc Sci Elective	3	Soc Sci Elective	3
DA 101 Voice & Diction	3	DA 102 Voice and Diction	3
DA 115 Theatre Appreciation	3	DA 116 Theatre Apprec	3
DA 129 Stagecraft or 140 Makeup	3	DA 129 Stagecraft or 140 Makeup	3
PE Activity	1	PE Activity	1
	15 + PE		15 + PE

\* The student enrolled in the College of Fine Arts must satisfy all Group Requirements as listed on pages 203-204. Electives are also to be used to meet departmental minor requirements. A minor may be selected from approved list shown on page 185.

† Student teaching may be divided between the 2 semesters of the senior year.

Sophomore Year			
Art Elective	3	Music Elective	3
Math or Nat Sci	4	Math or Nat Sci	4
DA 255 Stage Lighting	3	DA 256 Stage Lighting	3
DA 275 Tech Prod	3	DA 276 Tech Prod	3
DA 285 Acting Tech	3	DA 286 Acting Tech	3
PE Activity	1	PE Activity	1
	16 + PE		16 + PE
Junior Year			
Engl Lit Elective	3	Psych 102 Gen Psych II	3
DA 305 Rehearsal & Perform	3	DA 306 Rehearsal & Perform	3
DA 335 Theatre Hist	3	DA 336 Theatre Hist	3
DA 385 Costume Design	3	DA 386 Costume Design	3
Humanities Elective	3	Engl Lit Elective	3
	15	Electives	2
			17
Senior Year			
DA 375 Scene Design	3	DA 376 Scene Design	3
DA 361 Adv Rehears & Perform	3	DA 362 Adv Rehears & Perform	3
Engl Lit 441 or 442 Shakespeare	3	Engl Lit Elective above 300	3
Electives	8	Electives above 300	4
	17	Other Electives	4
			17

## EMPHASIS IN TELEVISION-RADIO

Students who wish the B.F.A. in Dramatic Art with an Emphasis in Television-Radio may substitute the following courses for 18 hours of the required Dramatic Art courses as listed in the above curriculum: Speech 251, 265, and 6 hours selected from 465 or 466, and 480; Dramatic Art 351 and 352. All course substitutions and the sequence in which all courses are to be taken shall follow a curriculum pattern established by the Department of Dramatic Art.

## GENERAL (LIBERAL ARTS) CURRICULUM

(Leading to the degree of Bachelor of Arts in Fine Arts. Hours required for graduation, 128.)

College of Fine Arts Group Requirements for General (Liberal Arts) Curriculum	60 hours
Dramatic Art Courses	48
101, 102, 115, 116, 129, 140, 255, 256, 275, 276, 285, 286, 305, 306, 335, 336.	
English Literature Courses	9
To be chosen from: English 339, 437, 441, 442, 448.	
Electives	11
Total	128 hours

It is strongly urged that students in the Professional Curriculum and the General (Liberal Arts) Curriculum broaden their fields of study by choosing electives from departments of other colleges of the University, especially courses in the social sciences, so as to gain better insight into the problems of contemporary society.

## CURRICULUM FOR SECONDARY TEACHERS

(Curriculum leading to the degree of Bachelor of Fine Arts in Dramatic Art and meeting the requirements for provisional secondary teachers certificate in New Mexico.) In addition to the course requirements listed below, see also requirements for admission to teacher education listed on pp. 168-169 in the College of Education section of this catalog.

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrtng w/Rdgs in Expos	3	Engl 102 Wrtng w/Rdgs in Lit	3
Soc Sci Elective	3	Soc Sci Elective	3
DA 101 Voice and Diction	3	DA 102 Voice and Diction	3
DA 115 Theatre Apprec	3	Fine Arts Elective	3
DA 129 Stagecraft or 140 Makeup	3	DA 129 Stagecraft or 140 Makeup	3
PE Activity	<u>1</u>	PE Activity	<u>1</u>
	15 + PE		15 + PE
Sophomore Year			
DA 275 Tech Prod	3	DA 276 Tech Prod	3
DA 255 Stage Lighting	3	DA 256 Stage Lighting	3
DA 285 Acting Tech	3	DA 286 Acting Tech	3
Natural Science	4	Natural Science	4
Psych 102 Gen Psych II	3	Ed Fdns 290 Founda of Ed	3
PE Activity	<u>1</u>	PE Activity	<u>1</u>
	16 + PE		16 + PE
Junior Year			
Philos Elective	3	Engl 254 Surv of Engl Lit	3
Ed Fdns 300 Hum Grwth & Dev	3	Engl Lit Elect above 300	3
DA 305 Rehearsal and Perform	3	DA 306 Rehearsal and Perform	3
DA 385 Costume Design	3	DA 335 or 336 Theatre Hist	3
Engl 253 Surv of Engl Lit	3	Ed Fdns 310 Learn & Classroom	3
Engl 264 Inform Writing	<u>3</u>	Sec Ed 301 Founda of Sec Ed	<u>3</u>
	18		18
Senior Year			
DA 361 Adv Rehears & Perform	3	DA 362 Adv Rehears & Perform	3
DA 375 Scene Design	3	Sec Ed 461 Stu Tchg in Sec Sch	6
Sec Ed 310 Mat & Meth of Tch	3	Educ Elective	3
Engl Lit Elective	3	Amer Lit Elective above 300	3
Engl 441 or 442 Shakespeare	<u>3</u>		
	15		15

## MUSIC

The majors in music and music education offered by the College of Fine Arts are described below.

For minor study requirements in music and in creative dance and choreography, refer to the "Courses of Instruction" section, p. 360.

## NASM MEMBERSHIP

The University of New Mexico is a member of the National Association of Schools of Music. The requirements for entrance and for graduation as set forth in this catalog are in accordance with the published regulations of the National Association of Schools of Music.

PROGRAM FOR FRESHMAN YEAR IN MUSIC (ALL CURRICULA) DURING  
ENROLLMENT IN THE UNIVERSITY COLLEGE

Completion of courses 105, 106, 107, and 108; and 4 hours in Applied Music (a total of 12 hours) with a grade-point average of 2.5 or higher is prerequisite to admission to the professional curricula in music. Freshman in all music curricula, except Music Education, should enroll for the following courses:

Engl 101, 102 Wrtng w/Rdgs in Expos & Lit	}	11-12 hours each Semester
Mus 105, 106 Music Theory I & II		
Mus 107, 108 Ear Training I & II		
Physical Education		
One of the following:		
Social Science		
Language		
Mathematics or Science		

In the following curricula freshmen should enroll for additional courses as indicated:

Applied music, instrumental	}	3 hours each semester
Music 119, 120 (major instrument)		
Ensemble		
Applied music, vocal	}	4 hours each semester
Music 119, 120 (voice)		
Music 119, 120 (piano)		
Ensemble		
Theory and Composition	}	3 hours each semester
Music 119, 120 (piano)		
Music 155 (Orch Instrum) each semester		
Ensemble		
General (Liberal Arts) Curriculum	}	1 hour each semester
Music 119, 120 (piano)		

Freshmen in Music Education should enroll for the following courses:

First Semester		Second Semester	
Engl 101 Wrtg w/Rdgs in Expos	3	Engl 102 Wrtg w/Rdgs in Lit	3
Science	4	Science	4
Mus 105 Music Theory I	2	Mus 106 Music Theory II	2
Mus 107 Ear Training I	2	Mus 108 Ear Training II	2
Applied Mus Elective	3	Applied Mus Elective	3
Ensemble Elective	1	Ensemble Elective	1
PE Activity	1	PE Activity	1
<hr/> 15 + PE		<hr/> 15 + PE	

PROFESSIONAL CURRICULA

The Department of Music offers professional curricula leading to the degree of Bachelor of Music with concentration in Theory and Composition, Applied Music and Applied Music Pedagogy; for requirements in these curricula, see below.

THEORY AND COMPOSITION (132 hours)

Required subject areas (48 hours): English 101 and 102, 6 hrs.; natural science or mathematics, 8 hrs.; social science, 6 hrs.; humanities and fine arts, 9 hrs.; additional hours chosen from fine arts, foreign languages, humanities, mathematics, natural science, speech and social science, 15 hrs.; physical education, 4 hrs.

Applied music (14 hours): Piano, 8 hrs.; 155, 4 hrs.; Voice, 1 hr.; elective, 1 hr.

Theory (32 hours): 105, 106, 107, 108, 205, 206, 207, 208, 309, 310, 405, 406, 409, 410, 453, 463.

Conducting (4 hours): 363, and 364 or 365.

History and literature (16 hours): 271, 272, 311, 312, plus 8 additional hours.

Ensemble: 8 hours.

Elective: 10 hours.

#### APPLIED MUSIC (PIANO OR ORGAN) (132 hours)

Required subject areas (48 hours): English 101 and 102, 6 hrs.; natural science or mathematics, 8 hrs.; social science, 6 hrs.; humanities and fine arts, 9 hrs.; additional hours chosen from fine arts, foreign languages, humanities, mathematics, natural science, speech and social science, 15 hrs.; physical education, 4 hrs.

Applied Music (34 hours): 28 hours in major instrument (completion of 402); 155 and/or voice, 2 hrs.; 395, 1 hr.; 231 and/or 395, 3 hrs.

Theory (26 hours): 105, 106, 107, 108, 205, 206, 207, 208, 309, 310, 405, 406, 453.

Conducting (2 hours): 363.

History and literature (16 hours): 271, 272, 311, 312, 449, plus 6 additional hrs.

Ensemble: 4 hours, 2 hours of which must be in chorus.

Elective: 2 hours.

#### APPLIED MUSIC (INSTRUMENTAL, OTHER THAN PIANO OR ORGAN) (132 hours)

Required subject areas (48 hours): English 101 and 102, 6 hrs.; natural science or mathematics, 8 hrs.; social science, 6 hrs.; humanities and fine arts, 9 hrs.; additional hours chosen from fine arts, foreign languages, humanities, mathematics, natural science, speech and social science, 15 hrs.; physical education, 4 hrs.

Applied Music (34 hours): 28 hours in major instrument (completion of 402); piano, 4 hours; 231, 2 hours.

Theory (26 hours): 105, 106, 107, 108, 205, 206, 207, 208, 309, 310, 405, 406, 453.

Conducting (2 hours): 363.

History and literature (14 hours): 271, 272, 311, 312, 449, plus 4 additional hours.

Ensemble: 8 hours.

#### APPLIED MUSIC (VOCAL) (132 hours)

Required subject areas (48 hours): English 101 and 102, 6 hrs.; natural science or mathematics, 8 hrs.; social science, 6 hours; humanities and fine arts, 9 hrs.\*; additional hours chosen from fine arts, foreign languages, humanities, mathematics, natural science, speech, and social science, 15 hrs.†; physical education, 4 hrs.

Applied Music (38 hours): 28 hours in voice (completion of 402); piano, 4 hours; plus 230, 4 hrs.; and 387, 2 hrs.

Theory (24 hours): 105, 106, 107, 108, 205, 206, 207, 208, 309, 310, and 4 hours selected from 405, 406, 453.

Conducting (2 hours): 363.

History and literature (12 hours): 271, 272, 311, 312, 449, plus 2 additional hours.

Ensemble: 8 hours.

#### APPLIED MUSIC PEDAGOGY (128 hours)

Required subject areas (48 hours)‡ English 101 and 102, 6 hours; natural science or mathematics, 8 hours; social science, 6 hours; humanities and fine arts, 9 hours; additional hours chosen from fine arts, foreign languages, humanities, mathematics, natural science, speech, and social sciences, 15 hours; physical education, 4 hrs.

Applied Music (32 hours): 28 hours in major instrument (completion of 402); Piano Majors: 395, 1 hr.; plus 3 hrs. from 231 and/or 395. Others: Piano and/or elective, 4 hrs.

Theory (24 hours): 105, 106, 107, 108, 205, 206, 207, 208, 309, 310, plus 4 hours selected from 405, 406, 453.

Conducting: (2 hours): 363.

Pedagogy (4 hours): 388 and 389.

History and Literature: 10 hours.

Ensemble: Piano majors, 4 hrs. Others, 8 hours.

Electives: Piano majors, 4 hrs. Others 0.

\* Dramatic Art 315-316 recommended in satisfaction of the fine arts requirement.

† Student must complete 12 hours (or the equivalent) in any one, or any combination of these languages: French, German, or Italian.

‡ 6 hours of Psychology recommended to be included in the required subject area (science or additional hours). Majors in Vocal Pedagogy must also complete 12 hours of modern language.

## GENERAL (LIBERAL ARTS) CURRICULUM

A major in music history and literature is offered under the general curriculum. This program includes a thorough preparation in the area of music theory and a limited amount of applied music. The curriculum is designed for those students who desire a broad understanding of the art of music in relation to other academic disciplines. This curriculum leads to the degree of Bachelor of Arts in Fine Arts.

- |   |                 |
|---|-----------------|
| 1. Group requirements, including as many semesters of one foreign language as needed for completion of the intermediate course (251, 252) in that language. For the student who chooses a language which he has not previously studied, this ordinarily means a minimum of 4 semesters (12 semester hours). | 60 hours        |
| 2. Major in music:  |                 |
| Theory (24 hours): 105, 106, 107, 108, 205, 206, 207, 208, 309, 310, 405, 406.  |                 |
| Music history and literature (20 hours): 271, 272, 311, 312, 449, and 10 hours chosen from other courses in music literature.   |                 |
| Applied music (8 hours): Piano, 4 hours; elective, 4 hours.   |                 |
| Ensemble: 4 hours   | 56              |
| 3. Electives  | 12              |
|   | Total 128 hours |

## CURRICULUM IN MUSIC EDUCATION (for students preparing to teach music in grades 1-12)

(Leading to the degree of Bachelor of Music Education. Hours required for graduation, 133)  
(Qualifies the graduate for the Music Certificate).

Required subject areas (48 hours): English 101 and 102, 6 hrs.; Speech 255 or approved substitute, 3 hrs.; natural science (including 3 hrs. in Psychology and 8 hrs. of laboratory science chosen from courses offered by the departments of Biology, Chemistry, Geology, and Physics and Astronomy), 11 hrs.; humanities and social science (including 3 hours in English literature), 9 hrs.; fine arts (Dramatic Art 315 and 316 recommended), 6 hrs.; additional hours chosen from the fine arts, foreign languages, humanities, mathematics, natural science, speech, and social science, 9 hrs.\*\*; physical education, 4 hrs.

Professional education (25 hours): Ed. Founda. 290, 3 hrs.; Ed. Founda. 300, 3 hrs.; Mus. Ed. 294, 444, 446, 451, 9 hrs.; Music Ed. 313 or 214, 2 hrs.; Mus. Ed. 366, 2 hrs.; Elem. Ed. 400, 3 hrs.; Sec. Ed. 461, 3 hrs.

Theory (24 hours): 105, 106, 107, 108, 205, 206, 207, 208, 309, 310, 453, plus 2 hours selected from 405, 406, 409, 463.

Applied Music (22 hours): Completion of 319 in area of concentration. Piano or organ concentrates (24 hours): 395, 1 hr.; 1 hr. selected from 231 or 395; completion of 319 in area of concentration.

Conducting (4 hours): 363, and 364 or 365.

Ensemble: 8 hours. Piano and organ concentrates: 6 hrs. all in chorus.

History and Literature (2 hrs., plus 6 hours counted under the additional hours in the required subject area): 271, 272, 311, 312.

Students majoring in music education who wish also to obtain general certification in elementary education should consult their advisers. To complete requirements for both certificates requires more than a four-year program.

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\*\* Majors in Music Education will include 6 hours of music, history or literature in satisfaction of this requirement.

## THE GRADUATE SCHOOL

**G**RADUATE WORK leading to the master's degree is offered in the following fields: Anthropology, Art, Biology, Business Administration, Chemistry, Comparative Literature, Economics, Education (Administration, Art, Elementary, Guidance, Music, Physical, Recreation, Secondary, Special, Teaching Business Subjects, Teaching Home Economics, Teaching Industrial Subjects, Teaching Mathematics, Teaching Science, Teaching Spanish), Engineering (Chemical, Civil, Electrical, Mechanical, Nuclear), English, French, Geology, History, International Affairs, Latin-American Studies, Mathematics, Music, Philosophy, Political Science, Physics, Portuguese, Psychology, Sociology, Spanish, Speech.

The degree of Doctor of Philosophy is offered in the following fields: American Studies, Anthropology, Biology, Chemistry, Economics, Education, Engineering, English, Geology, History, Ibero-American Studies, Mathematics, Medical Sciences, Philosophy, Physics, Psychology, Spanish.

The degree of Doctor of Education is offered in Education.

Prospective applicants should contact the Graduate School and the chairman of the department concerned.

### ADMISSION, FELLOWSHIPS, TRAINEESHIPS, AND ASSISTANTSHIPS

Graduates of any recognized college or university may apply for admission to the Graduate School. All communications regarding admission, as well as all inquiries concerning graduate study, should be addressed to the Dean of the Graduate School.

A formal application is required of all students, including graduates of the University of New Mexico, who seek admission to the Graduate School. Application blanks and the **Graduate School Bulletin** may be obtained by writing to the Dean of the Graduate School. Applicants from other institutions must have two transcripts of all undergraduate and graduate work sent **directly to the Graduate Office** from **each** institution previously attended. Even though a master transcript may carry records from other institutions, University regulations require that these records be sent from each institution. **Transcripts in the possession of students will not be accepted for entrance purposes. In order to be assured of consideration for admission, students should have their applications, transcripts, and the \$10.00 application fee on file in the Graduate Office at least two months in advance of the beginning date of the session in which they plan to enroll.** The final deadlines for receipt of applications and all required credentials are: for Semester I, July 15; for Semester II, January 1; for the Summer Session, May 1. No student is assured of admission until he has received official notification of admission from the Dean of the Graduate School and from the Director of Admissions.

Although each application is reviewed individually, in general an over-all average of near B and no less than a full B average in the intended major field are required for admission to degree status and consideration for financial aid. For status categories, consult the **Graduate School Bulletin**.

Fellowships, traineeships, and assistantships are available for well-qualified,



degree-seeking graduate students. **Application deadline for financial aid is January 31.** (See also "Research and Fellowship Support Activities.")

The Graduate School reserves the right to refuse admission to any student for scholastic as well as non-scholastic reasons.

#### GRADUATE CREDIT FOR WORK TAKEN AS AN UNDERGRADUATE OR IN EXTENSION AND CORRESPONDENCE COURSES

The University accepts no correspondence credit toward its advanced degrees. A minimum of extension credit from the University of New Mexico is acceptable, but no extension credit may be transferred from other institutions.

Graduate credit for work taken as a senior may be granted, provided the applicant (1) is within ten hours of the baccalaureate degree, (2) is taking sufficient work to complete the requirements for the degree during that semester. Requests for obtaining graduate credit for 300- and 400-level courses ordinarily will not be considered unless the student has an over-all grade-point average of not less than 2.8 on a 4-point scale. In order to be admitted to a 500-level course, the student must have an average of not less than 3.0. Generally, the total amount of graduate work is not permitted to exceed 6 hours per semester, or 3 hours in the summer session. A student wishing to take graduate work on this basis must obtain **in advance** the approval of the major department and of the Dean of the Graduate School for the courses in which he desires to receive graduate credit.

#### INFORMATION

For further information regarding advanced work, the conditions under which higher degrees may be obtained, and fellowships and assistantships, consult the **Graduate School Bulletin** or the Graduate Office.

## SCHOOL OF LAW

**T**HE STATE BAR of New Mexico having previously adopted a resolution to that end, and the Legislature of New Mexico having made financial provision, the Regents of The University of New Mexico, on March 31, 1947, as expressly authorized by Laws 1889, Ch. 138, Sec. 15, approved the establishment of a School of Law. The School is fully accredited: it was approved by the American Bar Association on February 24, 1948, and membership in the Association of American Law Schools was granted in December 1948. The School offers a curriculum leading to the degree of Juris Doctor (J.D.).

Information concerning the School is found in the **School of Law Bulletin** which may be obtained by writing to the Dean of the School of Law, 1915 Roma, N.E., Albuquerque, New Mexico 87106.

### ADMISSION

A formal application of the School of Law must be filed by all students, both beginning and transfer. Beginning students are accepted for the fall semester only.

The School of Law is continually concerned not only with its own curriculum but also with the quality of prelegal education and with the continuing self-education which should be pursued by all members of the profession. In consequence, it is urged that students enter the School with as broad a cultural and educational background as possible. Accordingly, the basic requirement for admission is a baccalaureate degree from an accredited college or university (exceptional students may be permitted to enter upon a 6-year combined course of college and law school study leading to the acquisition of a B.A. or B.S. and the J.D. degrees).

All applicants for admission to the School of Law are required to take the Educational Testing Service's Law School Admission Test (LSAT); to avoid delay on application, the test should be taken no later than February preceding the fall semester for which application is made.

Two transcripts of all work done at other institutions must be sent directly to the Dean of the School of Law.

An evaluation of the applicant's chance of success in the study of law and in the profession is based on the aptitude test, the undergraduate record, and other factors.

### STUDENT AIDS

See the **School of Law Bulletin** for scholarships, prizes, awards, and loans available to law students.

### ADDITIONAL EXPENSES

All students registered in the School of Law become members of The University of New Mexico Student Bar Association and are expected to pay, in addition to the University's tuition and fees for residents or for non-residents, membership dues for the Association. The current dues are \$10.00 per year, payable to the School of Law at registration.

## SCHOOL OF MEDICINE

**A** SCHOOL OF MEDICINE for The University of New Mexico was approved in 1960, and a grant for the initial development of the school was made available by the Kellogg Foundation in the same year. The New Mexico Legislature made a token appropriation toward support of the school at its 1961 session and in 1963 provided major support for future development. The School of Medicine enrolled its first entering class in the fall of 1964 and progress to the third year, and subsequent full four-year program was approved in 1966. The first class will receive the M.D. degree in 1968.

### FACILITIES

The Medical Science Building on the north campus near the Bernalillo County-Indian Hospital was completed in 1967 and is now in full use. It contains first and second year student laboratories, study areas and conference rooms as well as office and laboratory space for faculty and administration. The Bernalillo County-Indian Hospital, together with the Albuquerque Veterans Administration Hospital, provides the primary resource for student experience in clinical medicine.

### PROGRAM

The School of Medicine is a professional and graduate school of the University. In addition to providing education in the basic and clinical sciences for the Doctor of Medicine degree, opportunities are available for work leading to a Doctor of Philosophy degree. Further resources for medical education at the internship, resident, and post-graduate education levels are offered through hospitals associated with the University program.

The educational program provides a unified experience in the biological science areas basic to medicine: anatomy, biochemistry, physiology, microbiology, pathology, pharmacology, clinical laboratory medicine, and an early introduction to clinical medicine through seminars, history-taking and physical diagnosis. The school program is planned to take advantage of recent advances in medical teaching, early involvement of the student in research, and multi-disciplinary approaches when appropriate. It is designed to provide an environment in which each medical student can develop to the level of his highest potential. The ability to recognize and achieve excellence is considered a primary attribute, whether a student will eventually become a practicing physician, a teacher, or a research scientist.

### ADMISSION

The first few entering classes were limited to 24 students but an entering class of 36 will be admitted in 1968-69 and ultimately a class of 48 is planned. The requirements for admission parallel those of most approved medical schools in this country. It is probable that a special admission plan will be developed for exceptionally talented students at The University of New Mexico who wish to identify themselves early in college with a career in the area of human biological science or medicine.

In general, the admission requirements include a bachelor's degree from an accredited institution with a major field of concentration in an academic discipline within the arts and science college. Students who major in the humanities or social sciences are given equal consideration with those who major in the sciences, providing, of course, they have shown the ability to handle scientific material effectively.

In addition to the general requirements indicated above, the following specific courses must be taken:

- General Chemistry, including laboratory, one year;
- Organic Chemistry, including laboratory, one year;
- General Biology, including laboratory, one year;
- General Physics, including laboratory, one year;
- College Mathematics, one year. Mathematics through calculus is strongly recommended.

The courses taken to fulfill the specific requirements listed above should be those required of students majoring in the respective fields.

Applicants are required to take the Medical College Admission Test, preferably in May of their junior year, and in most instances an interview with the Committee on Admissions of the School of Medicine is necessary.

Exceptions to the general requirements outlined above may be made for special program students, for qualified students who wish to enter medical school after only 3 years of college, and at the discretion of the Committee on Admissions.

Preference for admission is given to qualified applicants who are residents of New Mexico or of regional states which do not have their own medical schools and which participate in the Western Interstate Commission for Higher Education student exchange program.

Admission materials may be obtained by writing to the Office of Admissions of the School of Medicine. It is recommended that applications be filed not later than November 1 of the year preceding anticipated enrollment.

## FEES

Application Fee \$10. Non-refundable.

Tuition and Fees—See pp. 90-91.

## INFORMATION REQUESTS

Inquiries are welcome and interested students may write or call at the Office of Admissions, School of Medicine, 915 Stanford, NE.

## COLLEGE OF NURSING

**T**HROUGHOUT its interesting history, the importance of nursing became increasingly evident among the health professions. Recently, more prominence was gained when federal health legislation identified nursing as a significant factor in and for the health of society. In New Mexico and throughout the country such enactments have resulted in a far more dramatic need for greater numbers of professional nurses than ever before. Of increased value to the health of society is the professional nurse who is cognizant of medical technology and who is able to participate in today's complex treatment and varieties of health programs.

The faculty of the College of Nursing, as an integral part of The University of New Mexico, believes that education is an organized, expanding and integrative process focused on the learner, by which the student assimilates knowledge, examines values and develops that which is creative and individually distinguished. The faculty is dedicated to the belief that education for professional nursing is a synthesis of particular knowledge drawn from the liberal arts, sciences and research in nursing. The faculty believes that each student must develop awareness of the health situation in our society and be motivated to work toward the solution and prevention of health problems.

### PURPOSE

Graduates of the College of Nursing will be prepared as beginning practitioners with the ability to give patient and family-centered nursing care in hospitals and in the greater community. Those graduates of the College of Nursing who seek teaching, supervisory or administrative positions will be qualified to apply for graduate study in Nursing for the special clinical field of their choice.

### ACCREDITATION

The basic program in nursing was first accredited by the National League for Nursing in December 1959 and re-accredited in 1967. The accreditation includes approval of preparation in public health nursing.

### LICENSURE OF GRADUATES

Graduates of the College of Nursing are eligible to take the State Board Examinations which provide the legal basis for becoming registered nurses.

### ADMISSION

All students seeking admission to the College of Nursing must meet requirements for admission to the University.

Freshman students are admitted to the University College. A detailed statement of entrance requirements is in the "Admission and Registration" section of this catalog.

### ADMISSION FROM UNIVERSITY COLLEGE

Students are advised to request transfer to the College of Nursing as early in the program as possible.

Transfer from the University College to the College of Nursing requires:

1. Twenty-six hours of earned credit acceptable toward the nursing degree.
2. (a) A scholarship index of at least 2.0 on all hours attempted;  
or  
(b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.
3. Each student must make a satisfactory score on the English Proficiency Examination (administered by the University of New Mexico), or make a grade of C or better in English 010, a non-credit course offered by the Department of English.

#### TRANSFERS

Students seeking to be accepted as transfer students from other accredited institutions must meet requirements for admission to the University.

Students seeking to transfer from other degree-granting colleges in the University must present at least 26 semester hours of acceptable credit with a scholastic index of 2.0 or better on all work attempted while enrolled in the other degree-granting college.

#### EXAMINATIONS TO ESTABLISH CREDIT

The following plan has been approved by the National League for Nursing:

Graduates of National League for Nursing accredited diploma and associate degree programs in nursing may establish credits for courses in nursing in the College of Nursing according to these University and College of Nursing policies:

1. The student must be regularly enrolled in the University.
2. The student must be in good academic standing and have completed at least 26 hours of required courses prescribed for the baccalaureate program in nursing.
3. The student must have completed all prerequisites for a specific course before attempting to establish credits through examinations.
4. The fee per credit hour as required by the University for special examinations must be paid in advance of testing.
5. Senior courses in nursing may not be challenged.
6. Students who plan to establish credit through examination must apply through the Office of the College of Nursing for individual counseling.

#### GENERAL INFORMATION

Students in the nursing program follow the general policies and procedures described in the appropriate sections of this catalog and the specific regulations included in the section, "College of Nursing." All students are responsible for compliance with rules and regulations set forth in this catalog.

## HONORS PROGRAMS

The General Honors Program (leading to graduation with Honors in General Studies) is available to qualified students in the nursing program. For information see p. 139.

A Departmental Honors program is available to qualified students in the College of Nursing.

The purposes of the Departmental Honors program are: (1) to intensify and deepen the student's knowledge in nursing; (2) to put this specialized knowledge into better relationship with knowledge in related fields and in the larger general area of nursing; (3) to bring the student under closer guidance of, and into closer acquaintance with, teachers in nursing. The student enters the program during the junior year. Qualifications include a scholastic index of 3.2 on all work taken and in all nursing courses. Transfer students must have earned at least 15 semester hours at the University.

Minimal requirements for graduation with Departmental Honors are as follows: (a) an over-all scholastic index of 3.2; (b) 3 hours each in Independent Study and in Senior Thesis in addition to the usual requirements for the degree; (c) at least 60 earned credits at the University. The level of honors at which the candidate shall be graduated is at the discretion of the faculty of the College of Nursing.

## DEAN'S LIST

At the end of each semester the names of students who have made outstanding academic records are put on the Dean's List, which is made available to University and outside news media. To qualify for the Dean's List in the College of Nursing, a student must have carried at least 12 academic hours and made a grade-point average of 3.2 or better.

## SCHOLARSHIPS

Various types of financial aid are available to University students generally. In addition, there are certain scholarships, from local and national organizations and private individuals, which are specifically for students in the College of Nursing (see listing under Financial Aid section of this Catalog). Applications for these scholarships should be made at the Office of the Dean, College of Nursing.

## EDUCATIONAL FACILITIES

Zimmerman Library, the general University library, is available to students in nursing.

The Library of the Medical Sciences includes nursing and medical publications.

Classrooms located on the main campus and in the clinical facilities are used for classes in nursing.

## CLINICAL FACILITIES

Facilities for clinical instruction located in Albuquerque include: Bernalillo County-Indian Hospital, Bataan Memorial Methodist Hospital, Presbyterian Hos-

pital Center, Nazareth Hospital, Veterans Administration Hospital, Bernalillo County Health Department, and Albuquerque Public Schools.

Selected professional experiences are arranged at The Rehabilitation Center; Public Health Service, Indian Health Division; New Mexico State Hospital at Las Vegas; and New Mexico Department of Public Health in Santa Fe.

#### STUDENT SERVICES

All services concerned with student welfare and activities are under the coordinating supervision of the Vice President for Student Affairs. For descriptions of services and programs see "Student Services" section in this catalog.

Athletic, cultural, recreational, religious, and social activities of the University are available to all students. Students in the College of Nursing are eligible for membership in the National Student Nurses' Association through the New Mexico Student Nurses' Association.

Academic advisers assigned for students in the nursing program are from among the faculty in the College of Nursing.

Students are responsible for their living arrangements and costs. Nursing students must comply with the University regulations as stated in the "Student Housing" section of this catalog.

#### HEALTH PROGRAM

Students in the College of Nursing follow the requirements for medical examinations described in the "Admission and Registration" section of this catalog and use the Health Service described in the "Student Services" section of this catalog. Nursing students are required to carry insurance for hospitalization and medical care. Students who do not have health insurance policies will find an adequate policy available through the University. It may be purchased at the time of registration.

Students are required to present health and immunization records, as specified by the College of Nursing, when they register for nursing practice courses.

Students who are pregnant at the time of registration are not eligible to enroll in nursing courses which include clinical practice.

#### UNIFORMS

Students are required to purchase the uniforms which are worn in clinical nursing practice periods. Uniforms are available at the Associated Students' Bookstore and may be purchased at the time of registration.

#### ACADEMIC REGULATIONS

Students in the nursing program are subject to the general regulations of the University (see section, "General Academic Regulations") and to specific academic regulations in the College of Nursing.

Students enrolled in the College of Nursing are expected to be progressing toward the Bachelor of Science in Nursing degree.

Students are required to maintain an average of 2.0 or better for all courses\*

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\* Exclusive of hours in nonprofessional physical education and ensemble music.



attempted while registered in the College of Nursing. No student will be permitted to enroll in the upper-division nursing courses in the junior or senior year unless the scholastic index is 2.0 or better. Students are required to maintain an average of at least 2.0 for all nursing courses. A student must have a grade of C or better in each upper-division clinical nursing course in order to progress to the sequential nursing course.

To enroll in an upper-division nursing course the student must have had the prerequisite nursing course during the year immediately preceding or must give evidence of knowledge of the content in the prerequisite course before being permitted to enroll in the upper-division nursing course.

Maximum credit load for which a student may register is 18 semester hours.

The College of Nursing reserves the right to request a student to withdraw for unprofessional conduct or unsafe nursing practice.

### REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Science in Nursing is granted to basic and registered nurse students on fulfillment of the following requirements:

1. Completion of 127 semester hours of course work including the prescribed curriculum.
2. Completion of 4 semester hours of physical education in accord with the University requirement.
3. Completion of at least 60 semester hours of upper-division course work. Such courses are numbered above 300.
4. For minimum residence requirements, see "Degree Requirements" in the section of this catalog entitled "General Academic Regulations."
5. Unanimous recommendation for the degree by the faculty of the College of Nursing.

### CURRICULUM

Descriptions of the courses offered will be found, listed by departments, in the catalog section "Courses of Instruction." Prerequisites are included in the course descriptions.

Students who participate in the General Honors program may apply General Studies seminars to satisfy appropriate requirements upon approval by the Dean, College of Nursing.

Students who wish to make substitutions in the program are required to present their plans in writing.

Freshman Year			
First Semester		Second Semester	
Engl 101 Wrtnng w/Rdgs in Expos	3	Engl 102 Wrtnng w/Rdgs in Lit	3
Biol 101L Gen Biol	4	*Elective (directed)	3
Psych 101 Gen Psych I	3	Psych 102 Gen Psych II	3
Chem 141L, Elmts Gen Chem	4	Physics 102 Intro to	3
Nurs 101 Intro to	3	Nurs 102 Intro to Nurs Process	3
PE Activity	1	PE Activity	1
<hr/> 17 + PE		<hr/> 15 + PE	

\* 3 hr. course in either Economics, History, Philosophy or Political Science.

## Sophomore Year

Soc 101 Intro to	3	Phmcol 276 Prin of	3
Biol 233L or 393L	4	Biol 236L Paramed Anat-Phys	4
Chem 281 Org & Biochem	4	Anth 101 or 102	3
Nurs 250 Nursing Process	2	Nurs 252 Fund Med-Surg	3
Nurs 251L Nursing Process Lab	3	Nurs 253L Fund Med-Surg Lab	2
PE Activity	1	PE Activity	1
	<u>16 + PE</u>		<u>15 + PE</u>

## Junior Year

Nurs 303 Adv Med-Surg	4	Nurs 320 Pediatric Nurs	2
Nurs 304L Adv Med-Surg Lab	6	Nurs 321L Ped Nurs Lab	3
Nurs 351 Psycho-Cult	2	Nurs 330 Maternity Nurs	3
Psych 311 Developmental	3	Nurs 331L Mat Nurs Lab	3
Elective	3	Nurs 352 Pub Hlth Sci	2
	<u>18</u>	Literature	3
			<u>16</u>

## Senior Year

Nurs 451L Psychiatric	7	Nurs 452L Public Health	9
Nurs 463L Adv Nurs Proc Practicum	6	Nurs 462 Adv Nurs Proc Seminar	5
Elective	3		
	<u>16</u>		<u>14</u>

Total Completed: 127 hours and 4 P.E.

## COLLEGE OF PHARMACY

IT IS the primary purpose of the College of Pharmacy to prepare its students so that they may not only achieve success in the practice of the profession but may also effectively assume their responsibilities as educated citizens. In addition to providing the opportunity to acquire the necessary knowledge, the College also purposes to inculcate in its students those habits of industry and thoroughness and the qualities of loyalty and ethical behavior which the profession demands of its practitioners.

The College of Pharmacy also provides a consultant service to the profession in the State of New Mexico in connection with unusual prescriptions and other aspects of pharmaceutical practice.

In addition, the two-year certificate program in Dental Hygiene is administered by the College of Pharmacy. (See p. 231).

### OPPORTUNITIES IN PHARMACY

The profession of pharmacy offers, to properly trained individuals, a wide variety of opportunities for service in interesting and satisfying positions. Most of the graduates of colleges of pharmacy enter the retail field. Many, however, occupy positions as manufacturing pharmacists, sales representatives, hospital pharmacists in civilian and governmental hospitals, analysts for state and federal food and drug departments, and as pharmacists in the Army, Navy, Air Force, Public Health Service, and Veterans Administration. Limited numbers are engaged in editing or writing for pharmaceutical publications and as managing officers of local, state, and national pharmaceutical organizations. Positions as research workers in manufacturing plants and as teachers in colleges of pharmacy are open to those who prepare themselves by pursuing graduate work toward advanced degrees.

### RECOGNITION

The College of Pharmacy is accredited by the American Council on Pharmaceutical Education, the national accrediting agency in pharmaceutical education, and holds membership in the American Association of Colleges of Pharmacy.

### SCHOLARSHIPS AND LOANS

The College of Pharmacy annually grants freshman scholarships to a number of deserving graduates of New Mexico high schools who follow the freshman Pharmacy program in the University College. They are normally awarded for one semester but may be renewed for a second semester if the student maintains a satisfactory grade average. Other scholarships and loans are available to those who qualify. For information apply to the Dean, College of Pharmacy.

### LAWS RELATING TO LICENSURE AS A PHARMACIST

The laws relating to the requirements for licensure as a registered pharmacist by examination in the State of New Mexico are presented below in simplified form.

Persons of good moral character who have satisfactorily completed not less than 30 semester hours in an approved college of pharmacy shall, upon applica-

tion and payment of the required fee, be issued a certificate of registration as a pharmacy interne.

An applicant for examination for licensure as a registered pharmacist by the New Mexico State Board of Pharmacy must be a graduate of a recognized college of pharmacy, must be not less than 21 years old, of good moral character, and not addicted to the use of narcotic drugs or alcoholic beverages. However, before he can receive a certificate as a registered pharmacist he must have had not less than 1 year of approved pharmaceutical experience under the direction of a qualified pharmacist. Further information regarding licensure as a pharmacist may be obtained from the Secretary of the New Mexico State Board of Pharmacy whose address is available in the office of the College of Pharmacy.

#### ADMISSION

All freshman students are admitted to the University College. A detailed statement of entrance requirements is in the "Admission" section of this catalog.

ADMISSION FROM UNIVERSITY COLLEGE. The **minimum** requirements for transfer from the University College to the College of Pharmacy for the study of pharmacy are:

1. Twenty-six hours of earned credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted;  
or  
(b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.
3. Completion of the English Proficiency Examination (administered by the University of New Mexico) with a satisfactory score or a grade of C or better in the remedial English course offered on a non-credit basis by the University of New Mexico English Department.

In addition to the foregoing **minimum** requirements, the student who wishes to transfer to the College of Pharmacy from the University College should have completed Chemistry 101L and 102L and Biology 101L and 102L with grades of C or better. Students who do not obtain a grade of C or better in each of these courses may be admitted to the College of Pharmacy but will be required to obtain grades of C or better in each of these courses before being allowed to enroll in other courses in these fields or in courses for which these are prerequisite.

Students who do not complete the recommended freshman Pharmacy program in the University College will almost certainly find it necessary to spend more than the normal time to complete the requirements for graduation.

(For admission requirements for students of Dental Hygiene, see p. 232.)

#### TRANSFERS

Students who wish to transfer to the College of Pharmacy from other degree-granting colleges of the University or New Mexico residents transferring from

other accredited non-pharmacy institutions must present at least 26 semester hours of acceptable credit with a grade-point average of at least 2.0 on all hours attempted in the other degree-granting colleges or institutions. (The required grade-point average for non-residents transferring from other institutions is 2.5.) Those who present 2 years of college-level work, including the courses outlined in the preprofessional and first professional years of the Pharmacy curriculum (excepting Pharmacy 231-232, which may be taken in the second professional year), may be admitted to the second professional year.

Admission of those students desiring to transfer from other colleges of pharmacy will be based on the requirements specified above.

All transfer students must satisfactorily complete the English Proficiency Examination or the remedial English course as specified in 3 above.

#### SCHOLASTIC REGULATIONS

In general, students in the College of Pharmacy will be governed by the scholastic regulations described under "General Academic Regulations." In addition, the faculty of the College of Pharmacy has adopted the following rules and regulations:

1. Deficiencies in grade points incurred while in residence may not be removed by an excess of grade points earned in extension or correspondence courses.

2. Credit will not be transferred for any required course taken in another institution if an unsatisfactory grade has been previously received in the course at the University of New Mexico. For this purpose a grade of F in a non-professional course, or a grade of D in a course in the fields of Pharmacy, Pharmaceutical Chemistry, Pharmacognosy, and Pharmacology, shall be considered to be an unsatisfactory grade.

3. Generally, only work of C quality or better is acceptable as credit toward graduation in the required courses of the major fields of Pharmacy, Pharmaceutical Chemistry, Pharmacognosy, and Pharmacology. However, a student who receives grades of D in no more than a total of three such required courses may, upon written petition to the faculty of the College of Pharmacy, be granted credit toward graduation for the work in such courses. (For the purposes of administering this rule, each semester of a course which runs throughout the year shall be considered as a separate course.)

4. No student will be permitted to enroll in the professional courses of the fifth year if his grade average is less than 2.0.

#### MAXIMUM NUMBER OF HOURS

Students in the College of Pharmacy may not normally enroll for more than 17 credit hours per semester not including required physical education courses.

#### ACADEMIC ADVISEMENT

In order to provide proper assistance to students in the election of courses and other academic matters, the College of Pharmacy has established a system of academic advisement. Each student is assigned to a faculty adviser who is authorized to act in all academic matters which do not require the approval of the Dean. The faculty advisers assist students in planning their programs, approve

all elections of courses, authorize changes in programs, and furnish advice on other academic matters. Students are urged to consult with their advisers regularly.

#### AFROTC AND NROTC

The courses in Aerospace Studies and Naval Science are acceptable as elective courses in the Pharmacy curriculum.

#### MINIMUM RESIDENCE REQUIREMENT

Students entering the College of Pharmacy with advanced standing from non-pharmacy colleges are required to complete not less than 6 semesters of full-time resident study before they will be recommended for the degree of Bachelor of Science in Pharmacy. Those transferring from other colleges of pharmacy may be given credit for more than 2 years of work provided the courses and credit are applicable to the work outlined in the curriculum of this College.

#### REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Science in Pharmacy is granted upon completion of all the specified requirements. The candidate for this degree must:

1. Complete all of the work outlined in the pharmacy curriculum. Of the 30 elective hours, the student may not elect more than a total of 14 hours of course work in the professional and/or basic science areas; he must elect at least 16 hours in the humanities, social sciences, and/or fine arts from courses offered in the Colleges of Arts and Sciences, Business Administration, Education, Engineering, Fine Arts, and Nursing, the School of Law, or the Departments of Aerospace Studies or Naval Science. The student, with the approval of his adviser, will be expected to complete logical sequences of courses in the fields he elects.

2. Complete a total of not less than 160 semester hours plus 4 semester hours of physical education or its equivalent.

3. Maintain a grade average of 2.0 on all hours attempted\* at the University of New Mexico in satisfying the scholastic requirement of the University for the bachelor's degree.

4. Receive grades of C or better in all the required courses in the fields of Pharmacy, Pharmaceutical Chemistry, Pharmacognosy, and Pharmacology, except that a candidate who has received grades of D in no more than a total of three such required courses may, upon written petition to the faculty of the College of Pharmacy, be granted credit toward graduation for the work in such courses. (For the purposes of administering this exception, each semester of a course which runs throughout the year shall be considered as a separate course.)

5. Satisfy the minimum residence requirement.

6. Complete the English Proficiency Examination (administered by the University of New Mexico) with a satisfactory score or obtain a grade of C or better in the remedial English course offered on a non-credit basis by the University of New Mexico English Department.

7. Be unanimously recommended for the degree by the faculty of the College of Pharmacy.

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\* Exclusive of hours in nonprofessional physical education and ensemble music.

CURRICULUM LEADING TO THE DEGREE OF  
BACHELOR OF SCIENCE IN PHARMACY

(Descriptions of the courses offered will be found, listed by departments, in the catalog section "Courses of Instruction.")

First Year (Preprofessional Year)			
First Semester		Second Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
Chem 101L Gen	4	Chem 102L Gen	4
Biol 101L Gen	4	Biol 102L Gen	4
Math 120 or 121 or 162	5 or 4	Electives	6
PE Activity	1	PE Activity	1
	<u>16 or 15 + PE</u>		<u>17 + PE</u>

The above is the recommended freshman Pharmacy program for University College students who wish to enter the College of Pharmacy. At the time of their first enrollment, such students will be assigned to an adviser from the College of Pharmacy. See p. 227 for specific requirements for admission to the College of Pharmacy.

## PROFESSIONAL CURRICULUM

Second Year (First Professional Year)			
Phm 231 Orientation I	1	Phm 232 Orientation II	1
Chem 301 Organic Chem	3	Chem 302 Organic Chem	3
Chem 303L Organic Lab	1	Chem 304L Organic Lab	1
Physics 111 & 113L Gen	4	Physics 112 & 114L Gen	4
Biol 393L Bacteriology	4	Econ 200 Prin of	3
Elective	3	Elective	3
PE Activity	1	PE Activity	1
	<u>16 + PE</u>		<u>15 + PE</u>

Third Year (Second Professional Year)			
Phm 341L Intro	5	Phmcog 372L Gen	4
Chem 253L Quant Analysis	4	Chem 323 Biol Chem	3
Phm Chem 361 Inorg Phm Ch	2	Biol 430L Verte Physiol	4
Biol 429L Cellular Physiol	4	Spch 255 Pub Spkg	3
	<u>15</u>	Elective	4
			<u>18</u>

Fourth Year (Third Professional Year)			
Phm 443L Operative Phm I	5	Phm 444L Operative Phm II	5
Bus Ad 105 Fund of Acct	3	Phm 420 Pharmaceutical Law	3
Phmcol 475L Phmcol I	4	Phmcol 476L Phmcol II	5
Electives	3 or 4	Elective	3
	<u>15 or 16</u>		<u>16</u>

Fifth Year (Fourth Professional Year)			
Phm Chem 463 Org Phm Chem I	3	Phm Chem 464 Org Phm Chem II	3
Phm 447L Disp Phm I	5	Phm 448L Disp Phm II	5
Phm 421 Phm Management	2	Phm 434 Hist of Pharmacy	2
Phm 493 Inspection Trip	0	Electives	6
Phmcol 477 Phmcol III	3		
Electives	3		
	<u>16</u>		<u>16</u>

## DENTAL HYGIENE PROGRAM

The Dental Hygiene Program is a 2-year curriculum leading to a Certificate in Dental Hygiene. It is open to those who meet the admission requirements and are selected by the Admissions Committee of the Program. The Dental Hygiene Program is accredited by the American Dental Association.

### OPPORTUNITIES IN DENTAL HYGIENE

Dental Hygiene is a health service profession with the emphasis on prevention of dental diseases. A dental hygienist is trained and licensed to provide dental services to patients under the supervision of a dentist. These services include: cleaning patients' teeth, teaching patients home care of their mouths, examining patients' teeth and charting findings for the dentists' inspection, taking and developing dental x-rays, applying topical fluorides, assisting the dentist with routine office duties, speaking on dental health to groups, helping in community health programs.

Students receive practical training in a 23-chair clinic in the Dental Programs Building on the University of New Mexico campus.

The demand for the services of dental hygienists is great in private dental office practice, clinics, and institutions. The 2-year curriculum prepares the student for these services. Additional training is required for dental hygienists who choose to teach or serve in public health capacities. The financial rewards vary with the type of employment, community standards, and the hygienist's education but compare favorably with those in similar professions.

### QUALIFYING TO PRACTICE

Upon successful completion of the prescribed curriculum, the University confers a Certificate in Dental Hygiene. This certificate entitles the recipient to take the state board licensing examinations in dental hygiene in all 50 states, the District of Columbia, and Puerto Rico. A dental hygienist must have a license in the state in which she practices.

### STUDENT LOANS AND SCHOLARSHIPS

Student loans are available from the New Mexico Dental Association. Recipients of loans must have been residents of New Mexico for 10 years and must be enrolled in the Dental Hygiene Program at the time application for loan is made.

### SCHOLARSHIPS AND AWARDS

**Monica A. Novitski Scholarship in Dental Hygiene.** A \$100 scholarship loan given by the first class of hygienists receiving certificates from the University of New Mexico. It is awarded to a student who has completed 3 semesters in the Dental Hygiene Curriculum and is in need of financial assistance.

The New Mexico Dental Association awards scholarships to dental hygiene and dental students each year.

Four \$800 national scholarships are available to dental hygiene students who have completed their first year of training and have earned a scholarship index of 3.0. Students in all the dental hygiene programs in the United States compete for these four scholarships. Information concerning application for them is available from the Director.



See "Scholarships and Awards" section, pp. 101-120 for other financial assistance.

#### PRIZES

**John K. Phelan Essay Award in Clinical Dental Hygiene.** Two cash awards presented annually to graduating dental hygiene students for the best essays submitted on subjects relating to the clinical practice of dental hygiene.

#### ADMISSION

The total class enrollment in dental hygiene at The University of New Mexico is limited to 24. Students are admitted only in the fall semester. They will be accepted on the basis of scholarship, aptitude, and interest. Dental hygiene students should be capable of maintaining high scholastic standards. If a dental hygiene student withdraws from the program, that place in the class cannot be filled by a transfer student from some other field of study.

Requirements for admission are:

1. Admissibility to the University of New Mexico as described in bulletin (refer to "Admission"); completion of the English Proficiency Examination (administered by the University of New Mexico) with a satisfactory score or a grade of C or better in Remedial English.
2. Personal interview before April 1.
3. Satisfactory scores in Dental Hygiene Aptitude Test.

**It is the responsibility of each applicant to arrange for the aptitude test and the personal interview.**

There is no time during the 2-year period to remove high school deficiencies. Anyone with such a deficiency must remove it before making application to the Dental Hygiene Program.

The American Dental Hygienists' Association, in cooperation with the Council on Dental Education of the American Dental Association, conducts an aptitude testing program for applicants to dental hygiene schools. Testing periods are in May, November, and February of each year. There are various testing centers in the Western States, one of which is Albuquerque. An application for the test can be obtained from the American Dental Hygienists' Association, 304 East 45th Street, New York, New York 10017 or from the office of the Dental Programs. Reports on test scores are sent directly to the dental hygiene schools indicated by the applicant.

The deadline date for receipt of applications and credentials required for the Dental Hygiene Program is **April 1**. All requirements for admission must be fulfilled by this date. Communications **regarding entrance** to the Dental Hygiene Program should be **addressed to the Director of Admissions** of The University of New Mexico. The applicant should make an appointment directly with the **Director of the Dental Hygiene Program for a personal interview** before the deadline date. The Admissions Committee of the Dental Hygiene Program selects the class for the following September during the month of April. The Office of Admissions of the University notifies the applicant of acceptance or non-acceptance.

Freshman students with no previous college work will be admitted to the University College for the first year's work in dental hygiene. Students with 26

hours or more of acceptable college-level work will be admitted to the College of Pharmacy. No transfers from other schools of dental hygiene can be accepted.

**It is advisable for prospective students to complete one year of college work before making application to the Dental Hygiene Program.**

#### EXPENSES

In addition to tuition, housing, and school supplies, students in the Dental Hygiene Program are required to purchase instruments, clinical supplies, and uniforms. The approximate cost of these expenses is \$400 for the 2-year period; most of this expense is in the first year.

The Dental Hygiene Program at The University of New Mexico participates in the Student Exchange Program operated by the Western Interstate Commission for Higher Education, under which legal residents of Western States without a professional school in this field pay the same tuition and fees at this institution as residents of the State of New Mexico. To be certified as eligible for this program, the student must write to the WICHE certifying officer in his home State, who will send the proper application forms. State eligibility requirements vary, and the number of students included from each State depends upon appropriations by the State legislature. For addresses of State certifying officers, write to the Western Interstate Commission for Higher Education, Fleming Law Building, Boulder, Colorado.

Dental hygiene students are eligible for junior membership in the national organization, the American Dental Hygienists' Association.

#### REQUIREMENTS FOR THE CERTIFICATE IN DENTAL HYGIENE

The candidate for the Certificate in Dental Hygiene must:

1. Complete all of the work outlined in the curriculum in dental hygiene.
2. Maintain a grade average of at least 2.0 in the last 66 hours of college-level work\* attempted at The University of New Mexico.
3. Complete the English Proficiency Examination (administered by the University of New Mexico) with a satisfactory score or obtain a grade of C or better in the remedial English course offered on a non-credit basis by the University of New Mexico English Department.
4. Be unanimously recommended by the full-time Dental Hygiene Program staff.

#### CURRICULUM LEADING TO THE CERTIFICATE IN DENTAL HYGIENE

(Descriptions of the courses offered will be found, listed by departments, in the catalog section "Courses of Instruction.")

First Semester	First Year	Second Semester	
Engl 101 Wrting w/Rdgs in Expos	3	Engl 102 Wrting w/Rdgs in Lit	3
Chem 141L Elem of Gen Chem	4	Chem 142L Elem of Org Chem or	
Biol 136 Human Anat & Physiol	3	Chem 281 Org & Biochem	4
Biol 139L Human Anat & Physiol Lab	2	Speech 101 Fund of Speech	3
DH 100 Orientation	2	DH 102L Preclin Dental Hyg	3
DH 101L Orientation Lab	1	DH 110 Oral Anatomy	3
DH 111L Dental Anatomy Lab	1	DH 112 Oral Radiography	1
PE Activity	1	PE Activity	1
	16 + PE		17 + PE

\* Exclusive of hours in nonprofessional physical education and ensemble music.

## Second Year

Biol 393L Gen Bacteriology	4	Soc 101 Intro to	3
Psych 101 Gen Psy 1	3	Pharmacology 276 Prin of	3
DH 200L Clin Dental Hyg	3	H Ec 325 Nutrition	3
DH 210L Histology	2	Nurs 352 Fund Pub Hlth Sci	2
DH 220L Dental Materials	2	DH 202L Clin Dental Hyg	4
DH 230 Oral/Dent Medicine	2	DH 212 Pathology	2
DH 240 Dental Hygiene Seminar	0	DH 242 Practice Mgt & Ethics	1
PE Activity	1	PE Activity	1
	16 + PE		18 + PE

DENTAL ASSISTING PROGRAM. Refer to p. 237. (An Extension Division program.)

## OTHER DIVISIONS OF THE UNIVERSITY

### TELEVISION PROGRAMMING

**T**HE UNIVERSITY offers instruction via television in a number of courses selected from residence offerings. These courses are selected by the University Television Committee and are recommended to the Administration through the office of the Academic Vice President.

Like all other residence course offerings, courses taught via television receive residence credit, applicable to undergraduate degree programs of the University. These telecourses are broadcast over Channel 5—KNME, which is owned and operated jointly by The University of New Mexico and the Albuquerque Public Schools.

The University's academic course offerings in television production are coordinated with Channel 5. Students enrolled in television production courses observe on-the-air broadcast activities of Channel 5.

### DIVISION OF EXTENSION, SUMMER SESSION, AND COMMUNITY SERVICES

#### EXTENSION

The Division of Extension of the University was established as a separate unit with a full-time director in 1928, and has been conducting instruction by correspondence and extension class continuously since that date. On May 7, 1930, the Extension Division of The University of New Mexico became a member of the National University Extension Association, the acknowledged accrediting agency for institutions which offer instruction by correspondence or extension class.

Extension and correspondence courses allow many people who are unable to attend classes in residence to pursue their educational programs. A special correspondence bulletin is issued periodically giving regulations and information concerning courses offered by the Division of Extension. For a copy of the **Correspondence Bulletin** and further information address the Director, Division of Extension, The University of New Mexico, Albuquerque, 87106.

**EXTENSION CLASSES.** The University is always pleased to arrange extension classes in any community in the State. Any of the regular University courses may be offered by extension provided there is a large enough group in any one center to justify doing so, and as long as the class is not dependent upon the campus library and laboratory facilities. Persons interested in having an extension class offered in a specific community should address their inquiries to the Director, Division of Extension. For questions concerning audit status refer to p. 131.

**CORRESPONDENCE COURSES.** A number of courses are offered which are carried on entirely by mail and are planned and conducted by qualified university personnel. Credits received in this manner may be applied toward an undergraduate degree to the extent of 30 semester hours, subject to the approval of the dean of the college in which the student is enrolled. (See additional regulations on p. 138.)

#### SUMMER SESSION

A summer session of 8 weeks is conducted each year on the campus. (For dates,

see the Calendar.) Every attempt is made to meet specialized needs of the particular student group of the session. Emphasis is placed on advanced and graduate work. A special program is offered for teachers and school administrators. The summer climate is warm but delightful; nights are cool. The residential halls are regularly operated during the Summer Session. For a copy of the **Summer Session Bulletin** and further information, address the Director, Summer Session, The University of New Mexico, Albuquerque, 87106.

#### COMMUNITY COLLEGE

The Community College offers a program of late afternoon, evening, and Saturday courses, both credit and non-credit, and supervises the programs of all students enrolled in the University for non-degree work. The Community College has these objectives:

1. To make it possible for adults to supplement their education along general, cultural lines or in the fields of their special interest.
2. To make it possible for employed persons who are unable to attend the regular daytime program of the University to supplement their education through the evening offerings, and thereby become more valuable in their work and as citizens.
3. To assist those mature students who cannot meet the regular admission requirements of the University to obtain some college credit while working off their admission deficiencies.

**CREDIT COURSES.** The standards and requirements maintained for credit courses taken in non-degree status in the Community College are the same as those required in the 4-year degree-granting colleges of the University. The instruction is carried on by members of the regular University faculty. Credits earned are recorded on the permanent academic record of the student, and subject to the restrictions set forth on p. 86 of this catalog, are applicable in the regular degree programs of the University.

**NON-CREDIT COURSES.** The only prerequisite necessary for the non-credit offerings is the desire to learn. Classes are open to any adult interested in further training in either professional or vocational fields, or as a means of better enjoying leisure time.

The **Community College Bulletin** listing both credit and non-credit courses offered each semester will be supplied to anyone making a request to the Director, Division of Extension, The University of New Mexico, Albuquerque, 87106.

#### CONFERENCES, INSTITUTES, AND SHORT COURSES

All conferences and special courses connected with the University of New Mexico are coordinated through the Division of Extension. The development of any conference, institute, or short course is, of necessity, a cooperative process, from initiation and planning through the actual operation, between a specific department of instruction on campus and the special interest group desiring the activity.

Business, professional, or lay groups interested in a series of meetings to discuss topics of special interest should contact the Director, Division of Extension, who will make the necessary arrangements for the meetings.

**ADULT EDUCATION PROGRAMS**

To any community, club, or organization which wishes help in setting up adult education activities the University will be glad to give all the assistance possible. Such activities as classes for illiterates, club study groups, forums, lecture series, etc., will receive special attention. Upon request, the University will make specific written suggestions for organizing any or all of these activities.

**AUDIO-VISUAL CENTER**

The purpose of the Audio-Visual Center will be to promote modern methods of teaching through audio-visual materials now in use, to make accessible to the faculty and students the audio-visual equipment and materials now becoming standard, and to serve as an advisory and demonstration center for these teaching aids. Major emphasis is placed on acquiring the best in modern audio-visual equipment and in building up an adequate library of teaching materials for on-campus use.

**HARWOOD FOUNDATION**

The Harwood Foundation, located at Taos, New Mexico, is operated in connection with the Division of Extension, Summer Session, and Community Services as an extension and field center. Various credit classes are offered by extension during the academic college year whenever demand exists. A library is maintained the year around for the people of the vicinity.

**CIVIL DEFENSE PROGRAM**

Under contract with the Office of Civil Defense, Department of the Army, courses in various civil defense specialties are offered to the public free of charge. Courses are normally conducted, in cooperation with the State Civil Defense Office, throughout the state where there is a need to increase the civil defense operational capability in the area. Conferences on civil defense subjects are also conducted in various communities in cooperation with municipal and county officials.

**DENTAL ASSISTING PROGRAM**

The Dental Assisting Program is a 2-semester course which starts each year in the fall semester only. It is open to applicants who meet University admission requirements and are selected by an Admissions Committee of the Program. On satisfactory completion of the 2 semesters' work, the student is awarded a Certificate of Proficiency in Dental Assisting from the Division of Extension of The University of New Mexico.

Communications regarding application to the Dental Assisting Program may be directed to the Director of Dental Programs, The University of New Mexico, Albuquerque.

**REQUIREMENTS FOR THE CERTIFICATE IN DENTAL ASSISTING**

The Candidate for the certificate must:

1. Complete all work outlined in the curriculum.
2. Maintain a grade average of at least 2.0 in both the credit and non-credit portions of the curriculum.

## CURRICULUM LEADING TO THE CERTIFICATE IN DENTAL ASSISTING

First Semester			Second Semester		
	Cr.	Clock		Cr.	Clock
	Hrs.	Hrs.		Hrs.	Hrs.
Engl 101 Wrting w/Rdgs in Expos	3	3	Engl 102 Wrting w/Rdgs in Lit	3	3
Psych 101, Soc 101 OR Spch 101	3	3	DH 110 Oral Anatomy	3	3
DH 100 Orientation	2	2	H Ed 164 First Aid	2	2
DH 111L Dental Anatomy Lab	1	3	Chairside Assisting	0	8
Chairside Assisting	0	7	Dental Materials	0	1
Microbiology	0	1	Dental Office Management	0	4
Sterilization	0	1	Laboratory Techniques	0	3
Radiography	0	1	Nutrition	0	1
PE Activity	1	3	Oral Pathology & Anesthesia	0	1
			Seminar	0	1
			PE Activity	1	3
	<hr/>	<hr/>		<hr/>	<hr/>
	10	24		9	30

A student who cannot type is required to take a 1-semester course in typing the first semester.

DENTAL HYGIENE PROGRAM. Refer to p. 231. (An offering of the College of Pharmacy).

## AIR FORCE RESERVE OFFICERS TRAINING CORPS

This department is administered by personnel of the United States Air Force under rules promulgated by the Department of the Air Force and The University of New Mexico.

The mission of Air Force ROTC is to commission career-oriented second lieutenants in response to Air Force requirements.

Students may enter the Air Force ROTC from any College of the University. However, new students may enter the program only in the fall semester. Transfer students with an ROTC background can receive credit for previous ROTC experience and enter the program in the spring or fall semester as directed by the Professor of Aerospace Studies.

Processing of new students will occur during the first semester of the student's sophomore year. Specifics may be obtained by contacting the Air Force ROTC staff members in Bldg. Y-1. An \$8 annual activity fee will be collected at the beginning of the fall semester. This fee makes up an activity fund which is administered by the cadets. (For further information refer to the section on Military Training under "General Information," p. 75 in this bulletin.)

## DEPARTMENT OF AEROSPACE STUDIES

## Freshman Year

No freshmen or sophomores will be enrolled in Aerospace Studies during the 1968-69 academic year. All interested freshmen are encouraged to visit the AFROTC building and complete a Personnel Questionnaire. When so doing, they will be advised of the procedures for taking the written and physical examinations as well as other processing data.

## Sophomore Year

Pre-processing for new students of the 2-year program. (Interested sophomores contact the Professor of Aerospace Studies.)

Junior Year  
(Aerospace Studies 3)

Aerosp 300 (3)

Aerosp 301 (3)

Senior Year  
(Aerospace Studies 4)

Aerosp 400 (3)

Aerosp 401 (3)

**NAVAL RESERVE OFFICERS TRAINING CORPS**

This department is administered by officers of the United States Navy and Marine Corps under rules promulgated by the Navy Department.

The mission of the NROTC is to provide, by a permanent system of training and instruction in essential naval subjects at The University of New Mexico, a source from which qualified officers may be obtained for the Navy and Marine Corps, and for the Naval Reserve and Marine Corps Reserve.

**DEPARTMENT OF NAVAL SCIENCE**

Students enrolled in the NROTC Unit may be enrolled in most colleges in the University. Completion of the Naval Science requirements will constitute completion of a minor study in the College of Arts and Sciences.

Freshman Year	
First Semester	Second Semester
NS 101. Naval Orientation	NS 102. Evolution of Sea Power
3	3
Sophomore Year	
NS 201. Naval Weapons	Psy 102. General Psy II
3	3
Junior Year	
NS 301. Navigation	NS 302. Naval Operations
3	3
Senior Year	
NS 401. Naval Engineering	NS 402 Prin and Probs of Leadership
3	3

Marine Corps subjects, given below, are substituted by Marine Corps applicants during junior and senior years.

Junior Year	
First Semester	Second Semester
NS 333. Evolution of the Art of War Part I	NS 334. Evolution of the Art of War Part II, Modern Basic Strategy and Tactics
3	3
Senior Year	
NS 444. Amphibious Warfare Part I	NS 445. Amphibious Warfare Part II, Leadership, and Military Justice
3	3

NROTC students are required to attend 2 hours of Naval Science drill/laboratory per week.



# COURSES OF INSTRUCTION

**O**N THE following pages, under the respective department and division headings, are listed all the courses offered for residence credit by the University as well as requirements for major and minor studies in the various departments.

Courses are numbered from 001 through 699. Courses from 001 to 099, are sub-college level and carry no credit; from 100 to 199, lower division, are normally open to freshmen; from 200 to 299, lower division, normally open to sophomores; from 300 to 499, upper division, normally open to juniors, seniors, fifth-year undergraduates, and graduates; 500 to 699, graduate and professional, normally open to students enrolled in the Graduate School only, the School of Law, or the School of Medicine.

Symbols used in course descriptions:

\*—course allowed for graduate credit to students enrolled in the Graduate School.  
Normally, a Graduate student enrolled in a starred course numbered below 500 is required to do extra work in the course.

[ ]—former course number or title

L—part of the course is laboratory work

F—course is given in field session

SS—course offered in summer session only

Yr—course offered throughout two semesters and credit for the first semester's work is suspended until the entire course is completed

( )—semester hours' credit; credit hours separated by a hyphen (1-3) indicates variable credit in the course.

When a prerequisite course number is not preceded by a department designation, reference is to the department under which the prerequisite statement appears.

A schedule of course offerings, including hours of meeting, is issued at the opening of each session. The University reserves the right to cancel any listed course or to make a substitution in instructors when necessary.

The departments and fields of study (with abbreviations, if used) are arranged in alphabetical order in accordance with the table below:

Accounting—Acct (See Business Administration)  
Aerospace Studies—AF ASP  
American Studies—Am St  
Anthropology—Anth  
Architecture—Arch  
Art  
Art Education—Art Ed (See Education, Art)  
Astronomy—Astr (See Physics & Astronomy)  
Biology—Biol  
Business Administration—Bus Ad  
Business Education—Bus Ed (See Education, Secondary)  
Chemical Engineering—Ch E (See Engineering, Chemical)  
Chemistry—Chem  
Chemistry, Pharmaceutical—Phm Ch (See Pharmacy)  
Civil Engineering—CE (See Engineering, Civil)  
Classical Languages (See Modern & Classical Languages)  
Classics (See Modern and Classical Languages)  
Comparative Literature—Comp L  
Computing Science  
Curriculum & Instruction—C&I (See Education, Curriculum & Instruction)  
Dental Hygiene—DH

Dramatic Art—Dr Art  
Economics—Econ  
Economics-Philosophy—Ec-Ph  
Education, Art—Art Ed  
Education, Business—Bus Ed (See Education, Secondary)  
Education, Curriculum & Instruction—C&I  
Education, Educational Administration—Ed Adm  
Education, Educational Foundations—Ed Fdn  
Education, Elementary—El Ed  
Education, Guidance & Special Education—Guid & Spc Ed  
Education, Health, Physical Education, & Recreation—H Ed, P E, Recrea  
Education, Home Economics & Home Economics Education—H Ec, HEc Ed  
Education, Industrial Education—I Ed (See Education, Secondary)  
Education, Library Science—Lib Sc  
Education, Music—Mus Ed (See Music Education)  
Education, Physical—PE (See Health, Physical Education, & Recreation)  
Education, Secondary—Sec Ed  
Educational Administration—Ed Adm (See Education, Educational Administration)

## ERRATA SHEET

Please make following corrections:

Page 330—History \*335 (4)—Should be (3)

Page 341—Mathematics 264-265 (3, 3)—Should be (4, 4)

## CHANGE

MATHEMATICS \*477 to \*567

## ADD

ART \*427. **History of Photography.** (3)

Consideration of the historical development and aesthetic character of photography from 1839 to the present.

ART \*492. **Art Since 1950.** (3) Adams

A critical study of painting and sculpture produced during the last two decades.

ART \*503. **Methods in Art History.** (2)

Preparation and research procedures to be used in preparing critical and art historical research papers.

ART \*582. **Problems in 20th Century Art.** (2)

May be repeated for credit.

MATHEMATICS \*463. **Introduction to Partial Differential Equations.** (3)

Classification of second-order partial differential equations; properly posed problems; separation of variables, eigenfunctions, and Green's functions; brief survey of numerical methods and variational principles. Prerequisite: 462.

SOCIOLOGY \*422. **Sociology of Religion.** (3) Ugalde

The study of the development, structure, and functioning of religious institutions in both western and non-western societies.

- Educational Foundations—Ed Fdn (See Education, Educational Foundations)  
 Electrical Engineering—E E (See Engineering, Electrical)  
 Elementary Education—El Ed (See Education, Elementary)  
 Engineering, Chemical—Ch E  
 Engineering, Civil—C E  
 Engineering, Electrical—EE  
 Engineering, Mechanical—M E  
 Engineering, Nuclear—Nucl E  
 English—Engl  
 English-Philosophy—Eng-Ph  
 Fine Arts—F A  
 Folklore—Folklr (See Modern & Classical Languages)  
 French (See Modern & Classical Languages)  
 General Studies—Gen St  
 Geography—Geog  
 Geology—Geol  
 German (See Modern & Classical Languages)  
 Greek (See Modern & Classical Languages)  
 Guidance—Guid (See Education, Guidance & Special Education)  
 Health, Physical Education, & Recreation—H Ed, P E, Recrea (See Education, Health, Physical Education & Recreation)  
 History—Hist  
 Home Economics & Home Economics Education—H Ec & HEc Ed (See Education, Home Economics)  
 Ibero-American Studies—Ib Am  
 Industrial Education—I Ed (See Education, Secondary)  
 Italian—Ital (See Modern & Classical Languages)  
 Journalism—Jour  
 Latin (See Modern & Classical Languages)  
 Latin American Studies—Lt Am  
 Law  
 Library Science—Lib Sc (See Education, Library Science)  
 Mathematics & Statistics—Math  
 Mechanical Engineering—M E (See Engineering, Mechanical)  
 Medical Sciences—Med Sc  
 Modern & Classical Languages—M Lang  
 Music and Music Education—Mus & Mus Ed  
 Naval Science—Nav Sc  
 Nuclear Engineering—Nucl E (See Engineering, Nuclear)  
 Nursing—Nurs  
 Paleocology—Paleoe  
 Pharmaceutical Chemistry—Phm Ch (See Pharmacy)  
 Pharmacognosy—Phmcog (See Pharmacy)  
 Pharmacology—Phmcol (See Pharmacy)  
 Pharmacy—Pharm  
 Philosophy—Phil  
 Philosophy-Economics (See Economics-Philosophy)  
 Philosophy-English (See English-Philosophy)  
 Physical Education (See Education, Health, Physical Education & Recreation)  
 Physical Science—Phy Sc  
 Physics & Astronomy—Physics & Astr  
 Political Science—Pol Sc  
 Portuguese—Port (See Modern & Classical Languages)  
 Psychology—Psych  
 Recreation—Recrea (See Education, Health, Physical Education, & Recreation)  
 Russian—Russ (See Modern & Classical Languages)  
 Russian Studies  
 Sociology—Soc  
 Spanish—Span (See Modern & Classical Languages)  
 Special Education—Spc Ed (See Education, Guidance and Special Education)  
 Speech  
 Statistics (See Mathematics & Statistics)  
 Western European Studies

## ACCOUNTING

See Business Administration.

## AEROSPACE STUDIES

PROFESSOR C. R. Hein, Major, USAF (Chairman); ASSOCIATE PROFESSOR R. T. Jones, Captain, USAF.

### CURRICULUM

See p. 238.

#### 300-301. Air Science 3—Growth and Development of Aerospace Power. (3, 3)

The nature of war; development of airpower in the United States; mission and organization of the Defense Department; Air Force concepts, doctrine, and employment; astronautics and space operations; and the future development of aerospace power. Includes the U.S. space program, vehicles, systems, and problems in space exploration.

#### 400-401. Air Science 4—The Professional Officer. (3, 3)

Professionalism, leadership, and management. The meaning of professionalism, professional responsibilities, the military justice system, leadership theory, functions, and practices, management principles and functions, problem solving, and management tools, practices, and controls.

## AMERICAN STUDIES

COMMITTEE IN CHARGE: PROFESSORS G. Arms (English), Chairman; B. Bunting (Art), W. M. Dabney (History), D. B. Hamilton (Economics), P. F. Schmidt (Philosophy), E. W. Tedlock, Jr. (English), V. D. Coke (Art); ASSOCIATE PROFESSOR G. D. Nash (History), Undergraduate adviser; ASSISTANT PROFESSORS J. S. Martin (English), H. V. Rhades (Political Science), P. F. Sanborn (Philosophy).

An American Studies minor may be elected by undergraduate students majoring in the departments of Anthropology, Art History and Criticism, Economics, English, History, Philosophy, Political Science or Sociology. Requirements for the doctor's degree in American Studies are listed in the **Graduate School Bulletin**.

### MINOR STUDY

The requirement is 24 hours, including 9 hours in American Studies courses (American Studies 285, 301, 302) and 15 hours in approved courses in literature, history, or social science. With the approval of the chairman of the major department, options within the major may permit the election of additional courses in the American area (normally 9 hours in all within the major). Since courses counted toward a major cannot also be counted toward a minor, requirements vary somewhat according to the student's major department. In addition to 9 hours in American Studies, approved courses are as follows:

#### For majors in Anthropology, Economics, Political Science, or Sociology:

6 hours in literature or history (normally chosen from English 432, 435, 467, 468, 469, 470; History 361 through 379); 6 hours in a social science other than the major (normally from Anthropology 305, 308, 357, 358, 404; Economics 320, 350, 360; Political Science 306, 368, 375; Sociology 441, 445, 461); 3 hours in Philosophy 332 or Art 472.

#### For majors in Art History and Criticism or in Philosophy:

6 hours in literature or history (as above); 6 hours in a social science (as above); 3 hours in Philosophy 332 (for majors in Art) or in Art 472 (for majors in Philosophy).

#### For majors in English:

6 hours in history (as above); 6 hours in a social science (as above); 3 hours in Philosophy 332 or Art 472.

#### For majors in History:

6 hours in literature (as above); 6 hours in a social science (as above); 3 hours in Philosophy 332 or Art 472.

#### 285. American Life and Thought. (3) Baughman

Important themes and issues of our society (1607 to the present), as reflected in American literature. Prerequisite: Engl 282, or Hist 161 or 162.

#### 301-302. Interdepartmental Studies in the Culture of the United States. (3, 3) George, Sanborn, Szasz

Subjects, varying from semester to semester, will be topical in 301 (as "Modern American Social and Religious History," "Art, Literature, and Culture of the West") and chronological in 302 (as "The Period of Peirce," "American Transcendentalism, 1836-1865").†

† As the content varies, this course may be repeated with the consent of the American Studies Undergraduate Adviser or of the Chairman of the Department.

- \*501. *Interdepartmental Seminar in the Culture of the United States.* (3) G. W. Smith, Martin, George, Sanborn  
Civil War period; the formation of an American view during the early national period, 1775-1828; American society and painting, 1918-1941; pragmatism, realism, and naturalism—a comparative exploration of the literary and philosophical traditions at the turn of the century.
- \*699. *Dissertation.* (3-6 hrs. per semester)  
See the *Graduate School Bulletin* for total credit requirements.

## ANTHROPOLOGY

PROFESSORS H. W. Basehart, F. H. Ellis, F. C. Hibben, S. S. Newman, J. N. Spuhler; ASSOCIATE PROFESSORS P. K. Bock, J. M. Campbell (Chairman), N. L. Gonzalez, G. P. Springer; ASSISTANT PROFESSORS J. J. Brody, B. J. Rigsby, K. H. Scherwin, J. M. Sebring, W. T. Stuart.

### MAJOR STUDY

Anthropology 101, 102, 201, 493, and 27 additional semester hours in courses numbered from 300 through 499 within the Department. Anthropology courses are offered in five major divisions: anthropology, physical; archaeology; ethnology, general; linguistics; and technical. A student must concentrate in one of the first four and take a minimum of 9 hours in that division. Three hours must be taken in the technical division. Six hours must be taken in two of the other three divisions, and 3 hours must be taken in the remaining division. No more than 3 semester hours of Field courses may be applied toward the fulfillment of the requirements of the appropriate division of concentration. In selecting from general ethnology, a student must take at least 3 hours in courses numbered 305, 306, 310, 314, 321, 336, 347, 357, 358, 382 and 383, and at least 3 hours in courses numbered 301-302, 308, 316, 350, 352, 389, 398, 399, and 404. Upper division courses from other departments, chosen with the approval of the Chairman of this Department are acceptable as electives toward a major in Anthropology.

### MINOR STUDY

17 hours in addition to Anthropology 101 and 102, and at least 6 hours to be taken in courses numbered above 300. No more than 3 semester hours of Field courses may be applied toward the minor.

DISTRIBUTED MINOR FOR ANTHROPOLOGY MAJORS. With the consent of the Department Chairman, a major may offer an American Studies minor as well as a minor in a single department. For requirements, see American Studies.

### ANTHROPOLOGY, GENERAL

101. *Origin and Antiquity of Man.* (3) Staff  
Introductory course dealing with the physical origins of man and the development of human culture as revealed by archaeology.
102. *Development of Culture.* (3) Staff  
The concept of culture as exemplified by contemporary peoples.
201. *Principles and Fields of Anthropology.* (3) Bock, Staff  
Introduction to the history, literature, and current problems in the major fields of anthropology. Includes lectures by all members of the department on strategies of research and frontiers of knowledge in their specialties. Prerequisites: 101, 102.
- 275F. *General Field Session.* (2-6) Staff  
Introductory summer field course in archaeology, linguistics, or general ethnology.

**\*475F. Advanced Summer Field Session. (2-6) Staff**

For upper-division and graduate students. Field course in archaeology, linguistics, or general ethnology. An advanced course that includes intensive instruction in field techniques and the opportunity for independent research on the part of the student. Prerequisite: 275F or equivalent.

**\*493. History of Anthropology. (2) Basehart**

The development of anthropological theory from the 19th century to the contemporary period, with major emphasis on cultural anthropology. Limited to majors and minors in anthropology.

**\*499F. Field Research. (2-6) Staff**

Field research for qualified advanced or graduate students with previous experience in archaeology, linguistics, or general ethnology. Problems are selected on the basis of student-faculty interest and field research opportunities. Students are expected to work under minimal supervision and to produce publishable reports. Prerequisite: permission of staff.

**\*505. Proseminar: Introduction to Research. (2) Campbell**

Methods and techniques of collecting and analyzing data and of writing scientific reports. Limited to graduate majors.

**\*509. Seminar: Anthropological Theory. (2) Basehart, Gonzalez**

Intensive analysis of selected problems and theories, both historical and contemporary, in anthropology. Limited to graduate majors.

**\*511. Advanced Research. (2) Staff**

Individual research projects in Archaeology, General Ethnology, or Linguistics. Limited to graduate majors.

General prerequisites: Anthropology 101 and 102 or equivalent.

**ANTHROPOLOGY, PHYSICAL****\*307L. Physical Anthropology: Osteology. (3) Basehart**

A laboratory course in the identification of human skeletal materials with attention to problems in the evolution of the primates. 2 lectures, 2 hrs. lab.

**\*450. Physical Anthropology. (3) Spuhler**

The biological organization of past and present primate and human properties.

**\*451. Biology, Society, and Culture. (3) Spuhler**

The biological bases of behavior, social behavior of the non-human primates, and the evolution of human behavior.

**\*452. Human Population Genetics. (3) Spuhler**

The conditions for stability and change in gene and genotype frequencies in human breeding populations.

**\*510. Seminar: Physical Anthropology. (2) Spuhler**

Specific topics related to problems in human biology. Prerequisite: Graduate status.

**ARCHAEOLOGY****†266F. Archaeological Field Techniques. (2) Brody**

An introduction to site surveying, excavation techniques, field conservation, cataloging principles and techniques, field mapping, and site reporting.

**\*312. European Prehistory. (3) Hibben**

The archaeological backgrounds of Europe and contiguous areas in the Mediterranean, Africa, and Asia from earliest times to the historical period.

**\*355. Southwestern Archaeology: Mogollon and Hohokam. (3) Ellis**

The development of the various branches of Mogollon and Hohokam cultures, from Southwestern Desert Culture roots; influences from Mexico are examined.

**\*356. Southwestern Archaeology: Pueblo Area. (3) Ellis**

The development of Basket Maker-Pueblo culture through its periods and regional branches from a combination of Southwestern Desert Culture roots and borrowed traits.

**\*362. Archaeology of the Old World. (3) Hibben**

Prehistory of Africa, Asia, and Oceania with emphasis on Egypt, Mesopotamia, India, and China. In each area the prehistoric sequence is brought up to historic times.

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† No prerequisite

- \*384. **Archaeology of Mexico, Central America, and the West Indies.** (3) Hibben  
Prehistoric beginnings of human culture from the appearance of man in the New World to the Spanish Conquest. Emphasis is on the Valley of Mexico, the Mayan area, and contiguous regions.
- \*385. **American Archaeology: North America.** (3) Hibben  
Prehistory of the North American continent from the first appearance of man in America to the European contact period. The American Southwest and Mexico are excluded.
- \*386. **American Archaeology: South America.** (3) Hibben  
The archaeology of the continent of South America from the time of the Paleo-Indian to the European period. Emphasis is upon the Andean area.
- \*391. **Classical Archaeology.** (3) Hibben  
Cultural beginnings of Greece, Rome, and associated cultures in the Mediterranean area from the Neolithic period to the Byzantine empire.
- \*507. **Seminar: Archaeological Theory and Method.** (2) Staff  
The approaches and strategies of the study of archaeology with an emphasis on methodological rather than technical procedures.
- \*514. **Seminar: South American Archaeology.** (2) Staff  
Readings, group discussions, and presentation of a research paper on aspects of South American prehistory.
- \*516. **Seminar: European Prehistory.** (2) Hibben  
Individual and group discussion of the cultural backgrounds of European archaeology, with special reference to recent developments in the field.
- \*557. **Seminar: Early Man in the New World.** (2) Hibben  
Special readings and discussion of various aspects of Paleo-Indian problems.
- \*582. **Seminar: American Archaeology.** (2) Campbell, Hibben  
Detailed readings and discussion of various aspects of North American archaeology. Special reading by each seminar member will result in a paper presented to the entire group.
- \*594. **Seminar: Southwestern Archaeology.** (2) Ellis  
Individual research dealing with a current problem selected for group study.

#### ETHNOLOGY, GENERAL

- †301-302. **Interdepartmental Studies in the Culture of the United States.** (3, 3) George, Sanborn, Szasz  
(Same as American Studies 301-302).
- \*305. **The American Indian: North America.** (3) Rigsby  
Major culture types and selected ethnographic examples of North American Indian cultures.
- \*306. **The American Indian: South America.** (3) Schwerin  
Major culture types and selected ethnographic examples of South American Indian cultures.
- \*308. **Psychological Anthropology.** (3) Bock  
Materials and concepts useful in understanding the influence of group culture upon personality and of the individual upon his society.
- \*310. **Peasant Cultures of the World.** (3) Bock, Gonzalez  
An introduction to the comparative study of peasantry. Focuses on the social and economic organization of peasant societies and the relationships of these groups to the civilizations of which they are a part.
- \*314. **Latin American Culture and Societies.** (3) Gonzalez, Schwerin  
Culture patterns common throughout Latin America and their historical antecedents. Analyses of the variations among selected Latin American societies.
- \*316. **Applied Anthropology.** (3) Bock, Stuart  
The application of anthropological methods and principles to problems of inter-cultural communication and social change.
- \*321. **Ethnology of Asia.** (3) Sebring  
Survey of modern social structures and cultures of Asia with emphasis upon selected areas and problems.

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† No prerequisite.

- \*336. **Ethnology of Africa.** (3) Basehart  
Cultural and social patterns characteristic of sub-Saharan Africa with special reference to problems of culture history and comparative political organization.
- \*347. **Oceania.** (3) Stuart  
Major culture types of Oceania. Selected examples covering Australia, Melanesia, Polynesia, and Micronesia.
- \*350. **Methods in Cultural Anthropology.** (3) Ellis  
Methods used in the collection and ordering of anthropological data for historical, scientific, and administrative problems.
- \*352. **Primitive Literature.** (3) Newman  
Comparative study of literature as a historical phenomenon, as a reflection of a cultural setting, as a formal expression for aesthetic purposes; examples drawn from oral literature.
- \*357. **Southwestern Ethnology: Non-Pueblo Peoples.** (3) Ellis  
The cultures, and relationships of Pima, Papago, Yaqui, Tarahumara, Seri, Yumans, Navajos, and Apaches.
- \*358. **Southwestern Ethnology: Pueblo Peoples.** (3) Ellis  
The origin, social organization, material culture, and relationships of Southwestern Pueblo tribes.
- \*361. **Social Implications of Technological Change.** (3) Gonzalez  
(Also offered as Sociology 361.) The impact of technological change on societal institutions with special attention to underdeveloped areas. Prerequisite: Soc 101 or 401 or equivalent.
- \*365. **Urbanization in Latin America.** (3) Gonzalez  
(Also offered as Sociology 365.) Analyzes the processes related to urbanization in Latin America, comparing them with developments following industrialization and rural-to-urban migrations elsewhere. Emphasis on social and cultural changes accompanying rural-to-urban migration. Prerequisite: Soc 101 or 401 or equivalent.
- \*382. **Middle American Ethnology.** (3) Schwerin  
Emergence of the modern Indian cultures of Mexico and Guatemala. Persistence and change in social institutions and cultural patterns.
- \*383. **Caribbean Ethnology.** (3) Gonzalez  
A descriptive and analytic survey of modern West Indian sociocultural systems, taking into consideration their African, European, and East Indian cultural antecedents.
- \*389. **Cultural Evolution.** (3) Schwerin  
Nineteenth century theories of cultural evolution and revival of the evolutionary view in contemporary anthropology. Selected cultural examples are analyzed in terms of the modern theories.
- \*397. **Music in Society.** (3) Springer  
Examinations of the functions of music in tribal and modern society; tools of analysis; survey of selected samples of musical culture. Prerequisite: ability to read simple music.
- \*398. **Primitive Religion.** (3) Stuart  
Selected examples of non-literate religions. Special emphasis on revitalization or native movements which develop in acculturative situations.
- \*399. **Comparative Value Systems.** (3) Sebring  
A comparative treatment of values, world views, belief systems of selected societies; basic premises and tenets revealed in a society's interpretation of its experiences; examination of relation between values, world views.
- \*404. **Comparative Social Structure.** (3) Basehart  
A systematic comparative analysis based upon the intensive study of a limited number of social systems.
- \*506. **Cultural Ecology.** (2) Campbell, Stuart  
Analysis of cultural technological adaptations to environment in cross-cultural perspective.
- \*508. **Processes of Culture Change.** (2) Basehart  
Analysis of contemporary anthropological approaches to problems of social and cultural change.
- \*512. **Seminar: Ethnology.** (2) Staff  
Specific topics related to problems in the interpretation of ethnological data.



- \*513. **Anthropological Problems in Latin America.** (2) Gonzalez, Schwerin  
Analyses of current anthropological problems in the area.
- \*584. **Interdisciplinary Seminar on Problems of Modernization in Latin America.** (3) Liepe, Lieuwen, Needler, Scherwin  
(Also offered as Econ, Hist, Pol Sci, and Soc 584.)
- \*595. **Seminar: Southwestern Ethnology.** (2) Ellis  
Individual research related to a current problem selected for group study.
- \*610. **Kinship Studies.** (2) Basehart  
An introduction to the forms and variations of kinship systems.

## LINGUISTICS

- \*313L. **Linguistic Field Methods.** (3) Newman  
Practice in transcribing from oral dictation, phonemic analysis, introduction to problems of morphology. 2 lectures, 2 hrs. lab.
- \*317L. **Phonological Analysis.** (3) Newman, Rigsby  
Phonetic principles and phonological theory, descriptive analysis of phonological systems, transcriptional practice and problems from selected languages. 2 lectures, 2 hrs. lab.
- \*354. **The Nature of Language.** (3) Newman  
Introduction to modern descriptive linguistics, principles of comparative linguistics, language as a social and psychological phenomenon.
- \*359. **Language and Culture.** (3) Rigsby  
An examination of the interrelations of language and speech with other selected aspects of culture. Prerequisites: 317L, 354, or equivalent.
- \*418L. **Grammatical Analysis.** (3) Newman, Rigsby  
A continuation of 317L. Principles of grammatical analysis and the theory of grammar, descriptive analysis of grammatical structures, problems from selected languages. 2 lectures, 2 hrs. lab.
- \*446. **Introduction to Comparative Linguistics.** (3) Newman  
The comparative method applied to Indo-European and to unwritten languages; other methods and techniques used in comparing languages. Prerequisites: 313L, 317L, 354 or permission of instructor.
- \*660. **Methods of Comparative Linguistics.** (2) Newman  
Evaluation of different methods used in the comparison of languages; current trends in comparative linguistics.
- \*661. **Types of Linguistic Structure.** (2) Newman  
Linguistic analysis and synthesis, language as an integrated system, varieties of language structures.

## TECHNICAL

- †260L. **Beginning Museum Techniques and Methods.** (3) Brody  
An introduction to the history, philosophy, and purpose of museums. Techniques and problems of museum administration, education, collection, exhibition, conservation, and public relations. 2 lectures, 2 hrs. lab.
- \*303L. **Chronology.** (3) Ellis  
Methods of dating in relationship to archaeological problems. Prerequisite: permission of instructor. 1 lecture, 4 hrs. lab.
- \*311. **Material Culture.** (3) Ellis  
Materials and techniques of manufacture, with emphasis on analysis and identification of the prehistoric and historic Southwestern tribes.
- \*360L. **Advanced Museum Techniques and Methods.** (3) Brody  
Specialized work on a sub-curatorial level in one area of anthropology, art, or folk art. Emphasis on conservation, cataloging, and interpretation of collection materials to the public. 2 lectures, 2 hrs. lab.
- \*409L. **Southwestern Pottery.** (3) Ellis  
Prehistoric pottery types of Mogollon and Pueblo cultures: identification and relationships. Prerequisites: 355 and 356 or permission of instructor. 2 lectures, 2 hrs. lab.

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† No prerequisite.

## INDIVIDUAL STUDIES

- \*551-552. Problems. (2 hrs. each semester) Staff
- \*599. Master's Thesis. (1-3 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.
- \*699. Dissertation. (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

## ARCHITECTURE

PROFESSORS T. R. Vreeland, Jr. (Chairman), J. J. Heimerich, D. P. Schlegel; ASSOCIATE PROFESSOR W. L. Weismantel; ASSISTANT PROFESSORS A. W. Jones, R. Eichorn; LECTURER (Part-time) W. A. Gathman.

## CURRICULA

See p. 205.

- 101. **Introduction to Architecture.** (3) Jones, Vreeland  
Architectural form and composition as understood through perception and symbolism and as evolved through technology and social requirement.
- 104. **Spatial Ordering Systems.** (3) Eichorn  
Problems in visual analysis with emphasis on observation, recording and communication techniques. Lectures, laboratory and shop work.
- 201. **Fundamentals of Design.** (3) Eichorn  
An analytic and rational approach to design; systems analysis, operational techniques and human behavior as form determinants; application of problem-solving and decision-making techniques to design. Lecturers, laboratory and shop work. Prerequisite: Art 103.
- 202. **Fundamentals of Design.** (3) Eichorn  
Continuation of 201. Prerequisite: 201
- 261. **Ancient and Medieval Architecture.** (3) Bunting
- 262. **Renaissance and Baroque Architecture.** (3) Bunting
- °301. **Elements of Architecture I.** (4) Jones  
Problems in the design of simple structures with emphasis on the principles of structural framing and the use of the basic building materials. The development of building programs. Pre-fabrication and integrated building systems. Prerequisite: 202. Corequisites: 385 and CE 211L.
- °302. **Elements of Architecture II.** (4) Jones  
Introduction to architectural elements and the principles of composition through the analysis of existing works. Design of multi-cellular structures and the development of evaluative techniques. Prerequisite: 301. Corequisites: 386 and CE 212L.
- 361. **Modern Architecture.** (2) Schlegel  
Sources and development from 1750 to 1940.
- °362. **Contemporary Architecture.** (2) Schlegel  
A study of theory and its application.
- °385. **Building Technology I.** (2) Gathman  
Properties of materials used in construction; simple building assemblies; mechanical and electrical equipment of buildings; simple illumination. Closely related to work done in 301. Prerequisite: 202.
- °386. **Building Technology II.** (2) Gathman  
Continuation of 385 with the addition of problems directly related to work done in 302. Prerequisite: 385.
- °401. **Architecture of the Community.** (4) Weismantel  
Building design is studied in terms of the physical, functional, social and aesthetic inter-relationship of buildings with each other and with the community. Prerequisite: 302.
- °402. **Systematic Design Methods.** (4) Schlegel  
The application of a systematic method of design in the study of large-scale architectural problems. Prerequisite: 302.

° Open only to students enrolled in the professional curriculum in architecture.

- 421. Architecture as Visual Communication.** (2) Vreeland  
The visual properties of architecture are explored through perception, the theory of signs, and communication theory. Prerequisite: Junior standing.
- †**429. Workshop.** (1-5)  
Design work in architecture and planning. Special permission required.
- †**\*462. Seminar** (2) Staff  
Prerequisite: senior standing.
- \*465. [461] Introduction to City Planning.** (3) Weismantel  
(Also offered as Econ, Pol Sci, and Soc 465.) Topics include perceptual form of the city; the city in art and literature; public control over development; urbanization of the Southwest; urban social welfare planning; planning for the developing nations. This is a multi-discipline introduction to urban studies, with emphasis on planning and control.
- \*471. American Architecture.** (3) Bunting  
The history of American architecture from the 17th century to World War II.
- †**472L. Planning Design** (3) Weismantel  
Studies of regions, cities or communities. Compilation of the basic data, methods of approach, formulation of a general plan of land use, physical characteristics and circulation. 9 hrs. lab.
- †**481. Architectural Programming.** (1)  
The methods of developing a building program. Prerequisite: 441L.
- †**483L. Working Drawings.** (3) Heimerich  
The preparation of working drawings, showing the quantity and method of construction of a specified type of building. Prerequisite: senior standing. 9 hrs. lab.
- †**\*484. Office Practice and Specifications.** (3) Heimerich  
Duties of the architect, relationships of architect-client-contractor, professional ethics, office management, requirements for licensing, analyses and writing of various specifications. Prerequisite: senior standing.
- °485. Building Technology III.** (2) Gathman  
Advanced construction materials, building assemblies and mechanical systems, partially related to work done in 401. Advanced illumination and acoustics. Prerequisite: 386.
- °486. Building Technology IV.** (2) Gathman  
Continuation of 485 with emphasis on problems directly related to work done in 402. Prerequisite: 485.
- †**490. Interdepartmental Proseminar.** (3) Honors Staff  
(Same as Fine Arts 490.)
- †**491L. Architectural Design.** (5)  
Feasible solution through the collaborative method to a large scale architectural problem. The synthesis of all experiences in a final project. Prerequisites: 10 hours credit in 441L, 472L; CE 313, 314; corequisite: 481. Thesis to be taken during last semester. May be repeated to a maximum of 10 hours credit. 15 hrs. lab.
- †**499L. Architectural Thesis.** (7)  
A continuation of 491L and the solution of the architectural problem chosen in 481, and a further development of all the components of the problem. Prerequisites: 491L, 472L, CE 313, 314, Fine Arts 490. Thesis to be taken during last semester. 21 hrs. lab.
- \*563. Protective Construction.** (3-4) Heimerich  
Planning, design and analysis of building types for protection of personnel against effect of nuclear radiation. Prerequisite: Graduate standing or permission of instructor.

## ART

PROFESSORS V. D. Coke (Chairman), C. Adams (Dean), B. Bunting, J. Kacere, R. Parks, S. D. Smith, J. Tatschl; ASSOCIATE PROFESSORS G. Z. Antreasian, C. E. Paak; ASSISTANT PROFESSORS R. Ellis, D. George, M. Howard, R. W. Lewis, M. E. Smith, G. Weisberg, A. Young; INSTRUCTORS S. Dubov, W. R. Lazorik; LECTURER (Part-time) V. Milford; and staff.\*\*

° Open only to students enrolled in the professional curriculum in architecture.

† Open to students enrolled in the six-year curriculum only with permission of the Department Chairman.

‡ On leave, Semester II.

\*\* New appointments to be made, effective July 1, 1968.

## MAJOR STUDY

1. For the student enrolled in the College of Fine Arts, a 60-hour Professional Curriculum is offered leading to the degree of B.F.A. in Art. (See curriculum, p. 207).

2. For the student enrolled in the College of Fine Arts, a 48-hour General (Liberal Arts) Curriculum is offered leading to the degree of B.A. in Fine Arts. (See curriculum, p. 207).

3. For the student enrolled in the College of Arts and Sciences, a 32-hour major may be taken in one of two fields of specialization: Studio or Art History and Criticism.

Of these 32 hours, at least 12 must be in courses numbered above 300. Those specializing in Studio take the following:

6 hours chosen from Art 101, 103, 104, or 105.

8 hours Art History and Criticism including Art 270, 271, or 272.

18 hours additional in the field of specialization.

Those specializing in Art History and Criticism take the following:

12 hours Studio including Art 103 and 105.

20 hours of Art History and Criticism including Art 270, 271, and 272.

If a student majors in Art in the College of Arts and Sciences, he may not count toward graduation any other hours taken outside that College. An Art adviser shall be appointed by the Art Department, and the program approved by him.

## MINOR STUDY

The minor consists of 20 credit hours. The student minoring in Art is expected to specialize in a single field (such as the crafts, history of art, lithography/drawing, painting/drawing, or photography, etc.) but he should also take one or more of the general introductory courses offered by the department. Prerequisite courses shall be taken. The student must consult an Art Department adviser regarding his minor, and the advised program in his minor must be approved by his major department.

## PERIOD MINOR

For requirements, see Comparative Literature.

## MATERIALS AND STUDENT WORK

Students enrolling in Art courses furnish their own material except certain studio equipment provided by the University.

ALL WORK when completed is under the control of the department until after the exhibitions of student work. Each student may be required to leave one or several pieces of original work with the department.

## CREDIT

For 1 semester hour of credit it is expected that the student do 3 clock hours work per week through the semester. This includes time spent in recitation, preparation and studio. If full studio hours are not assigned in the schedule, outside assignments will be given by the instructor.

**GENERAL**

- 101. Art Appreciation.** (3) Ellis, George  
Introduction to the visual arts; acquaints the general student with various fields, media, and masterpieces.
- 210. Introduction to the Cinema.** (3)  
(Same as Fine Arts 210.)
- 490. Interdepartmental Proseminar.** (3) Honors Staff  
(Same as Fine Arts 490.)

**STUDIO**

- 103-104. Visual Fundamentals.** (3, 3) Howard  
An introductory course dealing with the problem of visual organization.
- 105. Fundamentals of Drawing.** (3) Ellis  
Pictorial interpretation of form.
- 183. Fundamentals of Painting.** (3)  
Descriptive painting in the oil medium with emphasis on the still life as subject matter.  
Prerequisites: 103, 105.
- 205. Beginning Drawing.** (3)  
Understanding of form through a proficiency in drawing. Prerequisite: 105.\*\*
- 213. Beginning Sculpture.** (3)  
Sculptural techniques in various media. Prerequisites: 103, 104.
- 257. Beginning Jewelry and Metalwork.** (3) Lewis  
The handworking of various metals. Prerequisites: 103, 104.\*\*
- 268. Beginning Ceramics.** (3) Paak  
Ceramic techniques. Prerequisites: 103, 104.\*\*
- 283. Beginning Painting.** (3)  
Composition, form and color in painting. Exploration of the acrylic media. Prerequisite: 183. Corequisite: 205.
- 287. Photography.** (3) Lazorik  
Introductory courses in still photography. Prerequisite: 103 or permission of instructor.
- 293. Beginning Watercolor Painting.** (3) Lewis, S. D. Smith  
Fundamentals of watercolor painting. Emphasis will be placed on the landscape as a subject. Prerequisites: 103, 105.\*\*
- 305. Intermediate Drawing.** (3)  
Drawing as a foundation for painting and sculpture. Prerequisite: 205.\*\*
- \*343. Advanced Landscape Painting.** (2) S. D. Smith  
Landscape painting in various media. Prerequisites: 283, 305.\*\*
- 357. Intermediate Jewelry and Metalwork.** (3) Lewis  
Development of metalworking techniques with emphasis on the creative application of various skills. Prerequisite: 257.\*\*
- 368. Intermediate Ceramics.** (3) Paak  
Experimental approaches to ceramic design. Prerequisite: 268.\*\*
- 373. Intermediate Sculpture.** (3) Dubov  
Relationships of various materials to specific conceptual problems. Prerequisite: 213.\*\*
- 374. Lithography.** (3) Antreasian  
Techniques and methods of lithography. Prerequisite: 305.\*\*
- 383. Intermediate Painting.** (3)  
Development of the concepts and ideas of painting. Both oil and acrylic media will be used. Prerequisite: 283.\*\*
- 386. Techniques of Photography.** (3)  
Applications of photography as a recording tool.
- 387. Intermediate Photography.** (3) Lazorik  
Practical and historical study of still photography with emphasis on the development of different techniques to engender various kinds of content. Prerequisite: 287.\*\*
- 388. Cinematic Photography.** (3)  
Basic study of film-making. Prerequisite: 287 or Journ 261.

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\*\* Instructor and Department Chairman must approve repetition of this course. May be taken for credit no more than three times.

- 393. Intermediate Watercolor Painting.** (3) S. D. Smith  
Watercolor as an expressive medium. Emphasis will be placed on the landscape as a subject. Prerequisite: 293.\*\*
- \*405. Advanced Drawing.** (3) Kacere  
Drawing as an expressive medium. Prerequisite: Permission of instructor only. **May be repeated for credit.†**
- \*457. Advanced Jewelry and Metalwork.** (3) Lewis  
Experimental use of metal-working processes. Prerequisite: 357. By permission of instructor only. **May be repeated for credit.†**
- \*468. Advanced Ceramics.** (3) Paak  
Experimental approach to ceramic design based on a thorough knowledge of processes. Prerequisite: 368. By permission of instructor only. **May be repeated for credit.†**
- \*473. Advanced Sculpture.** (3)  
Investigation of individual problems based on a thorough knowledge of materials and methods. Prerequisite: 373. By permission of instructor only. **May be repeated for credit.†**
- \*474. Advanced Lithography.** (3) Antreasian  
Continuation of 374. Prerequisites: 374, 405. By permission of instructor only. **May be repeated for credit.†**
- \*483. Advanced Painting.** (3) Kacere, Young, and Visiting Artists  
Development of concepts and ideas as related to an individual approach to painting. Prerequisites: 383, 405. By permission of instructor only. **May be repeated for credit.†**
- \*484. Materials and Techniques of the Artist.** (3) Tatschl  
Experimental study and application of traditional and contemporary techniques and materials. Recommended for Art History majors.
- \*487. Advanced Photography.** (3) Coke, Lazorik  
The practice of photography as a creative means of expression with emphasis on various approaches to the development of a personal vision. Prerequisite: 387 or permission of instructor. **May be repeated for credit.†**
- \*493. Seminar: Painting, Sculpture, Lithography, Photography.** [Criticism: Painting, Sculpture, Lithography] (1)  
Criticism for advanced and graduate students in painting, sculpture, and lithography. **May be repeated for credit,† but no more than 2 hrs. of credit may be counted toward a graduate degree.**
- \*498. Seminar: Crafts.** [Criticism: Crafts] (1)  
Criticism for advanced and graduate students in crafts. **May be repeated for credit,† but no more than 2 hrs. of credit may be counted toward a graduate degree.**
- 499. Senior Thesis.** (3)  
Directed study in the major field, culminating in a written thesis or exhibition. Open to students by faculty invitation only.
- \*505. Projects in Drawing.** (3) Kacere
- \*551-552. Problems.** (2-3 hrs. each semester) Staff  
Graduate work in projects or fields not covered in the regular catalog courses. **Maximum 6 hours.**
- \*573. Projects in Sculpture.** (3)  
Directed individual assignments.
- \*574. Projects in Lithography.** (3 or 6) Antreasian  
Prerequisite: 474 or permission of instructor.
- \*583. Projects in Painting.** (3) Kacere  
Directed individual assignments.
- \*587. Projects in Photography.** (3) Coke  
Directed individual assignments.
- \*599. Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

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**\*\* Instructor and Department Chairman must approve repetition of this course. May be taken for credit no more than three times.**

**° Undergraduate students not enrolled in the professional curriculum in Art may take this course only with permission of the department chairman.**

**† Instructor and Department Chairman must approve all cases of repetition in this course.**

- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

#### ART HISTORY AND CRITICISM

130. **Contemporary Art.** (3) Ellis  
Emphasis will be given to the theoretical bases of the major movements since Impressionism.
270. **History of Art I.** (3) Bunting  
Introductory study of Prehistoric, Near Eastern, Egyptian, Greek, Roman, Early Christian, Byzantine and Romanesque Art.
271. **History of Art II.** (3) Bunting  
Introductory study of Western Art from the beginning of the Gothic period to the end of the Renaissance.
272. **History of Art III.** (3) George, Weisberg  
Introductory study of Western Art from the beginning of the Baroque period to 1874.
- 301-302. **Interdepartmental Studies in the Culture of the United States.** (3, 3) Staff  
(Same as American Studies 301-302.)
- \*400. **Museum Practices.** (3) Parks  
Practical and theoretical work in museum practices such as registration, conservation, exhibition and cataloging works of art.
- \*401. **Primitive Art.** (3) M. E. Smith  
Art of Africa and Oceania.
- \*410. **American Indian Art.** (3) M. E. Smith  
Prehistoric and historic art forms of the Indians of North America.
- \*411. **Pre-Columbian Art.** (3) M. E. Smith  
The art of Middle America prior to the 16th century.
- \*412. **Pre-Columbian Art.** (3) M. E. Smith  
The Art of South America prior to the 16th Century.
- \*420. **History of the Graphic Arts.** (3) Tatschl  
Drawing and printmaking from the 13th century to the present.
- \*430. **Greek and Roman Art.** (3)  
History of painting and sculpture from 1800 B.C. to the 6th century A.D.
- \*440. **Medieval Art.** (3) Bunting  
A survey of architecture, painting, and sculpture from the dissolution of the Roman empire to the 16th century, with emphasis on the religious art forms of the 12th and 13th centuries.
- \*450. **Spanish Colonial Art.** (3) M. E. Smith  
Architecture, sculpture, and painting in the period of Spanish colonization and the relation of these art forms to both the Spanish and the native Indian traditions.
- \*451. **Fifteenth and Sixteenth Century Art in Italy.** [Fifteenth Century Art in Italy and Northern Europe] (3) Bunting  
Painting and sculpture from the late 14th century through Mannerism.
- \*452. **Fifteenth and Sixteenth Century Art in Northern Europe.** [Sixteenth Century Art in Italy and Northern Europe] (3) Weisberg  
Painting and sculpture from the late 14th century through Mannerism.
- \*461. **Seventeenth and Eighteenth Century Art in Italy.** (3) Parks  
Painting and sculpture during the Baroque and Rococo periods.
- \*462. **Seventeenth and Eighteenth Century Art in Northern Europe.** (3)  
Painting and sculpture in France, Germany, the Low Countries, and England during the Baroque and Rococo periods.
- \*471. **Hispanic Art.** (3) M. E. Smith  
Survey of Hispanic art in Europe.
- \*472. **Art of the United States.** (3) George  
History of painting and sculpture from colonial times to 1906.
- \*479. **American Art: 1906-1940.** (3) George  
History of painting and sculpture from 1906 to the beginning of World War II.

- \*481. **Nineteenth Century Art.** (3) Coke, Weisberg  
History of painting and sculpture from the late Rococo period through Impressionism.
- \*482. **Foundations of Modern Art.** (3) Coke, Weisberg  
History of painting and sculpture from Post-Impressionism to Surrealism.
- \*491. **Later 20th Century Art.** (3) Adams  
History of painting and sculpture from Surrealism through Abstract Expressionism.
- 499. **Senior Thesis.** (3)  
Directed study in the major field, culminating in a written thesis. Open to students by faculty invitation only.
- \*500. **Bibliography and Research.** (2) Bunting, George  
Bibliography and research techniques in the study of art history.
- \*501. **Interdepartmental Seminar in the Culture of the United States.** (3) Staff  
(Same as American Studies 501.)
- \*521. **Seminar: Lithography.** (2) Adams  
Consideration of the historical development and aesthetic character of lithography.
- \*551-552. **Problems.** (2-3 hrs. each semester)  
Graduate work in projects or fields not covered in the regular catalog courses. **Maximum 6 hours.**
- \*560. **Problems in Pre-Columbian and Primitive Art.** (2) M. E. Smith  
May be repeated for credit.†
- \*561. **Problems in Ancient and Medieval Art.** (2)  
May be repeated for credit.†
- \*571. **Problems in Renaissance and Baroque Art.** (2)  
May be repeated for credit.†
- \*572. **Problems in the Art of the United States.** (2) George  
May be repeated for credit.†
- \*581. **Problems in 19th Century Art.** (2) Adams, Coke, Weisberg  
May be repeated for credit.†
- \*599. **Master's Thesis** (1-3 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

## ART EDUCATION

See Education, Art

## ASTRONOMY

See Physics and Astronomy

## BIOLOGY

**PROFESSORS** L. D. Potter (Chairman), H. J. Dittmer, J. S. Findley, M. W. Fleck, C. C. Hoff, W. J. Koster, **ASSOCIATE PROFESSORS** W. G. Degenhardt, D. E. Kidd, W. C. Martin, M. L. Riedesel; **ASSISTANT PROFESSORS** J. W. Beakley, J. S. Booth, E. W. Bourne, C. S. Crawford, G. V. Johnson, W. W. Johnson; **INSTRUCTOR** G. L. Traut.

### MAJOR STUDY

B.S. Degree: (recommended for professional biologists, those entering graduate programs, and professional fields such as medicine). Biology 121L and 122L; two courses from the three following groups with no two from the same group although additional courses from any of the three groups may be used as electives: botanical 363L or 372L; zoological 371L or 386L; microbiological 393L; 429L or 460L or 478L; 407; 408 and 409L; two hours of 400; plus 8 hours of biology electives. Total biology 37 hours. Mathematics 120 or 121 or 150 or 162 or 180 and 181; Chemistry 101L, 102L or 122L, and 281 or 301-303L;

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† Instructor and Department Chairman must approve all cases of repetition in this course.



Physics 111 and 112. (For those interested in microbiology, physiology, or medicine Chemistry 301-303L and 302-304L are recommended.) Grades of "C" or better are required of Biology majors in all of the above courses.

B.A. Degree: (available for biology majors in Education or in Arts and Sciences obtaining a teaching certificate and others in a liberal arts program). Biology 121L-122L (or 101L-102L with grades of "B" or better each semester); two courses from the three following groups with no two from the same group although additional courses from any of the three groups may be used as electives: botanical 363L or 372L; zoological 371L or 386L; microbiological 393L; 429L or 460L or 478L; 407; 408 and 409L; plus 12 hours of biology electives. Total biology 39 hours. Mathematics 120 or 121 or 150 or 162 or 180 and 181; Chemistry 101L and 281 or 301-303L. Grades of "C" or better are required of biology majors in all of the above courses.

The mathematics requirement may be met by examination for advanced standing or by taking a higher level course.

A student desiring to concentrate in some special field of biology such as bacteriology, botany, ecology, physiology, or zoology, should consult an appropriate staff member early in his college career.

#### MINOR STUDY

Biology 101L-102L or 121L-122L and 12 additional hours. Grades of "C" or better are required in biology courses used for a minor.

#### MINOR STUDY IN PALEOECOLOGY

See p. 369.

#### CURRICULA PREPARATORY TO DENTISTRY, FORESTRY, MEDICAL TECHNOLOGY, OR MEDICINE

See pp. 152-156.

Note: Credit will be allowed for only 112L or 101L-102L or 121L-122L; for only 233L or 393L; for only 136-139L or 429L or 430L; or for only 236L or 429L or 430L.

#### 101L. General Biology. (4) Yr. Degenhardt, Dittmer, Fleck, Koster

The fundamental structures and functions of higher plants and animals with emphasis on principles and the unity, rather than the diversity, of phenomena. Credit suspended until 102L is completed. 3 lectures, 3 hrs. lab.

#### 102L. General Biology. (4) Degenhardt, Dittmer, Fleck

A continuation of 101L. Survey of the plant and animal kingdoms; heredity, environmental relations, and evolution. Prerequisite: 101L. 3 lectures, 3 hrs. lab.

#### 121L. Principles of Biology. (4) Yr. Kidd

Molecular basis of life and cellular processes; physiological coordinations and correlations. Credit suspended until 122L is completed. 3 lectures, 3 hrs. lab.

#### 122L. Principles of Biology. (4) Kidd

Survey of organic diversity; reproduction, heredity, ecology, and evolution of populations. Prerequisite: 121L. 3 lectures, 3 hrs. lab.

#### 136. Human Anatomy and Physiology. (3) Bourne

The structure and functions of the human body. Lectures emphasize physiology. May be taken with, or independently of, 139L. Not accepted toward a biology major.

#### 139L. Human Anatomy and Physiology Laboratory. (2) Staff

Laboratory work in elementary anatomy and physiology with emphasis on anatomy. Cannot be taken independently of 136. 3 hrs. lab.

- 233L. Paramedical Microbiology.** (4) Beakley  
Introduction to microbiology, with emphasis on principles of infection and immunity. Prerequisites: 102L or 122L and Chem 101L or 141L. Not accepted toward a biology major. 2 lectures, 6 hrs. lab.
- 236L. Paramedical Anatomy and Physiology.** (4) Bourne  
Principles of anatomy and physiology as applied to man. Prerequisites: 102L or 122L; Chem 281. Not accepted toward a biology major. 3 lectures, 3 hrs. lab.
- \*323. Introduction to Biological Chemistry.** (3) West  
(Same as Chem 323.)
- \*324L. Introduction to Biological Chemistry Laboratory.** (1) West  
(Same as Chem 324L.)
- 326L. Physiology of Exercise.** (3) Bourne, Fleck, Riedesel  
Physiological processes and their relation to exercise. Prerequisite: 102L or 122L. 2 lectures, 3 hrs. lab.
- \*363L. Flora of New Mexico.** (4) Martin  
Identification, classification, and nomenclature of vascular plants. Field trips required. Prerequisite: 102L or 122L. 2 lectures, 4 hrs. lab.
- \*371L. Invertebrate Zoology.** (4) Hoff  
Evolution; morphology; and complementarity of structure, environment, and function of the invertebrates. Prerequisite: 102L or 122L. 2 lectures, 4 hrs. lab.
- \*372L. Comparative Plant Morphology.** (4) Dittmer  
The origin, morphogenesis, and evolution of members of the plant kingdom. Prerequisite: 102L or 122L. 2 lectures, 4 hrs. lab.
- \*386L. General Vertebrate Zoology.** (4) Findley  
Principles of classification; ecology, behavior, and speciation of the vertebrates. Prerequisite: 102L or 122L. 3 lectures, 3 hrs. lab.
- \*393L. General Bacteriology.** (4) Beakley, Booth  
Taxonomy, anatomy, physiology, and ecology of bacteria; principles of bacteriological technics, sterilization, and host-parasite relationships. Prerequisites: 102L or 122L. 8 hrs. of Chem. Chem 301-303L recommended. 2 lectures, 6 hrs. lab.
- 400. Senior Seminar.** (2) Staff  
(Offered each semester, cannot be repeated for credit).
- \*401L. Biometrics.** (4) W. Johnson  
Collection, handling, and statistical treatment of biological data. Prerequisites: 20 hrs. of Biol and Math 120 or 121 or 150 or 162 or 180 and 181. 2 lectures, 6 hrs. lab.
- \*407. Concepts of Ecology.** (3) Potter  
Interrelationships of physical and biotic environments. Prerequisites: 16 hrs. of Biol or instructor's permission.
- \*408. Genetics.** (3) W. Johnson  
Structure, function, and transmission of hereditary factors with emphasis on mathematical description. May be taken with, or independently of, 409L. Prerequisite: 102L or 122L.
- \*409L. Genetics Laboratory.** (1) W. Johnson  
Genetic principles using the fruit fly and lower organisms. May not be taken independently of 408 without permission of instructor. 3 hrs. lab.
- \*410. Evolution.** (3) Martin  
History of the principle and theories of evolution. Prerequisite: 408.
- \*412L. Comparative Embryology of the Vertebrates.** (4) Koster  
Prerequisites: 102L or 122L, 371L or 386L. 2 lectures, 6 hrs. lab.
- \*414L. General Entomology.** (4) Crawford  
Biology and classification of the insects. Prerequisite: 102L or 122L. 2 lectures, 4 hrs. lab.
- \*415L. Insect Ecology.** (4) Crawford  
Environmental effects limiting activity, distribution, and abundance of terrestrial arthropods with special reference to insects. Prerequisite: 414L; 471L or equivalent recommended. 3 lectures, 3 hrs. lab. (Offered in alternate years.)
- \*416L. Histology.** [Cytology and Histology] (4) Bourne  
Microscopic structure of vertebrate tissues, emphasizing correlation of structure and function. Prerequisite: 12 hours of Biol. 2 lectures, 4 hrs. lab.

- \*417L. Cytology.** (4) Bourne  
Study of plant and animal cells. Prerequisites: 12 hours of Biol, and Chem 102L. 2 lectures, 4 hrs. lab.
- \*421L. Comparative Vertebrate Anatomy.** (5) Findley  
Prerequisites: 122L and 371L or 386L. 2 lectures, 6 hrs. lab.
- \*429L. Cellular Physiology.** (4) Riedesel  
Prerequisites: 16 hrs. Biol, Chem 281 or 301-303L, Math 120 or 121 or 150 or 162 or 180 and 181. Chem 301-303L recommended. 3 lectures, 3 hrs. lab.
- \*430L. Vertebrate Physiology.** (4) Riedesel and Assistant  
Functions and structures with emphasis on fundamental physiological processes and mechanisms. Prerequisite: 429L or 478L. 3 lectures, 3 hrs. lab.
- \*\*435L. [435] Teaching of Biology.** (3) Degenhardt  
(Same as Secondary Education 435L.) Prerequisites: 102L or 122L, Sec. Ed. 310. 2 lectures, 3 hrs. lab.
- \*437. Paleobotany.** (3) Read  
(Same as Geol 437.)
- \*443L. Comparative Physiology.** (4) Riedesel  
A comparison of physiological processes with emphasis on osmoregulation, nutrition, and metabolism. Prerequisites: 371L, 430L or 478L. Organic chemistry recommended. 3 lectures, 3 hrs. lab. (Offered in alternate years.)
- \*454L. Pathogenic Bacteriology.** (4) Beakley  
The properties and characteristics of disease-producing bacteria and their relationship to disease. Prerequisites: 393L and Chem 281 or 301-303L. 2 lectures, 6 hrs. lab.
- \*456L. Immunology.** (4) Beakley  
Principles of antigen-antibody reaction, hypersensitivity, and auto-immune diseases. Laboratory preparation, detection, and measurement of antibodies. Prerequisites: 393L and Chem 302-304L. Chem 323 recommended. 2 lectures, 6 hrs. lab. (Offered in alternate years.)
- \*457L. Virology.** (4) Beakley  
Structure and function of animal, bacterial, and plant viruses. Prerequisites: 454L or both 393L and Chem 323-324L; Math 120 or 121 or 150 or 162 or 180 and 181. 2 lectures, 6 hrs. lab. (Offered in alternate years.)
- \*460L. Physiology of Bacteria.** (4) Booth  
Cytology; growth and reproduction; fermentation, respiration, and other enzymatic activities of bacteria. Prerequisites: 393L and Chem 281 or 301-303L. 3 lectures, 3 hrs. lab.
- \*471L. Terrestrial Ecology and Geography.** (4) Potter  
Animals and plants in relation to the environment; a study of biotic communities; problems of plant and animal distribution. Field trips. Prerequisite: 102L or 122L. 3 lectures, 3 hrs. lab.
- \*473L. Mycology and Plant Pathology.** (4) Martin  
A taxonomic study of the fungi, with some consideration of the causative factors and economic aspects of plant diseases. Prerequisite: 363L or 372L or 393L. 2 lectures, 4 hrs. lab. (Offered in alternate years.)
- \*474L. Plant Anatomy.** (4) Martin, Potter  
Structure of vascular plants. Prerequisite: 102L or 122L. 2 lectures, 4 hrs. lab. (Offered in alternate years.)
- \*475L. Pharmacology I.** (4) Ferguson  
(Same as Pharmacology 475L.) Not allowed for undergraduate Biology credit.
- \*476L. Pharmacology II.** (5) Ferguson  
(Same as Pharmacology 476L.) Not allowed for undergraduate Biology credit.
- \*477. Economic Botany.** (3) Dittmer  
Plants of economic importance throughout the world, geographic distribution, relation to world economy, and population distribution. Prerequisite: 8 hrs. in Biology. (Offered in alternate years.)
- \*478L. Plant Physiology.** (4) G. Johnson  
General physiology of plant functions, emphasizing photosynthesis, respiration, and transpiration. Prerequisites: 16 hrs. in Biol, Chem 281 or 301-303L, Math 120 or 121 or 150 or 162 or 180 and 181. Chem 301-303L recommended. 2 lectures, 6 hrs. lab.

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**\*\* Graduate credit only for graduates in Education.**

- \*479. Conservation. (3) Dittmer**  
Various aspects of conservation including soil, water, mineral, wildlife, forestry, range, and human. Lecture, demonstration, field trips. Prerequisite: 8 hrs. in Biol. (Offered in alternate years.)
- \*481L. Medical Entomology. (3) Hoff**  
The insects and arachnids of importance in human and veterinary medicine. Emphasis in the laboratory on identification. Prerequisites: 102L or 122L and 8 additional hrs. in Biol. 2 lectures, 2 hrs. lab. (Offered in alternate years.)
- \*482L. Parasitic Protozoa and Helminths. (4) Hoff**  
The protozoa and worms important in human and veterinary medicine. Emphasis on the structure and life-cycle of various forms, with practice in laboratory identification. Prerequisite: 371L or 393L. 2 lectures, 4 hrs. lab.
- \*484L. Limnology. (4) Koster**  
Fresh-water habitats and aquatic invertebrates with special reference to problems of productivity. All-day field trips required. Prerequisite: 102L or 122L. 3 lectures, 3 hrs. lab. (Offered in alternate years.)
- \*486L. Ornithology. (4) Staff**  
Classification, phylogeny, natural history and literature of birds. Early morning field trips required. Prerequisites: 386L, 421L. 3 lectures, 3 hrs. lab. (Offered in alternate years.)
- \*487L. Ichthyology. (4) Koster**  
Classification, phylogeny, natural history and literature of fishes. All-day field trips required. Prerequisite: 102L or 122L. 3 lectures, 3 hrs. lab. (Offered in alternate years.)
- \*488L. Herpetology. (4) Degenhardt**  
Classification, phylogeny, natural history and literature of reptiles and amphibians. All-day and one or more overnight field trips required. Prerequisite: 102L or 122L. 2 lectures, 6 hrs. lab.
- \*489L. Mammalogy. (4) Findley**  
Classification, phylogeny, natural history and literature of mammals. All-day field trips and one or more overnight field trips required. Prerequisites: 386L, 421L. 3 lectures, 3 hrs. lab.
- \*490L. Histological Technique. (3) Staff**  
The preparation for microscopic examination of plant and animal structures, tissues, and cells. Additional emphasis on topics of special interest to individual students. Prerequisites: 102L or 122L, and permission of instructor. 1 lecture, 4 hrs. lab. (Offered in alternate years.)
- \*491L. Radiobiology. (4) Fleck, G. Johnson**  
Properties of radiation; principles, theory, and use of detection and counting instruments; visits to installations using radiation in industry, medicine, and research. Prerequisites: 429L or 478L, Physics 111-113L, Chem 281 or 301-303L. One year of organic chemistry recommended. 2 lectures, 6 hrs. lab.
- \*492L. Radiobiology. (4) Fleck, G. Johnson**  
Interaction of radiation with matter; biologic effects of radiation; radiation syndrome; relative radiosensitivity of cells, organs, and organisms; health physics and practical applications of radiation. Prerequisites: 491L; pre- or corequisites: Physics 112-114L. One year of organic chemistry recommended. 3 lectures, 3 hrs. lab.
- \*493L. Plant Mineral and Water Relations. (4) G. Johnson**  
Absorption and utilization of minerals and water with emphasis on problems of semi-arid lands. Prerequisite: 478L or 429L. 2 lectures, 6 hrs. lab. (Alternates with 494L.)
- \*494L. Plant Metabolism and Growth. (4) G. Johnson**  
Advanced treatment of photosynthesis, respiration, and hormonal control of growth. Prerequisite: 478L or 429L. 2 lectures, 6 hrs. lab. (Alternates with 493L.)
- \*501. Seminar: Current Topics in Biology. (2) Staff**
- \*503. Research Techniques. (2) Koster**  
The basic techniques used in exploring biological literature, in planning experiments, and in making and recording observations. Prerequisite: 16 hrs. in Biol.
- \*504. Environmental Physiology. (3) Riedesel**  
Principles of physiological limits and adaptations in relation to environmental stresses. Prerequisites: 430L; Math 120 or 121 or 150 or 162 or 180 and 181; Physics 111-113L; or permission of instructor.

- \*508L. **Advanced Invertebrate Zoology.** (4) Hoff  
Emphasis on the phylogeny of invertebrate groups, principles of comparative morphology and embryology. Prerequisite: 371L. 2 lectures, 4 hrs. lab. (Offered in alternate years.)
- \*509. **Advanced Genetics.** (3) W. Johnson  
Detailed consideration of hereditary material, transfer of genetic information, and evolution and integration of genetic systems. Prerequisite: 408.
- \*510. **Genetics of Speciation.** (3) W. Johnson  
Factors affecting the genetic composition of populations. Prerequisite: 408.
- \*511L. **Insect Physiology.** (4) Crawford  
Physiology of terrestrial arthropods with special reference to insects. Prerequisites: 414L, 429L, and Chem 281 or 301-303L. 3 lectures, 3 hrs. lab. (Offered in alternate years.)
- \*525. **Fundamental Concepts of Biology.** (3) Fleck  
Trend of scientific thought and method from earliest times to the present; origin and history of important biological principles. Prerequisite: 16 hrs. in Biol. (Offered in alternate years.)
- \*531L. [531] **Radiation Biology.** (5) SS Riedesel  
Effects of radiation on biological material and use of radioisotopes as teaching and research tools. Prerequisites: 16 hrs. Biology, 4 hours of Math, 8 hours of Chem, 8 hours of Physics. 3 lectures, 6 hrs. lab. (Offered only in s.s., principally for NSF-AEC Institute for College teachers.)
- \*551. **Problems.** (2-3) Staff
- \*554L. **Advanced Mammalogy.** (4) Findley  
Recent advances and special topics in Mammalogy. Prerequisite: 489L. 3 lectures, 3 hrs. lab. (Offered in alternate years.)
- \*562. **Phylogeny of the Plant Kingdom.** (2) Dittmer  
Evolutionary trends with emphasis on the vascular plants. Prerequisite: 16 hrs. in biology.
- \*563L. **Advanced Plant Taxonomy.** (4) Martin  
Experimental approach to plant systematics, application of nomenclatural code, and mechanics of monographic studies. Prerequisites: 408 and 363L. Recommended: 471L, 474L, 478L, and 562. 2 lectures, 6 hrs lab. (Offered in alternate years.)
- \*571L. **Physiological Plant Ecology.** (4) Potter  
Autecological studies stressing physiological effects of environment. Prerequisites: 471L and 478L. 3 lectures, 3 hrs. lab.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.
- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## BUSINESS ADMINISTRATION

PROFESSORS H. V. Finston (Dean), E. H. Caplan, R. L. Edgel, W. H. Huber, P. T. Mori, E. G. Nolan, D. M. Slate, L. G. Winter; ASSOCIATE PROFESSOR J. E. Brown; ASSISTANT PROFESSORS A. A. Blumenfeld, K. Christman, E. G. Dillman, L. Seaton, W. Shinnick, C. S. Telly, J. Yeakel; LECTURERS (Part-time) S. Herman, R. B. Kool, A. Steele.

### CURRICULA AND CONCENTRATIONS

See pp. 162-164.

- 105-106. **Fundamentals of Accounting.** [Principles of Accounting] (3, 3) Staff  
Critical examination of the concepts and procedures underlying financial accounting. Topics include: the accounting cycle; conceptual bases for collecting and presenting data; valuation theory and its application to assets and liabilities; concepts and determination of business income; funds flow analysis. Credit in 105 can be obtained without continuing 106. Prerequisites: For 105—Open to students of sophomore status or to freshmen eligible to enroll in Math 120 or 121; for 106—105. Pre- or corequisite: 202.
- 200-201. **Principles of Economics.** (3, 3)  
(Same as Economics 200-201.)
- 202. **Data Processing.** (3) Staff  
Evolution, language, and media of data processing; the systems concept; function, operation, and control of IBM punch card machinery; the stored program concept; CPU functions; storage and input-output media; programming the IBM 1401 in machine,

symbolic, and interpretive languages; data processing applications to In Line, Random Access, and On Line-Real Time systems. 3 class hrs. Prerequisite: Math 120 or 121.

225. **Accounting for Management Control.** [Managerial Accounting] (3) Staff  
Interpretation, use, and analysis of accounting reports and supplementary information for management planning, coordination, and control. Effects of taxation and price levels on administrative decisions. The application of various theories and concepts which underlie cost accounting and budgeting. Prerequisites: 105, 106. 225 must be completed prior to admission to the second semester of the junior year. Students failing to meet this requirement will substitute 384 in place of 225.
263. **Intermediate Accounting I.** (3) Staff  
Study of accounting theory with emphasis on asset valuation and income determination. Problems relating to the control of and the accounting for current assets. The accounting issues resulting from the corporate form of organization. Prerequisite: Minimum grade of C in 106.
264. **Intermediate Accounting II.** (3) Staff  
Continuation of 263. Problems relating to the control of and the accounting for liabilities and noncurrent assets. The analysis and interpretation of financial statements, including the impact of income taxes and changing price levels. Prerequisite: 263.
289. **Statistical Analysis.** (3) Dillman, Shinnick, Nolan  
Introduction to the analysis of numerical data, pertinent to business and economics. Includes descriptive statistics, sampling, inference, index numbers, time series and correlation. Emphasis is on the logic of analysis, application, and interpretation. Prerequisites: 202 and Math 122.
290. **Managerial Economics.** (3) Blumenfeld, Brown, Slate  
Application of economic theory and behavioral science concepts in decision-making by the firm. Focus is upon economizing the use of resources, determining optimal combinations of products, price determination and strategy, analysis of competitive forces, and evaluation of market demand and trends.
305. **Introduction to International Business.** (3) Winter  
Will provide an understanding of international business operations—the managerial and operational problems of a global enterprise and focus on socio-economic differences. Structure and functions of a world-wide organization. Emphasis to global business decision making. Prerequisite: Econ 200.
306. **Man, Society, and Law.** (3) Huber, Telly  
An intensive examination of the nature, functions and ends of law. The major philosophical schools of thought concerning the nature of man, organizations and governments discussed from a conceptual approach. Natural Law concepts beginning with the ancient Greek philosophers through the periods of Hobbes, Locke, Rousseau, Kant to contemporary views of law stressing sociological jurisprudence with emphasis on application of law to specific current business and social problems and the external constraints on man and decision-making which result from laws. Prerequisite: upper-division standing.
307. **Law of Contracts.** (3) Huber, Kool, Telly  
An intensive examination emphasizing a conceptual approach through the case method of transactions between men and organizations. Development of an understanding of the elements of agreements, the types of agreements which are legally enforceable, and the legal remedies available to the parties thereto. Prerequisites: 306 and upper-division standing.
308. **Principles of Marketing.** (5) Slate, Winter  
Designed to give the student an understanding and appreciation of the marketing process within the framework of the firm. The central purpose is to develop a comprehension of the increasingly important role of behavioral and quantitative models in developing marketing strategy in domestic and international markets. Prerequisites: Econ 200, 201.
310. **Business Finance.** [Principles of Finance] (3) Brown, Edgel  
The introductory course in finance. Concerns basic principles and practices influencing the decision-making responsibility for every phase of business operation where profits and funds management are directly or indirectly concerned. Includes sources and uses of short-and long-term funds, determinants of capital requirements, methods of obtaining capital, internal financial management, application of capital and cash budgeting techniques to complex problems, and utility analysis of choices involving risk. Prerequisites: 225 or equivalent, Econ 201.

- \*315. Money and Banking.** (3) Chung, Parker  
(Same as Econ 315.)
- \*320. Economics of Labor Relations.** (3) Cohen  
(Same as Econ 320.)
- 321. Advanced Accounting I.** (3) Staff  
Problems and theory relating to partnership dissolution and liquidation, consignments, installment sales, the statement of affairs, realization and liquidation, estates and trusts, and insurance. Prerequisite: 264.
- 327. Life Insurance.** (3) Mori, Seaton  
The economic aspects of risk as exemplified by life insurance; basic actuarial considerations; detailed investigation of provisions and costs of policies and their suitability for various types of buyers; organization of the business.
- 328. Property and Casualty Insurance.** (3) Christman, Mori, Seaton  
Basic principles and theories of insurance will be treated generally, followed by a special study of fire, liability, marine, automobile, and aviation insurance. Fidelity and surety bonds will also be included in the study of property insurance.
- 329L. Quantitative Analysis for Management.** (3) Dillman, Shinnick  
The application of modern quantitative methods to business problems. Includes allocation, inventory, and waiting line models, decision theory, forecasting and advanced statistical techniques. Prerequisite: 289. 2 lectures, 2 hrs. lab.
- 330. Organization Theory.** (5) Dillman, Herman, Nolan  
Fundamentals of organization and management which apply not only to industrial organizations but to any enterprise involving sizeable groups of people. Study of the manager's job in setting goals and in utilizing both human and material resources to meet organization objectives. Introduction to human relations case problems.
- \*332. Government Control of Business.** (3) Parker  
(Same as Econ 332.)
- 340. Transportation.** (3) Hufbauer  
(Same as Econ 340.)
- \*350. Public Finance.** (3) Therkildsen  
(Same as Econ 350.)
- \*362. Economic Fluctuations.** (3) Chung, Hamilton  
(Same as Econ 362.)
- 363. Investment Analysis and Management.** [Financial Analysis] (3) Brown, Edgel  
Theory and techniques basic to control of investment risks and optimization of investment returns. Includes investment media and priorities, security market operations, portfolio analysis and management, profitability analysis, planning and management of investment programs, timing of securities transactions, and the significance of financial institutions as purchasers of corporate securities. Major emphasis is placed on the decision-making responsibilities of the financial manager with respect to investment analysis and management. Prerequisite: 310.
- \*364. Rise of Modern Industry.** (3) Hamilton  
(Same as Econ 364.)
- 366. Problems and Policies in Business Financial Management.** [Financial Management] (3) Brown  
Development of analytical and decision-making skills necessary to cope with the wide range of problems which confront the financial manager. Includes planning, directing, controlling and financing current operations as well as long-term capital commitments. General problem areas covered include internal versus external financing, internal rate of return, financing expansion of business through mergers and consolidations, and dividend policy. Emphasis is placed on the development of a policy-making framework for sound decision-making under conditions of uncertainty and risk. Prerequisite: 310.
- 384. Managerial and Cost Accounting.** [Cost Accounting] (3)  
An investigation of the concepts and procedures involved in the development, presentation and interpretation of accounting information as an aid to management in planning and control. Topics include: usefulness and limitations of accounting data in evaluating alternative courses of action and in controlling current operations; methods of collecting costs information; problems of cost estimation and allocation; standard costs; budgeting; cost-value relationships. Prerequisite: 106.

- \*410. **Marketing Communication.** (3) Slate, Steele, Winter  
An investigation of communications theory including market, audience, and individual behavior; relationships of communications in the marketing mix; personal and nonpersonal forms of communications including sales management and advertising; problems of determining advertising appropriations, budgets, campaign strategy, media analysis, and evaluation of the communications effort of the firm. Prerequisite: 308.
- \*411. **Theories of Communication.** (3) Hughey  
(Same as Speech 411.)
- \*412. **Business and Organizational Communication.** (3) Hughey  
(Same as Speech 412.)
- \*422. **Advanced Accounting II.** (3) Staff  
Branch accounting; preparing consolidated financial statements; effecting combinations and mergers. Prerequisite: 264.
- 447. **Auditing.** (3) Staff  
Auditing principles and procedure; preliminary considerations, planning the audit program, classes of audits, audit reports, professional ethics and legal responsibility; case problems. Prerequisite: 321.
- 449-450. **Income Tax Accounting.** (3, 3) Staff  
Federal and state income tax laws and regulations; history and background; sources of tax law; tax services; organization and procedures of the Bureau of Internal Revenue; tax returns, rates and credits; deductions and exclusions; withholding provisions; capital gains and losses; community property clauses. Prerequisite: 264 or junior status. Credit may be obtained in 449 without continuing in 450.
- \*469. **Monetary Theory and Credit Institutions.** [Financial Policy] (3) Brown  
Study of monetary policies and their effects upon corporate financial policy, money markets, price levels, and aggregate economic growth and stability. Includes analysis of short-term money markets and forces influencing their behavior. General areas covered are commercial bank management mortgage financing, credit institutions, and international financial management, including financial requirements, problems, sources, and policies of firms doing business internationally. Prerequisite: 310 and Econ 315.
- \*483. **Marketing Research.** (3) Slate, Steele, Winter  
Research methods and techniques as an aid to marketing management and the application of these tools to the process of obtaining information upon which to base marketing strategy. Prerequisites: 289, 308.
- \*486. **Marketing Logistics.** (3) Slate, Steele, Winter  
In this course the student considers analysis and development of an integrated distribution network. A systems approach is applied to the problems of marketing logistics. Economic analysis and quantitative tools are used in decision-making concerning the physical flow of goods. Included are warehousing and inventory planning. Prerequisites: 308, 329L.
- \*487. **Contemporary Accounting Topics.** [Contemporary Accounting Problems] (3) Staff  
An examination of selected theoretical issues related to current controversy in accounting. Prerequisite: 264.
- \*490. **Methods Engineering.** (3)  
(Same as ME 490.)
- 492. **Senior Seminar.** (3) Dillman, Slate, Telly  
Emphasis is placed on the specific functions of top management. A variety of case studies offers the student an opportunity to develop a habit of administrative thinking as company-wide objectives and policies are formulated, and consistent plans and programs are carried into action. Prerequisite: senior standing.
- \*493. **Labor Law and Collective Bargaining.** (5) Finston, Kool  
Case studies of common, statutory, and administrative law, with emphasis on modern labor legislation and related court and administrative agency decisions affecting labor-management relations. An examination of the game theory approach to collective bargaining strategy and tactics. Intensive analysis of negotiation and arbitration cases involving wages, employee discipline, seniority rights, management prerogatives, and other collective bargaining issues. Prerequisite: 330 or permission of instructor.
- \*496. **Advanced Theory in Personnel Management.** (3) Dillman, Finston, Herman, Nolan  
An investigation into the behavioral models underlying the instruments, their nature, administration and interpretation as used in personnel management. Implications for interviewing, testing, training, performance evaluation, and wage and salary administration. Prerequisite: 330 or permission of the instructor.



- \*497L. Laboratory in Advanced Theory in Personnel Management.** (2) Dillman, Herman, Nolan  
Emphasizing recruitment, placement, and evaluation. The use and interpretation of psychological testing data including the application blank in selection training and interviewing techniques; selection and placement, performance evaluation, counseling, disciplinary and exit situations. Prerequisite or corequisite: 496 or permission of instructor. 4 hrs. lab.
- \*500. Quantitative Analysis I.** (3) Dillman, Steele  
Study and application of mathematical techniques in the solution of administrative problems. Primary applications will be made to deterministic models of resource allocation and inventory control.
- \*501. Quantitative Analysis II.** (3) Dillman, Steele  
Continuation of 500 with emphasis on stochastic models and the use of statistics in administrative decision making. The computer will be used in depth for data reduction and manipulation. Emphasis will be laid upon simulation models of administrative phenomena. Prerequisite: 500.
- \*502. Managerial Accounting and Control.** (3) Staff  
Intensive study of accounting theory, both as a systematic approach to evaluation of the total performance and status of an enterprise, and as an aid to management in making current decisions, planning future activities, and in maintaining operational control.
- \*504. Business Economics I.** (3) Blumenfeld, Brown, Slate  
Economic systems, institutions, and organization; macro- and micro-economic principles, problems, and analysis.
- \*505. Business Economics II.** (3) Blumenfeld, Brown, Slate  
Application of macro- and micro-economic principles and analysis to managerial and financial problems.
- \*506. Organizational Behavior I.** (3) Herman, Nolan  
Interpretation of administrative behavior in terms of psychological laws. Analysis of organizational settings as social environments where psychological laws can be tested and generated. Reviews of the basic behavioral science techniques used in organizational studies.
- \*507 Organizational Behavior II.** (3) Dillman, Finston  
Traditional and contemporary theories of organizations as abstract organisms, especially cybernetic systems of communication and control, and their goals and motivations. Problems generated by the presence of human decision-makers in the organization, and consideration for means for resolving conflict between the goals of the organization and the goals, needs, and sentiments of individuals and groups within it. Emphasis is laid upon designing a structure consonant with the basic purposes of the enterprise, and in developing an organizational climate conducive to maximum growth and productivity of the individual.
- \*509. Law and Society.** (3) Huber, Telly
- \*511. Marketing.** (3) Slate, Winter  
The purpose of this course is to provide an understanding of the marketing-decision making process and to develop in the student analytical and conceptual abilities as well as problem-solving capacity. Surveys normative models for decision-making in different marketing situations and discusses various analytical tools available to the marketing executive for appraising, diagnosing, organizing, planning and formulating of marketing programs. Marketing problems discussed within the system of the firm in an international setting. Student's attention directed towards an understanding of the economic, social and political forces leading to change in the market place and the development of concepts that are useful in evaluating marketing situations. Emphasis upon the construction of a marketing plan, strategy, and tactics.
- \*520. Seminar in Systems Analysis.** (3) Staff  
Information systems, including approaches to the description of those data characteristics relevant to a given problem; approaches to data reduction, storage, and analysis; and schemes of justification for a recommended system. Topics include discussions of general systems theory, cybernetics, value analysis, information retrieval, computer metalanguages, and implementation.
- \*521. Seminar in Managerial Economics.** (3) Brown, Slate  
Selected topics of current importance in the area of managerial economics; significant books and articles read and discussed. Emphasis given to problems in the area of production and resource allocation.

- \*522. Seminar in Marketing.** (3) Slate, Winter  
Selected topics of current importance in the field of marketing. Significant books, articles, and research reviewed and discussed. A high degree of participation by seminar members is expected.
- \*523. Seminar in Organizational Theory.** (3) Dillman, Finston, Herman, Nolan  
Advanced theory of organization structure and behavior with emphasis upon behavioral science research contributions. Advanced cases focus upon management's role in resolving inter-personal, inter-group, and inter-organization problems.
- \*524. Seminar in Law and Society.** (3) Huber, Telly
- \*525. Seminar in Accounting.** (3) Staff  
Controversial aspects of depreciation, treasury stock, surplus, goodwill, no par capital stock, inventory valuation, fixed assets valuation, overhead costs.
- \*526. Seminar in Finance.** (3) Brown  
Internal and external financing of business and non-business organizations with special emphasis on determination of capital needs, sources of funds and planning for the effective use of funds.
- \*527. Seminar in International Business** (3) Winter  
The problems of intense and sophisticated competition in world markets which confront US businessmen. As company activities in foreign business grow, management must acquire better understanding on which to base reasonable decisions. Emphasis to the development of an international business strategy. Considers crucial differences in foreign business such as psychological aspects, sociological structure, as they relate to US business operations abroad.
- \*528. Seminar in Administrative Policy.** (3) Dillman, Slate, Telly  
The functional areas of administration are integrated and their interdependence shown. Emphasis upon (a) the diagnostic procedures necessary to identify relevant quantitative and qualitative decision variables in a particular problem, (b) developing a model of the functional relationships among these variables, and (c) using the foregoing to make specific decisions.
- \*529. Seminar in Managerial Accounting and Control.** (3) Staff  
An inquiry into the role of accounting and management decision making and control. Selected topics in these include incremental analysis, capital budgeting, standard costs and analysis of variances, responsibility accounting, cost-volume-profit analysis and product costing. Prerequisite: 502 or permission of instructor.
- \*530. Mathematical Programming.** (3) Staff  
Extension of linear programming to the integer and quadratic cases; dynamic programming. Although some theory will be necessary, this course is of primarily an applied nature. Problems will be devised to run on the computer: Prerequisite: 501 or permission of instructor.
- \*535. Advanced Accounting Theory and Practice.** (3) Staff  
The application of advanced accounting principles to practical cases and accounting problems. Prerequisite: permission of instructor.
- \*551-552. Problems.** (1-2 hrs. each semester) Brown, Caplan, Edgel, Finston, Nolan, Slate, Telly, Winter  
Special permission of the adviser and of the Dean of the College of Business Administration required.
- \*555. Seminar in Advanced Tax Accounting.** (3) Staff  
Case studies in advanced federal income tax problems; federal estate and gift taxes; a study of those New Mexico State taxes which concern the public accountant.
- \*597. Administrative Research and Problems I. (Non-thesis)** (3) Staff  
Designed for MBA students who (1) will be required to deal with questions and problems (make or assist in making decisions), (2) will be required to make investigations and to report their methods and conclusions to superiors, (3) will be expected to make critical evaluations of research reports. The final project in the course is the submission of a complete prospectus of the student's thesis. This prospectus must, at a minimum, explain the background and significance of the problem, state and hypothesis(es) or proposition to be investigated, establish the design and/or method of investigation, and indicate the character and availability of evidence required.
- \*598. Administrative Research and Problems II. (Non-thesis)** (3) Edgel  
Selected short-term research projects involving application of widely varying research

approaches and techniques to the various disciplines and functional areas which comprise administration. Enrollment in 598 will not be permitted until the student has satisfactorily completed 597.

\*599. Administrative Research and Problems I and II. (Thesis) (1-3)

## CHEMICAL ENGINEERING

See Engineering, Chemical

## CHEMISTRY

PROFESSORS R. N. Castle (Chairman), G. H. Daub, M. Kahn, S. E. Smith; ASSOCIATE PROFESSORS R. D. Caton, U. Hollstein, B. T. Kenna (part-time); ASSISTANT PROFESSORS L. D. Hansen, W. M. Litchman, D. R. McLaughlin, N. E. Vanderborgh, B. D. West; INSTRUCTORS M. P. Malm and V. V. Searcy.

The program of the Department of Chemistry conforms to the standards prescribed by the American Chemical Society; however, students who wish to be certified to the American Chemical Society should elect Chemistry 431, Inorganic Chemistry.

### MAJOR STUDY

For the degree of Bachelor of Arts: Chemistry 121L (or 101L), 122L, 301, 302, 303L, 304L, and at least 11 additional hours selected from courses numbered 305-499; or Chemistry 101L, 102L, 253L, 301, 302, 303L, 304L and at least 8 additional hours selected from courses numbered 305-499.

For the degree of Bachelor of Science: Chemistry 121L (or 101L), 122L, 307, 308, 309L, 310L, 311, 312, 313L, 314L, 350, 352L and at least 10 additional hours selected from courses numbered 305-499; or Chemistry 101L, 102L, 253L, 307, 308, 309L, 310L, 311, 312, 313L, 314L, 350, 352L and at least 10 additional hours selected from courses numbered 305-499. The program must also include Physics 260, 261, 262, 263L, 264L and German equivalent to 252 or 262.

### MINOR STUDY

20 hours in Chemistry, including Chemistry 101L, 102L, 253L, and either 301, 302, 303L and 304L or 311, 312, 313L and 314L; or Chemistry 121L (or 101L), 122L, 301, 302, 303L and 304L or 311, 312, 313L, 314L and 3 additional hours selected from courses numbered 305-499. Chemistry 141L, 142L, and 281 do not count toward the minor.

#### 101L. General Chemistry. (4)

Introduction to the chemical and physical behavior of matter. 3 lectures, 3 hrs. lab.

#### 102L. General Chemistry. (4)

Continuation of 101L and including qualitative analysis. Prerequisite: 101L or 121L with grade of C or better. 3 lectures, 3 hrs. lab.

#### 121L. General Chemistry. (4)

A comprehensive study of the chemical and physical behavior of matter with application of these principles to quantitative laboratory techniques and inorganic preparations. This course is designed for the student intending to major in science. Prerequisites: 1 yr. high school chemistry and qualifying ACT scores. 3 lectures, 3 hrs. lab. (Credit not allowed for both 121L and 101L.)

#### 122L. General Chemistry. (5)

Introduction to chemical equilibrium and the periodic properties of the elements. Application of these principles to qualitative and quantitative analysis. Prerequisite: 121L with grade of C or better or 101L with grade of C or better and permission of instructor. 3 lectures, 6 hrs. lab. (Credit not allowed for both 122L and 102L.)

- 141L. Elements of General Chemistry.** (4) Searcy  
A one-semester course in general chemistry. 3 lectures, 3 hrs. lab.
- 142L. Elements of Organic Chemistry.** (4) Searcy  
A brief course in organic chemistry. Prerequisite: 141L or 101L. 3 lectures, 3 hrs. lab.
- 253L. Quantitative Analysis.** (4) Caton, Vanderborgh  
Theory and techniques of volumetric and gravimetric analysis. Prerequisite: 102L. 2 lectures, 6 hrs. lab.
- 281. Integrated Organic Chemistry and Biochemistry.** (4) Malm  
A survey interrelating the major principles of organic chemistry and biochemistry. Prerequisite: 101L or 141L.
- \*\*301-302. Organic Chemistry.** (3, 3) Castle, Daub, Hollstein  
The chemistry of the compounds of carbon. Prerequisite: 102L or 122L; it is mandatory that 303L be taken concurrently with 301, and 304L with 302.
- \*\*303L. Organic Chemistry Laboratory.** (1)  
To be taken concurrently with 301. 3 hrs. lab.
- \*\*304L. Organic Chemistry Laboratory.** (1)  
To be taken concurrently with 302. 3 hrs. lab.
- \*\*307-308. Organic Chemistry.** (3, 3) Castle, Daub, Hollstein  
The chemistry of carbon compounds with emphasis upon mechanisms and spectral methods. Prerequisites: 102L or 122L, and permission of instructor; it is mandatory that 309L be taken concurrently with 307 and 310L with 308.
- \*\*309L-310L. Organic Chemistry Laboratory.** (2, 2)  
To be taken concurrently with 307 and 308. 6 hrs. lab.
- \*\*311-312. Physical Chemistry.** (3, 3) Kahn, Litchman, McLaughlin  
The quantitative principles of chemistry, developed by numerous problems. Prerequisites for 311: 253L or 122L, Math 264; pre- or corequisites: Math 265, Physics 262. Prerequisite for 312: 311.
- \*\*313L. Physical Chemistry Laboratory.** (1) Kahn, Litchman, McLaughlin  
Experimental study of the subjects discussed in 311-312. Prerequisite: 311. 3 hrs. lab.
- \*\*314L. Physical Chemistry Laboratory.** (1) Kahn, Litchman, McLaughlin  
Continuation of 313L. Prerequisite: 312. 3 hrs. lab.
- \*\*323. Introduction to Biological Chemistry.** (3) West  
An introductory course dealing with the chemistry of biological compounds and their transformation in plants and animals. Prerequisite: 302-304L.
- \*\*324L. Introduction to Biological Chemistry Laboratory.** (1) West  
3 hrs. lab.
- \*\*350. Special Methods in Quantitative Analysis.** (3) Caton, Vanderborgh  
A lecture survey of the theory and practice of qualitative and quantitative analysis. An introduction to instrumental methods. Prerequisites: 122L or 253L, 311.
- \*\*352L. Special Methods in Quantitative Analysis Laboratory.** (2) Caton, Vanderborgh  
Laboratory and conferences. Chemical and instrumental analyses; colorimetry; potentiometric and conductometric titrations. Pre- or corequisite: 350. 6 hrs. lab.
- \*405L. Qualitative Organic Analysis.** (3-4) Castle, Daub, Hollstein, West  
Identification of carbon compounds through the characteristic reactions of the functional groups. Prerequisites: 302-304L and permission of instructor. 1 lecture, 6 hrs. lab. or 1 lecture, 9 hrs. lab.
- \*406L. Organic Preparations.** (2-4) Castle, Daub, Hollstein, West  
The synthesis of organic compounds utilizing the usual reactions such as Grignard, Friedel-Crafts, etc. Prerequisite: 304L and permission of instructor. 6 to 12 hrs. lab.
- \*407. The Chemistry of the Alkaloids.** (3) Castle, Hollstein  
The chemistry involved in the isolation, proof of structure and synthesis of typical representatives of the different classes of alkaloids. Prerequisite: 302 and permission of instructor.
- \*415. Structure of Matter.** (3) Litchman, McLaughlin  
Elements of molecular orbital theory; dipole moments; dissociation energies; quantum mechanical description of chemical bonds; hybridization; chemical consequences of structure. Enrollment only by permission of instructor.

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\*\* Available for graduate credit except for graduate majors in Chemistry.

- \*420. Advanced Organic Chemistry.** (3) Daub  
Prerequisite: 302 with grade of B or better or permission of instructor.
- \*431. Inorganic Chemistry.** (3) Hansen  
A systematic study of the chemical properties of the elements and their compounds, including an introduction to coordination chemistry. Prerequisite: 311; pre- or corequisite: 312.
- \*436L. Inorganic Chemistry Laboratory.** (2-3) Hansen  
Techniques used in synthetic inorganic chemistry. Co- or prerequisite: 431 or permission of instructor. 1 lecture, 3 or 6 hrs. lab.
- \*454L. Instrumental Analysis.** (4) Caton, Vanderborgh  
Instrumentation and applications of instrumental methods to chemical analysis, including spectrophotometric and electroanalytical methods. Prerequisite: 352L or permission of instructor. 2 lectures, 6 hrs. lab.
- \*458. Advanced Analytical Chemistry.** (3) Caton, Vanderborgh  
A survey of the principles of analytical chemistry with emphasis on modern methods of chemical analysis. Prerequisites: Chem 350-352L or permission of the instructor.
- \*460. Advanced Physical Chemistry.** (3) Kahn, Litchman, McLaughlin  
Includes the thermodynamics and kinetics of chemical reactions and their relationship to the structure of chemical substances. Prerequisite: 312.
- \*481-482. Biological Chemistry.** (3, 3) West  
Prerequisites: 302, 312.
- \*483L. Biological Chemistry Laboratory.** (1) West  
Pre- or corequisite: 481. 3 hrs. lab.
- \*484L. Biological Chemistry Laboratory.** (1) West  
Pre- or corequisite: 482. 3 hrs. lab.
- 497-498. Undergraduate Problems.** (2-5 hrs. each semester)
- \*501-502. The Chemistry of the Heterocyclic Compounds.** (3, 3) Castle, Daub  
The chemical properties and synthesis of representative members of the various classes of the heterocyclic compounds. Prerequisite: 302.
- \*504-505. Theoretical Organic Chemistry.** (3, 3) Daub  
The more important theories of organic chemistry. Prerequisites: for 504: 302, 312; for 505: 504.
- \*506L. X-ray Crystallography.** (4) Rosenzweig  
(Also offered as Geol 506L.) Principles of X-ray diffraction, Deloye-Scherrer, Weissenberg, and precession methods. Space group symmetry and its determination. Prerequisites: Math 264 or 311, and permission of instructor. 2 lectures, 6 hrs. lab.
- \*507L. Crystal Structure Analysis.** (3) Rosenzweig  
(Also offered as Geol 507L.) Structure factor calculations; Fourier methods; the Patterson function; examples of complete structure analysis. Prerequisite: 506L and permission of instructor. EE 436L is strongly recommended. 2 lectures, 3 hrs. lab.
- \*508. Advanced Topics in Organic Chemistry.** (3) Castle, Daub, Hollstein  
Prerequisite: 302.†
- \*509. Advanced Topics in Organic Chemistry.** (3) Castle, Daub, Hollstein  
Topics such as carbohydrates, synthesis of polycyclic compounds, relation of chemical structure to physiological activity. Prerequisite: 302.†
- \*511. Advanced Seminar in Physical Chemistry.** (3) Kahn, Litchman, McLaughlin  
Prerequisite: 312 or permission of the instructor.†
- \*513. Radiochemistry.** (3) Kahn  
Elementary nuclear theory; radiations and their interactions with matter; detection of radiation. Prerequisite: 312.
- \*514. Advanced Topics in Radiochemistry.** (3) Kahn  
Principles, ideas, and tracer techniques in the application of radioactivity to chemistry. Prerequisite: 513 or permission of instructor.†
- \*532. Advanced Topics in Inorganic Chemistry.** (3) Hansen  
Prerequisite: 311, 431.†
- \*534. Advanced Topics in Analytical Chemistry.** (3) Caton, Vanderborgh  
Prerequisite: 312.†

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† May be repeated for credit at discretion of Department Chairman.

- \*537. **Chemistry of the Metals.** (3) Hansen  
Descriptive and physical chemistry of the metallic elements and their compounds, including ligand field theory as applied to the group B transition elements. Prerequisite: 431.
- \*538. **Chemistry of the Non-Metals.** (3) Hansen  
Descriptive chemistry of the non-metallic elements and their compounds. Prerequisite: 431.
- \*541. **Electroanalytical Chemistry.** (3) Caton, Vanderborgh  
Theory and applications of electroanalytical methods including potentiometry, voltammetry at controlled potential and at constant current, coulometry, amperometry, and chronopotentiometry; theory of electrode processes, potentials and kinetics of electrochemical reactions. Prerequisite: 312 or permission of instructor.
- \*542. **Analytical Separation Methods.** (3) Caton, Vanderborgh  
Theory and practice of liquid-liquid extraction, precipitation and crystallization, columnar liquid-solid adsorption processes, ion exchange processes, gas chromatography, paper chromatography, and thin layer chromatography. Prerequisite: 312 or permission of instructor.
- \*561. **Quantum Chemistry I.** (3) Litchman  
Fundamentals of quantum theory. Observables, operators, eigenvalue problems, one-dimensional systems, simple three-dimensional systems, perturbation theory, variational methods. Prerequisite: 415 or equivalent.
- \*562. **Quantum Chemistry II.** (3) Litchman  
Application of quantum theory to atoms and molecules. Many-electron problem, radiation theory. Electronic, vibrational, rotational, and resonance spectroscopy. Matrix methods. Prerequisite: 561.
- \*563. **Statistical Mechanics.** (3) Litchman, McLaughlin  
Classical and quantum statistical mechanics with application to thermodynamic systems. Prerequisite: 415 or permission of instructor.
- \*567. **Advanced Thermodynamics.** (3) McLaughlin  
Classical thermodynamics with applications in chemistry. Prerequisite: 312.
- \*568. **Kinetics.** (3) McLaughlin  
Phenomenological description of chemical reactions in the gas and liquid phases and analysis of mechanisms using classical and modern theories. Prerequisite: 312.
- \*581. **Advanced Topics in Biological Chemistry.** (3) West  
Typical subjects: Nucleic Acids, Detoxification Mechanisms, Chemistry of Natural Products, etc. Prerequisites: 323 or 481 and 482.†
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Castle, Caton, Daub, Hansen, Hollstein, Kahn, Litchman, McLaughlin, Vanderborgh, West  
See the *Graduate School Bulletin* for total credit requirements.
- \*650. **Research.** (2-6 to a maximum of 12)
- \*699. **Dissertation.** (3-6 hrs. per semester) Castle, Caton, Daub, Hansen, Hollstein, Kahn, Litchman, McLaughlin, Vanderborgh, West  
See the *Graduate School Bulletin* for total credit requirements.

## CHEMISTRY, PHARMACEUTICAL

See Pharmacy

## CIVIL ENGINEERING

See Engineering, Civil

## CLASSICAL LANGUAGES

See Modern and Classical Languages

## COMPARATIVE LITERATURE

COMMITTEE IN CHARGE: ASSISTANT PROFESSOR J. L. Baltzell (English), Chairman; PROFESSORS G. W. Arms (English), J. Frank (English), W. D. Jacobs (English), R. R. MacCurdy (Languages), D. A. McKenzie (Languages); ASSOCIATE PROFESSOR J. B. Zavadil (English); ASSISTANT PROFESSOR T. Holzapfel (Languages).

† May be repeated for credit at discretion of Department Chairman.

The major in Comparative Literature is an interdepartmental major administered jointly by the Department of English and the Department of Modern and Classical Languages.

#### MAJOR STUDY

The minimum requirement of 30 hours includes: 275-276; 339 or 340; 466; British or American literature (9 hours, including at least 6 in courses numbered above 300); a foreign literature (9 hours from French, German, Portuguese, or Spanish). For descriptions of individual courses see the listings under the two departments. Students may minor in literature (British or American or any foreign language), but courses taken to satisfy the major cannot be used to satisfy the minor requirement. Other minor fields particularly recommended are anthropology, art history, history, and philosophy.

Students planning to major in Comparative Literature are requested to consult with an adviser either in their sophomore year or early in their junior year. Programs will be carefully planned in both the major and the minor.

#### MINOR STUDY

15 hours including:

Group 1, 6 hours in literature in a foreign language;

Group 2, 6 hours from courses listed under Comparative Literature in this bulletin; and

3 additional hours from either Group.

#### PERIOD MINOR STUDY

In consultation with the designated adviser and with his approval, an interdisciplinary minor with emphasis on one historical period (including proficiency in an appropriate foreign language) may be composed of a minimum of 18 hours in a pattern of appropriate courses drawn from literature, history, fine arts, music, philosophy, or other related courses. Adviser: Assistant Professor Baltzell (English).

**275. World Literature from Homer to Dante.** (3) Frank, Jacobs, Kuntz, Staff  
(Same as English 275.)

**276. World Literature from Rabelais to Mann.** (3) Dickey, Jacobs, Kuntz, Staff  
(Same as English 276.)

**\*338. Russian Literature in Translation.** (3) T. Holzapfel  
(Same as Russian 338.)

**\*339. Greek Drama in Translation.** (3) Baltzell, Thompson  
(Same as Greek 339.)

**\*340. Latin Literature in Translation.** (3) Thompson, Zavadii  
(Same as Latin 340.)

**\*342. Greek non-Dramatic Literature in Translation.** (3) Baltzell  
(Same as Greek 342.)

**\*437. Contemporary Drama.** (3) Dickey, Jacobs, Staff  
(Same as English 437.)

**\*456. Literature of Medieval Europe.** (3) Baltzell, Zavadii  
Selected authors and genres, Augustine to Petrarch.

**\*461. The Folktale in English.** (3) Baughman  
The tradition of folk motifs and themes in the development of the tale as a form of storytelling in English and American literature.

- \*462. **The Epic.** (3) Buchanan  
Major heroic poems, beginning with the *Iliad* and terminating with *Paradise Lost*, treated both as works of art in their own right and as principal components of the genre.
- \*465. **Tragedy.** (3) Dickey, MacCurdy, Trowbridge  
Selected tragedies from world literature in translation and theories of the tragic form. Prerequisite: 3 hrs. in literature.
- \*466. **Literary Criticism.** (3) Arms, Dickey, Trowbridge  
A history of major critical attitudes toward literature. Prerequisite: 6 hrs. in literature.
- \*475. **Dante.** (3) White  
Principally the *Vita nuova* and the *Divine Comedy*.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## COMPUTING SCIENCE

COMMITTEE IN CHARGE: ASSOCIATE PROFESSOR S. Bell (Mathematics), Chairman; PROFESSORS J. Blum (Mathematics), R. Clough (Engineering), F. Heady (Academic Vice-President), A. Koschmann (Electrical Engineering), H. Finston (Business Administration), H. Trowbridge (Arts and Sciences).

The Division of Computing Science, an institutional instructional unit reporting to the Academic Vice-President, is responsible for coordination and planning of University teaching programs in the general area of computing theory and technology. At present the Division does not directly offer any degree programs, but students interested in the field may present courses with computing content as a concentration for a departmental master's degree in Electrical Engineering, Mathematics, or Business Administration.

In addition to the three basic courses listed below, several departments regularly teach courses pertinent to computing science. Interested students, undergraduate or graduate, may consult the catalog listings under the College of Business Administration and the Departments of Mathematics and Statistics and Electrical Engineering. Inquiries may be addressed to Professor Bell.

COMPUTING SCIENCE I: Electrical Engineering \*435. (3)

COMPUTING SCIENCE II: Electrical Engineering \*437. (3)

COMPUTING SCIENCE III: Mathematics \*566. (3)

## CURRICULUM AND INSTRUCTION

See Education, Curriculum and Instruction.

## DENTAL HYGIENE

PROFESSOR M. Novitski (Director); ASSISTANT PROFESSOR M. L. duFault; INSTRUCTORS L. Keefe, V. R. Mellott; PART-TIME LECTURERS C. E. Cullen, R. Sei, W. Thornberry, R. J. Walpole; PART-TIME INSTRUCTORS L. Baca, T. D. Breshears, D. Chavez, P. Clark, D. Clifford, E. Ferguson, H. Naeve, I. Navarre.

### CURRICULUM

See p. 233.

- 100. **Orientation.** (2) Novitski  
Survey of dental hygiene, dentistry, and related professions. Personal and oral health. Introduction to patient education.
- 101L. **Orientation Laboratory.** (1)  
Introduction to the clinical skills of dental hygiene. 3 hrs. lab.



- 102L. Preclinical Dental Hygiene.** (3) duFault, Keffe  
Introduction to techniques of oral prophylaxis. Prerequisites: 100, 101L, 111L. 2 lectures, 8 hrs. lab.
- 110. Oral Anatomy.** (3) Novitski  
Anatomy of head and neck with emphasis on oral structures and their functions. Prerequisite: 100 or permission of instructor.
- 111L. Dental Anatomy Laboratory.** (1)  
Morphology of tooth structure. 3 hrs. lab.
- 112. Oral Radiography.** (1) Thornberry  
The physics of roentgenology, the operation of the x-ray machine, and the practice of taking and developing dental x-rays.
- 200L. Clinical Dental Hygiene.** (3)  
Continuation of 102L. Student gains experience in oral prophylaxis and radiography by providing services for patients in dental clinic. Prerequisite: 102L. 2 lectures, 11 hrs. lab.
- 202L. Clinical Dental Hygiene.** (4)  
Continuation of 200L. Prerequisite: completion of satisfactory work in all courses of first 3 semesters of Dental Hygiene Curriculum. 1 lecture, 16 hrs. lab.
- 210L. Histology.** (2) Walpole  
Introductory study of cells, tissues, and organic structures of human body with emphasis on oral structures. 1 lecture, 2 hrs. lab.
- 212. Pathology.** (2) Walpole  
Introduction to general pathology; pathology of diseases affecting teeth and their supporting structures; oral manifestations of systemic disturbances. Prerequisites: 210L, Biol 136, 139L, 393L.
- 220L. Dental Materials.** (2) Sei  
A survey of materials used in dentistry; training in common dental laboratory procedures. 1 lecture, 2 hrs. lab.
- 230. Oral/Dental Medicine.** (2) Cullen  
Diagnosis and recognition of the nature and cause of the disease process; principles of treatment; diagnosis, etiology, prevention and control of diseases of teeth, their surrounding and supporting structures. Relation of dental health to total health. Prerequisite: 102L.
- 240. Dental Hygiene Seminar.** (0)  
Required for certification. Attendance at one-day dental hygiene seminar presented annually between fall and spring semesters. Prerequisite: 3rd semester standing.
- 242. Practice Management and Ethics.** (1) Novitski  
The principles of professional ethics; the laws and regulations related to dentistry and dental hygiene; essentials of office management, record keeping, and practice building.
- 325. Nutrition.** (3) Harris  
(Same as Home Economics 325.)

## DRAMATIC ART

PROFESSORS E. Snapp (Chairman), J. E. Yell; ASSOCIATE PROFESSOR N. Blackburn, and Staff.\*\*

### MAJOR STUDY

College of Fine Arts: Professional Curriculum in Dramatic Art (or with emphasis in Television-Radio); Teacher Education Program leading to public school certification; and General Curriculum, see pp. 209-211.

College of Education: Dramatic Art 101, 115, 116, 129, 275, 276, 285, 286, 305, 306, 361, and English 441 or 442 or 465. Total 36 hours.

### MINOR STUDY

College of Education: Dramatic Art 101, 115, 116, 129, 285, 286, 305, 306, and English 441 or 442 or 465. Total 27 hours.

\*\* New appointments to be made, effective July 1, 1968.

College of Arts and Sciences: A minimum of 24 hours including Dramatic Art 115, 116, 305, 335, English 441 or 442 or 465; 3 hours to be chosen from Dramatic Art 129, 306, or 336; 6 additional hours in Dramatic Art numbered above 200.

- 101. Voice and Diction. (3) Staff**  
Training for the effective use of the speaking voice: basic principles of voice production, diction, and phonetics. Credit will not be allowed for both Speech 101 and Dramatic Art 101.
- 102. Voice and Diction. (3) Staff**  
Specialized training in the use of the voice for interpretation of stage roles and for students preparing to enter speech-oriented careers. Prerequisite: 101 or equivalent.
- 115-116. Theatre Appreciation. (3, 3) Staff**  
An introduction to the theatre in terms of the rewarding experience and personal enjoyment it affords both those who create it and those who appreciate it.
- 129-130. Stage Craft. (3, 3) Staff**  
Methods, materials, and techniques of stage carpentry. Students construct scenery for season's productions. 3 lectures, 3 hrs. lab.
- 140. Makeup. (3) Blackburn**  
A practical course on the art of makeup for stage and television, covering both basic principles and specific techniques.
- 210. Introduction to the Cinema. (3)**  
(Same as Fine Arts 210.)
- 255-256. Stage Lighting. (3, 3) Blackburn**  
Theory and practice of present-day methods of lighting the stage.
- 275-276. Technical Production. (3, 3) Staff**  
Analysis, planning, and construction of stage scenery and properties; study of the theatre plant. Prerequisite: minimum of 1 semester of stage craft. 3 lectures, 3 hrs. lab.
- 285-286. Acting Technique. (3, 3) Snapp**  
Basic methods of interpretation for stage, television, and screen. 3 lectures, 2 hrs. lab.
- 305-306. Rehearsal and Performance. (3, 3) Yell**  
Techniques for the director in both rehearsal and performance; a study of acting styles as related to periods of theatre history.
- 315. Theatre Production for Teachers: Acting and Directing. (3) Snapp**  
Essentials of acting and directing; rehearsal methods and production organization. May not be taken by drama majors for credit. 3 lectures, 2 hrs. lab.
- 316. Theatre Production for Teachers: Technical Production. (3) Staff**  
Essentials of stagecraft, lighting, makeup, scene and costume design; backstage organization and production techniques. May not be taken by drama majors for credit. Students are required to serve on a technical crew for one production. 3 lectures, 2 hrs. lab.
- 317. Educational Theatre. (3) Snapp**  
The organizing and teaching of drama and dramatic activities in the junior and senior high schools. Special emphasis given to the uses of educational theatre as an integral part of the school curriculum and the student activities program. Prerequisites: 315 and 316, or equivalent courses.
- 335-336. Theatre History. (3, 3) Blackburn**  
The development of dramatic art from the Greeks to the present day, with a study of historical backgrounds of dramatic thought and with special emphasis on production techniques.
- 351. Radio-Television Drama Production. (3) Yell**  
Basic directing techniques for the dramatic radio and television program. Workshop. 3 lectures, 3 hrs. lab.
- 352. Advanced Radio-Television Drama Production. (3) Yell**  
Advanced directing techniques, adapting and editing the dramatic radio-television program. Workshop. Prerequisite: 351 or permission of instructor. 3 lectures, 3 hrs. lab.
- 355-356. Playwriting. (3, 3) Snapp**  
Writing, reading, and analysis of student plays is supplemented by a critical examination

of their playing qualities as revealed in laboratory performances before invited groups. Prerequisite: upper-division standing or permission of instructor. 2 lectures, 2 hrs. lab.

- °361-362. **Advanced Rehearsal and Performance.** (3, 3) Snapp  
Advanced study of directing techniques; analysis of scripts and methods of interpretation in production. Prerequisite: 305-306.
- 375-376. **Scene Design.** (3, 3) Staff  
Materials, techniques, and methods of scene design and scene painting. Student designs compete for season's productions.
- 385-386. **Costume Design.** (3, 3) Staff  
Historic, modern, and stylized costume and how to design it for the stage. Students execute costumes for season's productions.
- 490. **Interdepartmental Proseminar.** (3) Honors Staff  
(Same as Fine Arts 490.)
- 499. **Senior Thesis.** (3) Honors Staff  
Directed study in any major field of the theatre arts. Open to seniors approved by the departmental honors committee.

## ECONOMICS

PROFESSORS N. Wollman (Chairman), S. Cohen, D. B. Hamilton; VISITING PROFESSOR A. V. Kneese; ASSOCIATE PROFESSORS M. Gisser, P. Jonas, W. Liepe, D. G. Tailby, P. T. Therkildsen; ASSISTANT PROFESSORS P. Chung, R. d'Arge, G. C. Huffbauer, T. W. Murray, A. L. Parker, K. J. Sato.

### MAJOR STUDY

Economics 200, 201, 300, 303, 315, 409, and 18 additional hours in Economics, 15 of which must be upper division. Mathematics 180 or equivalent is required.

DISTRIBUTED MINOR FOR ECONOMICS MAJORS. With the consent of the departmental chairman, a major may offer an American Studies minor as well as a minor in a single department. For requirements, see American Studies.

### MINOR STUDY

Economics 200, 201, and 12 hours in upper-division courses in Economics of which at least one course must be either Economics 300 or 303.

- 100. **Introduction to Economics.** (3)  
Resources, institutions, and problems of the economic system.
- 200. **Principles of Economics.** (3)  
Modern economic society: role of federal budget, public debt, and money in determining income, employment, and prices; current problems such as inflation, unemployment, poverty, growth and development.
- 201. **Principles of Economics.** (3)  
Modern economic society: competition and monopoly; allocation of resources among competing uses; wages, interest, rent, and profits; international trade, balance of payments, foreign lending, gold flows; comparisons of communism, socialism and capitalism.
- \*300. **Economic Theory.** (3) Parker, Wollman  
Intermediate economic analysis with emphasis on equilibrium models under perfect and imperfect competition. Prerequisite: 201.
- 301-302. **Interdepartmental Studies in the Culture of the U.S.** (3, 3)  
(Same as American Studies 301-302.) May be taken for departmental credit only with the consent of the chairman.
- \*303. **Macro-economic Theory: National Income Analysis.** (3) Sato  
Composition, fluctuations, growth, and distribution of national income. Prerequisite: 200.
- 310. **Business Finance.** [Principles of Finance] (3)  
(Same as Bus Ad 310.)

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° Undergraduate students not enrolled in the professional curricula or teacher education curricula may take this course only with permission of the department chairman.

- \*315. **Money and Banking.** (3) Chung, Parker  
Principles of money, credit, and banking; organization and operation of the banking system; and the relationship between money, banking, and the level of economic activity. Prerequisite: 200.
- \*320. **Economics of Labor Relations.** (3) Cohen  
Labor force, unions, labor-management relations, legislation, wages, and level of employment. Prerequisite: 201.
- \*330. **Consumer Economics.** (3) Hamilton  
The theory of consumption. Prerequisite: 200.
- \*331. **The Economics of Poverty.** (3) Hamilton  
Defines the scope of poverty problems, relates the problem to economic theory, and examines possible solutions. Prerequisite: 200.
- \*332. **Government Control of Business.** (3) Parker  
Government and social control of business enterprise, including public utilities; the economics of rate making in public utilities. Prerequisite: 201.
- 340. **Transportation.** (3)  
Principles and problems of transportation. Prerequisite: 201.
- \*350. **Public Finance.** (3) Therkildsen  
(Also offered as Pol Sci 350) Taxation, governmental borrowing, financial administration, and public expenditures. Prerequisite: 201.
- \*355. **National Defense.** (3)  
Strategies and policies, allocation of resources, economic controls. Prerequisite: 201.
- \*360. **History of Economic Thought.** (3) Tailby  
Development of the principal economic doctrines and schools of economic thought from the Physiocrats to Keynes. Prerequisite: 201.
- \*362. **Economic Fluctuations.** (3) Chung, Hamilton  
The history of the theory of economic fluctuations, including contemporary theory; proposals to increase economic stability. Prerequisite: 201.
- \*364. **Rise of Modern Industry.** (3) Hamilton  
Institutional and technological forces in the evolution of the industrial economy. Prerequisite: 200.
- \*407. **Economic Applications of Differential and Difference Equations.** [Introduction to Quantitative Economics] (3)  
The economic applications of complex numbers and difference and differential equations. Prerequisites: Math 180 and 181.
- \*409. **Economic Statistics.** [Elementary Econometrics] (3)  
Economic statistics with emphasis on statistical tests and hypotheses. Prerequisite: Math 180 or equivalent.
- \*415. **Central Banking.** (3) Chung  
Major developments in central banking theory and practice and comparative analysis of central banking in developed and underdeveloped money markets. Prerequisite: 315.
- \*420. **Economic Problems of Underdeveloped Countries.** (3) Liepe, Sato  
Theories, policies, and practices, with emphasis on Latin American economic problems. Prerequisite: 201 or permission of instructor.
- \*422. [325] **Economic Security.** (3) Therkildsen  
Public and private annuity, unemployment compensation, workmen's compensation, and medical programs. Prerequisite: 200.
- \*424. **International Economics.** [International Economic Relations] (3) Liepe  
Trade and balance of payments adjustments, theories of the gains from trade, policy issues. Prerequisite: 201 or permission of instructor.
- \*425. **Trade Unionism in the United States.** (3) Cohen  
History of American labor movement. The labor management relationship with emphasis on the economics of collective bargaining. Prerequisite: 320.
- \*440. **Regional Analysis.** (3) Sato  
Analysis of regional economies, economic models. Prerequisite: 201.
- \*442. **Natural Resources.** (3) d'Arge, Wollman  
Land, water, mineral, energy resources; development, allocation, pricing; productivity and effects on national income and balance of payments. Prerequisite: 201.
- \*450. **Comparative Economic Systems.** (3) Jonas  
A critical analysis of the proposed major reforms of the existing economic system. Prerequisite: 201.

- \*455. **The Soviet Economic System.** (3) Jonas  
Structure, institutions, growth rate, international position, and economic and military potentials of U.S.S.R. economy. Prerequisite: 201.
- \*465. **Introduction to City Planning.** (3) Weismantel  
(Also offered as Arch, Pol Sci, and Soc 465.) Topics include the perceptual form of the city; the city in art and literature; public control over development; urbanization of the Southwest; urban social welfare planning; planning for the developing nations. This is a multi-discipline introduction to urban studies, with emphasis on planning and control.
- \*485. **Philosophical Foundations of Economic Theory.** (3) Evans, Hamilton  
(Same as Economics-Philosophy 485). Prerequisite: 201.
- \*495-496. **Departmental Seminar.** (3, 3) Staff  
Problems in economic theory and their relationship with changing character of economy. Prerequisite: undergraduates require approval of department.
- 497-498. **Reading for Honors.** (3, 3)
- 499. **Senior Honors Thesis.** (4)
- \*500. **Micro-economic Theory.** (3) Gisser  
Competition and monopoly; value and distribution; general equilibrium; welfare economics. Prerequisite: 300 or equivalent; Math 180-181.
- \*501. **Advanced Micro-Theory.** (3) Gisser  
Prerequisite: 500, Math 314.
- \*503. **Seminar in Economic Theory and Applied Economics.** (3) Staff  
Recent developments in the testing and application of alternative economic theories. Prerequisite: permission of instructor.
- \*505. **Macro-economic Theory.** (3) Sato  
Comparative statics, dynamics, and money flows. Prerequisites: 303, Math 180-181.
- \*506. **Advanced Macro-economic Theory.** (3)  
Fiscal policy, monetary policy, and models of economic growth. Prerequisites: 505 and Math 314.
- \*507. **Programming and Growth.** [Mathematical Economics] (3) Murray  
Recent developments in mathematical programming and growth models. Prerequisites: 407 and Math 314.
- \*509. **Econometrics.** (3) Sato  
Introduces student to theoretical econometric models and will include static theory with exact equations, static theory with stochastic equations, dynamic theory with exact equations, and dynamic stochastic theory. Prerequisites: Math 180, 181, 314, 345, and 346.
- \*510. **Econometrics.** (3) Sato  
Empirical methods in econometrics with emphasis upon the identification of econometric parameters, statistical estimation, and statistical testing. Prerequisite: 509.
- \*511. **History of Economic Thought.** (3) Tailby  
The contributions of the great economists to the development of economic doctrine. Prerequisite: graduate status in Economics or permission of instructor.
- \*512. **Economic History.** (3) Tailby  
The evolution of the economic order, its changes, causes and effects, and the impact of changing institutions on economic life. Prerequisite: graduate status in Economics or permission of instructor.
- \*515. **Theory of Money and Banking.** (3) Chung  
Major developments in monetary and banking theory. Prerequisite: 303 or 315.
- \*516. **Monetary Problems and Policies.** (3) Chung  
Treatment of important contemporary monetary problems and major issues in monetary policies. Prerequisite: graduate standing in Economics.
- \*520. **Seminar in Labor Economics.** (3) Cohen  
Prerequisite: 320 or equivalent.
- \*521. **Comparative Labor Movements.** (3) Cohen  
Theories of trade union movements. International labor movements. National movements in Western Europe, the Socialist States, and the underdeveloped nations. Prerequisite: 320 or equivalent and graduate standing.
- \*531. **Standards and Levels of Living.** (3) Hamilton  
An analysis of the determinants of levels and standards of living, income distribution, and the use of budget studies and expenditure studies. Prerequisite: graduate status in Economics or permission of the instructor.

- \*532. **The Theory of Consumption.** (3) Hamilton  
The traditional theory of consumer preference, behaviorist theory, and modern interdisciplinary theory of consumer behavior. Prerequisite: graduate standing in Economics or permission of instructor.
- \*542. **Seminar in Natural Resource Planning.** (3) d'Arge, Kneese  
Micro-economic applications and systems analysis, economics of exhaustible resources. Prerequisite: 300 or 500.
- \*543. **Seminar in Natural Resource Planning.** (3) d'Arge, Kneese  
Macro-economic analysis of natural resource problems, public investment, growth and international trade in natural resources. Prerequisite: 303 or 505.
- \*551. **Problems.** (2-3 hrs. per semester) Staff
- \*560. **Theory of Public Finance.** (3) Therkildsen  
Economic theory and its application to the public economy: welfare economics and other theoretical tools applied to taxation, public expenditure, and public debt. Prerequisite: 350 or equivalent.
- \*\*562. **State and Local Finance.** (3) Therkildsen  
An analysis of the economics of state and local expenditures, taxation and administration of public funds. Particular attention to the problems, policies and practices in New Mexico and neighboring states. Prerequisite: 350 recommended, graduate status is Economics or permission of instructor.
- \*565. **Seminar in Fiscal Policy.** (3) Therkildsen  
An analysis of the effects of fiscal policy upon: (1) the level of employment and prices; (2) the rate of growth; and (3) the distribution of income.
- \*570. **Institutional Economics.** (3) Hamilton  
The "American contribution" to economic thought as found in the work of Veblen, Mitchell, Commons, and other institutional economists. Prerequisite: graduate status in Economics or permission of instructor.
- \*579. **Monetary Aspects of International Economics.** (3) Liepe  
Price and income mechanisms of balance of payments adjustment, fixed versus flexible exchange rates, capital movements, international monetary institutions and their reform. Prerequisite: 424 or permission of instructor.
- \*580. **International Trade Theory.** (3) Liepe  
Theory of trade and welfare and its applications. Prerequisite: 424 or permission of instructor.
- \*582. **Theories of Economic Development and Growth Models.** [Economic Development Theories and Practices] (3)  
Theories and controversies in economic development and their policy implications.
- \*583. **Seminar in Economic Development with Particular Application to Latin America.** (3) Liepe  
Economic theory applied to case studies in development.
- \*584. **Interdisciplinary Seminar on Problems of Modernization in Latin America.** (3)  
(Also offered as Anthro, Hist, Pol Sci, and Soc 584.)
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.
- \*699. **Dissertation.** (3-6 hrs. per semester)

## ECONOMICS-PHILOSOPHY

The combined major in Economics and Philosophy is an interdepartmental major administered jointly by the two departments. Students interested in this program should consult the chairmen of both departments.

This major is directed toward a deepened and fuller understanding of the theoretical phases of economics and toward the extension of philosophy into one of its traditional areas of interest; namely, that of value theory and its application.

### MAJOR STUDY

Students completing an Economics-Philosophy major are not required to have a minor. The minimum requirement is 45 hours, including: Economics 200, 201,

\*\* Available for graduate credit except for graduate majors in Economics.

300, 303, 315, and 360 or 450, and three hours to be selected from 320, 332, 340, 350, 422 or 424; Philosophy, twenty-one hours selected from courses chosen in consultation with your philosophy adviser.

#### MINOR STUDY

Not offered.

- \*485. Philosophical Foundations of Economic Theory.** (3) Evans, Hamilton  
Philosophical backgrounds of classical and neo-classical, socialist and communist, and institutionalist economics. Prerequisite: Economics 201.

## EDUCATION, ART

PROFESSOR A. S. Masley (Chairman); INSTRUCTORS R. Piotrowski, W. Rutkowski, J. Srubek.

#### CURRICULUM

See p. 176.

#### MINOR STUDY

See p. 176.

- 110. Creative Art in Elementary School.** (3) Piotrowski, Rutkowski, Srubek  
Developing art awareness through comprehension and expression.
- 115. Creative Craft in Elementary School.** (3) Piotrowski, Rutkowski, Srubek  
Developing craft awareness through comprehension and participation.
- 120-121. Techniques of Craft Education.** (2, 2)  
Beginning crafts.
- 130-131. Techniques of Design Education.** (3, 3)  
Design in everyday life.
- 210-211. Creative Art in Secondary School.** (3, 3) Masley  
Fundamentals of art education.
- 320. Pre-teaching Experience in Art.** (3) Masley, Srubek  
Introductory art teaching.
- 351. Problems.** (1-3) Masley, Piotrowski, Rutkowski, Srubek
- \*400. Children and Art.** (3) Masley  
Pre-school through adolescence.
- \*410. Creative Paper Crafts.** (3) Masley
- \*429. Workshop.** (1-4)  
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 172 of this catalog or consult the **Graduate School Bulletin**.
- 434. Teaching Art in Secondary School.** (3) Masley  
Objectives, motivation, and procedures. Prerequisite: Ed Fdns 310.
- \*500. Seminar.** (2) Masley, Piotrowski, Rutkowski
- \*529. Workshop.** (2) Masley  
For degree restrictions consult the **Graduate School Bulletin**.
- \*551-552. Problems.** (1-3 hrs. each semester) Masley, Piotrowski, Rutkowski, Srubek
- \*599. Master's Thesis.** (1-3 hrs. per semester) Masley  
See the **Graduate School Bulletin** for total credit requirements.
- \*699. Doctoral Dissertation.** (3-6 hrs. per semester)  
See the **Graduate School Bulletin** for total credit requirements.

## EDUCATION, BUSINESS

See Education, Secondary.

## EDUCATION, CURRICULUM AND INSTRUCTION (GENERAL)

The Department of Elementary Education and the Department of Secondary Education (see these departments for faculty listing) jointly offer graduate and undergraduate courses in the area of Curriculum and Instruction. Also available

through these departments is a graduate plan leading to the award of Education Specialist in Curriculum and Instruction (Sixth-Year Program). See the **Graduate School Bulletin** for further information.

- \*431. **Audio-Visual Materials and Techniques.** (3) Chisholm  
An interpretation and application of principles and methods from the regular undergraduate programs in teacher education into terms of audio-visual materials and their use in teaching. Prerequisite: Senior standing with minimum of 12 semester hours in professional education.
- \*432. **Production of Instructional Materials for the Classroom.** (3) Chisholm  
Requires an interpretation of the psychological principles of learning and the application of these principles to the production of instructional materials using a variety of media including graphics, overhead projection, still and motion picture photography, recordings, and television.
- \*435. **Remedial Reading Problems** (3) Walters, Zintz  
Prerequisite: El Ed 331 or permission of instructor.
- \*481. **Education Across Cultures in the Southwest.** (3) Angel, Condie, Zintz  
Educational implications of the Pueblo, Navajo, Apache, and Spanish-American cultures. Research on New Mexico school problems will be reviewed and evaluated.
- \*482. **Teaching English as a Second Language.** (3) Condie, Ulibarri, White, Zintz  
Pre- or corequisite: English 492 or equivalent.
- \*515. **Remedial Teaching Techniques.** (3) Walters, Zintz  
Diagnosis of learning difficulties; developmental and corrective measures for use with individual learners.
- \*529. **Workshop.** (1-4) Staff
- \*530. **Adult Education.** (3) Condie, Travelstead, Ulibarri  
Origin, development, philosophy, objectives, methods, and materials.
- \*535. **Practicum in Learning Disabilities (Reading).** (3) Zintz  
Tutoring severely disabled readers under supervision. Prerequisites: 435 and El Ed 531 or Sec Ed 520.
- \*541. **Principles of Curriculum Development.** (3) Angel, Drummond, Ivins  
Social, philosophical, and psychological bases related to principles of curriculum development at all levels of education.
- \*560. **Supervision of Instruction (Elementary and Secondary).** (3) Auger, Drummond, Holmon, Ivins. (Also offered as Ed Adm 560.) Purposes of supervision in the instructional program; theory and nature of instructional leadership; supervision as group leadership; classroom visitation and conferences as supervisory techniques; and evaluation of supervision. Special attention to role of principal and general supervisor in instructional improvement.
- \*581. **Bilingual Education.** (3) Angel, Condie, Zintz  
Prerequisite: 481.

## EDUCATION, EDUCATIONAL ADMINISTRATION

ASSISTANT PROFESSOR R. L. Holemon (Chairman); PROFESSORS F. Angel (Assistant Dean), P. V. Petty, C. C. Travelstead (Dean); ASSOCIATE PROFESSORS H. Lavender (Vice President for Student Affairs), P. D. Lynch, R. Tonigan, T. Wiley; ASSISTANT PROFESSORS J. Aragon, H. Ulibarri.

The programs offered in this department are at the graduate level. Information concerning these programs is contained in the **Graduate School Bulletin**.

- \*410. **Introduction to Educational Administration.** (3) Angel, Petty, Wiley  
An overview of the field of educational administration including school organization, operational areas, and principles. Required of all school administration majors.
- \*412. **Public Education in New Mexico.** (2) Angel, Petty, Wiley  
A comprehensive survey of the New Mexico public school system and its tax supported system of higher education.
- \*429. **Workshop.** (1-4) Staff  
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 172 of this catalog or consult the **Graduate School Bulletin**.



- \*510. **School-Community Relations.** (3) Holemon, Petty, Travelstead  
The underlying principles of satisfactory and constructive relationships between the school and the community along with the development of practices which will implement these principles.
- \*520. **The School Principalship.** (3) Angel, Ulibarri  
The organizational, administrative, and supervisory responsibilities of the school principal—elementary and secondary.
- \*521. **Public School Finance.** (3) Angel, Petty, Wiley  
Basic principles underlying the financing of public schools. Special attention is given to New Mexico.
- \*522. **School Business Management.** (3) Petty, Wiley  
Practices in school budgeting, purchasing, funds accounting, auditing, payroll administration, supply management, and miscellaneous business transactions.
- \*526. **Educational Planning and the School Plant.** (3) Tonigan  
The teaching-learning concepts involved in the planning of desirable school plants. Prerequisite: a course in curriculum.
- \*529. **Workshop in Educational Administration.** (1-4) SS Staff  
For degree restrictions consult the *Graduate School Bulletin*.
- \*531. **Administration of Staff Personnel.** (3) Petty, Ulibarri, Wiley  
The principles of educational administration applied to the organization and administration of the staff personnel.
- \*532. **Current Educational Problems.** (3) Staff  
A group study of specific problems in education. Usually offered as an off-campus course.
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff
- \*560. **Supervision of Instruction (Elementary and Secondary).** (3) Auger, Drummond, Holemon, Ivins. (Also offered as C&I 560.)  
Purposes of supervision in the instructional program; theory and nature of instructional leadership; supervision as group leadership; classroom visitation and conferences as supervisory techniques; and evaluation of supervision. Special attention to role of principal and general supervisor in instructional improvement.
- \*561. **School Law.** (3) Angel, Petty, Wiley  
Legislation and court decisions, with special reference to New Mexico school law.
- \*564. **School and Community Surveys.** (3) Holemon, Lynch  
Practices and techniques in all phases of school and community surveys.
- \*571. **State and Federal Educational Administration.** (3) Angel, Wiley  
State school systems; federal and state policy; and forms of control.
- \*581. **Seminar in Educational Administration.** (2) Angel, Holemon, Lynch, Petty  
Advanced reading and problem study in educational administration. Required of majors; others may be admitted upon consultation with instructor.
- \*612-613. **Field Experiences in Educational Administration.** (3, 1-3) Staff  
Planned, practical experiences in connection with the actual administration of a school system. Designed to provide supervised administrative practice for those school administration students who lack actual experience.
- \*626. **Educational Buildings and Equipment.** (3) Tonigan  
Problems of building construction and maintenance. Standards and practices. Field trips are included. Prerequisite: 526.
- \*629. **Seminar for Practicing School Administrators.** (1-3) SS Staff  
A graduate seminar for practicing school administrators offered only during summer sessions. It provides study of the latest practices and trends in specialized areas of school administration.
- \*630. **Administration in Higher Education.** (3) Lavender  
An overview of higher education principally for students who are likely to have some administrative as well as teaching responsibilities in higher education. Prerequisite: master's degree or permission of instructor.
- \*699. **Doctoral Dissertation.** (3-6 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## EDUCATION, EDUCATIONAL FOUNDATIONS

ASSISTANT PROFESSOR A. W. Vogel (Chairman); PROFESSOR J. G. Cooper; ASSOCIATE PROFESSOR J. T. Zepper; ASSISTANT PROFESSORS L. A. Dahmen, R. M. Gorman, W. P. Moellenberg, J. C. Moore

290. **Foundations of Education.** (3) Vogel, Zepper  
An introduction to the philosophical, social, historical and comparative foundations of education.
300. **Human Growth and Development.** (3) Dahmen, Moellenberg  
Principles of growth and development and implications for the school curriculum.
310. **Learning and the Classroom.** (3) Gorman, Price, Rosenblum  
(Also offered as Psych 210.) The basic principles of learning and their application to classroom situations.
351. **Problems.** (1-3)
- \*411. **History of American Education.** (3) Vogel, Zepper  
The development of American education from the Colonial period to the present. An analysis of the contributions of teachers, statesmen, philanthropists, psychologists, sociologists, and philosophies to educational thought and practice in the U.S.A. Prerequisite: a course in American history.
- \*412. **History of Education.** (3) Vogel, Zepper  
The development of education in world civilizations (with the exception of the U.S.A.). An analysis of educational thought and practice in historical perspective. Prerequisite: courses in world history.
- \*415. **Philosophies of Education.** (3) Vogel, Zepper  
Prerequisite: 290 or equivalent.
- \*421. **Educational Sociology.** (3) Staff  
Sociological aspects of school problems.
- \*422. **Education and Anthropology.** (3) Staff  
An overview of educational implications from the field of anthropology.
- \*429. **Workshop in Foundations of Education.** (1-4) Staff  
For degree restrictions see p. 172 of this catalog or consult the **Graduate School Bulletin**.
- \*474. **Evaluation in the School Curriculum.** (3) Cooper, Crawford, Gorman, Moellenberg  
Designed to help the classroom teacher better evaluate the progress of pupils. Major emphasis is placed on constructing teacher-made tests in various subject-matter areas. The use and interpretation of standardized tests are also considered.
- \*501. **Research Methods in Education.** (3) Cooper, Dahmen, Moellenberg  
Required of candidates for a graduate degree in the College. Methods, techniques, and designs of educational research. Elementary statistics and data processing are taught in assigned laboratory sections as part of this course.
- \*502. **Research Seminar in Education.** (2) Cooper, Moellenberg  
Application of research techniques to a current educational problem. Required of all candidates for a graduate degree in education under Plan II, with the following exceptions: (1) candidates in Elementary Education; (2) candidates in Educational Administration may substitute Educational Administration 581. Prerequisite 501.
- \*503. **Seminar in Human Growth and Development.** (3) Dahmen, Loughlin, Moellenberg  
Research oriented seminar; implications for classroom practices.
- \*515. **Comparative Philosophies of Education.** (3) Vogel, Zepper  
Inquiry into differences of basic outlook and their implications for educational practice of competing philosophical positions. Prerequisite: 290 or equivalent.
- \*516. **Educational Classics.** (3) Zepper  
A philosophical critique of outstanding educational and philosophical works taken from lists of educational classics. Primary source readings are the basis of study. Prerequisite: 415 or equivalent work in philosophy.
- \*517. **Educational Ideas in Literature.** (3) Vogel  
An investigation into the educational ideas found in works of literature of the world.
- \*518. **Comparative Education.** (3) Zepper, Vogel  
A comparative and evaluative study of the purposes, objectives, organization, and methodology of contemporary educational systems of representative European, Latin American, and Afro-Asian countries. Prerequisite: permission of instructor.
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff
- \*581. **Seminar in the Foundations of Education.** (3) Staff  
Studies in the foundations of education (historical, philosophical, psychological, sociological, or comparative education). An original project in the area of study is required. Prerequisite: one of the following: 501, Hist 309, Psych 522, or Soc 481. **May be repeated for credit as different topics are studied.**

- \*603. **Advanced Statistics in Education.** (3) Cooper, Moore  
Application of advanced techniques in statistical treatment of education data. These techniques include testing experimental hypotheses, regression and prediction, analysis of variance, non-parametric methods, and partial and multiple correlation. Prerequisite: a course in statistics.
- \*645. **Advanced Seminar in Education.** (3) Drummond, Ivins, Petty, Travelstead  
For doctoral and post master's students in Education. Ideas, concepts, problems, and critical issues facing education today. Designed to help students integrate and synthesize course work taken in Education and cognate fields, as this work may be related to and helpful in the solution of the problems under consideration. Individual student preparation and reports followed by critical reaction from other students and faculty members participating in the seminar.
- \*650. **Dissertation Seminar.** (1) Cooper  
For doctoral students planning dissertation research. Recent advances in data processing, critical examination of design of projects and related issues. Corequisite: 699.
- \*699. **Doctoral Dissertation.** (3-6 hrs. per semester)  
See the *Graduate School Bulletin* for total credit requirements.

## EDUCATION, ELEMENTARY

ASSOCIATE PROFESSOR D. W. Darling (Chairman); PROFESSORS H. D. Drummond, M. V. Zintz; ASSOCIATE PROFESSORS M. Chisholm, L. R. Condie, L. H. Walters; ASSISTANT PROFESSORS K. Auger, D. Gonzales, C. S. Loughlin; LECTURER M. L. Ulibarri; INSTRUCTOR M. A. Howell; and Staff

### CURRICULA

See p. 178.

- 319. **Physical Education in the Elementary School.** (2) Gugisberg, Hinger  
(Also offered as PE 319.) Five class meetings a week.
- 321. **Teaching of Social Studies in the Elementary School.** [Social Studies in the Elementary School] (2) Drummond
- 331. **Teaching of Reading in the Elementary School.** [Reading in the Elementary School] (3) Auger, Walters
- 333. **Teaching of Oral and Written English in the Elementary School.** [Teaching Oral and Written English] (2) Condie, Walters
- 351. **Problems.** (1-3) Staff
- 353. **Teaching of Science in the Elementary School.** [Science in the Elementary School] (3) Condie, Zweig  
Prerequisites: 1 yr. biological science; 1 yr. physical science.
- 361. **Teaching of Mathematics in the Elementary School.** [Arithmetic in the Elementary School] (2) Darling  
Prerequisites: Math 111, 212.
- 400. **Student Teaching in the Elementary School.** (3, 6, 9) Auger  
Pre- or corequisites: 321, 331, 333, 361. See also additional requirements on pp. 170-171.
- \*405. **Curriculum for Early Childhood.** (3) Loughlin  
Education of children 2-5. Prerequisite: H Ec 408L.
- \*421. **The Social Studies Program in the Elementary School.** (2) Drummond
- \*429. **Workshop.** (1-4) Staff  
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 172 of this catalog or consult the *Graduate School Bulletin*.
- \*431. **The Reading Program in the Elementary School.** (3) Auger, Walters
- \*433. **The Oral and Written English Program in the Elementary School.** (2) Condie, Walters
- \*441. **Children's Literature.** (2) Walters  
Pre- or corequisite: 331.
- \*453. **The Science Program in the Elementary School.** (3) Zweig
- \*461. **The Mathematics Program in the Elementary School.** (2) Darling
- 497. **Reading and Research in Honors.** (3-6) Staff  
Prerequisite: see p. 167.

- \*505. **Seminar in Early Childhood Education.** (3) Loughlin  
Current literature and research in early childhood education; implications for curriculum decision. Prerequisite: 405.
- \*511. **Curriculum in the Elementary School.** (3) Auger, Darling, Drummond  
Problems of selecting, organizing, and presenting content in the elementary school.
- \*521. **Seminar in the Social Studies.** (3) Drummond  
Prerequisite: 321.
- \*529. **Workshop.** (1-4) SS  
For degree restrictions consult the **Graduate School Bulletin**.
- \*531. **Seminar in Teaching Reading.** (3) Auger, Walters, Zintz  
Prerequisite: 331.
- \*533. **Seminar in the Language Arts.** (3) Walters, Zintz  
Prerequisite: 333.
- \*541. **Seminar in Children's Literature.** (3) Walters  
Prerequisite: 441.
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff  
Prerequisite: Ed Fdns 501.
- \*553. **Seminar in Teaching Elementary Science.** (3) Zweig  
Prerequisite: 353.
- \*561. **Seminar in Arithmetic.** (3) Darling  
Prerequisite: 361.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
Prerequisite: Ed Fdns 501. See the **Graduate School Bulletin** for total credit requirements.
- \*699. **Doctoral Dissertation.** (3-6 hrs. per semester) Staff  
See the **Graduate School Bulletin** for total credit requirements.

## EDUCATION, GUIDANCE AND SPECIAL EDUCATION

PROFESSOR G. L. Keppers (Chairman); ASSISTANT PROFESSORS L. C. Bernardoni, L. A. Bransford, T. Christiansen, E. J. Kelly, D. M. Rice, H. Whiteside, S. Winther, G. A. Zick.

This Department offers graduate programs (Master's) in the fields of Guidance and Counseling and Special Education, the Education Specialist (sixth year) in Guidance and the Doctorate in Pupil Personnel Services. An undergraduate minor is offered in the field of Special Education at both the elementary and secondary levels with emphasis on Mental Retardation. Students wishing to pursue any of these programs should consult the Chairman of this Department for details.

### GUIDANCE

- \*415. **Guidance: Philosophy, Principles, and Practices.** (3) Bernardoni, Dahmen, Keppers, Zick  
To assist the student to develop an adequate philosophy of guidance services and to understand the principles of guidance practice in keeping with this philosophy.
- \*431. **Mental Health.** (3) Bernardoni, Christiansen, Zick  
Aims to help classroom teachers, supervisors, principals, deans, advisers of students, and guidance workers to understand the personal problems affecting success and failure of pupils.
- \*512. **Differential Diagnosis.** (3) Staff  
To promote a competency in the administration, scoring, and diagnostic interpretation of various individual tests of intelligence, achievement, and personality that are commonly used in a school setting. Prerequisite: Ed Fdns 474 or Psych 331.
- \*513. **Socio-Economic Information in Guidance.** (3) Bernardoni, Dahmen, Keppers, Zick  
The essential nature of environmental information in educational, vocational, and personal-social guidance services and of the methods of collecting, organizing, filing, evaluating, and using such information. Prerequisite: 415 or permission of instructor.
- \*514. **Organizing and Supervising Guidance Services.** (3) Bernardoni, Keppers  
Includes such topics as sound organization practice and patterns, understanding of the total pupil personnel program, qualifications and acquisition of staff, facilities, budgetary

needs, evaluation, and possible ways of initiating a guidance program. Prerequisite: basic guidance courses or permission of instructor.

- \*516. **The Case Study in Guidance.** (3) Bernardoni, Keppers, Zick  
The techniques available for understanding an individual, the values and limitations of each technique, and methods of synthesizing the data about an individual. Prerequisite: 512, Ed Fdns 474 or Psych 331.
- \*517. **Group Techniques in Guidance.** (3) Keppers, Zick  
The plans and functions of group methods in the guidance program, the values and limitations of each method and the techniques to be utilized. Prerequisite: 431 or Psych 305.
- \*518. **Techniques of Counseling.** (3) Bernardoni, Keppers, Zick  
Various techniques employed in counseling and in developing competence in applying the techniques consistent with the basic personality and philosophy of the individual counselor. Prerequisites: 513, 516, Psych 305 or permission of instructor.
- \*519. **Practicum in Guidance.** (1-4) Bernardoni, Keppers, Winther, Zick  
To provide the student experience in the practical application and integration of the principles and methods of guidance which he has studied. Pre- or corequisite: 518.
- \*529. **Workshop.** (1-4) Staff  
For degree restrictions consult the **Graduate School Bulletin**.
- \*550. **College Personnel Work.** (3) Bernardoni, Whiteside  
Philosophy and principles of college personnel services, as well as the nature and extent of various personnel services on college campuses. Prerequisite: permission of instructor.
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the **Graduate School Bulletin** for total credit requirements.
- \*620. **Seminar in Guidance.** (3) Bernardoni, Keppers, Zick  
Current problems and research in the field of guidance. Prerequisites: experience as a school counselor; basic courses in guidance or permission of instructor.
- \*621. **Client-Centered Counseling.** (3) Bernardoni, Keppers, Zick  
An approach to counseling through a consideration of personal problems of the client. Prerequisites: 518, 519.
- \*622. **Multiple Counseling.** (3) Bernardoni, Keppers, Zick  
Counseling through various group approaches. Prerequisite: 517.
- \*623. **Play Therapy.** (3) Christiansen, Keppers, Zick  
To develop in the student the ability to utilize techniques of play therapy and to provide experiences and applications that will provide insights into the inner world of childhood problems. Prerequisite: 518.
- \*630. **Advanced Practicum in Guidance.** (3-6) Staff  
Experience in the practical application and integration of the principles and techniques of counseling in a clinical setting. Prerequisite: 518.
- \*699. **Doctoral Dissertation.** (3-6 hrs. per semester) Staff  
See the **Graduate School Bulletin** for total credit requirements.

## SPECIAL EDUCATION

### MAJOR STUDY

Not offered.

### MINOR STUDY

Psychology 102 and 313, Special Education 250, 371, 440, 473, El Ed 400, and Electives.

- 250. **Introduction to Special Education.** (1) Staff  
Work experience in Special Education settings.
- \*371. [471] **Education of the Exceptional Child.** (3) Staff  
Survey of the characteristics and educational needs of Exceptional Children.
- 400. **Student Teaching in the Elementary School.** (3, 6, 9)  
(Same as El Ed 400.)
- \*429. **Workshops in Special Education.** (1-3) Staff

- \*440. **Social and Psychological Problems in Special Education.** (3) Staff  
Cultural, social, intellectual, adjustive and educational factors relevant to the understanding of etiological and therapeutic problems in Special Education. Prerequisite: 371.
- \*473. **Teaching the Mentally Retarded.** (3) Bransford, Christiansen, Rice  
Objectives, curriculum, content, methods, organization of work. Prerequisite: Psych 313.
- \*475. **Education of Emotionally Disturbed Children.** (3) Kelly  
Behavioral characteristics and causes of emotional and social deviancy in children as they affect education. Types of treatment and educational programs which can be provided within a school setting.
- \*476. **Teaching the Neurologically Impaired.** (3) Christiansen, Rice  
A study of children who have learning disabilities due to neurological or unknown causes and the techniques required for their education. Prerequisites: 371 and 473.
- \*529. **Workshops in Special Education.** (1-4) Staff
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff
- \*571. **Curriculum Development in Special Education.** (3) Staff  
The development of curriculum and materials which can be used to teach exceptional children at various maturational levels in the regular class, in special classes and schools. Prerequisites: 473, 475, and 476 or permission of instructor.
- \*573. **Seminars in Special Education.** (3) Staff  
Mental retardation; emotionally disturbed; neurologically impaired.
- \*574. **Organization and Supervision of Special Education Programs.** (3) Bransford, Christiansen, Kelly, Rice  
Outlines organizational and administrative provisions for exceptional children; screening, identification, placement, and ancillary services within educational setting. Prerequisites: 371, other courses in Special Education, or permission of instructor.
- \*577. **Education of Gifted Children.** (3) Christiansen, Kelly  
Programs for/and principles of teaching the gifted. Prerequisite: 371.
- \*580. **Practicum in Special Education.** (3-6) Staff  
Supervised participation in clinical practice, utilizing individual and group procedure, with exceptional children and their parents. Adaptation of clinical procedures to public school programs. Prerequisites: 12 hours of Special Education or approval of supervisor.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff
- \*699. **Doctoral Dissertation.** (3-6 hrs. per semester)

## EDUCATION, HEALTH, PHYSICAL EDUCATION, AND RECREATION

PROFESSORS A. H. Seidler (Chairman), L. R. Burley, H. E. Kenney, E. M. Small (Assistant Chairman); ASSOCIATE PROFESSORS W. A. Bynum, W. W. Clements (Assistant Chairman), M. Gugisberg, F. McGill, J. McCabe, I. L. Shand, A. K. Young; ASSISTANT PROFESSORS E. G. Belzer, L. F. Diehm, M. Heffington, F. J. Hinger, S. King, J. Montgomery, F. E. Papcsy, G. T. Petrol, C. Piper; LECTURERS (Part-time) F. N. Roche, H. L. Kil; INSTRUCTORS R. K. Barney, B. Benison, D. Corbin, R. Jacobsen, R. Mitchell, J. Olson, J. Young.

The Department offers a number of programs. The service program in Physical Education (see "Non-Professional Courses") is part of the general education requirement of the University. (See "All-University Requirements.")

The department offers curricula leading to undergraduate and graduate degrees in the preparation of teachers of Health and Physical Education. In addition, it offers undergraduate and graduate degree programs in Recreation designed to train recreation leaders and administrators. A park and recreation field service of limited scope is operated by the Department.

Men physical education majors must pass a departmental Physical Fitness Test before admission to the College of Education.

### ALL-UNIVERSITY REQUIREMENTS

Four semester hours of nonprofessional activity physical education shall be completed by all undergraduate students in the University. Veterans, Navy

ROTC students, students over 30 years of age, and handicapped students excused by the University physician are exempted from the physical education requirement. ROTC and medical excuse exemption is on a semester-by-semester basis. Not more than 1 hour may be earned in a semester. Not more than 4 semester hours of required physical education may count toward a degree.

The instructor in each course should be consulted concerning proper clothing or uniform.

#### CURRICULA

See pp. 179-181.

### PHYSICAL EDUCATION

#### NONPROFESSIONAL COURSES—PHYSICAL EDUCATION

101. **Beginning Swimming.** (1) Barney, Olson
102. **Intermediate Swimming.** (Women Only) (1) McGill, Piper
103. **Advanced Swimming.** (1) Barney, Piper  
Prerequisite: ability to swim.
104. **Lifesaving.** (1) Barney, McGill  
Prerequisite: ability to swim.
107. **American Country Dance.** (1) King
108. **Ballroom Dance.** (1) King
109. **Beginning Contemporary Dance.** (1) Benison, Waters
111. **Mexican & New Mexican Dance.** (1) King
112. **International Folk Dance.** (1) Benison, King
115. **Gymnastics.** (1) Benison, Olson
116. **Apparatus Stunts.** (1) Mitchell
117. **Individual Tumbling.** (1) Papcsy
118. **Movement Fundamentals.** (1) Benison, Small
119. **Personal Defense.** (Men Only) (1) Seidler
120. **Wrestling.** (Men Only) (1) Bynum
121. **Weight Lifting.** (Men Only) (1) Belzer
123. **Outward Bound.** (1) Cook
124. **Developmental Physical Education.** (1) Belzer
125. **Badminton.** (1) McGill
126. **Beginning Golf.** (1) McGill, Petrol, Piper
127. **Intermediate Golf.** (Women Only) (1) McGill, Piper
128. **Beginning Tennis.** (1) Young
129. **Intermediate Tennis.** (Women Only) (1) Young
130. **Bowling.** (1) Special fee. Olson
131. **Horseback Riding.** (1) Special fee. Corbin
134. **Volleyball-Softball.** (1) Olson
135. **Basketball-Softball.** (1) Berryhill
136. **Field Hockey.** (1) McGill
137. **Flickerball-Bowling.** (1) Special fee.
138. **Speedaway-Basketball.** (1) Olson
139. **Soccer.** (1) Barney
140. **Volleyball-Badminton.** (1) Burley
141. **Ice Skating and Skiing.** (1) Special fee. King
149. **Therapeutic Physical Education.** (1) Papcsy  
Prerequisite: Permission of University Health Service.

## PROFESSIONAL COURSES—PHYSICAL EDUCATION

Some of the following courses are scheduled to meet more periods per week than indicated by the number of credit hours. These courses, in addition to lectures, include professional activity, laboratory, or field types of class experiences. To identify these courses, the number of class meetings per week is stated after the course description.

151. **Body Mechanics and Self-Testing Activities.** (1) Piper, Benison  
Three class meetings per week.
152. **Team Sports.** (1) McGill, Olson  
Three class meetings per week.
160. **Physical Fitness Programs.** (2) Bynum  
The professional course in physical fitness programs. 5 class meetings per week.
161. **Fundamentals of Basketball.** (2) King  
The professional course in the coaching of basketball. 5 class meetings per week.
162. **Fundamentals of Football.** (2) Feldman  
The professional course in the coaching of football. 5 class meetings per week.
163. **Swimming.** (2) Barney  
The professional course in swimming. Prerequisite: ability to swim. 5 class meetings per week.
201. **Gymnastics.** (2) Mitchell  
The professional course in gymnastics. Prerequisite: 117. 5 class meetings per week.
202. **Theory and Practice of Baseball.** (2) Leigh  
The professional course in the coaching of baseball. 5 class meetings per week.
203. **Combatives.** (2) Jacobsen  
The professional course in combatives. 5 class meetings per week.
204. **Theory and Practice of Track and Field.** (2) Hackett  
The professional course in the coaching of track and field. 5 class meetings per week.
210. **Folk Dance.** (1) Benison, King  
Three class meetings per week.
211. **Individual and Dual Sports.** (1) McGill, Olson  
Three class meetings per week.
301. **Recreational Sports.** (2) Barney  
(Also offered as Recrea 301.) The professional course in recreational sports. Prerequisite: PE 160 or permission of instructor. 5 class meetings per week.
302. **Recreational Sports.** (2) Barney  
(Also offered as Recrea 302.) Continuation of 301. Prerequisite: PE 160.
307. **Team Sports in the Secondary School.** (2) Olson  
Prerequisite: 152 or permission of instructor. 5 class meetings per week.
308. **Individual and Dual Sports in the Secondary School.** (2) McGill, Olson  
Prerequisite: 211 or permission of instructor. 5 class meetings per week.
309. **Aquatics and Gymnastics.** (2) Benison, Olson, Piper  
Prerequisite: 151 or permission of instructor. 5 class meetings per week.
310. **Folk Dance in the School Program.** (2) Benison, King  
Prerequisite: 210 or permission of instructor. 5 class meetings per week.
319. **Physical Education in the Elementary School.** (2) Gugisberg, Hinger  
(Also offered as El Ed 319) 5 class meetings per week.
- 326L. **Physiology of Exercise.** (3) Bourne, Fleck, Riedesel  
(Same as Biol 326L.)
345. **Professional Laboratory Experiences in Health, Physical Education, and Recreation.** (1-3)  
Staff  
May be repeated to a maximum of 4 semester hours.
351. **Problems.** (1-3)
360. **Officiating in Sports.** (2) McGill, Olson  
Discussion and practice in officiating techniques in soccer, speedball or field hockey, basketball, etc. Prerequisite: permission of instructor. 5 class meetings per week.



366. **Teaching of Contemporary Dance.** (2) Benison, Waters  
Selection of methods and materials for teaching modern dance. 5 class meetings per week.
373. **The Treatment of Athletic Injuries.** (2) Diehm
397. **Kinesiology.** (4) Burley, Olson  
Prerequisites: Biol. 136-139L.
398. **Principles of Physical Education.** (3) Kenney, Seidler  
The aims and objectives of physical education: physiological, psychological, and sociological principles which underlie practices in the profession. Prerequisite: permission of instructor.
399. **Organization and Administration of Physical Education.** (3) Clements, Gugisberg, Kenney  
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, professional responsibilities. Prerequisite: permission of instructor.
- \*429. **Workshop.** (1-4)  
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 172 of this catalog or consult the **Graduate School Bulletin**.
444. **Teaching of Physical Education.** (3) Gugisberg, Hinger  
(Also offered as Sec Ed 444)
452. **Organization of Sports Programs.** (3) Clements, Heffington, McGill  
(Also offered as Recrea 452.) Organization and administration of games and sports in intra-mural, interschool, and community recreation programs. Prerequisite: permission of instructor.
461. **Adaptive and Corrective Physical Education.** (3) Papcsy  
The field of adaptive and corrective physical education and its relationship to the regular curriculum in P.E. Prerequisite: 397.
463. **Theory of Basketball.** (3) King  
To review and enlarge the student's knowledge of the basic techniques of basketball and to acquaint him with the principles, techniques, and strategy of coaching basketball at the jr. high, high school, and college level. Prerequisite: senior standing.
464. **Theory of Football.** (3) Feldman  
To review and enlarge the student's knowledge of the basic techniques of football and to acquaint him with the principles, techniques, and strategy of coaching football at the jr. high, high school, and college level. Prerequisite: senior standing.
- \*489. **Tests and Measurements in Physical Education.** (3) Burley  
Techniques to determine abilities, needs, and placement in the physical education program.
- \*490. **Supervision of Physical Education Programs.** [Supervision of Health and Physical Education Programs] (3) Burley, Clements, Gugisberg  
Supervisory techniques stressing cooperative planning will be applied to city and county programs in New Mexico. Each student will be required to develop a problem in terms of his particular needs and situation. Prerequisite: permission of instructor.
- \*491. **Administration of Varsity Athletics.** (3) Kenney, Seidler
- \*492. **History of Physical Education.** (3) Papcsy
- \*494. **Clinical Program for Corrective Therapy.** (3-6) Members of the Hospital Staff  
Lectures and actual clinical experience in corrective therapy as integrated into the Physical Medicine and Rehabilitation program of a hospital. Prerequisite: Open to Seniors and Graduate Physical Education majors.
497. **Reading and Research in Honors.** (3-6)  
Prerequisite: see p. 167.
- \*505. **Foundations for a Philosophy of Physical Education.** (3) Burley, Kenney, McGill, Seidler  
Prerequisite: at least 3 hours in history, principles, or methods of physical education.
- \*510. **Curriculum Construction in Physical Education.** (3) Burley, Seidler
- \*514. **The Remedial Program in Physical Education.** (3) Burley, Papcsy
- \*516. **Seminar in Physical Education.** (3) Burley, McGill
- \*523. **Analysis of Physical Education Activities.** (3) Seidler  
Analysis of a selected number of physical education activities by application of principles and methods of advanced physiology of exercise, mechanics, and kinesiology.
- \*529. **Workshop.** (1-4)  
For degree restrictions consult the **Graduate School Bulletin**.

- \*551-552. **Problems in Physical Education.** (1-3 hrs. each semester) Staff
- \*588. **Psychological Aspects of Sport.** (3) Papcsy  
Examination and utilization of basic psychological concepts and demonstrations within the areas of physical education, recreation, and athletics.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.
- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## HEALTH EDUCATION

- 164. **First Aid.** (2) Belzer, Burley, Clements, Petrol  
First aid and prevention of the common injuries and accidents occurring in and about the school.
- 171. **Personal and Community Health.** (3) Belzer, Clements, Hinger, Small
- 301. [401] **General Safety Education.** (3) Belzer, Clements  
Basic principles of safety education. Current safety programs as they apply to school, home, and community.
- 312. **Fundamentals of Human Sex and Sex Education.** (3) Belzer, Cohn  
Basic knowledges, attitudes, and issues regarding the biomedical, psycho-social, historical, semantic, and comparative cultural aspects of human sexuality from conception to senility. Consideration is given to adjustment needs and problems of children and adults in contemporary American society and to sex education programs in the schools.
- 351. **Problems.** (1-3)
- 369. **Elementary School Health and Health Education.** (3) Small  
Stress is placed on understanding current information related to health of elementary school children, planning and directing learning experiences in health and safety, promoting a healthy environment for learning and ways of working as an effective member of the school health team. Open to health specialists, elementary school administrators, and classroom teachers. Prerequisite: Ed Fdn 300.
- 370. **Secondary School Health and Health Education.** [Teaching of Health Education in the Schools] (3) Small  
Responsibilities of the teacher in providing certain health services, desirable environmental conditions, and health instruction in secondary grades; basic health principles, unit planning, methods, and use of community resources. Prerequisite: 171.
- 402. **Traffic Safety Education in Secondary Schools.** (3) Belzer, Clements  
Those enrolling must be licensed drivers. Discussion includes improvements of traffic conditions; the school's part in the safety program; the need for high school courses; methods and equipment for skill tests; insurance costs, and records for behind-the-wheel training; classroom teaching methods; and physical tests for drivers.
- \*429. **Workshop.** (1-4)  
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 172 of this catalog or consult the *Graduate School Bulletin*.
- \*490. **Supervision of Health Programs.** [Supervision of Health and Physical Education Programs] (3) Belzer, Clements, Gugisberg, Small  
Supervisory techniques stressing cooperative planning will be applied to city and county programs in New Mexico. Each student will be required to develop a problem in terms of his particular needs and situation. Prerequisite: permission of instructor.
- \*495. **Studies in Community Health.** (3) Belzer, Clements, Gugisberg, Small
- \*496. **Investigations in School Health.** [Investigations in School Health Programs] (3) Belzer, Clements, Gugisberg, Small
- 497. **Readings and Research in Honors.** (3-6)  
Prerequisite: see p. 167.
- \*506. **Analysis of Health Concepts and Practices.** (3) Belzer, Small  
Prerequisite: minimum of an undergraduate minor in Health Education or permission of the instructor.
- \*511. [410] **Administration of a School Health Program.** (3) Belzer, Clements, Gugisberg, Small  
Prerequisite: 370.
- \*516. **Seminar in Health Education.** (3) Belzer, Burley, Small

**\*529. Workshop. (1-4)**

For degree restrictions consult the **Graduate School Bulletin**.

**\*551-552. Problems in Health Education. (1-3 hrs. each semester) Staff****\*599. Master's Thesis. (1-3 hrs. per semester) Staff**

See the **Graduate School Bulletin** for total credit requirements.

**\*699. Dissertation. (3-6 hrs. per semester) Staff**

See the **Graduate School Bulletin** for total credit requirements.

**RECREATION****290. Social Recreation. (2) McGill, Piper**

Experience in selection of materials, and leadership techniques in group work in social and recreational games, mixers, and dances for use in recreation programs. 5 class meetings per week.

**301. Recreational Sports. (2) Barney**

(Also offered as PE 301.) The professional course in recreational sports. Prerequisite: P.E. 160 or permission of instructor. 5 class meetings per week.

**302. Recreational Sports. (2) Barney**

(Also offered as PE 302.) Continuation of 301. Prerequisite: PE 160.

**303. Principles of Recreation. (3) Heffington, Montgomery**

History of leisure and recreation; concepts of play and recreation; major recreation agencies.

**311. Education for Leisure. (3)****331. Principles and Practices of Camping. (3) Heffington, Montgomery, Piper**

The objectives of this course are to introduce students to camp experiences, to study needs for camping with emphasis on school-camp programs, and to study organizational and administrative aspects with emphasis on leadership functions. Prerequisite: permission of instructor.

**351. Problems. (1-3)****374. Organization of Community Recreation. (3) Heffington, Montgomery**

The organization, administration, and conduct of recreation programs on the community level. Prerequisite: 303.

**\*429. Workshop. (1-4)**

Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 172 of this catalog or consult the **Graduate School Bulletin**.

**452. Organization of Sports Programs. (3) Clements, Heffington, McGill**

(Also offered as PE 452.) Organization and administration of games and sports in intramural, interschool, and community recreation programs. Prerequisite: permission of instructor.

**475-476. Field Work in Recreation. (3, 3) Montgomery**

Theory and practice in recreation leadership in centers, playgrounds, etc. Prerequisite: 374 or permission of instructor.

**\*477. Industrial and Institutional Recreation. (2) Heffington, Montgomery**

Planning, organizing, and conducting recreation programs in industry, hospitals, commercial settings, private agencies and other types of institutions. Prerequisite: 303 or permission of instructor.

**\*478. Outdoor Recreation. (3) Heffington**

Organization and administration of all types of outdoor recreation-leadership, programming, financing, etc. Includes programs in camps, resorts, ranches, lodges, and state and national parks. Prerequisite: 303 or permission of instructor.

**\*479. Park Management. (3) Montgomery**

The principles, practices and problems involved in public park management, with emphasis upon facility design, maintenance, finance and administration. Prerequisite: 374 or permission of instructor.

**\*486. Principles of Therapeutic Recreation. (3) Montgomery**

Philosophy, principles, relationships and contributions of therapeutic recreation as background for the recreation leader, hospital administrator, and other personnel.

**497. Reading and Research in Honors. (3-6)**

Prerequisite: see p. 167.

**\*507. Foundations for a Philosophy of Recreation. (3) Heffington, Montgomery**

- \*508. **Recreation Administration.** (3) Heffington, Montgomery  
Organization and administration of public recreation, administrative practices and techniques. Prerequisite: 507 or permission of instructor.
- \*516. **Seminar in Recreation.** (3) Burley, Heffington
- \*524. **Evaluation of Recreation Resources and Programs.** (3) Heffington, Montgomery  
Determining recreational needs, interests, and opportunities of individuals and communities through surveys, studies, and appraisals; evaluating and appraising community recreation programs and services; and research in the field of recreation.
- \*529. **Workshop.** (1-4) Staff  
For degree restrictions consult the *Graduate School Bulletin*.
- \*551-552. **Problems in Recreation.** (1-3 hrs. each semester) Staff
- \*555. **Socio-Psychological Concepts of Leisure.** (3) Papcsy  
Basic sociological and psychological concepts of leisure and their impact upon the fields of physical education, recreation, and athletics.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## EDUCATION, HOME ECONOMICS

ASSOCIATE PROFESSORS E. Snell (Chairman), F. M. Schroeder; ASSISTANT PROFESSORS R. B. Harris, I. H. McMurray; INSTRUCTORS M. K. Huff, C. Topping.

### CURRICULUM IN EDUCATION

See p. 182.

### COMBINED MAJOR IN HOME ECONOMICS EDUCATION AND DIETETICS

See p. 182.

### MAJOR STUDY IN ARTS AND SCIENCES

A major study in Home Economics in the College of Arts and Sciences prepares the student for the role of homemaker and for a career in Home Economics in business.

Home Economics 102, 120L, 150L, 222L, 325, 341, 408L, 418, 431L, 443, and one of the following courses: 252 or 254L. Chemistry 141L and 142L and Biology 136 and 233L are also required.

If a student majors in Home Economics in the College of Arts and Sciences, she may not have any other hours outside the College.

A special curriculum is planned for those who wish to prepare for a career in dietetics. For requirements for a major in dietetics consult the Home Economics Department Chairman.

### MINOR STUDY

See p. 182.

## HOME ECONOMICS

- 102. [102L] **Infant Growth and Development.** (3) Schroeder  
An introduction to the basic needs and growth factors of the child with emphasis on the prenatal period, infancy, and through the second year.
- 120L. **Food Science.** (3) Harris  
Principles of selection and preparation of food including economic aspects. 1 lecture, 4 hrs. lab.
- 150L. **Clothing Selection and Construction.** (3) McMurray  
Clothing selection and construction from the standpoint of artistic, economic, and hygienic standards for the individual. 1 lecture, 4 hrs. lab.
- 222L. **Meal Management.** (3)  
Principles of selection and preparation of food. Meal planning and service. Prerequisite: 120L or equivalent. 1 lecture, 4 hrs. lab.

- 240. Personal and Family Health. (2)**  
Personal and family health, sanitation; prevention and control of communicable diseases; fundamentals of home care of the sick.
- 252. Textiles. (3) McMurray**  
Construction, identification, use and care of clothing and household textiles.
- 254L. Tailoring. (3) McMurray**  
Construction of a wool suit or coat emphasizing fitting and techniques of finishing. Consumer information in relation to clothing. Prerequisite: permission of instructor. 1 lecture, 4 hrs. lab.
- 325. Nutrition. (3) Harris**  
The relation of nutrition to the health program; normal nutrition for all ages, prenatal through old age.
- 326L. Nutrition Laboratory. (1) Harris**  
Calculating and visualizing amounts and proportions of nutrients in foods, and analysis of recipes to determine nutritive value. 2 hrs. lab.
- 341. The House and Its Furnishings. (3) McMurray**  
Guides in the selection of a house and furnishings with emphasis upon the use of space for function, economy, and beauty.
- 351. Problems. (1-3)**
- \*408L. Child Growth and Development. (3) Schroeder**  
Pre-school through adolescence. For laboratory work, observation, and participation in nursery school and in kindergarten. 2 lectures, 2 hrs. lab.
- 418. Family Relationships. (3) Snell**  
Family relationships as they affect courtship, marriage, parenthood, old age, and community responsibilities and activities.
- 427L. Large Quantity Food Production. (3)**  
Standard methods of food production in quantity; food cost control; standardization of formulas; menu planning and food service. Prerequisites: 120L, 222L, 431L.
- 428. Diet Therapy. (3) Harris**  
The adaptation of diets in the treatment of impaired digestive and metabolic conditions. Prerequisites: Chem 141L, 142L, 281.
- \*431L. Experimental Foods. (3)**  
Experimental methods applied to food preparation, food marketing and food laws. Prerequisites: 222L; Chem 141L, 142L. 2 lectures, 3 hrs. lab.
- \*433. Advanced Nutrition. (3) Harris**  
Nutritive value of foods, analyses of adequate diets for normal individuals of all ages, and the relation of nutrition to the health of the world's populations. Prerequisites: 325 or equivalent; Chem 141L and 142L, or equivalents; Biol 136.
- 434. Organization and Management. (3)**  
Prerequisite: Psych 102; pre- or corequisite: Psych 451.
- 443. Home Management. (3) Huff**  
Use of money, time, and energy for the satisfaction of family needs. Selection, use, and care of equipment in the home.
- 445L. Home Management Residence. (4) Huff**  
Six weeks' residence with supervised planning, buying, preparation, and serving of meals, housekeeping; care of a resident infant. Pre- or corequisites: 102, 443. Special fee.
- \*456L. Creative Design in Clothing. (3) McMurray**  
To develop some creative ability in dress designing through manipulation of a basic pattern. Prerequisites: 150L, 254L; Art Ed. 130, 131. 1 lecture, 4 hrs. lab.
- \*509L. Organization and Management of Nursery Schools and Kindergarten. (3) Schroeder**  
Organization and administration of nursery schools and kindergartens with emphasis on curriculum, housing, equipment, budget, and staff and with parent and student participation. Practicum in teaching a group of preschool children. Prerequisite: 408L or Ed Fdn 300. 1 lecture, 4 hrs. lab.
- \*510. Young Child At Home and School. (3) Schroeder**  
Research related to the physical, mental, emotional, and social development of the child as effected by his environment at home and school. Prerequisite: a course in child development.
- \*520. Family Living in Modern Society. (3) Staff**  
Pertinent research in the field of family life and family life education. Prerequisite: 418 or Soc 225.

- \*535. **Seminar in Nutrition.** (3) Harris  
A critical study of recent research in nutrition. Prerequisite: 325 or 433.
- \*549. **Managing Family Resources.** (3) Staff  
Research findings and developments in relation to management in the home and their application to homes in today's society. Prerequisites: 443, Econ 330.
- \*551-552. **Problems.** (1-3 hrs. each semester)
- \*555. **Seminar in Textiles.** (3)  
Recent research and developments in the field of textiles as related to end products in wearing apparel and household textiles. Prerequisite: 252.

## HOME ECONOMICS EDUCATION

- 429. **Workshop.** (1-4)  
For degree restrictions see p. 172 of this catalog.
- \*437. **Teaching of Home Economics.** (3) Snell  
(Same as Sec Ed 437.)
- 465. **Home Economics Seminar.** (1-2) Snell  
History and trends in home economics, professional organization for home economists; Federal and state laws pertaining to, and research facilities available for, home economics.
- \*475. **Evaluation in Home Economics.** (3) Snell  
Newer concepts concerning evaluation and testing instruments and techniques for home economics. The construction and use of evaluative devices for home economics in the classroom and ways of determining their value. Pre- or corequisite: Sec Ed 461.
- \*480. **Curriculum Development for Home Economics.** (3) Staff  
Curriculum, methods, and facilities for courses for gainful employment which use home economics knowledge and skills. Prerequisite: major in home economics.
- 497. **Reading and Research in Honors.** (3-6)  
Prerequisite: see p. 167.
- \*570. **Seminar in Home Economics Education.** (3) Snell  
Survey of literature related to research in home economics education in elementary and secondary schools, in adult programs, and in programs serving out-of-school youth including those programs for wage earning. Means of improving present curriculum and methods in all types of home economics programs. Prerequisite: major in home economics.

## EDUCATION, LIBRARY SCIENCE

PROFESSOR D. O. Kelley; ASSOCIATE PROFESSOR M. Chisholm; ASSISTANT PROFESSOR E. McCloskey.

### MAJOR STUDY

Not offered.

### MINOR STUDY

Library Science 424, 425, 427, 429, 430, and 441 or 451, and one of the following: 426, 428, or 436.

- \*424. **Fundamentals of Library Science.** (3) Chisholm, McCloskey  
A survey of the history of libraries; social forces affecting the objectives and functions of modern libraries; types of library service; the library profession, its philosophy, publications and organizations; major trends and problems.
- \*425. **Reference and Bibliography.** (3) Chisholm, McCloskey  
Introduction to standard works of reference.
- \*426. **Public Library Administration.** (3)  
The place of the library in the community; its organization, financing, and administration.
- \*427. **Classification and Cataloging.** (3) Chisholm, McCloskey  
Principles of classification and the techniques of cataloging.
- \*428. **The Secondary School Library.** (3) Chisholm, McCloskey  
Practical study of the management of the secondary school library, including the organization of the book collection, housing, equipment and maintenance. Not open to students who have taken 436.

- \*429. **Selection of Materials for Libraries.** [Book Selection for Young People.] (3) Chisholm, McCloskey  
A survey course covering tools and principles of selection of books.
- \*430. **Reading Guidance.** (3) Chisholm, McCloskey  
Study of research concerning reading with implications for libraries; reading interests and habits and evaluation of books for various purposes; advisory services in relation to the library's general educational function.
- \*431. **Audio-Visual Materials and Techniques.** (3) Chisholm  
(Same as C&I 431.)
- \*432. **Productions of Instructional Materials for the Classroom.** (3) Chisholm  
(Same as C&I 432.)
- \*436. [431] **The Elementary School Library.** (3) Chisholm, McCloskey  
A survey of principles and problems in organizing and maintaining library programs in elementary schools. Not open to students who have taken 428.
- \*441. **Children's Literature.** (2) Walters  
(Same as EI Ed 441.)
- \*451. **Books and Related Material for Young People.** (3) Chisholm  
A survey of books and non-book materials suitable for students of junior and senior high school age. Emphasis on utilization and evaluation of materials, adolescent reading, viewing and listening interests, and reading guidance for curriculum and personal needs.

## EDUCATION, MUSIC

See Music Education.

## EDUCATION, PHYSICAL

See Education, Health, Physical Education and Recreation.

## EDUCATION, SECONDARY

### SECONDARY EDUCATION

ASSOCIATE PROFESSOR R. J. Dextator (Chairman); PROFESSORS B. M. Crawford, W. H. Ivins, W. B. Runge; ASSOCIATE PROFESSOR P. Prouse; ASSISTANT PROFESSORS J. Dettre, R. H. Hanny, A. W. Howard, R. White, C. Zweig, and Staff.

### BUSINESS EDUCATION

ASSOCIATE PROFESSORS J. Rider, V. Reva; ASSISTANT PROFESSOR J. W. Park; INSTRUCTOR C. G. Sampley

### INDUSTRIAL EDUCATION

PROFESSOR C. R. Brown; ASSISTANT PROFESSORS R. D. Nesbitt, R. A. Warner, and Staff.

In these Departments programs are offered for secondary school teachers, industrial arts teachers, and general courses in curriculum and instruction for teachers and curriculum specialists.

### CURRICULA

Secondary Education, see pp. 187-188.

Business Education, see pp. 176-177, 144.

Industrial Education, see p. 183.

## SECONDARY EDUCATION

- 301. **Foundations of Secondary Education.** (3) Dettre, Ivins, Runge  
Development of the secondary school in the United States, emphasizing its social and philosophical backgrounds. The purposes of secondary education, theories of curriculum and their application in the contemporary program of the secondary school. Includes a study of the secondary school population, the organization of the educational system, and status of the modern secondary school.

- 310. Materials and Methods of Teaching.** (3) Dettre, Doxtator, Hanny, Hirshfield, Howard, Runge, White  
Special attention given to methods applicable to all secondary teachers, such as socialized procedures, question and answer, lecture, and the project. Examination and analysis of instructional materials used in secondary schools. Observation in the public schools required. Prerequisite: 301 or permission of instructor.
- 351. Problems.** (1-3)
- \*429. Workshop.** (1-4)  
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 172 of this catalog or consult the *Graduate School Bulletin*.
- 430. Teaching of Communication Arts.** (3) Hirshfield, Prouse, White  
Prerequisite: 310.
- 431. Teaching of Sciences.** (3) Zweig  
Prerequisite: 310.
- 432. Teaching of Social Studies.** (3) Doxtator  
Prerequisite: 310.
- 433. Teaching of Industrial Arts.** (3) Brown, Nesbitt, Warner
- 434. Teaching Art in Secondary School.** (3) Masley  
(Same as Art Education 434.)
- \*\*435L. [435] Teaching of Biology.** (3) Degenhardt  
Prerequisite: Sec Ed 310, Biol 102L or 122L. (Offered in alternate years.) 2 lectures, 3 hrs. lab.
- 436. Teaching of English.** (3) Staff  
Prerequisite: 310, Engl 102. Carries credit both in Education and in English.
- \*437. Teaching of Home Economics.** (3) Snell
- \*\*438. Teaching of Mathematics.** (3) Mitchell  
Prerequisite: 310.
- 439. Teaching of Business Subjects.** (3) Rider  
Prerequisite: 310.
- \*440. Teaching of French.** (3) T. Book  
Prerequisite: 310.
- \*441. Teaching of Spanish.** (3) Lamadrid, Sackett, Ulibarri  
Prerequisite: 310. (Offered in alternate years.)
- \*442. Teaching of Reading.** (3) White  
Prerequisite: 310.
- \*443. Work Experience in Secondary Schools.** (3) Runge  
The development of present practices in work experience programs for secondary school students. Special emphasis is given to organization and administration of vocational education cooperative part-time work plans for distributive office and industrial occupations.
- 444. Teaching of Physical Education.** (3) Gugisberg, Hinger  
(Also offered as PE 444.)
- \*445. Teaching of German.** (3) Jocums
- 461-462. Student Teaching.** (3-6-9, 3-6-9, maximum total allowed 15)  
Observation and teaching in New Mexico schools. May be completed in one or two semesters. Assignments during a second semester will place more emphasis on teaching in an additional subject, or grade level, and will provide fewer hours in observation and participation. Weekly seminar meetings with University staff members are required. Prerequisites: 301, 310; 2.3 grade-point average in teaching major (2.5 for students under jurisdiction of Sec. Ed. Department); minimum of 12 hours in professional education. See also additional requirements on pp. 170-171.
- 497. Reading and Research in Honors.** (3-6).  
Prerequisite: see p. 167.
- \*501. High School Curriculum.** (3) Doxtator, Hirshfield, Howard, Ivins  
Setting, development, and present form of the secondary school curriculum. Includes specific attention to problems of development of classroom instruction, guidance and activity programs, and related parts or auxiliaries of the total secondary school program.

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**\*\* Credit for undergraduate teaching majors and graduates in Education only.**



- \*502. **The Junior High School.** (3) Crawford, Howard, Ivins  
Backgrounds of the junior high school and its purposes related to pupils' characteristics. The fundamental learning program, guidance and exploration, the pupil population, the teacher's role, leadership and organization in the curriculum.
- \*503. **Student Activities in the Secondary School.** (3) Ivins, Prouse  
The activity concept in learning; relationship of activities to needs and characteristics of adolescents; and purposes of the activities program. The basic principles and problems in the organization and administration of activities programs, as well as sponsorship and the teacher's role in activities.
- \*504. **Developments in Industrial and Vocational Education.** (3) Runge  
(Same as Ind Ed 504)
- \*520. **Instructional Trends in the Communication Arts.** (3) Prouse, Hirshfield, White  
Analysis of the associative use of the language arts and communication competency, with emphasis upon recent research and instructional trends in the field.
- \*523. **Instructional Trends in the Social Studies.** (3) Doxtator  
An analysis of social studies curricula, State and nationwide. Emphasis upon proposals for change and current experiments. Students are expected to develop a proposal for experimentation in their own local situations.
- \*529. **Workshop.** (1-4) SS Staff  
For degree restrictions consult the **Graduate School Bulletin**.
- \*531. **The Two Year College Curriculum.** (3) Dettre  
The background of the two year college movement, perspectives on its current status, and projections for the future of the two year college. The philosophical, curricular, instructional, administrative, and organizational characteristics of the program will be considered with emphasis on their relationships to foundational structures in education.
- \*533. **Seminar in Supervision of Student Teaching.** (3) Dettre, Howard, Runge
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff
- \*556. **Proseminar in Problems of Language Instruction.** (3) Lamadrid  
(Same as Span 556.)
- \*590. **Seminar.** (3) Crawford, Doxtator, Ivins
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the **Graduate School Bulletin** for total credit requirements.
- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the **Graduate School Bulletin** for total credit requirements.

## BUSINESS EDUCATION

- ‡111. **Beginning Typewriting.** (2) Park, Reva  
The learning of the keyboard by the touch system. Students who have had typewriting in high school or business school will not receive credit in 111.
- ‡112. **Intermediate Typewriting.** (3) Park, Reva, Sampley  
Business forms, correspondence and letter styles, manuscripts, tabulation, speed building with individual goals. Prerequisite: knowledge of typewriter operation and keyboard.
- §113-114. **Shorthand Theory; Beginning Dictation.** (3, 3) Park, Sampley  
Gregg theory and essentials of writing; speed goal: 50 wpm minimum. 114: Review of theory; introduction of transcription; speed goal: 80 wpm minimum. Students who have had shorthand in high school should enroll in 114 or a more advanced class, as they will not receive credit in 113. Prerequisites for 114: 111, 113, or equivalent.
117. **Office Machines and Filing.** (2) Reva  
Laboratory work in filing, transcription from recorded dictation, mimeograph, direct process duplicators, listing and non-listing calculators. Prerequisite: 112.
- §253. **Transcription.** (3) Sampley  
Review of theory; dictation and transcription from shorthand notes correctly and speedily. Mailable letters are required. Prerequisites: 112 and 114 or equivalent. Speed goal: 120 wpm.
257. **Secretarial Office Practice.** (3) Reva  
Development of the ability to apply secretarial skills to office duties and to handle efficiently the responsibilities of a secretarial position. Prerequisites: 112, 114, or equivalent.

‡ No credit allowed toward degrees in Colleges of Arts and Sciences, and Pharmacy.

§ A maximum of 6 hours credit allowed in shorthand in the College of Arts and Sciences.  
No credit allowed toward degree in the College of Pharmacy.

- 262. Advanced Typewriting.** (3) Reva, Sampley  
Production, with efficiency and accuracy, of business letters, reports, manuscripts, tabulation, rough drafts, corporation reports, legal documents, study of skill performance problems from point of view of teacher and/or office supervisor. Individual speed goals. Prerequisite: 112.
- 265. Business Communications.** (3) Reva  
Prepares the student to understand terms, policies, and procedures in business relations; letter writing, reports, memoranda, and other media of communication.
- 439. Teaching of Business Subjects.** (3) Rider  
(Same as Sec Ed 439.)
- \*501. Foundations of Business Education.** (3) Rider  
The various phases and functions of Business Education brought into proper perspective as one broad area.
- \*503. Readings in Business Education.** (3) Rider  
Analysis of research and literature and implications of findings for Business Education.
- \*510. Seminar in Typewriting Education.** (3) Rider  
The principles, methods, procedures, and problems in the teaching of typewriting at all levels for all objectives.
- \*511. Seminar in Shorthand Education.** (3) Rider  
The principles, methods, procedures, and problems in the teaching of shorthand and transcription.
- \*512. Seminar in Bookkeeping and Accounting Education.** (3) Rider  
The principles, methods, procedures, and problems in the teaching of bookkeeping and accounting.
- \*513. Seminar in Socio-Business Education.** (3) Rider  
The principles, methods, procedures, and problems in the teaching of the various classes included in the area of socio-business education such as: General Business, Consumer Economics, Applied Economics, Business Principles, Business Organization, Introduction to Business, Business Law, Business Communications, Business Arithmetic, and Economic Geography.
- \*514. Seminar in Office and Distributive Education.** (3) Rider, Runge  
The principles, methods, procedures, and problems in the teaching and coordinating of office and distributive education classes and programs with emphasis upon advanced skills combines with actual and simulated work experience on or off campus.
- \*529. Workshop in Business Education.** (1-4) Rider  
For degree restrictions see department chairman.
- \*551-552. Problems in Business Education.** (1-3 hrs. each semester) Rider

## INDUSTRIAL EDUCATION

### 1. TECHNICAL

- 101. Shop Computation.** (3) Brown  
Practical application of algebra, geometry, and trigonometry in the solution of applied problems found in the industrial arts.
- 1101. Machine Woodworking.** (3) Brown, Warner  
Introduction to the woodworking area. Emphasis on the proper use of hand tools, power machinery, and basic finishing methods. Use of wood turning tools and equipment in spindle, faceplate and special turning processes. 1 lecture, 5 hrs. lab.
- 111L. Drafting I.** (2) Brown, Nesbitt  
Essentials of drafting, including the use of instruments, lettering, orthographic projections, dimensioning, auxiliary views, pictorials, sections, graphic symbols. 1 lecture, 3 hrs. lab.
- 112L. Drafting II.** (3) Brown, Nesbitt  
A continuation of 111L, with emphasis on advanced dimensioning, detail and assembly drawings, exploded views, etc. Prerequisite: 111L. 2 lectures, 4 hrs. lab.
- 115L-116L. General Woodwork.** (2, 2) Brown, Nesbitt, Warner  
Designed to meet the various individual needs of non-majors. Basic instruction in the care and use of hand tools, power machinery, and finishing methods used in the processing of woods. 5 hrs. lab.
- 117L-118L. General Metalwork.** (2, 2) Nesbitt, Warner  
Designed to meet the various individual needs of non-majors. Basic instruction in the care and use of hand tools and power machinery in the fabrication of metals. 5 hrs. lab.

- 120L. Machine Metalworking.** (3) Nesbitt, Warner  
Introduction to the metalworking area. Emphasis on the proper use of hand tools and the operation of the engine lathe, drill press, grinders, and shapers. 1 lecture, 5 hrs. lab.
- 225. [425] Design in Industrial Arts.** (2) Brown, Warner  
Theory and utilization of design principles in the development and use of the various materials of industry.
- 230L. Power Mechanics.** (3) Nesbitt  
A basic course pertaining to the internal combustion engines. Experiences in the maintenance and repair, with reference to the consumer level, on the automobile and various other small engines. 1 lecture, 5 hrs. lab.
- 245. Slide Rule.** (2) Brown  
The use of the various scales for solving technical problems.
- 261L. Drafting III.** (2) Nesbitt, Warner  
Problems involving the point, line, and plane; and practical problems involving the above principles with emphasis on triangulation, developments, intersections, perspective. Prerequisite: 111L. 1 lecture, 3 hrs. lab.
- 262L. [362L] Drafting IV.** (3) Brown, Warner  
Residential working drawings, with emphasis on construction details. Selected field trips. Prerequisite: 111L. 2 lectures, 4 hrs. lab.
- 265L. Finishing and Maintenance.** (3) Brown  
Techniques, processes and application of finishes on the various kinds of wood. Practice in tool and machine maintenance and repair, tool fitting and sharpening, and saw filing. 1 lecture, 5 hrs. lab.
- 280L. Electricity and Electronics I.** [General Electricity and Electronics] (3)  
An introductory course in electrical theory and its application in the field of lighting, heating, communication, and electronics. Individual and group experiences are derived through experimentation and the construction of electrical projects. 1 lecture, 5 hrs. lab.
- 285L. Welding.** (3) Nesbitt, Warner  
Arc and oxyacetylene welding with some inert welding. Techniques, methods, and processes are considered with emphasis on the welding and cutting of the common metals. 1 lecture, 5 hrs. lab.
- 315L. Pattern Making and Foundry.** (3) Brown, Nesbitt, Warner  
The construction of various patterns and core boxes used in pattern making. Principles and practices involved in the foundry industry. Experiences in the operation, care and maintenance of pattern making and foundry tools and equipment. 5 hrs. lab.
- 335L. Intermediate Power Mechanics.** (3) Nesbitt  
Hydraulic and mechanical methods of transmitting power. Theory and function of gear and hydraulic transmissions. 1 lecture, 5 hrs. lab.
- 350L. Cabinet Making.** (2) Brown  
Advanced instruction in the use of power woodworking machinery. Emphasis on cabinet and furniture designing and construction. Basic techniques and processes in upholstery. Prerequisite: 110L or equivalent. 5 hrs. lab.
- 365L. Advanced Machine Metalworking.** (3) Nesbitt, Warner  
Advanced course in the machine shop. Includes experiences in the various processes and practices of metal machining. Emphasis on work with the engine lathe, shaper, surface grinder, and the horizontal and vertical milling machines. Maintenance and repair of tools and machinery. 1 lecture, 5 hrs. lab.
- 380L. Electricity and Electronics II.** (3) Staff  
Application of the theories and principles involved in the use of vacuum tubes, power supplies, amplifiers, receivers, and transmitters. An introduction to transistor principles and their application. Prerequisite: 280L or permission of instructor. 1 lecture, 5 hrs. lab.
- 386L. Metal Fabrication.** (3) Nesbitt, Warner  
An introduction to the various aspects and basic processes in the hot and cold forming of metals. Techniques will be utilized in the use of the tools and equipment for metal fabrication, which includes such areas as sheet metal, metal spinning, forging and ornamental metal. 1 lecture, 5 hrs. lab.
- 462L. Carpentry.** (3) Brown  
Plot layouts, foundations, floor and wall framing, roof construction, rafter cutting, inside and outside finishing, and the use of the steel square. A scaled model house is constructed. Prerequisite: 110L or equivalent. 1 lecture, 5 hrs. lab.

**475L. Metal Technology. (1-3) Nesbitt, Warner**

Advanced hand tool and machine processes in the areas of forging, bench metal, sheet metal, welding, foundry, art metal, and other areas of metal working used in the school shop situation. Students will choose the area or areas in which they desire to concentrate additional experiences. Lab hours arranged.

**480L. Wood Technology. (1-3) Brown**

Advanced course designed to meet the individual needs of students wishing to concentrate in a specialized area of woodworking. Lab hours arranged.

**II. PROFESSIONAL****105. Introduction to Industrial Education. (2) Brown, Nesbitt, Warner**

Orientation of the student to industrial arts and its place in general education.

**351. Problems. (1-3)****429. Workshop in Industrial Education. (1-4)**

For degree restrictions, see p. 172 of this catalog.

**433. Teaching of Industrial Arts. (3) Brown, Nesbitt, Warner**

(Same as Sec Ed 433)

**466. Theory and Organization of Industrial Education. (3) Brown, Nesbitt, Warner**

An analysis of organizing and teaching of industrial arts as found in the modern school.

**III. GRADUATE STUDY****\*490. Measurement and Evaluation Techniques. (3) Brown, Nesbitt, Warner**

Methods of measuring achievement in industrial subjects. Emphasis is given to evaluation of manipulative activities and technical knowledge.

**\*492. Instructional Analysis. (3) Brown, Nesbitt, Warner**

Techniques and methods used to identify content for instruction in the practical and industrial subjects. Analysis of occupations or activities in determining content for instructional purposes.

**\*504. Developments in Industrial and Vocational Education. (3) Brown, Ivins, Runge**

Includes history, developments, movements motivating the present programs in vocational, distributive, office and secretarial, trade and technical, industrial, home economics, and health education. A thorough study will be made of the Vocational Education Act of 1963 with implications for new programs, the New Mexico State Plan for Vocational Education, secondary and post-high school program development, apprenticeship training, and technical level courses.

**\*505. Development, Selection, Use, and Organization of Instructional Materials. (3) Brown, Nesbitt, Warner**

Research in the study of sources, values, limitations, and classification of instructional materials. Emphasizes objectives, theories, and practices underlying the formation, evaluation, and revision of learning materials. Prerequisite: 492 or permission of instructor.

**\*510. Laboratory Planning and Design. (3) Brown, Nesbitt, Warner**

An appraisal and analysis of current laboratory requirements. Research in the problems associated with the development of modern laboratory facilities. Revision of present facilities to meet current demands. Special attention given to lighting, heating, cooling, ventilation, color, building materials used in construction, location in relation to other educational areas and the selection and placement of equipment for efficient operation and work flow.

**\*515. Industrial Accident Prevention. (3) Nesbitt**

The principles of accident prevention, philosophies involved, psychology of safety, personal protective devices, machine guarding, occupational diseases and other areas pertinent to industrial safety, industrial and vocational instructors and personnel in industry.

**\*520. Administration of Industrial and Vocational Programs. (3) Warner**

Problems and procedures in organizing and administering the various types of programs in the practical arts areas. A study of the laws on the federal, state and local levels relating to these arts.

**\*525. Advanced Technical Knowledge and Skills. (2) Brown, Nesbitt, Warner**

Individual or group study in research and experimentation with advanced industrial subject information, skills, knowledges, attitudes and concepts. Areas of work can be in the woods, metals, drafting, electrical power mechanics, industrial plastics and ceramics, or other related areas. May be repeated for a total of 6 semester hours with the adviser's consent.

**\*529. Workshop. (1-4) Staff**For degree restrictions consult the *Graduate School Bulletin*.**\*551-552. Problems. (1-3 hrs. each semester) Staff****ELECTRICAL ENGINEERING**

See Engineering, Electrical.

**ELEMENTARY EDUCATION**

See Education, Elementary

**ENGINEERING, CHEMICAL****PROFESSOR T. T. Castonguay (Chairman); ASSOCIATE PROFESSOR A. A. Armstrong, Jr.; ASSISTANT PROFESSORS K. E. Cox, E. J. Nowak.****CURRICULUM**

See p. 194.

**251. Chemical Calculations. (3)**

More extensive problem work in the stoichiometric principles of chemistry, including composition changes; the material balance; units and dimensions. Prerequisite: Chem 102L or equivalent.

**252. Industrial Stoichiometry. (3)**

The application of the fundamental laws of chemistry, physics, and mathematics to industrial chemical calculations. Prerequisites: 251 or equivalent, Physics 261, Math 264.

**317. Process Calculations. (3)**

Numerical and graphical techniques; calculations involving phase equilibria, multistage processes and thermochemistry; application of computers to the solution of material and energy balances. Prerequisite: 252.

**353. Advanced Chemical Engineering Calculations. (3)**

Prerequisite: Math 265.

**\*\*354L. Process Dynamics. (3) Staff**

Application of special mathematical techniques to chemical processes; topics in process control and instrumentation. Prerequisite: 353. 2 lectures, 3 hrs. lab.

**360. Natural Gas Production and Transmission. (3)**

Prerequisite: 411 or ME 301.

**\*\*361. Chemical Engineering Materials I. (3) Staff**

Introduction to the physical basis of the mechanical, electrical, and magnetic behavior of solids. The relations between the structure and properties of materials; diffusion and phase transformations. Prerequisites: 412, Chem 312.

**\*\*362. Chemical Engineering Materials II. (3) Staff**

Continuation of 361. Applications to metals, ceramics, and polymers. Corrosion and irradiation phenomena. The use and selection of materials for the chemical process industries. Prerequisite: 361.

**398. Field Trip. (0)**

Required for graduation. Annual inspection tour to leading chemical plants in different sections of the country. Approximately one week is spent on these visits. Prerequisite: senior standing.

**\*\*401. Principles of Thermodynamics I. (3) Staff**

The laws of thermodynamics; irreversible processes; development of the energy properties; applications to chemical and physical systems. Prerequisites: Math 265, Physics 262.

**\*\*402. Principles of Thermodynamics II. (3) Staff**

Continuation of 401 with applications to chemical engineering processes; physical and chemical equilibria.

**\*\*411. Unit Operations I. (3) Staff**

Transport phenomena. The mechanisms and the related mathematical analysis of heat, mass, and momentum transfer. Macroscopic balances. Prerequisites: 252 or the equivalent, Math 265, Physics 262.

**\*\* Available for graduate credit except for graduate majors in Chemical Engineering.**

- \*\*412. Unit Operations II. (3) Staff**  
A continued lecture, and recitation of the Unit Operations and their applications to the chemical industries: problems in heat transfer, evaporation, humidification, drying, crystallization, phase separation, and related topics. Prerequisite: 411 or the equivalent.
- \*\*413. Unit Operations III. (3) Staff**  
A continuation of Unit Operations; problems in mass transfer, phase relationships, extraction, distillation, and related topics. Prerequisite: 412.
- \*\*414L. Unit Operations Laboratory I. (2) Staff**  
Laboratory practice and experimental study of Unit Operations covered in 411 and 412. Corequisite: 412. 6 hrs. lab.
- \*\*415L. Unit Operations Laboratory II. (2) Staff**  
Experimental laboratory study of the Unit Operations covered by 412 and 413. Prerequisite: 414L; corequisite: 413. 6 hrs. lab.
- 451-452. Seminar. (1, 1)**  
Senior year. Reports on selected topics and surveys; presentation and discussion of papers from current technical journals, and topics of interest to the chemical engineer.
- \*454. Process Modeling and Optimization. (3) Staff**  
Quantitative description of chemical engineering systems. Optimum process design parameters and operating conditions. Prerequisite: 353 or permission of instructor.
- \*\*470. Applied Chemical Kinetics. (3) Staff**  
The kinetics of homogeneous and heterogeneous catalytic and non-catalytic reactions for flow and non-flow processes. Elementary principles of chemical reactor design and operation. Prerequisites: 353, 402.
- 472. Chemical Engineering Economics. (3)**  
Factors other than engineering and chemical which determine the feasibility of putting a chemical on the market. Particular reference to control of raw materials, markets, competition, patent situation, and related topics. Prerequisites: 413, Econ 200 or equivalent.
- 481L. Chemical Engineering Process Laboratory I. (2)**  
Research and development laboratory studies on chemical processes and products. Emphasis on creativity in pursuing research objectives. Literature survey, laboratory notebook and report writing stressed. 6 hrs. lab.
- 482L. Chemical Engineering Process Laboratory II. (2)**  
Continuation of 481L, but may be taken as an independent unit. Prerequisite: Chem 311; corequisite: 361 or 362. 6 hrs. lab.
- \*\*494L. Chemical Engineering Design. (3) Staff**  
Practice in engineering creativity and decision-making. Selection of the optimum process for making a given product. Process design of equipment. Prerequisites: 401, 413. 2 lectures, 3 hrs. lab.
- \*501. Chemical Engineering Seminar. (1-3) Staff**  
Individual study on advanced phases of chemical engineering and industrial chemistry. Research, reports, and conferences. Offered each semester.
- \*521. Advanced Transport Phenomena I. (3) Staff**  
Viscosity and velocity distribution in laminar and turbulent flow. Boundary layer theory and modern concepts of turbulence. Temperature distributions and the equations of change for non-ideal systems.
- \*522. Advanced Transport Phenomena II. (3) Staff**  
Diffusivity and the mechanisms of mass transport. Concentration profiles in laminar and turbulent flow. Interphase transport in multicomponent systems.
- \*523. Equilibria and Staged Operations. (3) Staff**  
An advanced study of the mass transfer operations of chemical engineering. Equilibria of non-ideal systems. Multicomponent operations.
- \*531. Petroleum Process Engineering. (3) Staff**  
Oil and natural gas recovery, secondary recovery methods. The processing of petroleum, refinery design methods, and operation. The manufacture of petro-chemicals from petroleum feed stocks.
- \*532. Advanced Process Dynamics and Control. (3) Staff**  
Dynamics of complex processing systems such as packed-bed reactors and mass transfer equipment. Sampled-data control systems involving on-line gas chromatographs and process control computers.

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**\*\* Available for graduate credit except for graduate majors in Chemical Engineering.**

- \*541. **Catalysis.** (3) Staff  
Rate equations and theories of heterogeneous and homogeneous catalysis. Adsorption phenomena. Physical characterization of catalysts. Catalyst preparation, poisoning and deactivation. Experimental methods and applications to industrial processes.
- \*542. **Advanced Chemical Engineering Thermodynamics.** (3) Staff  
Advanced thermodynamics with reference to its application in chemical engineering.
- \*543. **Irreversible and Statistical Thermodynamics.** (3) Staff  
Application of modern thermodynamic concepts and techniques to chemical engineering.
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff  
Advanced readings, design, or research.
- \*561. **Kinetics of Chemical Processes.** (3) Staff  
Rate equations for simple and complex chemical processes, both homogeneous and heterogeneous. Experimental methods and interpretation of kinetic data for use in chemical reactor design and analysis. Application to complex industrial problems.
- \*591. **Theoretical Physical Metallurgy.** (3) Smith  
Electronic structures and the bonding of solids, crystal structures and crystal imperfections. The physical and mechanical behavior of metals. Prerequisites: 361, Physics 430.
- \*592. **Physical Metallurgy of Alloys.** (3) Smith  
Equilibrium and nonequilibrium phase relations in binary and ternary alloys. Interrelations of microstructures and physical and mechanical properties. Control of structures and properties by alloying and by thermal and mechanical treatment. Prerequisites: 361, 591, Chem 312.
- \*593. **Ceramics.** (3) Staff  
Properties, applications, and manufacture of electrical ceramics, refractory intermetallic compounds, ceramic-metal and glass-metal composites, and cermets. Sintering and solid state reaction, glassy state, thermodynamics of ceramics. High temperature techniques. Prerequisites: 361, Chem 312 and Physics 430.
- \*594. **Plastics.** (3) Staff  
Basic chemistry of resins and polymers. Effect of chemical and physical structure on plastic properties. Selection, testing and evaluation of plastics. Methods of fabrication. Prerequisites: 361, Chem 101L. Recommended: Chem 122L, 301-302.
- \*595. **Seminar in Materials.** (1-3) Staff
- \*596L. **Physical Metallurgy Laboratory.** (1) Staff  
The techniques and applications of metallography; preparation of metallographic sections; microscopy and photomicrography; physical, chemical, and mechanical evaluation of metal specimens. Pre- or corequisite: 592. 3 hrs. lab.
- \*597. **Crystalline Defects in Solids.** (3) Staff  
Theory of crystalline defects and application to material properties. Defect species such as vacancies, interstitials, impurities, dislocations, stacking faults and grain boundaries. Physical properties: mechanical, kinetic, electrical, and magnetic. Irradiation damages in solids. Direct observation of defects. Prerequisite: 361.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.
- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## ENGINEERING, CIVIL

PROFESSORS C. L. Hulsbos (Chairman), R. H. Clough (Dean), W. R. Gafford, R. G. Huzarski, J. E. Martinez, M. C. May, E. M. Zwoyer; ASSOCIATE PROFESSORS M. M. Cottrell, E. J. Rhomberg, G. E. Triandafilidis, J. T. P. Yao; ASSISTANT PROFESSORS W. T. Abbott, J. B. Carney, Jr., W. W. Hakala, R. L. Johnson, Jr., G. W. May, C. Omid'varan, C. C. Patterson.

## CURRICULUM

See p. 195.

- 101L. **Engineering Graphics.** (3)  
Graphical communications; point, line, and plane relationships; distances, angles, and intersections. 2 lectures, 4 hrs. lab.
- 102L. **Engineering Computational Methods.** (3)  
Graphical computations, nomography, flow diagramming, digital computer systems and language. Corequisite: Math 162 or equivalent. 2 lectures, 4 hrs. lab.

- 103. Engineering Lectures. (1)**  
A discussion of the engineering profession.
- 202L. Engineering Statics. (3)**  
Statics of particles and rigid bodies in two and three dimensions using vector algebra as an analytical tool; centroids; distributed loads; trusses; frames; friction. Prerequisite: Physics 260; corequisite: Math 264. 2 lectures, 3 hrs. lab.
- †211L. [211] Introduction to Architectural Structural Analysis. (3)**  
Study of loads on architectural structures and their behavior; properties of structural materials and shapes. Determination of reactions and force resultants in structural components. Prerequisites: Physics 111, Math 151 or 162 or 181; corequisite: Arch 301. Open only to students who have been admitted to the professional curriculum in Architecture. 2 lectures, 3 hrs. lab.
- †212L. [212] Architectural Structures I. (3)**  
Study of behavior of structural form; beams, frames, arches, and plates. Deformation analysis of structural members and frames. Elastic and ultimate resistance of structural materials. Prerequisite: 211L; corequisite: Arch 302. Open only to students who have been admitted to the professional curriculum in Architecture. 2 lectures, 3 hrs. lab.
- 270L. Construction Materials. (1)**  
A laboratory study of the physical, mechanical, and chemical properties of engineering materials. 3 hrs. lab.
- 281L. Engineering Measurements. (3)**  
Principles and theories of physical measurements of spatial quantities; theory of probable error and adjustment of observations; use of measuring instruments and systems using surveying techniques where desirable. Corequisite: Math 163. 2 lectures, 3 hrs. lab.
- 282L. Engineering Surveys. (2)**  
Engineering applications of theories and principles developed in 281L; horizontal and vertical control surveys, topography, alignment curve geometrics, modern survey systems, and instruments; introduction to photogrammetry and geodesy. Prerequisite: 281L. 1 lecture, 3 hrs. lab.
- 302. Mechanics of Materials. (3)**  
Stresses and strains associated with elastic and plastic behavior of members stressed in tension, compression, torsion, and flexure; Mohr's circle construction; principles of combined stresses and resultant deformation; columns and buckling phenomena; preliminary consideration of statically indeterminate members. Prerequisite: 202L.
- 303L. Mechanics of Materials Laboratory. (1)**  
Laboratory practice in the application of strain measuring and indicating devices directed at verification of fundamental principles developed in 302; mechanical, electrical, photoelastic, and stresscoat equipment usage. Corequisite: 302. 3 hrs. lab.
- 305. Structural Analysis I. (2)**  
Analysis of determinate structures including beams, frames, roof and bridge trusses subjected to both fixed and moving loads by algebraic and graphical methods; introduction to deflection theory, moment-area, conjugate beams, and virtual work. Corequisite: 302.
- \*\*306. Structural Analysis II. (3) Staff**  
Statically indeterminate structures; use of moment-area, conjugate structure, column analogy, virtual work, slope deflection and moment-distribution methods; sidesway and multi-degree of freedom structures; introduction to structural dynamics. Prerequisite: 305 or permission of instructor.
- †315L. [313] Architectural Structures II. (3)**  
Behavior of structural systems; choice and planning of structural systems. Design of truss and frame members in metals and wood. Prerequisite: 212L; corequisite: Arch 401. 2 lectures, 3 hrs. lab.
- †316L. [314] Architectural Structures III. (3)**  
Approximate and simplified methods of proportioning reinforced concrete members. Design of reinforced concrete buildings, including foundations, in accordance with current codes. Qualitative behavior and simplified design of arches, shells, and folded plates. Prerequisite: 315L. 2 lectures, 3 hrs. lab.

† No credit allowed in College of Engineering.

\*\* Available for graduate credit except for graduate majors in Civil Engineering.



- 324L. Structural Design in Metals. (3)**  
Methods of design of tension, compression, and flexure members of metal including their connections; the analysis and design of structural elements of metal as consistent with modern practice. Prerequisite: 305. 2 lectures, 3 hrs. lab.
- \*\*331L. [330] Fluid Mechanics. (3)** Carney, Martinez  
The mechanics of incompressible and compressible flow; fluids at rest; geometry of fluid motion; general equations of motion; laminar and turbulent flow, boundary layer, lift, form drag; flow through pipes, pipe systems, and open channels; laboratory study of basic principles of fluid mechanics. Prerequisite: 202L; corequisite: ME 206L. 2 lectures, 3 hrs. lab.
- \*\*332. [332L] Water Resources and Hydraulic Engineering I. (3)** Carney, Martinez  
Components of hydrologic cycle; ground water flow, stream flow, storage requirements; flood routing; conveyance by canals, flumes, pipe systems; hydraulic machinery. Prerequisite: 331L.
- \*\*336L. [435L] Sanitary Engineering I. (2)** Martinez, Patterson  
The principles of sanitary science as applied to the control of the environment, water supply and waste-water disposal, air and water pollution, solid wastes, food sanitation, industrial hygiene, radiological health. Corequisite: 332. 1 lecture, 3 hrs. lab.
- 360L. Soil Mechanics. (3)**  
Physical, chemical, and mechanical properties of soil as an engineering material; relation of properties to engineering problems. Prerequisite: 302. 2 lectures, 3 hrs. lab.
- 370. Engineering Materials Science. (3)**  
(Also offered as ME 370.) The structure of matter; phase relations, mechanical, thermal, electrical and magnetic properties of polymers, metals and ceramics; fracture mechanics; corrosion, protective materials, cementing materials and concrete. The use and selection of materials. Prerequisite: 302; corequisite: ME 301.
- 380L. Cartography. (3)**  
Map projection and use of maps to show areal distribution and graphic representation of statistical data. Prerequisite: 101L and permission of instructor. 2 lectures, 3 hrs. lab.
- 382. Transportation Engineering. (2)**  
The planning, economics, finance, location, geometric design, and administration of transportation systems. Prerequisite: junior standing in Civil Engineering.
- \*401. Advanced Mechanics of Materials. (2)** Cottrell, Hakala  
State of stress and strain at a point, stress-strain relations, strain energy, elastic instability, stress concentrations, shear center, bending of curved beams, torsion of prismatic bars, stresses in symmetrical bodies, yield criteria. Prerequisites: 302, Math 311.
- \*402. Introduction to Mechanics of a Continuum. (3)** Cottrell, Hakala  
Analysis of stress and deformation in a continuum, equations of motion, applications to solids and fluids. Prerequisites: 302, Math 311.
- 411. Reinforced Concrete Design. (3)**  
Structural mechanics of concrete beams, slabs, columns, walls, and footings; checking and proportioning of members and connections in accordance with specifications for elastic, ultimate, and prestressed concrete design. Prerequisite: 306.
- \*416L. Analysis and Design of Structural Systems. (3)** Staff  
Analysis, design, and optimization of various structural systems. Topics to be selected from the following systems: buildings, bridges, aerospace structures, plates, cylindrical shell panels, space frames. Structural model analysis. Prerequisites: 306 and permission of instructor. 2 lectures, 3 hours lab.
- \*\*417L. Structures Workshop I. (2)** Gafford  
Advanced topics in structures for Architectural majors. Prerequisite: Permission of instructor. 6 hrs. lab.
- \*\*418L. Structures Workshop II. (2)** Gafford  
Advanced topics in structures for Architectural majors. Prerequisite: Permission of instructor. 6 hrs. lab.
- \*420. Plastic Design of Framed Structures. (3)** Rhomberg  
Basic theorems of plastic collapse, bending moment-curvature relationships, methods of plastic analysis and design, deflection estimates, influence of axial and shear forces on the plastic moment. Prerequisite: 306.

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\*\* Available for graduate credit except for graduate majors in Civil Engineering.

- \*421L. **Introduction to Structural Dynamics.** (3) Cottrell, Yao  
Basic theory of structural vibrations; structural response to dynamic loads; laboratory simulation of dynamic response of structures with electrical and mechanical analogies and applications of analog computer. Prerequisites: 306, ME 206L, Math 311. 2 lectures, 3 hrs. lab.
- \*430. **Applied Hydrodynamics.** (3) Carney, Patterson  
Principles of dimensional analysis, dynamic similarity, flow nets, irrotational flow, gravity flow, unsteady flow, boundary layer theory, separation, cavitation, drag; pumps and turbines. Prerequisite: 331L.
- \*431. **Intermediate Hydrology.** (3) Carney, Martinez  
Hydrometeorology, soil moisture, runoff cycle, losses, overland flow, flood routing, runoff routing. Prerequisite: 332 and permission of instructor.
- \*432. **Water Resources and Hydraulic Engineering II.** (2) Carney, Martinez  
Applied hydrology, hydraulics, and water resources development. Prerequisite: 332.
- \*436L. [436] **Sanitary Engineering II.** (2) Martinez, Patterson  
Design of wastewater treatment plants using traditional design parameters and experimental design parameters. Population forecasting, plant hydraulics, stream sanitation, optimization analysis. Prerequisite: 336L. 1 lecture, 3 hrs. lab.
- \*437. **Sanitary Engineering III.** (2) Martinez, Patterson  
Design of water treatment plants; desalination by distillation, reverse osmosis, electrodialysis, freezing; water resources development. Prerequisite: 336L.
- \*440. **Arid Land Engineering.** (3) Huzarski  
Engineering studies related to problems of air, water, ground, and culture, relevant to arid and semi-arid regions. Prerequisite: senior standing and permission of instructor.
- \*450. **Introduction to the Probabilistic Methods in Engineering.** (3) Carney, Yao  
Applications of the theory of probability and statistics to engineering problems such as measurement errors, traffic flow, sanitary engineering, water resources, hydrology, yield and fracture strength of metals. Prerequisite: Permission of instructor.
- \*451. **Engineering Analysis.** (3) Cottrell  
Methods of theoretical analysis of typical engineering systems. Applications of ordinary and partial differential equations, finite differences and matrices to solve engineering problems. Prerequisite: Math 311 or equivalent and permission of instructor.
- \*452L. **Computer Applications in Civil Engineering.** (3) Abbott  
Use of digital computers to solve typical problems in various areas of Civil Engineering, including use of stored programs and preparation of original programs. Prerequisite: 102L or EE 436L; senior standing in Engineering. 2 lectures, 3 hrs. lab.
- \*461. **Soil Engineering for Highways and Airfields.** (2) Carney, Hakala  
Soil classification, soil surveys, air photo interpretation, engineering soil maps, subsurface drainage, frost action, excavation and embankments, stabilization, slope stability, field and laboratory testing. Prerequisite: 360L.
- \*462. **Engineering Foundations.** (3) Carney, Hakala  
Application of principles of soil mechanics to analysis and design of footings, piles, caissons, cofferdams, and other substructures. Prerequisite: 360L.
- \*463. **Intermediate Soil Mechanics.** (3) Carney, Hakala  
Detailed study of physical and mechanical properties of soils, shear strength, consolidation, introduction of physico-chemical properties of soils. Prerequisite: 360L.
- \*464. **Soil and Rock Engineering.** (3) Hakala  
Properties and behavior of soils and rocks, tunneling, stress concentrations, blasting requirements, relation of soil and rock properties to blast damage. Prerequisite: 360L.
- \*471L. **Building Construction.** (2) Gafford  
Engineering and architectural details within the framework of a building; floor and roof systems; bearing curtain walls; use and relative costs of materials; building codes; selected field trips. Prerequisite: senior standing in Engineering. 1 lecture, 3 hrs. lab.
- \*472. **Construction Management.** (3) Clough  
Management principles as applied to the conduct and control of construction projects; estimating methods, bidding, construction contracts, bonds, insurance, cost accounting, labor law, labor relations, and safety. Prerequisite: senior standing in Engineering.
- \*475L. **Materials Technology.** (3) Martinez, Rhomborg  
Theories of concrete-mix proportioning, use of concrete additives; testing of concrete aggregates and cement; asphalts; design of bituminous paving mixtures. Prerequisite: senior standing in Engineering. 2 lectures, 3 hrs. lab.

- \*476. **Highway and Airport Pavements.** (2) Martinez  
Principles of highway and airport pavement design. Prerequisite: 360L.
- \*480. **Municipal Engineering.** (2) M. May  
Forms of municipal government; municipal functions, organization, and management; city finance; engineering functions of city government; city planning and zoning; public utilities, recreational development. Prerequisite: senior standing in Engineering.
- \*482. **Traffic Engineering.** (3) M. May  
Application of engineering principles to the problems of highway traffic; traffic counts, origin and designation surveys, accident studies, traffic estimates, planning studies; highway and intersection capacities; traffic control; geometric design principles. Prerequisite: senior standing in Engineering.
- 490. **Professional Problems in Engineering.** (2)  
Ethical and professional considerations in the engineer's relationship to other engineers, his clients, and society; contractual agreements common to engineering; professional economics. Prerequisite: senior standing in Engineering.
- \*491-492. **Special Topics in Civil Engineering.** (1-3 to a maximum of 6) Staff  
Advanced studies in various areas of civil engineering.
- \*501. **Indeterminate Structural Analysis.** (3) Johnson, Yao  
Topics in indeterminate structural analysis using displacement methods and force methods; relaxation and distribution procedures; column analogy. Introduction to the application of matrix algebra in structural analysis. Prerequisite: 306 or permission of instructor.
- \*502. **Advanced Structural Analysis.** (3) Johnson, Yao  
Virtual work, principles of strain energy and complementary energy. Comprehensive presentation of the fundamental principles of structural analysis formulated with matrix algebra. The application of numerical and approximate methods. Analysis of complex structures using digital computers. Prerequisite: 501.
- \*505. **Advanced Reinforced Concrete.** (3) Hulsbos, Rhomberg  
Behavior of reinforced concrete members and structures; ultimate strength design; review of current literature. Prerequisites: 306, 411.
- \*506. **Prestressed Concrete.** (3) Hulsbos, Rhomberg  
Theoretical and practical aspects of behavior and design of prestressed concrete structures. Prerequisite: 411.
- \*507. **Design of Concrete Plates and Shells.** (3) Hulsbos  
Design of slabs, folded plates, and thin shell structures. Principles of ultimate strength, limit design, and yield line theories. Prerequisite: 411.
- \*510. **Advanced Structural Design in Metals.** (3) Omid'varan, Yao  
Advanced structural design in steel and aluminum alloys; relation of code requirements to theoretical and experimental studies of elastic and inelastic structural behavior; analysis and design of light-gage members. Prerequisite: 324L.
- \*516. **Advanced Structural Mechanics.** (3) Staff  
Introduction to the theory of elasticity with application to structural problems; theory, analysis, and design of flat and folded plate structures; membrane and bending theory of shells. Prerequisite: 401 or permission of instructor.
- \*518. **Elastic Stability.** (3) Cottrell, Omid'varan  
Elastic and inelastic bending and buckling of prismatic bars, beams, curved bars, thin shells, and thin plates under axial and lateral loads. Prerequisites: 401, Math 311.
- \*519. **Theory of Shells.** (3) Cottrell, Omid'varan  
Theory of surfaces, general theory of elastic shells with small displacements, shells of revolution, cylindrical shells, various approximate theories and methods of analysis, buckling and vibration. Prerequisites: Math 312 and ME 516 or CE 516.
- \*520. **Dynamics of Structures.** (3) Cottrell  
Principal modes and natural frequencies of discrete and continuous elastic systems. Approximate methods: numerical, Rayleigh-Ritz, Stodolla. Forced motion including arbitrary excitations. Elasto-plastic response. Prerequisites: Math 311 and permission of instructor.
- \*521. **Design of Structures for Dynamic Loads.** (3) Cottrell  
Nature of dynamic loading from earthquakes and bomb blasts; nature of dynamic resistance of structural elements and complete structures; criteria for design of blast- and earthquake-resistant structures; application to actual problems. Prerequisite: 520 or permission of instructor.

- \*523. Random Vibrations.** (3) Cottrell  
(Also offered as ME 523.) Introduction to mathematical description of stochastic processes. Fourier transforms, power spectral density and auto-correlation functions, analysis of response of mechanical systems to random excitation. Properties of narrow band Gaussian distributions. Applications of vibration problems in road vehicles, ships, airplanes, and space vehicles. Prerequisites: 520 or ME 357L and permission of instructor.
- \*530. Radiological Health.** (3) Patterson  
Atomic structure. The nature of radiation and its interactions with matter, detection, statistics of counting, shielding, biological effects. Reactors, radioactive waste handling, environmental control. Prerequisite: permission of instructor.
- \*531. Advanced Water Treatment and Plant Design.** (3-4) Patterson  
The theory and practice of water treatment. Chemistry of coagulation, softening, disinfection, demineralization. Unit processes of flocculation, sedimentation, filtration, and demineralization. Plant hydraulics. A design problem must be completed to receive four hours credit. Prerequisite: Permission of instructor.
- \*532. Advanced Waste Water Treatment and Plant Design.** (3-4) Patterson  
The theory and practice of waste water treatment. Biological waste treatment, unit processes, plant hydraulics, and stream sanitation. A design problem must be completed to receive four hours credit. Prerequisite: Permission of instructor.
- \*533. Water Resources Engineering.** (3) Patterson  
An analysis of river basin development control. Legal and economic factors in water use and reuse. The American experience in political organization for river basin control. Fundamentals of mathematical models for optimizing river basin development. Prerequisite: Permission of instructor.
- \*534L. Advanced Sanitary Lab.** (3) Patterson  
Advanced technological procedures applied to water analysis. Atomic absorption, flame emission, spectrophotometry, manometric techniques, design of experiments, pilot plant operations. Prerequisite: Permission of instructor. 1 lecture, 6 hrs. lab.
- \*535. Open Channel Hydraulics.** (3) Carney, Martinez, Patterson  
Surface curves in open channels; steady and unsteady flow; boundary resistance; standing waves in supercritical flow; hydraulic jump; surges and waves; slowly varied flow involving storage. Prerequisite: 331L.
- \*536. Hydraulic Structures.** (3) Carney, Martinez, Patterson  
Design of hydraulic structures such as spillways, stilling basins, concrete dams, canals, measuring devices, sediment excluders, and other hydraulic devices. Prerequisite: 535.
- \*551-552. Problems.** (1-3 hrs. each semester) Staff  
Advanced reading, analysis, design, or research.
- \*560. Advanced Soil Mechanics.** (3) Carney, Hakala, Triandafilidis  
Selected topics in advanced soil mechanics. Prerequisite: 401 or 402, 463.
- \*561L. Advanced Soil Mechanics Laboratory.** (2) Carney, Hakala  
Advanced soil testing procedures, laboratory study of the mechanical and physical properties of soil, soil-exploration. Corequisite: 463. 1 lecture, 3 hrs. lab.
- \*562. Advanced Foundation Engineering.** (3) Carney, Hakala, Triandafilidis  
Theoretical and practical aspects of various foundation problems; retaining structures, vibration problems in foundation design. Prerequisite: 463.
- \*563. Earth Structures.** (3) Carney, Hakala  
Analysis and design of earth dams, embankments, and excavations; flow nets, slope stability. Prerequisite: 463.
- \*568. Physico-Chemical Properties of Soils.** (3) Carney, Hakala  
Study of physico-chemical aspects of soils and their relation to soil engineering problems. Prerequisite: 463.
- \*572. Construction Planning and Scheduling.** (3) Clough  
Planning, scheduling, and control of construction operations with emphasis on CPM and PERT. Manpower and equipment leveling. Prerequisite: Permission of instructor.
- \*599. Master's Thesis.** (1-3 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.
- \*601. Structural Reliability.** (3) Yao  
Application of the theory of probability and statistics in structural engineering; study of probable values of loads and resistances of structural elements; safety analysis and reliability prediction of structural and mechanical systems. Prerequisites: 501 and permission of instructor.

- \*627-628. Mechanics of a Continuum.** (3, 3) Cottrell  
Application of tensor calculus in mechanics, non-linear theory of elasticity, a study of the various assumptions leading from a non-linear theory to the classical theory, mathematical theory of plasticity, fluid mechanics, the mathematical theory of visco-elasticity. Prerequisites: ME 516 and permission of instructor.
- \*650. Research.** (1-6 to a maximum of 12.) Staff
- \*660. [640] Soil Dynamics.** (3) Hakala, Triandafilidis  
Behavior of soils subjected to loads, elastic and inelastic wave propagation in soils, ground motion, machine foundations, wave effects on structures, seismic studies, pile driving, nuclear excavation, and dynamic soil testing. Prerequisites: 401 or 402, 463.
- \*691-692. Seminar.** (1-3 hrs. each semester) Staff
- \*699. Dissertation.** (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

## ENGINEERING, ELECTRICAL

PROFESSORS A. H. Koschman (Chairman), W. J. Byatt, A. Erteza, W. W. Grannemann; ASSOCIATE PROFESSORS L. T. Boatwright, M. D. Bradshaw, J. Djurić, S. Karni, R. D. Kelly, H. K. Knudsen, R. R. Mohler, D. P. Petersen, H. D. Southward, J. D. Williams, R. H. Williams; ASSISTANT PROFESSORS H. T. Cates (Visiting), R. C. DeVries; INSTRUCTOR P. Savasdirutur.

### CURRICULUM

See p. 197.

- 203. Introduction to Electrical Engineering I.** (3)  
Basic electrical elements and sources. Ohm's Law and Kirchoff's Laws. Resistive networks, node and loop analysis. Superposition. Sinusoidal sources and complex representation: impedance, phasors, power. Three-phase circuits. Tubes and semiconductors. Simple electronic circuits. Prerequisite: Physics 260; corequisite: Math 264.
- 204. Introduction to Electrical Engineering II.** (3)  
Electronic devices. Rectifier circuits. Triode, pentode and transistor amplifier models. Electronic instrumentation and measurements. Basic open-loop and closed-loop control systems. Electromechanical energy conversion. Prerequisites: 203 and Physics 261. (Normally not taken by EE majors.)
- 206L. Electrical Engineering Laboratory I.** (2)  
Solution of engineering problems by experimental and analytic techniques. Corequisite: 203. 1 lecture, 3 hrs. lab.
- 207L. Electrical Engineering Laboratory II.** (2)  
Prerequisite: 206L; corequisite: 211. 1 lecture, 3 hrs. lab.
- 211. Circuits and Systems I.** (3)  
Circuit elements and laws. Network topology. First order and second order circuits; zero-state response, impulse response, oscillations and stability. Nth order circuits; input-output relations; superposition and convolution. Loop and node analysis. Sinusoidal steady state analysis. Prerequisite: 203; corequisites: 207L, Math 265.
- 305L. Electrical Engineering Laboratory III.** [Electrical Engineering Laboratory II] (1)  
Prerequisite: 207L; corequisites: 311, 361. 3 hrs. lab.
- 306L. Traveling Waves Laboratory.** (1)  
Prerequisite: 305L; corequisites: 312, 362. 3 hrs. lab.
- 311-312. Electric Circuit Analysis.** (3, 3)  
Transient and steady-state behavior of electric networks; introduction to Laplace transform methods, pole-zero plots, and generalized impedance functions; magnetic circuits. Prerequisite: grade of C or better in 211.
- \*\*321-322. Electronic Circuits I and II.** (3, 3) Staff  
Fundamentals of linear and nonlinear transistor and vacuum tube circuits; amplifiers, feedback theory, oscillators modulation and demodulation. Prerequisite: grade of C or better in 311; corequisites: 325L and 326L respectively.
- \*\*325L-326L. Electronics Laboratory I and II.** (1, 1) Staff  
Prerequisite: 305L; corequisite: 321 and 322 respectively. 3 hrs. lab.

\*\* Available for graduate credit except for graduate majors in Electrical Engineering.

- 361-362. Electromagnetic Fields and Waves I and II. (3, 3)**  
 Static electric and magnetic fields; vector calculus; Maxwell's equations; plane, cylindrical and spherical waves. Applications to transmission lines, wave guides, coaxial lines and antennas. Prerequisite: grade of C or better in 211; corequisite: 311.
- \*400. Methods for Systems Analysis. (3) Staff**  
 Theory and application of matrices and linear vector space to systems analysis; linearity and linear operators; complex variables, Fourier series and Fourier transforms; Laplace and z-transforms. Prerequisite: senior standing.
- \*401. Statistical Methods in Electrical Engineering. (3) Staff**  
 Problems in Electrical Engineering involving the application of probabilities and statistical methods to noise in amplifiers and communication links, reliability, quality control, tolerance assignment in design, planning of tests, calibration. Prerequisite: Senior standing.
- \*421. Computer and Waveforming Circuits. (3) Grannemann, Kelly**  
 Theory and design of generators and shapers of nonsinusoidal waves. Includes clippers, clippers, stretchers, selecting circuits, circuits to perform mathematical operations, special digital computing circuits, counters, multivibrators, blocking oscillators, and sweep circuits. Prerequisites: 322 and senior standing or permission of instructor.
- \*423. Advanced Electronics and Instrumentation. (3) Staff**  
 Standard measuring techniques and limitations; oscilloscopes, vacuum-tube voltmeters, bridges. Use of electronics instrumentation in obtaining and recording data from various transducers. Corequisite: 322 or permission of instructor.
- \*425L. Electronics Laboratory III. (1) Staff**  
 Prerequisite: 326L; corequisites: 421 and permission of instructor. 3 hrs. lab.
- \*431. Servomechanisms. (3) Staff**  
 Theory and applications of servomechanisms to control problems. Prerequisite: 312.
- \*432L. Servomechanisms Laboratory. (1) Staff**  
 Corequisite: 431. 3 hrs. lab.
- \*435. Introduction to Digital Computers. (3) Staff**  
 Computer logic; coding; binary and decimal arithmetic units; computer organization; basic programming. Prerequisites: Math 265 and permission of instructor.
- \*436L. Introduction to Digital Computer Programming. (2) Staff**  
 Flow diagramming, introduction to Time-Share System Control Language, Fortran Programming. Required use of Computer in problem solution. Emphasis is on solution of engineering problems using the computer. Prerequisite: permission of instructor. 1 lecture, 3 hrs. lab.
- \*437. Digital Computer Operating Systems. (3) Staff**  
 Introduction to Time-Share Operating System, basic functions of the system, Control Cards, and System Control options. Assembly Language programming using the IBM 360. Use of the UNM IBM 360/40 required. Prerequisite: 436L.
- \*438. Logic Design. (3) Staff**  
 Number systems and codes; Switching Algebra; combinatorial circuits; fundamental-mode, pulse-mode and clocked-sequential circuits; hazards. Prerequisite: senior standing.
- \*441. Introduction to Communication Systems. (3) Staff**  
 Principal types of communication systems, including radar systems; amplitude, angle, and pulse modulation; noise; capacity of communication channels. Prerequisite: 312.
- \*442. Principles of Radar Systems. (3) Staff**  
 Analysis of radar systems using the general principles of communications systems and communication theory.
- \*445L. Communications Laboratory I. (1) Staff**  
 Corequisites: 441 and permission of instructor. 3 hrs. lab.
- \*461. Electromagnetic Propagation. (3) Staff**  
 Application of Maxwell's equations to the solution of simple wave propagation problems; reflection and refraction of plane waves; Poyntings' vector; radiation from dipoles and loop antennas; ground and tropospheric wave propagation; the role of the ionosphere in propagation. Prerequisite: 362.
- \*462. Microwave Theory. (3) Staff**  
 Theoretical and practical considerations associated with microwave devices and circuits. Prerequisites: 362, 306L.
- \*465L. Microwave Laboratory. (1) Staff**  
 Laboratory problems in microwave measurements and microwave subsystems. Corequisite: 462. 3 hrs. lab.

- \*470. Electronic Devices. (3) Staff**  
Physical phenomena in electronic devices with emphasis on solid state devices. Prerequisites: 321, Physics 330.
- \*475L. Solid State Engineering Laboratory. (1) Staff**  
Co- or prerequisite: 470. 3 hrs. lab.
- \*481. Electromechanical Energy Conversion Principles. (3) Staff**  
Application of field principles, conservation of energy, linear and non-linear magnetic circuit theory to the study of two-way flow of energy between electrical and mechanical systems. Analysis of selected ac and dc machines and transformers. Prerequisites: 311, 361.
- \*482. Principles of Direct Energy Conversion. (2) Erteza**  
Conversion of various forms of energy into electrical form. Study of use of thermo-electric, electro-chemical, photo-voltaic, thermionic, and magnetohydrodynamic effects for direct energy conversion. Prerequisites: 203, Physics 330; ME 301 or ChE 401.
- \*484. Active Microwave Devices. (3) Staff**  
The construction, operation and application of microwave devices such as magnetrons, klystrons, traveling wave tubes, masers and parametric amplifiers. Prerequisite: 322, 462.
- 491. Undergraduate Problems. (1-3 hrs. per semester)**
- 493. Honors Seminar. (1-3 hrs. per semester)**  
A special seminar open only to honors students. Registration requires permission of the Department Chairman.
- 494. Honors Individual Study. (1-6 hrs. per semester)**  
Open only to honors students. Registration requires permission of the Department Chairman and of the supervising professor.
- 498-499. Seminar. (1-3 hrs. each semester)**  
Prerequisite: senior standing and permission of instructor.

All courses following are understood to have the prerequisite of graduate standing in Electrical Engineering or permission of instructor.

- \*500. Basis of Modern System Theory. (3) Staff**  
Characterization of systems; state space and state transition matrices; response of linear systems, superposition and convolution. Prerequisite: 400.
- \*\*502. Electrical Engineering Principles for Advanced Students. (3) Staff**  
Electrostatics, steady currents, magnetostatics, and Maxwell's equations. Lumped circuit approximation. Linear circuits, transforms, transients, and feedback. For students not majoring in Electrical Engineering. Prerequisite: knowledge of differential equations, vector analysis, and elementary electric circuits.
- \*512. Linear Network Theory. (3) Staff**  
Graph theory and applications to network analysis. General network analysis; network functions. Multi-terminal networks. Energy functions, passivity, and positive-real matrices. Prerequisite: 500.
- \*531. Automatic Control Theory. [Advanced Control Systems] (3) Staff**  
State-space formulation of control theory; stability and controllability; control of linear and nonlinear systems; sampled data systems, with application to digital computer controlled processes; optimal control. Prerequisites: 431 and 500.
- \*533. Methods of Operation Research. [Systems Engineering and Operations Research] (3) Staff**  
Methods of linear integer and dynamic programming as applied to systems engineering. Prerequisites: 400.
- \*538. [535] Design of Digital Systems. (3) Staff**  
Over-all design of digital systems; basic gating and storage elements, digital control units; arithmetic units; input and output to digital systems; digitalization of analog data. Prerequisite: 438.
- \*541. Random Signals in Engineering Systems. [Communication Theory I] (3) Staff**  
Statistical description of random signals in communication and control systems. Transformation associated with linear and nonlinear systems. Application to filtering, interpolation and prediction problems. Prerequisite: 400, 401 or equivalent.

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**\*\* Available for graduate credit except for graduate majors in Electrical Engineering.**

- \*542. **Statistical Communication Theory.** [Communication Theory II] (3) Staff  
Statistical theory of signal transmission. Markov systems, information measures, channel capacity, and coding theorems. Detection and extraction of signals in noise background based on statistical decision theory. Prerequisite: 400, 401 or equivalent.
- \*561-562. **Electromagnetic Waves I and II.** (3, 3) Staff  
Electrostatic and magnetostatic problems. Maxwell's equations and their application to plane, cylindrical and spherical electromagnetic waves.
- \*570. **Solid State Engineering I.** (3) Staff  
Classical, quantum, and statistical principles of solid state engineering. Crystal properties and band structure of solids. Prerequisite: Physics 330.
- \*572. **Solid State Engineering II.** (3) Staff  
Lattice vibrations and thermal properties of solids, transport phenomena in metals and semiconductors, semiconductor minority and majority carrier devices. Prerequisite: 570.
- \*573. **Solid State Engineering III.** (3) Staff  
Dielectrics, ferroelectrics, magnetism, magnetic resonance phenomena, optical properties; lasers, masers and related optical devices. Prerequisite: 572.
- \*574. **Experimental Techniques in Solid State Engineering.** (3) Staff  
Prerequisite: 570 or permission of instructor.
- \*575. **Theory of Solid State Devices.** (3) Staff  
Theory of junction devices, microelectronics, and bulk semiconductor devices. Prerequisite: 572 or permission of instructor.
- \*582. **Advanced Direct Energy Conversion.** (3) Erteza  
Review of quantum physics, thermostatics and statistical physics, irreversible thermodynamics, and transport theory. Energy conversion techniques utilizing the thermoelectric, thermionic, photovoltaic, electrochemical and magnetohydrodynamic phenomena. Analysis of models of energy conversion devices. Prerequisites: 470, 482 or equivalent.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.
- \*611. **Passive Network Synthesis.** [Network Synthesis] (3) Staff  
Realizability and positive-real matrices. Lumped, linear, time invariant one-port synthesis. Transfer function synthesis. Approximation. Topics in multiterminal and distributed-parameter network synthesis. Prerequisite: 512.
- \*613. **Nonlinear Systems.** [Nonlinear Analysis] (3) Staff  
Stability of linear time-variant and nonlinear systems by the direct method of Liapunov, perturbation theory and classical techniques. Lure and Popov stability theory. Prerequisite: 500.
- \*614. **Active Network Synthesis.** [Linear Active Network Theory] (3) Staff  
Controlled sources, gyrators, negative immittance converters. Realizability conditions for lumped, linear, active networks. Active RC one-port synthesis. Negative resistance amplifiers. Nonreciprocal lossless active two-port synthesis. Prerequisite: 611.
- \*615. **Topology of Systems.** (3) Staff  
Advanced topics in graph theory. Topological synthesis of linear multiport networks, loop and cut-set matrices and communication nets. Prerequisite: 512.
- \*631. **Optimal Processes.** (3) Staff  
Optimal control analysis by calculus of variations, maximum principle and mathematical programming techniques. Applications to system design. Prerequisite: 531.
- \*633. **Special Topics in Control Theory.** (3) Staff  
Topics to include nonlinear, distributed and adaptive control processes; computation of optimal trajectories and plant identification—with application to engineering systems and biocybernetics. Prerequisite: 531.
- \*641. **Information Theory and Coding.** [Principles of Communication Systems] (3) Staff  
Advanced topics in information and coding theory. Prerequisite: 542.
- \*643. **Special Topics in Communication Theory.** (3) Staff  
Advanced topics from the areas of sampled-data systems, multi-variable and multi-dimensional systems, coding, and adaptive signal processing, detection theory.
- \*651-652. **Problems.** (1-3 hrs. each semester) Staff
- \*661. **Antennas.** (3) R. H. Williams  
Elements in antenna theory; pattern synthesis. Cylindrical antenna theory. Aperture antennas; Babinet's principle. Fundamentals of traveling wave antennas, structures with reflectors, and lenses. Prerequisite: 562.



- \*662. **Microwave Techniques.** (3) Byatt  
The interactions of electronic currents with microwave fields with applications to magnetrons, klystrons, traveling wave tubes and related physical devices; wave guide circuits. Prerequisite: 562.
- \*663. **Magnetohydrodynamics.** (3) Byatt, Erteza, Grannemann  
Particle dynamics in electromagnetic field. Cyclotron and Larmor frequency. Macroscopic viewpoint and Boltzmann equation. Perturbation concepts. Study of pinch phenomena and pinch stability. Current experimental machines. Prerequisite: 562.
- \*664. **Advanced Electromagnetic Propagation.** (3) R. H. Williams  
Theories dealing with anomalous wave propagation; evaluation of fields considering a spherical earth and the ionosphere; use of geometric-optical and residue series to compute fields; propagation through a non-homogeneous atmosphere. Prerequisite: 562.
- \*669. **Seminar in Electromagnetic Waves.** (3) Staff
- \*671. **Charge Transport Phenomena in Solids.** (3) Byatt, Grannemann  
Theory of charge transport in solids involving such topics as band structure, the Fermi surface, scattering by electrons, electron-photon interaction, scattering by lattice imperfections, grain boundaries, dislocations and electron theory of imperfection resistance, surface and size effects. Prerequisites: 570 and permission of instructor.
- \*672. **Quantum Electronics.** (3) Staff  
Theoretical and experimental aspects of lasers and masers. Prerequisite: 570 or permission of instructor.
- \*673. **Radiation Effects in Solid State Devices.** (3) Staff  
Effects of ionizing and damaging radiation on solid state devices and related materials. Prerequisite: 572 or permission of instructor.
- \*679. **Seminar in Solid State Theory.** (3) Staff
- \*695, 696, 697, 698. **Seminar.** (3, 3, 3, 3) Staff
- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

## ENGINEERING, MECHANICAL

PROFESSORS R. C. Dove (Chairman), B. Albrecht, C. T. Grace, A. V. Houghton, F. D. Ju, V. J. Skoglund; ASSOCIATE PROFESSORS W. E. Baker, M. W. Wildin; ASSISTANT PROFESSORS K. T. Feldman, Y. C. Hsu, C. G. Richards, H. L. Schreyer, F. C. Wessling, Jr.

### CURRICULUM

See p. 199.

- 201L. **Introduction to Engineering Design.** (3)  
Introduction to elementary design theory, including experimental design, of a system, product, or process, for the satisfaction of an observed need. Preparation of drawings, specifications, and reports. Introduction to the general method of engineering design. Case studies of engineering designs. Corequisite: CE 202L. 2 lectures, 3 hrs. lab.
- 206L. **Dynamics.** (3)  
Principles and applications of dynamics. Prerequisite: CE 202L; corequisite: Math 265. 2 lectures, 3 hrs. lab.
- 301. **Thermodynamics.** (3)  
Principles of thermodynamics. First and second laws, properties and equations of state, kinetic theory. Prerequisites: Chem 102L, Physics 261, 263L; corequisites: Math 265 and junior standing.
- \*\*302. **Thermochemistry and Gas Dynamics.** (3) Staff  
Thermodynamics of reactions and requirements of equilibrium. Isentropic flow, thermodynamics of shock waves, supersonic characteristics of internal and external flow. Prerequisite: 301; corequisite: 317 or permission of instructor.
- 308. **Mechanical Equipment of Buildings.** (3)  
For architecture students only. Psychrometric principles. Theory and practice of mechanical equipment for heating, cooling, and cleaning air in building air conditioning systems. Heat losses and gains in buildings; plumbing systems; elevator systems. Prerequisite: junior standing.

\*\* Available for graduate credit except for graduate majors in Mechanical Engineering.

- 314L. Dynamics of Mechanical Systems. (3)**  
Kinematic and kinetic analysis of machine elements and other mechanical systems composed of rigid bodies, and an introduction to vibration analysis. Prerequisite: 206L. 2 lectures, 3 hrs. lab.
- \*\*317. Fluid Mechanics. (3) Staff**  
Kinematics of fluid motion; elements of hydrodynamics; effects of viscosity, compressibility, and drag. Prerequisite: 206L; corequisite: 301.
- 318L. Mechanical Engineering Laboratory I. (2)**  
Modern instrumentation techniques; dynamics, vibrations, and thermodynamics experiments. Corequisites: 301, 314L, 317. 6 hrs. lab.
- \*\*320. Heat Transfer. (3) Staff**  
Principles and engineering applications of heat transfer by conduction, radiation, and free and forced convection. Prerequisites: 301, 317; corequisite: 302, or permission of instructor.
- 350. Engineering Economy. (3)**  
A study of methods and techniques used in determining comparative financial desirability of engineering alternatives. Includes time value of money (interest), depreciation methods and modern techniques for analysis of management decisions. Prerequisite: junior standing.
- 351L. Mechanical Engineering Laboratory II. (2)**  
Continuation of 318L. Prerequisites: 302, 317, 370. 6 hrs. lab.
- 352L. Mechanical Engineering Laboratory III. (2)**  
Experimental projects in heat transfer, thermodynamics, dynamics and analogues. Prerequisites: 320, 351L. 6 hrs. lab.
- 355. Engineering Statistics and Quality Control. (3)**  
Statistical methods applied to quality control problems; significance tests; correlation analysis; sequential sampling; analysis of variance; design of experiments. Prerequisite: senior standing.
- 356. Industrial Engineering. (2)**  
A survey of Industrial Engineering principles, methods, and techniques used to assist management in making sound operational decisions. Prerequisite: senior standing, or permission of instructor.
- 357L. Analysis of Mechanical Components. (3)**  
Response of elastic systems to transients, two degree of freedom systems, dynamics of continuous systems, and stress analysis of mechanical components. Prerequisites: 314L, CE 302. 2 lectures, 3 hrs. lab.
- 358L. Design of Solid Systems. (3)**  
Application of mechanics of materials and analysis of solid systems to the design of elements and systems. Prerequisite: 357L. 2 lectures, 3 hrs. lab.
- 359L. Product Design. (3)**  
A study of the tools and techniques useful in the conception and design of new products. Each student is required to participate in a semester long product design project. Prerequisites: 358L, 363L. 1 lecture, 6 hrs. lab.
- 363L. Analysis of Fluid Systems. (3)**  
Engineering analysis of fluid systems based on the principles of fluid mechanics, heat transfer, and thermodynamics. Prerequisites: 302, 317, 320, or permission of instructor. 2 lectures, 3 hrs. lab.
- \*\*365. Environmental Control System Design. (3) Staff**  
The design of systems for the conditioning and control of ambient environments for people, processes, equipment, or foods. Prerequisites: 301, 317, 320.
- 370. Engineering Materials Science. (3)**  
(Also offered as CE 370.) The structure of matter; phase relations; mechanical, thermal, electrical and magnetic properties of polymers, metals and ceramics; fracture mechanics; corrosion, protective materials, cementing materials and concrete. The use and selection of materials. Prerequisite: CE 302; corequisite: 301.
- \*414. Intermediate Dynamics. (3) Staff**  
Kinematic and kinetic analysis of particles and rigid bodies, applications to space and mechanical systems; vibration analysis of multidegree of freedom systems, introduction to wave propagation in solids. Prerequisites: 314L, 357L, Math 311, or permission of instructor.

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**\*\* Available for graduate credit except for graduate majors in Mechanical Engineering.**

- \*480. Analysis of Mechanical Control Systems.** (3) Staff  
Dynamic analysis and design of thermodynamic, hydraulic, and mechanical control systems; concept of feedback; performance and stability of systems; introduction to inertia guidance controls. Prerequisites: 302, 314L, 317; Math 311 or equivalent.
- \*482. Energy Conversion Systems.** (3) Staff  
Principles and engineering analysis of systems for converting energy into useful work. Review of energy sources, quantum and solid state physics, statistical and irreversible thermodynamics. Study and analysis of energy conversion by electro-mechanical, thermo-electric, electrochemical, photo-voltaic, thermionic and magnetohydrodynamic techniques. Prerequisites: 302, 317, 320, EE 204 or permission of instructor.
- \*490. Methods Engineering.** (3) Staff  
Introduction to problems of work methods and work measurements associated with increasing productivity and decreasing the cost of producing goods and services. Methods used in developing procedures for effective utilization of effort in industrial operations. Analytical study of manufacturing systems. Prerequisites: 355, and senior standing.
- 491. Undergraduate Problems.** (1-3 hrs per semester)
- \*492. Stress Analysis of Mechanical Systems.** [Design Analysis] (3) Staff  
Analysis for stress, strain, and deformation of problems encountered in mechanical design, such as unsymmetrical bending of beams, buckling, torsion of noncircular cross sections, plates and shells. Prerequisite: 358L, or permission of instructor.
- \*501. Heat Conduction.** (3) Staff  
Formulation of equations and boundary conditions for heat transfer problems involving conduction. Techniques of solution, including: separation of variables, superposition, Laplace transforms, finite differences, and variational methods. Prerequisites: 320, 503, Math 312 or permission of instructor.
- \*\*502. Mechanical Engineering Principles for Advanced Students.** (3) Staff  
Principles and applications of thermodynamics, fluid mechanics, and heat transfer. For students not majoring in Mechanical Engineering. Prerequisites: 301, 206L, Math 311, or their equivalents.
- \*503. Advanced Fluid Mechanics I.** (3) Staff  
General principles and applications of fluid mechanics. Prerequisites: 301, 206L, Math 311, or their equivalents.
- \*506. Advanced Thermodynamics I.** (3) Staff  
Precise development of thermodynamic definitions, principles, and analytical methods. Prerequisites: 301, 302, or equivalents, Math 311.
- \*507. Similitude in Engineering.** (3) Staff  
Basic theory and applications of similitude. Metrology, similarity, dimensional analysis, and design and interpretation of similar and distorted models. Prerequisites: 501 or 503 or 516.
- \*509. Advanced Gas Dynamics.** (3) Staff  
Two-dimensional flow of ideal gases including shock waves, friction and heat transfer. Prerequisites: 501, 503.
- \*510. Boundary Layers.** (3) Staff  
Derivation of boundary layer equations, similarity solutions, integral methods and experimental results for laminar boundary layers. Stability of laminar boundary layers. Boundary layer transition. Turbulent fluctuations and transport. Turbulent boundary layers. Prerequisite: 503.
- \*511. Radiant Heat Transfer.** (3) Staff  
Principles of thermal radiation, thermodynamic and electromagnetic bases of material property relations, basic equations of radiative transfer, techniques of analysis, including approximate methods. Prerequisite: 320.
- \*515L. Experimental Stress Analysis.** (3) Staff  
Modern techniques for experimental determination of stresses in complex machine parts; study of mechanical gages, optical gages, electrical gages and circuits, brittle lacquer methods, photoelasticity and strain grids. 2 lectures, 3 hrs. lab.
- \*516. Elasticity I.** [Applied Elasticity I] (3) Staff  
Field theory of elasticity; Saint Venant's problems; Introduction to plane theory of elasticity. Prerequisites: Math 311; corequisite: Math 312 or equivalent.
- \*518. Advanced Applied Dynamics.** (3) Staff  
Fundamental concepts in mechanics; vector analysis and its application in statics and dynamics; Newton's laws of motion; principles of momentum and moment of momentum;

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\*\* Available for graduate credit except for graduate majors in Mechanical Engineering.

energy principles and Lagrange's equations of motion; gyroscopic motion; small oscillation; mechanical transient and operational calculus. Prerequisites: 206L or equivalent, Math 311; corequisite: Math 312.

- \*519. **Elasticity II.** [Applied Elasticity II] (3) Staff  
Energy principles and variational methods in elasticity; Muskhelishvili Method in plane theory of elasticity; advanced topics. Prerequisite: 516; corequisite: Math 313.
- \*520. **Analysis of Thermal Stresses.** (3) Staff  
Continuum theory of thermodynamics; coupled theory of thermoelasticity; plane problems of thermoelasticity; special topics. Prerequisite: 516.
- \*522. **Theory of Shells in Mechanical Engineering.** (3) Staff  
Introduction to Riemannian space and differential geometry of a surface, linear theory of shells, membrane and bending theory of shells. Special topics. Prerequisite: 516, 541, or permission of instructor.
- \*523. **Random Vibrations.** (3) Staff  
(Also offered as CE 523) Introduction to mathematical description of stochastic processes, Fourier transforms, power spectral density and auto-correlation functions, analysis of response of mechanical systems to random excitation. Properties of narrow band Gaussian distributions. Applications of vibration problems in road vehicles, ships, airplanes, and space vehicles. Prerequisites: 357L or CE 520, and permission of instructor.
- \*541. **Tensor Analysis in Mechanics.** (3) Staff  
Tensor analysis in the affine and metric space, kinematics of motion, deformation analysis in continuum mechanics, theory of objectivity. Corequisite: 503 or 516 or equivalent.
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff  
Advanced reading, design or research.
- \*561-562. **Special Topics.** (1-3 hrs. each semester) Staff
- \*591-592. **Seminar.** (1-3 hrs. each semester) Staff
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.
- \*603. **Theoretical Fluid Mechanics.** (3) Staff  
Theoretical analysis of special fluid systems. Laminar flow and two and three dimensional potential flow. Use of special coordinates, complex variables, conformal mapping, free streamlines, sources and sinks, and numerical analysis. Prerequisites: 501, 503.
- \*604L. **Experimental Methods in Mechanics.** (3) Staff  
Modern techniques for the measurement of motion (including displacement, velocity, and acceleration); force; pressure; and temperature. The emphasis is on the measurement of transients. Prerequisites: 507, 515L or permission of the instructor. 2 lectures, 3 hrs. lab.
- \*605. **Convection.** (3) Staff  
Theory and experimental results for convection of single- and multi-component fluids. Prerequisites: 501, 503.
- \*606. **Kinetic Theory and Statistical Mechanics.** (3) Staff  
Principles of kinetic theory and statistical mechanics, and their application to engineering problems. Prerequisites: 506, Math 341.
- \*607. **Hypersonic Flow of Ideal Gases.** (3) Staff  
Basic concepts. Hypersonic similarity. Mach number independence. Small perturbation theory. Approximate methods. PLK method. Newtonian Theory. Applications to slender and blunt bodies. Prerequisites: 503, 509 or permission of the instructor.
- \*608. **Hypersonic Flow of Real Gases.** (3) Staff  
Equilibrium properties of air to 10,000°K. Compressible boundary layers and their interactions. Non-equilibrium and high temperature effects. Applications to flow over slender and blunt bodies. Prerequisites: 503, 506, 509 or permission of the instructor.
- \*624. **Nonlinear Theory of Elasticity.** (3) Staff  
Axioms of mechanics, stress tensors, constitutive equations of Green and Cauchy, hyperelasticity, hypoelasticity. General topics in elastostatics, finite elastic waves and elastic stability. Prerequisite: 541.
- \*671. **Mechanics of Inelastic Continuum.** (3) Staff  
Physical aspects of inelastic deformation. Constitutive equations of the inelastic (anelastic, viscoelastic, plastic, and viscoplastic) continuum. One-dimensional problems. General theorems and boundary value problems. Prerequisite: 516 or 503 or equivalent.
- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

**ENGINEERING, NUCLEAR**

PROFESSOR G. A. Whan (Chairman); ASSOCIATE PROFESSOR W. L. Everett; ASSISTANT PROFESSORS R. L. Long, R. D. O'Dell; PART-TIME ADJUNCT PROFESSORS G. W. Arnold, G. E. Hansen, N. G. Nereson, L. D. Posey, J. A. Reuscher, K. J. Touryan.

\*\*\*230. **Applications of Nuclear Energy.** (3)

A course designed to acquaint the non-technical student in the humanities with nuclear energy and its peaceful applications in many areas affecting human affairs. Course content includes atomic and nuclear structure, fission, fusion, nuclear reactors, nuclear explosives, accelerators, applications of radioisotopes, and socio-economic considerations.

\*\*430. **Introduction to Nuclear Engineering.** (3) Staff

Principally for non-nuclear engineering majors. The nucleus and nuclear properties; fission process and chain reaction; survey of design and operation of reactors and associated equipment; effects, uses, and detection of radiation.

\*460. **Fundamentals of Nuclear Engineering I.** (3) Everett, Whan

Radioactivity, nuclear reactions and cross-sections, conservation laws, elementary particles and particle distributions, neutron physics, and electromagnetic radiation. Recommended prerequisites: Physics 330, Math 311.

\*461. **Fundamentals of Nuclear Engineering II.** (3) O'Dell, Reuscher, Whan

Radiological health and safety, radiation shielding, nuclear fuel and fuel cycles, reactor heat transfer, reactor systems and economics, and radioisotope applications. Recommended prerequisites: Physics 330, Math 311.

\*463L. **Radiation Measurements and Analysis.** [Nuclear Engineering Laboratory I] (3) Staff

The detection and analysis of charged particles, neutrons, and electromagnetic radiation. Experiments to demonstrate the properties of radiation: radioactive decay, cross-sections, detection, counting, statistics, energy distributions, scattering, absorption, activation and safety monitoring. Prerequisites: 460 or Physics 330 and permission of instructor. 2 lectures, 3 hours lab.

\*470. **Materials for Nuclear Applications.** (3) Staff

Selection and fundamental properties of materials for nuclear applications; physical and extractive metallurgy as related to nuclear materials; behavior of materials under irradiation; corrosion of materials. Prerequisite: 430 or equivalent.

\*476. **Reactor Fuel Processing.** (3) Armstrong, Whan

Fuel cycles in nuclear reactors; production of reactor fuels; processing of spent fuels by precipitation, solvent extraction, etc.; and separation of isotopes. Prerequisite: 430 or equivalent.

\*510-511. **Nuclear Reactor Theory I & II.** (3, 3) Staff

Basic theory of reactors; multiplication, slowing down, diffusion and transport of neutrons; applications to bare, reflected, homogeneous, heterogeneous, thermal, and fast reactor systems; introduction to reactor dynamics. Prerequisite: 460; pre- or corequisite: Math 312.

\*513-514L. [464L] **Nuclear Engineering Laboratory I & II.** (2, 2) Staff

Laboratory studies to demonstrate neutron and gamma reactions in fuels, moderators, and shields. Experiments to demonstrate the characteristics and operation of nuclear reactors, and nuclear research techniques. Prerequisites: 463L, 510. 6 hours lab.

\*515. **Seminar.** (1-3) Staff

Selected topics in nuclear engineering.

\*520. **Interaction of Radiation and Matter.** (3) Everett, Posey

Thompson scattering, elastic collisions, quantum mechanical theories of scatter, ionization of matter by charged particles, radiative collisions, Compton scatter, photoelectric effect and pair production. Prerequisites: 460, Math 312.

\*521. [540] **Radiation Effects on Materials.** (3) Arnold, Everett, Posey

Theory of radiation interaction with matter; application to crystalline lattices, fluids, plastics, and elastomers; radiation chemistry and chemical reactions in intense radiation fields; reactor materials and radiation effects on reactor design. Prerequisite: 460 or equivalent.

\*526. [530] **Radiation Shielding.** (3) Everett, Whan

Radiation sources; methods of calculating the attenuation of gamma rays, high energy electrons, and fast neutrons; shielding of reactors, accelerators, and radioactive materials. Prerequisite: 460 or equivalent.

\*\*\* This course should not be taken for credit by engineering and science majors.

\*\* Available for graduate credit except for graduate majors in Nuclear Engineering.

- \*551-552. Problems.** (1-3 hrs. each semester) Staff  
Advanced reading, analysis, design, or research.
- \*560. Control of Nuclear Reactors and Power Plants.** (3) Long, Mohler  
Reactor control systems and associated instrumentation; dynamics of integrated nuclear plants; transient and steady state response of feed back systems; use of simulators. Prerequisite: 510. Recommended: EE 431.
- \*561L. Laboratory in Control of Nuclear Reactors.** (1) Long, Mohler  
Pre- or corequisite: 560. 3 hrs. lab.
- \*580-581. Controlled Fusion I & II.** (3, 3) Everett, Touryan  
Basic theory of plasmas: orbit theory, kinetic equations, transport phenomena, confinement, plasma oscillations, instabilities. Theory of fusion systems: conditions for thermonuclear reactions, formation and heating, containment, diagnostics. Characteristics of existing devices; pinch systems, magnetic mirror systems, Stellarator systems, Astron systems, etc. Prerequisites: Math 312, and permission of instructor.
- \*590L. Nuclear Systems Design.** (3) Staff  
Examination of the main variables in nuclear systems design; nuclear system, heat removal, radiation effects, structure, controls, shields, economics, etc. Design problem. Prerequisites: 461, 510. 1 lecture, 6 hrs. lab.
- \*599. Master's Thesis.** (1-3 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.
- \*610. Advanced Reactor Theory.** (3) Hansen, O'Dell  
Development of the theory of reactor systems and description of calculational methods for homogeneous and heterogeneous reactors. Prerequisite: 511.
- \*611. [620] Transport Theory.** (3) O'Dell  
The Boltzmann transport equation; legendre polynomial expansions; introduction to Fourier transform techniques and Case's method; energy dependent collision probabilities and thermalization kernels. Prerequisite: 511.
- \*699. Dissertation.** (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

## ENGLISH

PROFESSORS J. Frank (Chairman), G. W. Arms, E. W. Baughman, N. B. Crowell, F. M. Dickey, W. D. Jacobs, G. Ridenour, E. W. Tedlock, Jr., H. Trowbridge (Dean), D. Wynn; VISITING PROFESSORS H. Creeley, I. Howard†; ASSOCIATE PROFESSORS E. Buchanan, J. M. Kuntz, R. Pickett, K. G. Simons, J. Zavadi; ASSISTANT PROFESSORS J. Baltzell, L. S. Catlett, P. B. Davis, S. V. DeWitt, R. Fleming, G. Frumkin, J. Holland, D. Johnson, J. Martin, I. P. Melada, M. J. Power, D. Remley, S. Rodefer, J. L. Ruff, J. Thorson, F. B. Warner, M. Tillotson, M. B. Whidden; INSTRUCTORS J. Cockelrears, D. Logan; PART-TIME INSTRUCTORS W. Carstens, R. Gillespie, M. Raymond, E. Richards, E. Walker.

### MAJOR STUDY

Normally an English major consists of 33 hours, of which 27 hours should be distributed according to the following breakdown. Though this recommended curriculum looks restrictive, it is really extremely flexible. What it asks for is that the student distribute his English courses among a variety of periods and approaches but within these limitations he has a wide range of choice. Moreover, with the approval of his departmental faculty adviser and of the Undergraduate Majors Committee, he can be excused from any of the following requirements. Finally, the student is urged, but not required, to take at least one course in Linguistics.

- 1) 250 (Approaches to Literature)—3 hours.
- 2) 253 and 254 (Survey of English Literature. It is strongly recommended that 253 be taken first.)—6 hours.
- 3) 441 or 442 (Shakespeare)—3 hours.

† First semester only.

- 4) 351 or 446 (Chaucer or Milton)—3 hours.
- 5) One of the following courses in British literature: 350, 444, 445, 448, 454, 457, 473, 474, 478, 481, 482, 485, 486—3 hours.
- 6) One of the following courses in American literature: 282, 285, 467, 468, 469, 470—3 hours.
- 7) One of the following courses in General and Comparative Literature: 275, 276, 300, 338, 339, 340, 456, 461, 462, 465, 466—3 hours.
- 8) One of the following courses in Contemporary Literature: 432, 435, 437, 438—3 hours.

English 490 may be substituted for the requirement in 5 or 6 or 7 or 8 above, when its content is applicable; and this course may be repeated for credit since its content varies.

Of the total number of hours for the major, at least 18 should be taken in courses numbered 300 or above.

Each student's program must be approved by his departmental faculty adviser.

Students preparing to teach English in secondary schools are required to take English 403 or 492 (History of the English Language or Introduction to Linguistics) and English-Secondary Education 436 (Teaching of English).

#### MINOR STUDY

18 hours in English courses numbered above 103, including at least 6 hours numbered 300 or above.

#### GROUP REQUIREMENTS

English 101 is a required course for all students except those who are exempted upon the basis of their ACT score in this area. English 102 is required of all students, except transfers who may offer an equivalent course toward the satisfaction of the group requirements. Students in the lowest percentiles of the ACT or students who have twice failed the English Proficiency test will take English 010 in addition to English 101. Workshop sections are provided for other students weak in English 101 or 102. Additional group requirements are as follows:

College of Arts and Sciences: 3 credit hours in a course in literature numbered above 200. Up to 6 additional hours in literature may be offered in meeting the requirements under Group III: Humanities.

College of Business Administration: 6 credit hours in literature including 3 upper-division hours. (See "General Requirements" of the College of Business Administration.)

College of Education: see Education curricula.

#### COURSES IN GENERAL LITERATURE FOR GROUP REQUIREMENTS IN ALL COLLEGES

The following courses in the lower division are recommended for students selecting hours for the group requirements or for general reading: 257, 275, 276, 277, 282, 285. English 300 is recommended for students eligible to register for an upper-division course. Not accepted as literature are 250, 261, 262, 263, 264, 303, 320, 321, 322, 403, 436.

## DEPARTMENTAL HONORS

Normally students seeking **Honors in English** must have advanced junior standing and an overall grade point average of 3.0, with 3.2 in English. Honors candidates will take in their senior year English 498 and 499. For further information, apply to the Department of English.

## DISTRIBUTED MINOR

Distributed Minor for English Majors: a major may offer an American Studies minor as well as a minor in a single department. For requirements, see American Studies.

## COMPARATIVE LITERATURE

The major in Comparative Literature is an interdepartmental major administered jointly by the Department of English and the Department of Modern and Classical Languages. See p. 269. Also, for a Period Minor see Comparative Literature, p. 269.

## I. WRITING AND LINGUISTICS

## 010. English Review. (0)

A non-credit course in grammar, usage, and reading comprehension for students whose native language is English and who need additional background and drill. Especially designed for students preparing for the English Proficiency Examination, though open to others. Special fee of \$20.

## 015. English Tutoring. (0)

Two hours of tutoring for students who need special instruction in the essentials of composition.

## 101. Writing with Readings in Exposition. (3) Pickett, Staff

Expository writing and reading.

## 102. Writing with Readings in Literature. (3) Pickett, Staff

Literary genres and critical writing.

## 103. Fundamentals of English as a Second Language. (3)

A course in speaking, writing, and understanding English, designed for students to whom English is a second language. English 103 precedes, and is not a substitute for, English 101. 5 hours of classroom work.

## 261. Creative Writing: The Essay. (3)

An intermediate course with emphasis on the types, structure, and style of expository writing.

## 262. Creative Writing: Prose Fiction. [Creative Writing: Description and Narration] (3)

## 263. Creative Writing: Poetry. (3)

## 264. Informative Writing. (3)

Professional expository composition and the preparation of elementary reports.

## \*303. Phonetics. (3) Chreist

(Same as Speech 303.)

## 320. Advanced Technical Writing. (3)

Practice in the writing and editing of technical, engineering, and scientific reports and articles. Prerequisite: 261, 262, or 264, or permission of instructor.

## \*321. Advanced Creative Writing: Prose Fiction. [Advanced Creative Writing] (3)

Prerequisite: permission of instructor.

## \*322. Advanced Creative Writing: Poetry. (3)

Prerequisite: permission of the instructor.

## \*403. History of the English Language. (3) Baltzell, Kuntz

The etymology, morphology, phonetics, and semantics of English; the relation between linguistic and cultural change.

## 436. Teaching of English. (3) Simons, Staff

(Same as Sec Ed 436.)



- \*492. [392] *Introduction to Linguistics*. (3)
- \*494. *English Grammars*. (3)  
Prerequisite: 492 or its equivalent.
- \*537. [537-538] *Teaching Composition*. (3) Pickett  
Required of all teaching assistants in the Department of English who have not had at least one year experience in teaching college composition. Problems in teaching the reading and writing of expository prose, literary analysis, and the critical essay.
- \*673. *Language Seminar*. (4) Pickett  
Phonology of English speech, linguistic structure; American dialect and regional vocabulary; or other subjects.

## II. LITERATURE

### 1. British

- 253-254. *Survey of English Literature, Early and Later*. (3, 3) Staff  
253: From the Old English writings through Neo-classicism. 254: From Romanticism to the present.
- 350. *Old English Literature in Translation*. (3) Baltzell, Fleming, Zavadił  
Culture and Civilization of the Middle Ages to 1066.
- 351. [451] *Chaucer: The Canterbury Tales*. (3) Baltzell, Zavadił
- \*441. *Shakespeare: Histories and Comedies*. (3) Dickey, Holland, Simons, Whidden
- \*442. *Shakespeare: Tragedies*. (3) Dickey, Holland, Simons, Whidden
- \*444. *The Early Seventeenth Century*. (3) Buchanan, Frank  
Cavalier and Metaphysical poets, major prose writers.
- \*445. *The Later Seventeenth Century, Exclusive of Milton*. (3) Thorson  
Restoration drama and poetry, scientific and philosophical prose, etc.
- \*446. *Milton*. (3) Buchanan, Frank
- \*448. *Elizabethan Drama exclusive of Shakespeare*. (3) Dickey, Holland, Simons
- \*454. *Middle-English Literature*. (3) Baltzell, Zavadił  
A general survey of 13th- and 14th-century literature.
- \*457. *Elizabethan Poetry and Prose*. (3) Dickey, Simons, Whidden
- \*473. *Age of Swift and Pope, 1700-1744*. (3) Thorson
- \*474. *Age of Johnson, 1744-1798*. (3) Thorson
- \*478. *The Romantic Period*. (3) Johnson, Ridenour, Ruff  
The 18th-century background of Romanticism, and the major poets, Blake to Keats.
- \*481. *Victorian Poets*. (3) Crowell, Melada  
Representative poets from 1830 to 1890.
- \*482. *Victorian Prose*. (3) Crowell, Davis, Melada  
Representative prose writers from 1830 to 1890.
- \*485. *Early English Novel*. (3) Davis, Power  
From the beginnings through Jane Austen.
- \*486. *Later English Novel*. (3) Crowell, Davis, Warner  
From Scott to 1910.
- †\*500. *Introduction to Graduate Study*. (3) Staff  
An intensive course in an author, period, or genre designed primarily to prepare students for advanced work.
- \*515. *Old English*. (3) Baltzell, Fleming, Zavadił  
Elementary grammar; translations of prose and poetry, exclusive of Beowulf.
- \*516. *Beowulf*. (3) Baltzell, Fleming, Zavadił  
Prerequisite: 515 or consent of instructor.
- †\*619. *Studies in Middle-English Literature (1100-1500)*. (4) Baltzell, Zavadił
- †\*623. *Studies in the English Renaissance (1500-1616)*. (4) Buchanan, Dickey, Holland
- †\*625. *Studies in the 17th Century*. (4) Buchanan, Dickey, Frank, Thorson
- †\*633. *Studies in the 18th Century*. (4) Ridenour, Thorson, Trowbridge
- †\*643. *Studies in the 19th Century*. (4) Crowell, Davis, Ridenour

† May be repeated for credit as content varies.

## 2. American

- 277. Southwestern Literature.** (3) Baughman, Remley, Staff  
Myth, legend, and song of the Indians, literary values in the Spanish colonial narratives; literature of the Santa Fe trail and the cattle country; contemporary writing.
- 282. American Literature.** (3) Staff  
A general survey to the present with emphasis on writers of the 19th century.
- 285. American Life and Thought.** (3) Baughman  
(Same as American Studies 285.)
- 301-302. Interdepartmental Studies in the Culture of the U.S.** (3, 3)  
(Same as American Studies 301-302.) May be taken for departmental credit only with the consent of the Chairman.
- \*467. Colonial and Revolutionary Period in American Literature.** (3) Martin, Tedlock  
Leading writers from 1600 to 1800.
- \*468. The Romantic Period in American Literature.** (3) Arms, Baughman, Martin  
Major writers from Irving to Melville.
- \*469. The Period of Realism in American Literature.** (3) Arms, Tedlock  
Major writers from Whitman to Henry Adams.
- \*470. American Humor** (3) Baughman  
American humorists from 1830 to the present.
- †\*500. Introduction to Graduate Study.** (3) Staff  
An intensive course in an author, period, or genre designed primarily to prepare students for advanced work.
- \*501. Interdepartmental Seminar in the Culture of the United States.** (3) Arms, Tedlock  
(Same as American Studies 501.)
- †\*603. Studies in the Literature of Colonial and Revolutionary America (1600-1800).** (4)  
Martin, Tedlock
- †\*606. Studies in 19th Century American Literature (1800-1912).** (4) Arms, Martin

## 3. General, Comparative, and Contemporary

- 210. Introduction to the Cinema.** (3)  
(Same as Fine Arts 210.)
- 250. Approaches to Literature.** (3) Staff  
Practical criticism and introduction to scholarly and critical method. A specialized course designed for English majors and students with high aptitude for an interest in literary study.
- 257. Masterworks of Later Literature.** (3) Staff  
Selected masterworks of the 19th and 20th centuries.
- 275. World Literature from Homer to Dante.** (3) Frank, Jacobs, Kuntz, Staff  
Masterpieces of European and Asiatic literature, including the Bible.
- 276. World Literature from Rabelais to Mann.** (3) Dickey, Jacobs, Kuntz, Staff  
Masterpieces of European literature.
- 300. Genres: Studies in Poetry or Drama or Narrative Fiction.** (3) Staff
- \*338. Russian Literature in Translation.** (3) T. Holzapfel  
(Same as Russian 338.)
- \*339. Greek Drama in Translation.** (3) Baltzell, Thompson  
(Same as Greek 339.)
- \*340. Latin Literature in Translation.** (3) Zavadil, Thompson  
(Same as Latin 340.)
- \*432. Contemporary Poetry.** (3) Jacobs, Rodefer, Tedlock, Staff
- \*435. Contemporary Fiction.** (3) Jacobs, Tedlock, Staff  
British, American, and European novelists since 1912.
- \*437. Contemporary Drama.** (3) Dickey, Jacobs, Staff  
European and American playwrights from Ibsen to the present.
- \*438. Literary Movements since 1940.** (3) Frumkin, Jacobs, Rodefer, Tedlock  
Significant writers and schools of the post-war period. Specific subject to be designated by the instructor.

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† May be repeated for credit as content varies.

- \*456. **Literature of Medieval Europe.** (3) Baltzell, Zavadi  
(Same as Comparative Literature 456.)
- \*461. **The Folktale in English.** (3) Baughman  
(Same as Comparative Literature 461.)
- \*462. **The Epic.** (3) Buchanan  
(Same as Comparative Literature 462.)
- \*465. **Tragedy.** (3) Dickey, MacCurdy, Trowbridge  
(Same as Comparative Literature 465.)
- \*466. **Literary Criticism.** (3) Arms, Dickey, Johnson, Trowbridge  
(Same as Comparative Literature 466.)
- \*475. **Dante.** (3) White  
(Same as Comparative Literature 475.)
- \*480. **Philosophy and Literature.** (3) Alexander, Tedlock, Staff  
(Same as English-Philosophy 480.)
- †\*490. **Special Studies in Literature.** [Individual Authors] (3) Staff  
Intensive study of one or more writers, to be designated by the instructor.
- †\*500. **Introduction to Graduate Study.** (3) Staff  
An intensive course in an author, period, or genre designed primarily to prepare students for advanced work.
- \*512. **Critical Approaches to Literature.** (3) Warner
- \*598. **Methods of Literary Study.** (3) Arms, Dickey  
An introduction to scholarly bibliography and basic approaches to the study of literature.
- †\*660. **Studies in Contemporary Literature.** (4) Jacobs, Tedlock, Staff
- †\*675. **Types, Backgrounds, and Forces.** (4) Staff  
Drama, religious perspectives, archetypal patterns, and other subjects not contained within a chronological period.

### III. INDIVIDUAL STUDIES

- 497. **Individual Study.** (1-3) Staff
- 498. **Honors Study.** [Individual Study] (3) Honors Staff
- 499. **Honors Study.** [Honors Essay] (3) Honors Staff  
Prerequisite: 498. Open only to seniors enrolled in Departmental Honors.
- †\*551. **Problems for the Master's Degree.** (1-3 hrs. per semester) Staff
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.
- \*651. **Problems for the Doctor's Degree.** (1-3 hrs. per semester) Staff
- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## ENGLISH-PHILOSOPHY

The combined major in English and Philosophy is an interdepartmental major administered jointly by the two Departments. Students interested in this program should consult the Chairmen of both Departments.

The purpose of the interdepartmental major is to develop an understanding of the history of ideas, ideals, and values; their expression in literature and philosophy; and the relation of these fields. The major will serve the interests of general education, and will also be useful to many preprofessional students.

### MAJOR STUDY

Students completing the English-Philosophy major are not required to have a minor. It is recommended that courses in literature and philosophy in related periods be taken concurrently where possible.

The minimum requirement is 45 hours, including: English 275; 253 or 254 or 276; 466; 441 or 442 or 446; 6 additional hours of literature above 300; philos-

† May be repeated for credit as content varies.

ophy, 18 hours selected from courses chosen in consultation with your philosophy adviser; an additional 6 hours numbered 300 or above in English or in Philosophy; and English-Philosophy 480.

#### MINOR STUDY

Not offered.

**\*480. Philosophy and Literature. (3)** English and Philosophy Staffs

Selected philosophical movements and their relationship to literary masterpieces. Prerequisites: 6 hours of literature and 3 hours of Philosophy from the courses specified as requirements for the program.

### FINE ARTS

**210. Introduction to the Cinema. (3)**

An historical and critical survey, with examples, of major tendencies in the development of the motion picture as an art form.

**490. Interdepartmental Proseminar. (3)**

Open to juniors and seniors with approval of a Fine Arts departmental honors committee. *May be repeated once for credit.*

### FOLKLORE

See Modern and Classical Languages, and Comparative Literature 461.

### FRENCH

See Modern and Classical Languages.

### GENERAL STUDIES

(The General Honors Program)

Courses listed as "General Studies" are open by invitation or special permission only. With the exceptions noted below in the listing, the courses are designed for students enrolled in the General Honors program. This program is not to be confused with the Departmental Honors program described on p. 140 of the catalog.

Specific information about General Studies and the General Honors program can be obtained from the office of the Director of General Honors.

A limited number of hours of credit in courses in General Studies can be counted towards appropriate Group Requirements of the College of Arts and Sciences or towards general graduation requirements in other colleges. Application to apply such credit should be made in the office of the dean of the college from which the student plans to graduate.

**101-102. Freshman Reading Seminar. (3, 3)**

Rapid, broad general reading for first- and second-semester freshmen.

**201-202. Sophomore Seminar in Humanities. (3, 3)**

**203-204. Sophomore Seminar in Science. (3, 3)**

**205-206. Sophomore Seminar in Social Science. (3, 3)**

Selected seminar topics by staff of various departments. Instructors and topics to be announced semester by semester.

**301-302. Junior Seminar in Humanities. (3, 3)**

**303-304. Junior Seminar in Science. (3, 3)**

**305-306. Junior Seminar in Social Science. (3, 3)**

Selected seminar topics by staff of various departments. Instructors and topics to be

announced semester by semester. These Junior Honors seminars may on occasion be opened also to qualified juniors and seniors who are not officially candidates for graduation with Honors in General Studies. (Minimum qualification: average of 3.0 over-all and in major subject.) Applications of such students must be received in General Honors office 5 weeks before beginning of a semester. Right to limit such enrollment is reserved. Certain seminars may on occasion have suspended credit or require first semester as prerequisite to second semester.

**401-402. Great Issues (Senior Honors Colloquium.) (3, 3)**

Discussion of selected issues based on close reading of relevant texts.

**\*411-412. Interdisciplinary Seminar in Humanities. (3, 3)**

**\*413-414. Interdisciplinary Seminar in Science. (3, 3)**

**\*415-416. Interdisciplinary Seminar in Social Science. (3, 3)**

Although offered from time to time under auspices of the General Honors program, the interdisciplinary seminars are not required of candidates for graduation with Honors in General Studies. Open only to qualified seniors and graduate students who are majoring in a department within the general area indicated or who have the special permission of the General Honors office. (Minimum qualification: average of 3.0 over-all and in major subject.) Right to limit enrollment is reserved. Certain seminars may on occasion have suspended credit or require first semester as prerequisite to second semester.

## GEOGRAPHY

PROFESSOR R. E. Murphy (Chairman)<sup>†</sup>; ASSOCIATE PROFESSOR I. Bennett; INSTRUCTOR R. Ayala; and Staff.<sup>‡</sup>

### MAJOR STUDY

Geography 101, 102, 263; Anthropology 101 or 102; Geology 101; and 8 upper-division courses (not fewer than 23 hours) including Geography 351, 380L, 401, and 481. One other of the required upper-division courses may be selected, upon approval by the Chairman of the Department, from a related field of study. Mathematics 120 or 121 (or the equivalent) are highly recommended for geography majors contemplating graduate work, particularly those wishing to emphasize climatology or economic geography.

### MINOR STUDY

Geography 101, 102, and 15 additional hours including one of the following: 263, 351, 381.

### GROUP REQUIREMENTS

Geography 479 and 481 are accepted as non-laboratory sciences in fulfillment of the Science (Group V) requirement of the College of Arts and Sciences; all other Geography courses except 380L are accepted toward fulfillment of the social Science (Group IV) requirement in that College.

### I. INTRODUCTORY COURSES

**101. General Geography. (3)**

World Geography; physical elements. An introduction to the use of maps and globes and to a systematic analysis of world climates, vegetation, soils, and landforms, their distribution, interrelation, and significance to man.

**102. General Geography. (3)**

World geography; human elements. An introduction to human geography comprising a systematic analysis of world population, demographic factors, ethnic groups, predominant economies, and political units, their distribution, interrelation, and the effect upon them of the physical earth.

<sup>†</sup> On leave 1968-69.

<sup>‡</sup> New appointments to be made, effective September 1, 1968.

**263. Economic Resources. (3)**

A systematic survey of world economic geography with emphasis on the resources of arable land, energy sources, and basic minerals and on the primary crop and manufacturing regions.

**II. REGIONAL COURSES**

Each of the following regional courses involves a description, analysis, and synthesis in spatial association of the physical and human attributes of particular parts of the earth. These attributes include climates, vegetation types, soils, landforms, population, demographic factors, ethnic groups, economic circumstances, and political arrangements. The synthesis of these physical and cultural phenomena is used as the basis for characterizing individual regions and subregions.

**\*301. South America. (3) Ayala**

Regional geography of South America.

**\*302. Middle America. (3) Ayala**

Regional geography of Mexico, Central America, and the West Indies.

**\*303. North America. (3)**

Regional geography of the United States and Canada.

**\*330. Southeastern Asia. (3) Bennett**

Regional geography of southeastern Asia including the area from Burma and North Viet Nam southeastward through Malaysia, Indonesia, and the Philippines.

**\*331. Eastern Asia. (3)**

Regional geography of China, Korea, and Japan.

**\*332. Western Europe. (3) Murphy**

Regional geography of Europe from the Atlantic eastward through Finland, Germany, Austria, and Italy.

**\*333. The Soviet Union and Eastern Europe. (3)**

Regional geography of the U.S.S.R. and of eastern Europe from Poland southward through Czechoslovakia, Hungary and the Balkans.

**III. UPPER-LEVEL SYSTEMATIC COURSES, PROBLEMS, AND SEMINARS****\*351. Systematic Climatology. (3) Bennett**

An analysis of factors affecting climatic variations and types, particularly solar and terrestrial radiation, temperature conditions, atmospheric pressure and wind patterns, and moisture and precipitation characteristics. Prerequisite: 101 or Physics 103 or permission of the instructor.

**\*352. Regional Climatology. (3) Bennett**

The classification and world distribution of temperature regimes, air mass types, precipitation areas, and climatic regions. Prerequisite: 351 or 101 and permission of instructor.

**380L. Cartography. (3) Huzarski**

(Same as CE 380L). Map projection and use of maps to show areal distribution and graphic representation of statistical data. Prerequisite: 101L and permission of instructor. 2 lectures, 3 hrs. lab. Open to Geography majors and minors. Offered in alternate years.

**\*381. Political Geography. (3) Murphy**

Study of political areas of the world from a spatial point of view, including problems of size, population, boundaries, location, productivity, ethnic grouping, and political power.

**\*401. Geographic Writings and Analysis. (3)**

Examination of the work of some principal geographers with emphasis on developments, trends and methodology. Limited to majors and minors in geography.

**\*479. Conservation. (3) Dittmer**

(Same as Biol 479). Various aspects of conservation including soil, water, mineral, wild-life, forestry, range, and human. Lecture, demonstration, field trips. Prerequisite: 8 hrs. in Biology. Open to Geography majors and minors. Offered in alternate years.

**\*481L. Geomorphology. (3) Wengerd**

(Same as Geol 481). Origin, development, and classification of land forms, with detailed consideration of gradation processes. Prerequisite: 307L. Open to Geography majors and minors who have completed Geol 101.

491-492. Problems. (1-3 hrs. each semester)  
Supervised individual study and field work.

\*551-552. Problems. (2-3 hrs. each semester)  
Supervised individual study for graduate students.

## GEOLOGY

PROFESSORS V. C. Kelley (Chairman), W. E. Elston, J. P. Fitzsimmons, S. A. Wengerd; RESEARCH PROFESSOR S. A. Northrop; ASSOCIATE PROFESSORS R. Y. Anderson, E. F. Cruft, A. Rosenzweig; ASSISTANT PROFESSORS A. M. Kudo, L. A. Woodward; FACULTY ASSOCIATES C. B. Read, C. V. Theis, R. T. Zbur.

### MAJOR STUDY

For the degree of Bachelor of Arts: Geology 101, 102, 105L, 106L, 201L, 302L, 307L, either 309L or 311L, 319L, and 7 additional hours in approved courses. Chemistry 101L, 102L; Mathematics 162; English 264; and either Biology 101L and 102L or Physics 111, 112, 113L, 114L are required. With permission of the Chairman, students preparing to teach Earth Sciences in secondary schools will be encouraged to substitute some of all of the following courses in meeting requirements for the Bachelor of Arts degree: Geology 465, 481, Physics 103, Astronomy 101.

For the degree of Bachelor of Science: Geology 101, 102, 105L, 106L or 120L, 201L, 307L, either 309L or 311L, 319L 420L, 421L, 422L, and 3 additional hours in approved geology options; Mathematics 264; Chemistry 101L, 102L; English 264; Electrical Engineering 436L; Psychology 280. In addition students will take courses to complete one of the options below.

OPTION A: MINERALOGY, PETROLOGY, GEOCHEMISTRY, ECONOMIC GEOLOGY. Chemistry 311, 312; Physics 260, 261, 262; Mathematics 265.

OPTION B: PALEONTOLOGY, STRATIGRAPHY. Geology: 8 hours from 309L, 311L, 430L, or 436L; Biology 101L and 102L; Chemistry 142L; 4 hours from Biology, Chemistry, or Mathematics numbered above 200.

OPTION C: STRUCTURAL GEOLOGY, ENGINEERING GEOLOGY, GEOMORPHOLOGY. Physics 260, 261; Mathematics 265; and 6 hours from Civil Engineering 102L, 202L 281L, 282L, 302; Mechanical Engineering 201L, 206L, or 301.

Students interested in Geophysics, Astrogeology, or Hydrogeology will elect Option A or C; students interested in Petroleum Geology or Sedimentology may select any option.

On completing all required courses for one of the options listed above the student will have a distributed minor.

### MINOR STUDY

Geology 101, 102, 105L, 106L, and 12 additional hours.

### MINOR STUDY IN PALEOECOLOGY

See p. 369.

#### 101. Physical Geology. (3)

Materials composing the earth, and work of agencies, both external and internal, modifying its surface.†

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† The sequence 101, 102, 105L, 106L will satisfy prerequisite listed as 120L and vice versa. Students beginning in one sequence must complete that sequence and credit may not be earned in both sequences.

- 102. Historical Geology.** (3) Anderson, Northrop, Wengerd  
History of the earth; rise and succession of the various forms of life. Prerequisite: 101.†
- 105L. Physical Geology Laboratory.** (1)  
Minerals, rocks, and topographic maps; occasional field trips. **Credit suspended when credit in Geology 101 is not earned.** Corequisite: 101. 3 hrs. lab.
- 106L. Historical Geology Laboratory.** (1)  
Fossils and paleogeographic maps; emphasis on the historical geology of New Mexico. **Credit suspended when credit in 102 is not earned.** Corequisite: 102. 2 hrs. lab.
- 120L. General Geology.** (5) Elston  
General geology for science, science education, and engineering students. An introductory course in basic principles of physical and historical geology. The relationship of geology to other sciences is emphasized. Recommended for all students intending to major in geology. 4 lectures, 3 hrs. lab. including field trips. Students may receive credit for either the sequence (101, 102, 105L, 106L), or the single course 120L, but not both.
- 201L. Mineralogy.** (4) Rosenzweig  
Elementary crystallography; fundamentals of chemical and physical mineralogy; elements of mineral identification. Prerequisite: 105L or 120L; pre- or corequisite: Chem 101L. 2 lectures, 6 hrs. lab.
- \*\*302L. Petrology.** (3) Elston  
Classification, hand-specimen identification, occurrence, and origin of rocks. Prerequisite: 201L; pre- or corequisite: Chem 102L. 2 lectures, 2 hrs. lab. Credit not allowed for both 302L and 422L.
- \*\*304L. Determinative Mineralogy.** (3) Cruft, Rosenzweig  
Classification of minerals; mineral associations; methods of mineral identification; laboratory study of minerals and mineral suites. Prerequisite: 302L, Chem 102L. 1 lecture, 6 hrs. lab.
- \*\*307L. Structural Geology.** (4) Kelley, Woodward  
Nature and origin of rock structures and deformation; map and stereographic problems. Prerequisites: 106L or 120L, and Math 162. CE 101L is strongly recommended. 3 lectures, 3 hrs. lab.
- \*\*309L. Principles of Stratigraphy.** (4) Northrop  
Prerequisite: 106L or 120L; some biology is strongly recommended. 3 lectures, 3 hrs. lab. (Offered in 1968-69 and alternate years.)
- \*\*311L. Paleontology.** (4) Northrop  
Fossil plants and invertebrates with emphasis on the common megafossils. Prerequisite: 106L or 120L; some biology is strongly recommended. 2 lectures, 6 hrs. lab. (Offered in 1967-68 and alternate years.)
- \*\*319L. Field Geology and Reports.** (4) Woodward  
Principles and techniques of field mapping; content and arrangement of reports; layout and preparation of illustrations. Prerequisite: 307L. 1 lecture and 1 full day in field each week.
- \*420L. Advanced Field Geology.** (3) Kelley, Woodward  
Geological mapping with plane table; mine mapping; special field problems. Prerequisite: 319L. 1 full day in field each week.
- \*421L-422L. Optical Mineralogy and Petrography.** (4, 4) Fitzsimmons  
Optical mineralogy; the polarizing microscope; systematic study of rocks with respect to their mineralogy, texture, and genesis. Prerequisite: 201L or permission of instructor. Course 421L may be taken separately, but 421L is prerequisite to 422L. 2 lectures, 6 hrs. lab. Credit not allowed for both 422L and 302L.
- \*426. Fundamentals of Geophysics.** (3) Fitzsimmons, Zbur  
Physical properties of rocks and their application to instrumental methods of determining subsurface geology. Prerequisites: 307L, Math 162, Physics 111, 112, 113L, 114L (or equivalent).
- \*430L. Advanced Paleontology.** (4) Northrop  
Prerequisite: 311L. 2 lectures, 6 hrs. lab.
- \*432L. Micropaleontology.** (3) Anderson  
Foraminifera, ostracods, bryozoans, conodonts, and other microfossils. Laboratory tech-

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\*\* Available for graduate credit except for graduate majors in Geology.

† The sequence 101, 102, 105L, 106L will satisfy prerequisite listed as 120L and vice versa. Students beginning in one sequence must complete that sequence and credit may not be earned in both sequences.



niques, applications, and ecologic relationships. Prerequisite: 106L or 120L; some biology is strongly recommended. 2 lectures, 3 hrs. lab.

**\*433L. Palynology. (3) Anderson**

Morphologic, systematic, and ecologic study of pollen, spores, dinoflagellates, etc. Laboratory techniques and applications to related fields. Prerequisite: 106L or 120L; some biology is strongly recommended. 2 lectures, 3 hrs. lab.

**\*436L. Paleozoic and Mesozoic Stratigraphy. (4) Northrop**

The stratified Paleozoic and Mesozoic rocks of North America, their correlation, stratigraphic relations, and guide fossils. Prerequisite: 309L. 2 lectures, 6 hrs. lab.

**\*437. Paleobotany. (3) Read**

The fossil floras of the western hemisphere. Prerequisites: 106L and Biol 102L.

**\*441L. Sedimentology. (4) Staff**

A study of sedimentary materials, their origin, diagenesis, distribution, and correlation in stratified rocks with emphasis on recent and ancient environments of sedimentation and early diagenesis. Prerequisite: 201L. 3 lectures, 3 hrs. lab.

**\*442. Petroleum Geology. (3) Wengerd**

An inductive approach to the principles of oil origin, migration, and accumulation. Characteristics of oil and gas reservoirs; techniques of petroleum exploration. Prerequisite: 441L.

**\*455L. Air Photogrammetry and Photogeology. (3) Wengerd**

Photogrammetric computations; stereoscopy; preparation of planimetric, topographic, and photogeologic maps. Prerequisites: 106L or 120L, Math 162, or permission of instructor. 1 lecture, 6 hrs. lab.

**\*462L. Hydrogeology. (3) Wengerd**

Occurrence and development of water with special emphasis on the Southwest. Prerequisites: 106L or 120L, and senior standing. 2 lectures, 3 hrs. lab.

**\*465. Lunar and Planetary Geology. (3) Elston**

The geology of the moon and planets as deduced from visual and geophysical observations, space probe data, laboratory experiments, meteorites, tektites, and terrestrial analogs of lunar and planetary features. Prerequisites: 101 or 102, or permission of the instructor. Graduate geology majors must take 466L concurrently in order to obtain graduate credit for 465.

**\*466L. Lunar and Planetary Geology Lab. (1) Elston**

Geologic interpretation of lunar and planetary photographs from terrestrial and space-probe sources, study of USGS lunar geologic maps, petrographic examination of meteorites, tektites, and terrestrial rocks subjected to shock metamorphism. Must be taken concurrently with 465. Prerequisites: 307L, 422L, 3 hrs. lab.

**\*471-472. Mineral Deposits. (3, 3) Elston, Kelley**

Metalliferous and nonmetalliferous deposits; their occurrence, classification, properties, origin, exploration, mining, beneficiation, and utilization. Prerequisite: 302L or 422L. Course 471 may be taken separately, but 471 is prerequisite to 472.

**\*481. Geomorphology. (3) Wengerd**

Origin, development, and classification of land forms, with detailed consideration of gradation processes. Prerequisite: 307L.

**\*482L. Geomorphology of the United States. (3) Fitzsimmons**

Detailed study of the physiographic provinces and sections of the United States; emphasis on Western United States. Prerequisite: 481 or permission of instructor.

**\*487L. Morphological Crystallography. (3) Rosenzweig**

The 32 point groups; crystal form and habit; crystal projections; crystal measurement and drawing. Prerequisite: Math 264. CE 101L is strongly recommended. 2 lectures, 3 hrs. lab.

**491-492. Problems. (2, 2)**

**\*501L. Sedimentary Geochemistry. [Geochemistry I] (3) Cruft**

Physical chemistry of aqueous solutions at low temperature. Evolution of the atmosphere and hydrosphere. Chemical oceanography, geochemistry of chemical and biogenic sediments. Pre- or corequisite: 302L or 422L. 2 lectures, 3 hrs. lab.

**\*502L. High-temperature Geochemistry. [Geochemistry II] (3) Kudo**

Applications of thermodynamics to metamorphic and igneous rock formation. Introduction to experimental petrology. Pre- or corequisite: 302L or 422L, Chem 311-312. 2 lectures, 3 hrs. lab.

- \*504L. Isotope Geochemistry. (3) Cruft**  
Distribution of nuclides; radioactive processes in nature; age-dating techniques; and variation of isotope ratios in different environments. Prerequisite: 501L or 502L, or permission of instructor. 2 lectures, 3 hrs. lab.
- \*506L. X-ray Crystallography. (4) Rosenzweig**  
(Also offered as Chem 506L.) Principles of X-ray diffraction, Debye-Scherrer, Weissenberg, and precession methods. Space group symmetry and its determination. Prerequisites: Math 264 or 311, and permission of instructor. 2 lectures, 6 hrs. lab.
- \*507L. Crystal Structure Analysis. (3) Rosenzweig**  
(Also offered as Chem 507L.) Structure factor calculations; Fourier methods; the Patterson function; examples of complete structure analysis. Prerequisites: 506L and permission of instructor. EE 436L is strongly recommended. 2 lectures, 3 hrs. lab.
- \*512L. Petrography of Opaque Ores. (2) Kelley**  
Determination and paragenesis of minerals in polished sections. Prerequisites: 421L, 471. 6 hrs. lab.
- \*517L. Instrumental Methods in Geochemistry. (2-4) Cruft, Rosenzweig**  
An intensive discussion of two major instrumental techniques in current use in geochemistry. Topics will normally be chosen from X-ray methods, DC arc emission spectrography, atomic absorption and flame emission spectrography, mass spectrometry, and differential thermal analysis. **With permission of the department chairman, course may be repeated for credit as content varies.** 1 or 2 lectures, 3 or 6 hrs. lab.
- \*519L. Selected Topics in Geochemistry. (2-4) Cruft**  
A detailed analysis of selected current topics, primarily, but not exclusively, using a chemical approach. **With permission, course may be repeated for credit as content varies.**
- \*521L. Metamorphic Petrology. (3) Fitzsimmons**  
Recrystallization and metasomatism in the transformation of solid rock masses and the structural modifications attending them. Prerequisite: 422L. 2 lectures, 3 hrs. lab.
- \*525L. [428L] Advanced Structural Geology. (3) Kelley, Woodward**  
Description and analysis of major structural types; map studies and problems. Prerequisite: 307L. 2 lectures, 3 hrs. lab.
- \*528. Regional Tectonics. (2) Kelley**  
Principles of origin of regional structures as illustrated by Cordilleran examples.
- \*531L. Igneous Petrology. (3) Kudo**  
Genesis of magmatic rocks; eruptive mechanisms; tectonic setting and differentiation trends of igneous rocks in continental, oceanic, orogenic, and nonorogenic environments. Prerequisites: 421L and 422L or 302L. 2 lectures, 3 hrs. lab.
- \*537L. Stratigraphic Analysis. (3) Wengerd**  
Quantification of stratal variations on regional bases utilizing statistical approaches to thickness, sediment content, inherent sedimentary structure, and fluid distribution in sedimentary rocks. Prerequisites: 309L, 441L. 2 lectures, 3 hrs. lab.
- \*542L. Subsurface Geology. (3) Wengerd**  
Well-logging and correlation techniques; study of cuttings, drilling-time logs, electric logs, radioactivity logs, and insoluble-residue logs; construction of subsurface-contours, isopach, and isopleth maps, and detailed cross-sections. Pre- or corequisite: 442 or 462L. 1 lecture, 6 hrs. lab.
- \*544L. Advanced Sedimentology. (4) Staff**  
A study of sedimentary materials from origin through lithification; sedimentary processes and environments; methods of studying sedimentary materials—thin section and other techniques used in determining the depositional and diagenetic history of a sedimentary rock. Prerequisites: 421L, 441L, or permission of the instructor. 3 lectures, 3 hrs. lab.
- \*547-548. Seminar. (2, 2) Staff**
- \*551-552. Problems. (2-3 hrs. each semester) Staff**
- \*590. Graduate Conference. (0) Staff‡**
- \*599. Master's Thesis. (1-3 hrs. per semester) Staff**  
See the Graduate School Bulletin for total credit requirements.
- \*699. Dissertation. (3-6 hrs. per semester) Staff**  
See the Graduate School Bulletin for total credit requirements.

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‡ Required each semester of all graduate students in Geology.

**GERMAN**

See Modern and Classical Languages.

**GREEK**

See Modern and Classical Languages.

**GUIDANCE**

See Education, Guidance and Special Education.

**HEALTH, PHYSICAL EDUCATION, AND RECREATION**

See Education, Health, Physical Education, and Recreation

**HISTORY**

PROFESSORS F. W. Iklé (Chairman), D. C. Cutter, W. M. Dabney, E. Lieuwen, R. W. Shugg (Part-time), G. W. Smith; ASSOCIATE PROFESSORS T. S. Floyd, G. D. Nash,† G. E. Rothenberg, H. J. Tobias, W. W. Wagar; ASSISTANT PROFESSORS B. Beer, R. H. Dolkart, R. Kern, N. Pugach, D. E. Skabelund, D. D. Sullivan, L. C. Tulga; INSTRUCTOR F. M. Szasz; and Staff†

**MAJOR STUDY**

The history program for majors, as outlined below, is designed to provide some of the cultural background necessary for intelligent social living, and also to prepare students for such specific activities as careers in law, the civil and diplomatic services, and the teaching profession.

Requirements: Four lower-division courses which must include 101 and 102, and one of the following pairs: 161 and 162, 251 and 252, or 281 and 282. Eight 300- or 400-level courses, including 309 and seven more including two courses each from three of the following areas: European, United States, Hispanic-American, Far Eastern history.

**MINOR STUDY**

The planned program outlined below is designed to supplement a student's work in his major field. The lower-division requirement includes a minimum of two semester courses to be selected from the following: History 101, 102, 161, 162, 251, 252, 281, 282. The upper-division requirement includes a minimum of five semester courses, at least three of which must be concentrated in European history, American history, Hispanic-American history, or Far Eastern history.

The prerequisites for certain courses may be waived with permission of instructor.

**PERIOD MINOR**

For requirements, see Comparative Literature.

**DISTRIBUTED MINOR FOR HISTORY MAJORS**

A major may offer an American Studies minor as well as a minor in a single department. For requirements, see American Studies.

**101-102. Western Civilization.** (3, 3) Beer, Rothenberg, Skabelund, Sullivan, Tobias, Tulga  
101—Ancient times to 1500; 102—1500 to the present.

† New appointments to be made, effective Sept. 1, 1968.

‡ Sabbatical leave 1968-69.

- 161-162. History of the United States.** (3, 3) Dabney, Nash, Pugach, Smith, Szasz  
Survey of the economic, political, intellectual, and social development of the United States from 1607 to the present, including the place of the United States in world affairs. History 161 covers the period from the beginning to 1865.
- 251-252. Eastern Civilizations.** (3, 3) Iklé, Tobias  
251: The development and interaction of Chinese, Central Asian, Russian, and Japanese societies until the 16th century. 252: From the 16th century until today.
- 281. History of Latin America.** (3) Cutter, Floyd  
Spanish and Portuguese occupation and colonial control in the Americas.
- 282. History of Latin America.** (3) Dolkart, Lieuwen  
Emergence of national states in Latin America.
- 301-302. Interdepartmental Studies in the Culture of the U.S.** (3, 3) Baughman, Martin, Sanborn, Szasz  
(Same as American Studies 301-302.) May be taken for departmental credit only with the consent of the chairman.
- \*303. History of World Communism.** (3) Tobias  
From Marx to the present.
- \*305. History of Science to 1687.** (3) Skabelund  
Evolution of scientific ideas and the role of science in the formation of Western civilization from antiquity to the Newtonian synthesis.
- \*306. History of Science since 1687.** (3) Skabelund  
Development of scientific thought from the Newtonian synthesis to the present.
- 309. Historiography.** (3) Tobias, Wagar  
Development of historical thought and writing.
- \*311. Ancient Civilizations of the Near East.** (3) Tulga  
Prerequisite: 101.
- \*313. Greece.** (3) Tulga  
A survey of developments in Greek civilization from early times to the reign of Justinian. Prerequisite: 101.
- \*314. Rome.** (3) Tulga  
Survey of the rise, decline, and fall of Roman power from the Italian expansion to the establishment of the successor states. Prerequisite: 101.
- \*321. Early Middle Ages, 300 to 1050.** [The Early Middle Ages] (3) Sullivan  
Prerequisite: 101.
- \*322. High Middle Ages, 1050 to 1300.** [The Late Middle Ages] (3) Sullivan  
Prerequisite: 101.
- \*323. Renaissance Era, 1300 to 1520.** [The Renaissance] (3) Sullivan  
Prerequisite: 101.
- \*325. The Reformation, 1500 to 1648.** [Early Modern Europe 1500-1648] (3) Sullivan  
Prerequisite: 102.
- \*332. Early Modern Europe, 1648-1763.** (3) Staff  
Europe under the Old Regimes. Prerequisite: 102.
- \*333. French Revolution and Napoleon.** (3) Staff  
Prerequisite: 102.
- \*335. Modern Europe, 1815-1914.** (4) Kern, Wagar  
Restorations and revolutions; national unification and industrialism; the "generation of materialism" and the origins of the first World War. Prerequisite: 102.
- \*336. Europe since 1914.** (3) Wagar  
The World Wars and the search for peace; social and economic tensions; Europe in the era of the Cold War and the welfare state. Prerequisite: 102.
- \*339. Military History of Europe to 1790.** (3) Rothenberg
- \*340. Military History of Europe since 1790.** (3) Rothenberg
- \*341. France.** (3) Staff  
From 1500 to the present.
- \*343. History of England to 1688.** [History of England to 1603] (3) Beer  
Survey of medieval foundations, Tudor era, and seventeenth century social and political revolutions.

- \*344. **History of Modern England since 1688.** [History of England since 1603] (3) Beer  
Emphasis on social, political, and intellectual developments.
- \*345. **The British Empire and Commonwealth.** (3) Beer  
*Survey of British colonial policy and nation-building since 1815.* Emphasis on Ireland, Canada, Australia, India, and South Africa.
- \*347. **Early Russia to 1689.** [Modern Russia, 1500-1917] (3) Tobias
- \*348. **Modern Russia, 1689 to 1917.** (3) Tobias
- \*349. **Soviet Russia.** (3) Tobias  
Emphasis upon domestic developments.
- \*351. **History of China.** (3) Iklé  
Social, political, and economic institutions from historical beginnings to modern times.
- \*352. **History of Japan.** (3) Iklé  
Social, political, and economic institutions from historical beginnings to modern times.
- \*354. **The Far East in the Contemporary World.** (3) Iklé  
Emphasis upon diplomatic relations between Asia and the West.
- \*356. **History of the Near East.** (3) Iklé  
From ancient Mesopotamia to the present.
- \*357. **History of Africa since 1800.** (3) Beer  
Survey of the African continent during colonial and national periods.
- 360. **History of New Mexico.** (2) Cutter  
Survey from Cabeza de Vaca to 1912.
- \*364. **Political History of the United States.** (3) Smith  
From 1789 to the present.
- \*370-371. **American Diplomacy.** (3, 3) Pugach  
Diplomatic History of the United States from Independence to 1898; from the Spanish American War to the present.
- \*372. **Urban History of the United States.** (2) Staff
- \*373. **History of the American Frontier.** (3) Cutter  
Anglo-American expansion from the 17th century to the 1890's.
- \*374. **The Trans-Mississippi West.** (3) Cutter
- \*377. **Economic History of the United States.** (3) Nash  
Topical study of American economic life—agriculture, industry, labor, and commerce—from the beginning to the present, stressing the relations of government and business.
- \*378-379. **Constitutional History of the United States.** (3, 3) Dabney  
From English origins to 1876; from 1876 to the present day.
- \*380. **History of the Southwest.** (3) Cutter  
Spanish exploration and occupation of the Southwest; colonial government and missions.
- \*384. **Inter-American Relations.** (3) Dolkart, Floyd, Lieuwen  
Relations among the American republics from 1810, with emphasis upon the Pan-American movement and the recent period. 282 strongly recommended as a prerequisite.
- \*395. **Iberian History.** (3) Kern  
Spanish and Portuguese history to 1700.
- \*396. **Iberian History.** (3) Kern  
Spanish and Portuguese history since 1700.
- \*397. **Mexico to 1821.** (2) Cutter, Floyd  
Prerequisite: 281.
- \*398. **Mexico since 1821.** (2) Dolkart, Floyd, Lieuwen  
Prerequisite: 282.
- \*428. **European Intellectual History, 1762-1870.** (3) Wagar  
The Enlightenment synthesis; its culmination and decline; the romantic era; liberalism and positivism; Darwin and Marx.
- \*429. **European Intellectual History, 1870-Present.** (3) Wagar  
Science and religion in the post-Darwinian generation; the anti-positivist reaction; the age of anxiety from Spengler to Sartre.
- \*438. **European Diplomatic History.** (3) Rothenberg  
Since 1815. Prerequisite: 102.
- \*442. **Germany.** (3) Rothenberg  
From 1815 to present. Prerequisite: 102.

- \*461. **The American Colonies, 1607-1763.** (3) Dabney  
The settlement of British America and a study of American institutions in their infancy.  
Prerequisite: 161.
- \*462. **The American Revolution and the Federal Republic, 1763 to 1820.** (3) Dabney  
Prerequisite: 161.
- \*465. **The Era of Sectional Conflict, 1820-1860.** (3) Smith  
The impact of nationalism and sectionalism upon American life from the Missouri Compromise to the election of Lincoln. Prerequisite: 161.
- \*466. **The Civil War.** (3) Smith  
Political, social, economic, military, and diplomatic history of the period 1860-1865.  
Prerequisite: 161.
- \*467. **The United States from Reconstruction to 1898.** (3) Smith  
Prerequisite: 162.
- \*468-469. **Recent History of the United States.** (3, 3) Nash  
From 1898 to the time of the great depression; from the time of the great depression to the present day. Prerequisite: 162.
- \*470. **Philosophy of History.** (3) Staff  
(Also offered as Philosophy 370.) Nature, structure, and presuppositions of history and historical methods.
- \*475. **Intellectual and Social History of the United States, 1607-1860.** (3) Szasz
- \*476. **Intellectual and Social History of the United States since 1860.** (3) Szasz
- \*483. **Modern and Contemporary Latin America.** (2) Lieuwen  
Social revolutions in the Latin American area since World War II. Prerequisite: 282.
- \*486. **Southern South America.** (3) Dolkart  
Argentina, Chile, and Uruguay since 1810. Prerequisite: 282.
- \*488. **The Andean Republics.** (3) Dolkart  
Peru, Bolivia, and Ecuador since 1810. Prerequisite: 282.
- \*489. **History of Brazil.** (3) Floyd  
From 1500 to the present. Prerequisite: 281 and 282.
- 493. **Reading and Research in Honors.** (3)  
Prerequisites: senior standing and permission of major adviser.
- 494. **Senior Thesis.** (3)  
Prerequisite: 493.
- \*500. **Seminar in Historical Research Methods.** (2) Nash, Szasz
- \*501. **Interdepartmental Seminar in the Culture of the United States.** (3) Staff  
(Same as American Studies 501.)
- \*504. **Interdepartmental Seminar in Ibero-American Studies.** (3) Staff  
(Same as Ibero-American Studies 504.)
- \*520. **Seminar and Studies in Ancient History.** (3) Tulga
- \*521. **Seminar and Studies in Medieval History.** (3) Sullivan
- \*532. **Seminar and Studies in Early Modern European History.** (3) Staff
- \*540. **Seminar and Studies in European Intellectual History.** (3) Wagar
- \*542. **Seminar and Studies in Modern European History.** (3) Rothenberg
- \*545. **Seminar and Studies in British History.** (3) Beer
- \*547. **Seminar and Studies in Modern Russian History.** (3) Tobias  
Emphasizes the period 1861-1917.
- \*548. **Seminar and Studies in Iberian History.** (3) Kern
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff
- \*554. **Seminar and Studies in Far Eastern History.** (3) Iklé
- \*562. **Seminar and Studies in Early American History.** (3) Dabney  
Pre- or corequisite: 462.
- \*564. **Seminar and Studies in American Intellectual and Social History.** (3) Szasz
- \*566. **Seminar and Studies in Civil War Period.** (3) Smith  
Intensive study of bibliography, research in source materials, and the writing of original papers on the period of the Civil War and Reconstruction.
- \*568. **Seminar and Studies in Recent American History.** (3) Nash  
Topical investigation in American history since 1900.

- \*569. *Seminar in the Military History of World War II.* (3) Shugg
- \*570. *Seminar and Studies in United States Diplomatic History.* (3) Pugach
- \*579. *Seminar in Southwest History.* (3) Cutter
- \*581. *Seminar in Colonial Latin American History.* (3) Floyd  
Emphasis upon the constitutional and cultural history of the Spanish colonies in America.
- \*582. *Seminar in Recent Latin American History.* (3) Lieuwen, Dolkart  
The national period of Latin America.
- \*584. *Interdisciplinary Seminar on Problems of Modernization in Latin America.* (3) Liepe, Lieuwen, Needler, Schwerin  
(Also offered as Anth, Econ, Pol Sci, and Soc 584.)
- \*599. *Master's Thesis.* (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.
- \*699. *Dissertation.* (3-6 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## HOME ECONOMICS

See Education, Home Economics

## IBERO-AMERICAN STUDIES

Professor M. R. Nason, Director

An interdepartmental program in the languages, literatures and history of Spanish America and Brazil leading to the degree of Doctor of Philosophy. For details, consult the *Graduate School Bulletin*.

- \*504. *Interdepartmental Seminar.* (3) Davison, Floyd, Lieuwen, Lopes, Nason  
History, literature, and institutions of Latin America.
- \*551-552. *Problems.* (1-3 hrs. each semester) Staff
- \*584. *Interdisciplinary Seminar on Problems of Modernization in Latin America.* (3) Liepe, Lieuwen, Needler, Schwerin  
(Same as History 584.)
- \*699. *Dissertation.* (3-6 hrs. per semester) Cutter, Davison, Floyd, Lieuwen, Lopes, Nason, Ulibarri  
See the *Graduate School Bulletin* for total credit requirements.

## INDUSTRIAL EDUCATION

See Education, Secondary Education.

## ITALIAN

See Modern and Classical Languages.

## JOURNALISM

ASSOCIATE PROFESSORS A. G. Hillerman (Chairman), L. L. Jermain; ASSISTANT PROFESSORS J. P. Crow, R. H. Weber; LECTURERS G. M. Hunsley, J. W. Abarr.

### MAJOR STUDY

Editorial Sequence—30 hours including Journalism 251, 252, 301, 311, 312, 322, 475, and 494. Six hours may be chosen from the following: English 403, 466, 492; Speech 466; Political Science 305. Television-radio Emphasis, required courses: 251, 252, 301, 311, 322, 475, and 494, and Speech 251, 265 and 466. (Total, 30 hours.)

Journalism 100 counts toward the major but is not required. It is recommended for all who plan on a Journalism major.

## MINOR STUDY

18 hours including Journalism 251 and 252. Three hours in other departments may be chosen from the lists given under Major Study.

100. **Introduction to Mass Communications.** [Introduction to Journalism] (2) Staff  
The meaning of mass media in society, with emphasis on the evolution of mass communications, their processes and effects. (Open to non-majors.)
- 251-252. **News Writing and Reporting.** (3, 3) Staff  
Emphasis in 251 on news elements, writing techniques and story structure; in 252 on reporting methods and advanced writing for the media. 2 lectures, 2 hrs. lab.
261. **News Photography.** (3) Crow  
Training in the use of the standard news camera, and in the taking, developing, and printing of pictures for newspaper use, together with some study of desk preparation of photographs for the photoengraving process. Prerequisite: permission of instructor. 1 lecture, 4 hrs. lab.
301. **History of Journalism in the United States.** (3) Jermain  
American newspaper and magazine history from the early Colonial periodicals through the present-day streamlined mass-production newspaper.
302. **Editorial and Special Writing.** (3) Hillerman  
Practice and criticism in the writing of the editorial essay and the information editorial, and in the writing of the column, and of other interpretive matter. Prerequisites: 251 and 252.
311. **Copy-Editing and Makeup.** (3) Jermain, Staff  
Practice in the assembling and editing of news copy, in dummyping of newspaper pages, in headline writing, and in page makeup. Prerequisites: 251, 252. 2 lectures, 2 hrs. lab.
312. **Copy-Editing and Makeup.** (3) Jermain, Staff  
Continuation of 311, with emphasis on wire copy and problems of typography. Prerequisite: 311. 2 lectures, 2 hrs. lab.
322. **Law of the Press.** (3) Jermain  
Lectures, discussions, and case histories in the law of libel and the Constitutional guarantees, and in laws relating to contempt and injunction proceedings and other checks of law upon the press.
332. **Writing the Magazine Article.** (3) Hillerman  
Writing non-fiction for publication. Prerequisite: permission of instructor.
388. **Cinematic Photography.** (3)  
(Same as Art 388.)
465. **Management of High School Publications.** (3) Staff  
A survey of the problems in production of high school newspapers and yearbooks, as well as some incidental publications, including approaches to design, advertising content, the news and editorials, circulation and printing, and over-all business administration and staff management. Not open to Journalism majors.
475. **Advanced Reporting.** (3) Staff  
Discussions of, and work in, news and interpretive coverage of matters and events of public concern; visits to, and investigations into, community areas and public bodies, during additional arranged sessions each week; production of a series of newspaper or magazine-type articles by each student, each eventually during the semester to work upon a specific problem, situation, or crusade, of public significance. Prerequisite: permission of instructor.
494. **Mass Media as a Social Force.** [The Press as a Social Force] (3) Hillerman  
The power and the problems of the communications media with emphasis on evolving ethical standards.

## LATIN

See Modern and Classical Languages.

## LATIN AMERICAN STUDIES

This is an interdepartmental program administered by the Division of Inter-American Affairs. The program itself does not constitute professional training or prepare students for specific careers; however, it provides a solid founda-



tion in language skills and area competence that can be valuable in business, public service, or further professional training.

#### MAJOR STUDY

Language and literature (31 hours): Spanish 251, 252, 292, 301, 302, 357, 358; Portuguese 275, 276, 277, 278. Social Sciences (29 hours): History 281, 282, 384, 483; Geography 301, 302; Political Science 355; Economics 200, 201, and 420.

(Note: Admission to Spanish 251 requires completion of one year of the language in college or two years in high school. Native speakers of Spanish should follow a slightly different sequence of courses [see course listings under Modern Languages].)

#### ELECTIVES (12 hours)

These should normally be courses of specifically Latin American content (e.g., Philosophy 323, Hispanic and Latin American Philosophy or Sociology 365, Urbanization in Latin America), but may also be courses of generalized content with applicability to the Latin American field (e.g., Political Science 203, International Politics, or Economics 424, International Economics.) His advisor will help the student plan a coherent program of electives. The following model elective programs are illustrative:

- (1) Brazilian emphasis: Portuguese 307, 357, 358; History 489.
- (2) Mexican emphasis: Political Science 358; History 397, 398; Spanish 463; Anthropology 382.
- (3) Hispanic American literature emphasis: Spanish 347, 463, 464, plus one other 3-hour course.
- (4) Political and social development emphasis: Sociology 365, 461; Political Science 351, 356.

#### MINOR STUDY

24 hours, including Spanish 301-302, History 281 and 282, Political Science 355, Economics 420, and six hours of Latin American electives. An equivalent number of hours of additional approved electives may be substituted for any of the required courses which the student is counting toward his major.

**\*551-552. Problems.** (1-3 hrs. each semester) Staff

**\*584. Interdisciplinary Seminar on Problems of Modernization in Latin America.** (3) Liepe, Liuewen, Needler, Schwerin  
(Same as History 584.)

**\*599. Master's Thesis.** (1-3 hours per semester) Staff

See the *Graduate School Bulletin* for total credit requirements.

## LAW

**PROFESSORS** T. Christopher (Dean), F. Hart, H. Weihofen; **VISITING PROFESSORS** J. Scott, M. Sharp, G. Stevens; **ASSOCIATE PROFESSORS** W. Barnett, W. Ellis, M. Fink, L. Kanowitz, C. Selinger, A. Utton; **ASSISTANT PROFESSORS** R. Desiderio, R. Walker; *Director of Institute of Public Law and Services* R. Sawyer; *Director of Legal Services* F. Dewey; *Lecturer in Law* W. Weismantel.

#### MINOR IN THE COLLEGE OF ARTS AND SCIENCES

Available only to students accepted by the School of Law in the combined six-year program leading to the bachelor's degree in the College of Arts and

Sciences and the Juris Doctor degree in the School of Law. See the **School of Law Bulletin**.

**Note:** Some courses may not be offered in certain years. An offering sheet and class schedule for a particular year may be obtained from the law school.

#### FIRST YEAR COURSES

- #501. **Constitutional Law I.** (2)  
Nature and scope of judicial review; the federal system; national legislative powers; limitations on governmental power for the protection of persons accused of crime.
- #502. **Contracts and Agency I.** (3)  
Promises and consideration—the bargain; fairness, duress, and mistake.
- #503. **Contracts and Agency II.** (3)  
Supervening events, default as an excuse, damages; an introduction to multiple-party transactions; express, implied, and apparent authority of agent.
- #504. **Criminal Law.** (3)  
Criminal law viewed as a means for the prevention of criminal behavior.
- #505. **International Law I.** (3)  
A study of the nature and sources of international law and its application to problems relating to international agreements, membership in the international community, nationality, jurisdiction, state responsibility, and force and war.
- #506. **Legal Research.** (1)  
Materials and methods of legal research.
- #508. **Property I.** (3)  
Personal property; "original" ownership; the evolution of interests in real property, briefly treating feudalism and tenure, freehold estates, future interests, and concurrent ownership; leases.
- #509. **Property II.** (3)  
Sales of land, including the real estate contract, the deed, the recording system, and methods of title assurance; the use of land, including easements and licenses, real covenants, and related public controls of land use.
- #510. **Torts and Master-Servant I.** (3)  
Tort law examined as a means for compensating harms, discouraging substandard behavior, and allocating losses.
- #511. **Torts and Master-Servant II.** (3)  
Continuation of Torts and Master-Servant I.
- #512. **Civil Procedure I.** (3)  
A brief survey and evaluation of the range of available methods for the resolution of civil disputes: self-help, private settlement, the administrative process, and litigation. A consideration of the fundamentals of procedure in litigation from the commencement of an action through appeal, with particular emphasis on procedural devices for raising issues of substantive law.
- 587. **Introduction to Law.** (3)  
Emphasis on the legislative process.

#### SECOND AND THIRD YEAR COURSES

##### Commercial Law

- 520. **Business Associations I.** (3)  
The fundamental course in the organization and operation of such businesses as partnerships, limited partnerships, business trusts, joint stock companies, other unincorporated associations, and business corporations. Choosing the business form; common law and statutory methods of creation; the duties, powers, and liabilities of management and owners; operational rules; and basic dissolution and merger problems. Major emphasis will be placed upon the closed corporation and partnerships.
- 521. **Business Associations II.** (3)  
Corporate finance; major problems of finance in other business associations; introduction to state and federal securities regulation; distributions; mergers; sales of assets; consolidation; and amendment of charters and other basic agreements. Major emphasis will be placed upon publicly owned corporations and associations. Prerequisite: 520.
- 522. **Commercial Transactions I.** (3)  
Problems of sales, commercial paper, and security interests in personal property.

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# Required.

**523. Commercial Transactions II. (2)**

Continuation of 522.

**528. Creditors' Rights. (3)**

Enforcement of judgments, fraudulent conveyances, general assignments, creditors' agreements, bankruptcy, and arrangements.

**Procedure****516. Civil Procedure II. (3)**

An examination of selected topics, including multi-party litigation, the right to a jury trial, former adjudication, and personal and subject matter jurisdiction. A brief survey of the development of legal and equitable remedies. The law governing actions in the federal courts.

**517. Trial Practice Workshop. [Civil Procedure III] (1)**

Prerequisite: 532.

**531. Equitable Remedies. (2)**

Introduction to the forms of judicial remedies, principles governing their scope and availability, and consideration of grounds for choosing between alternative remedies; includes general principles of specific performance, and injunction.

**532. Evidence. (3)**

Legal, logical, and epistemological problems involved in the trial of contested issues of fact; judicial notice; real proof; testimonial proof, including competency of witnesses, privilege, impeachment, rehabilitation and form of examination; the hearsay rule and its exceptions; circumstantial proof; logical relevance, remoteness, prejudice, both generally and in connection with proof of character and habit; burden of proof and presumptions.

**552. Federal Jurisdiction. (3)**

Federal judicial power; applicable law in the federal courts; the original jurisdiction of the United States District Court; venue and process; jurisdiction and procedure of the United States Court of Appeals; jurisdiction of the Supreme Court.

**589. Damages. (2)**

Measuring a substitutional relief for the compensation of an injured person.

**Property****524. Community Property. (1)**

The New Mexico community property system, and its relationship to common law property rights.

**544. Oil and Gas Law. (3)**

Major emphasis on the oil and gas lease; selected additional materials, at instructor's discretion, on conservation of natural resources, taxation of mineral interests, solid mineral mining, and the public domain.

**547. Water Law. (2)**

Western law of surface and ground water with emphasis on New Mexico administrative procedures; the problems of federalism as they affect water rights.

**554. [536 and part of 548] Wills and Future Interests. (3)**

Intestate succession and wills; probate and administration of decedents' estates. A detailed study of the legal devices used to provide for successive enjoyment of family property—future interests and powers of appointment—and their characteristic problems; special rules applicable to such devices, particularly the rule against perpetuities; illegal restraints on alienation. Special emphasis on construction of dispositive provisions in deeds and wills as a prelude to estate planning and drafting.

**557. [Part of 548] Trusts. (2)**

The nature, creation and termination of trusts; the rights of the beneficiary; the duties and liabilities of the fiduciary; problems of trust administration, including charitable trusts.

**Public Law****515. Employee's Rights. (2)**

Workmen's compensation and federal wage and hour legislation.

**518. Administrative Law. (3)**

The system of legal control exercised by administering agencies other than the courts; definition and forms of administrative agencies; their functions; their constitutional limitations; their statutory powers and limitations; administrative procedures; agency hearings and decisions; judicial control of administrative agencies.

- 525. Conflict of Laws. (3)**  
The concepts of domicile and jurisdiction of courts; the effect of foreign judgments; and the law applied to torts, contracts, and status.
- 526. Constitutional Law II. (3)**  
State power to regulate and to tax; intergovernmental immunities; limitations on governmental power for the protection of economic and property interests; freedom of expression and association; freedom of religion; equal protection of law.
- 535. Food and Drug Law. (2)**  
A study of the Federal Food, Drug, and Cosmetic Act, and of the work of the Federal Trade Commission in connection with false advertising of food, drugs, and cosmetics. The course includes discussion of the philosophy, history, and application by the courts and administrative tribunals of the laws involved; also the effect of and need for these laws in modern society.
- 537. Labor Law. (3)**  
Historical introduction; the negotiation and administration of the collective bargaining agreement; the establishment of the collective bargaining relationship; recourse to economic weapons; the individual and the union.
- 542. Legal Process. (3)**  
An examination of the main institutions and processes of the American legal system in the perspective of their everyday working interrelationships. Particular attention is given to legislative jurisdiction and to problems of statutory interpretation.
- 546. Antitrust Law. (3)**  
Restraints of trade and monopoly at common law and under the federal antitrust laws, including the Sherman Act, Federal Trade Commission Act, and Clayton Act.
- 556. Local Government. (3)**  
Municipal corporations, counties, special units of local government, and problems relating thereto such as organization, procedures in legislative and other functions, responsibility in tort and contract, finance, and relationships with the state and national government.

#### Taxation

- 527. Business Planning. (3)**  
A combination of advanced work in Business Associations and Federal Income Taxation in the context of business planning and counseling. The course will be based upon a series of problems involving common business transactions which present corporate and tax issues for analysis and resolution; topics include the formation of corporations, both closely held and publicly owned, stock redemption, the sale and purchase of businesses, mergers and other forms of acquisition, recapitalization, and division and dissolution of corporations. Prerequisites: 521, 534.
- 530. Estate, Gift, and Inheritance Taxation. [Federal Estate and Gift Taxation] (2)**  
Federal taxation of inter vivos transfers, revocable and incomplete transfers, exclusions, exemptions, and correlation with income and estate taxation. Federal estate taxation of property owned at death, community property, jointly held property, gifts in contemplation of death, revocable transfers, retained life estates, transfers taking effect at death, survivorship annuities, life insurance, and powers of appointment. Federal estate tax credits, deductions, exemptions, valuation problems, procedure, and correlation of estate tax with federal income and gift taxes and with state inheritance and estate taxes. Prerequisite: 534.
- 534. Federal Income Taxation. (3)**  
Income taxation of individual and business taxpayers including items of income, deductions, exemptions, credits; the splitting of income among taxpayers; capital gains and losses; tax practice and procedure; accounting and income taxation; and an introduction to partnership trust, and corporate income taxation.
- 545. Estate Planning. (3)**  
The criteria for selecting one or another of the available methods of disposition of property, with particular emphasis upon federal income, estate and gift tax consequences; inter vivos transfers such as revocable and irrevocable trusts; wills; the settlement of life insurance proceeds, social security and employee death benefits; and the disposal of a business interest; the preparation of estate plans and documents in light of tax considerations and the law of future interests and powers of appointment including an investigation of various restrictions upon the freedom of property disposition such as the rule against perpetuities. Prerequisites: 530, 534, 554, 557.

**551. Corporation Tax. (2)**

Federal income taxation of corporations and shareholders, including definition of corporation, organization of corporation, dividend distributions, redemptions, liquidations, and Subchapter S corporations. Prerequisite: 534.

**Family Law****533. Family Law. (2)**

Marriage, separation, and divorce; economic relations as between husband and wife, parent and child.

**Professional Skills and Functions****538-539 Law Journal. (1, 1)**

(See 568-569)

**540. Legal Accounting. (2)**

A critical examination of selected issues relating to generally accepted accounting principles and an introduction to corporate financial problems. After an introduction to financial statements and bookkeeping, consideration will be given to the principles governing recognition of income, the matching of costs against appropriate revenues, and accounting for such proprietary transactions as repurchase of stock, stock dividend, and quasi-reorganization. Emphasis throughout will be laid on the legal contexts in which the lawyer is likely to confront accounting problems.

**#541. Legal Aid. (0)**

Service in the office of the Legal Aid Society of Albuquerque and in neighborhood centers three hours each week during one semester. Required of all senior students. No subject credit.

**#543. Legal Writing. (2)**

Exercises and drills in legal writing and methods to be done independently by each student. Prerequisite: 506 or equivalent.

**572. The Legal Profession. (3)**

The lawyer as counselor, advocate, citizen, and public servant, with emphasis on analysis of the nature of his professional responsibilities; contemporary problems of the organized bar.

**568-569. Law Journal. (1, 1)**

Second-year students with superior academic records are selected to compete for positions as student editors of the *Natural Resources Journal*. During the course of their second year they must perform assigned editorial tasks and write two case comments of publishable quality. Upon successful completion of this work, they are elected to the editorial board and receive 2 credit hours for their work. During their third year as student editors they are assigned greater editorial responsibility under the immediate supervision of the Faculty Editor, and are also required to write one Law Note of publishable quality. Upon successful completion of their editorial duties, they receive an additional 2 hours of ungraded credit.

**Seminars****549. Comparative Law. (2)****555. Jurisprudence. (2)****559. Research. (1)****560. Women and the Law. (2)****562. Special Research. (3)****570. Law of the Poor. (2)****571. Law and Psychiatry. (2)****573. Logic and Evaluation in the Law. (2)****574. Mining and Public Lands. (2)****576. Current Legal Problems. (2)****577. Legal Counseling. (2)****578. Real Estate Transactions. (2)****580. Law and Control of the Urban Environment. [Urban Renewal] (2)****581. Insurance. (3)****586. Contracts. (2)****588. Contract in Public Law. (2)****590. Commercial Law. (2)**

# Required.

**LIBRARY SCIENCE**

See Education, Library Science.

**MATHEMATICS AND STATISTICS**

**PROFESSORS** J. R. Blum (Chairman), D. Basu, B. Epstein, M. S. Hendrickson, E. Hille, A. Hillman, D. R. Morrison (Part-time), G. M. Wing, S. Zacks; **ASSOCIATE PROFESSORS** S. Bell, R. De Marr, D. Dubois, T. Guinn, R. Hersh,<sup>†</sup> S. Koo, L. H. Koopmans, J. V. Lewis, M. Mitchell, J. Rosenblatt, L. Shampine, A. Steger, E. Steiner; **ASSISTANT PROFESSORS** H. L. Bentley, R. Bierstedt, H. Davis, J. Davis, R. Entringer, A. Gibson, R. Griego, R. Metzler, C. Qualls, A. Steiner.

**MAJOR STUDY**

264, 265 and 21 hours in courses numbered above 300, approved by the Mathematics Department.

A student who wishes to enroll in any course requiring a prerequisite must earn a minimum grade of C in the prerequisite course.

**DEPARTMENTAL HONORS**

Undergraduates or prospective undergraduates who intend to continue their studies through the Ph.D. degree or who are interested in challenging problems (possibly including intercollegiate competition) should see the Chairman of the Department as early as possible for details of the Mathematics Honors Program.

**COMBINED PROGRAM IN MATHEMATICS AND ENGINEERING**

Students interested in the fields of computer design, guided missiles, electronics, or aeronautics are advised to take one of the following engineering minors:

**Minor in Electrical Engineering:** EE 203, 211, 206L, 311, 321, 361, plus 2 courses selected from EE 312, 362 and 322, 421, 431.

**Minor in Mechanical Engineering, Solids Option:** CE 101L, 202L, 302; ME 206L, 314L, 318L, and 357L.

**Minor in Mechanical Engineering, Fluids Option:** CE 202L; ME 206L, 301, 302, 317, and 320.

**MINOR STUDY**

264, 265 and 6 hours in courses numbered above 300. A student who wishes to enroll in any course requiring a prerequisite must earn a minimum grade of C in the prerequisite course.

**1. INTRODUCTORY COURSES****010. Intermediate Algebra.** (0)

Remedial course. A rapid exposure to high-school algebra with emphasis upon polynomials, equation solving and logarithms. A fee of \$20.00 is charged.

**120. Elementary Mathematics.<sup>1</sup>** (5)

Algebra of the basic number systems, trigonometry, elementary functions, and applications. Prerequisite: 010 or an adequate score on the ACT mathematics area.

**121. Introduction to Mathematics for the Sciences.<sup>1</sup>** (4)

Topics in algebra; trigonometry and elementary functions. Prerequisite: 010 or an adequate score on the ACT mathematics area.

<sup>†</sup> On Leave 1968-69.

<sup>1</sup> Credit may be received for only one of the courses 120, 121, sequence 150-151-163 or sequence 162-163.

**122. Introduction to Finite Mathematics. (4)**

Mathematical models and their interpretations; game and decision theory; linear and dynamic programming; elementary probability and Markov chains. Prerequisite: one of 120, 121, 150, 162, or 180.

**150-151. Introduction to Elementary Analysis.<sup>1</sup> (4, 4)**

Covers the same material as Math 162 in a more detailed fashion. This course is open only to students who initially enroll in 162 and find it necessary to drop back after one month. Assignments may require use of the computing laboratory.

**162-163. Introduction to Analysis.<sup>1</sup> [Introduction to Mathematics for the Physical Sciences] (4, 4)**

Algebra and trigonometry, intuitive differential and integral calculus, introduction to several variables, and ordinary differential equations. Assignments require use of the computing laboratory.

**180-181. Mathematical Analysis for the Social and Biological Sciences. (3, 3)**

Review of algebra and trigonometry; number systems; coordinate geometry; survey of differential and integral calculus of one and several variables.

**241-242. Elementary Probability and Statistics. (3, 3)**

An elementary pre-calculus development of the principles and methods of probability and statistics. Prerequisite: one of 120, 121, 150, 162, or 180. 241 or 341 prerequisite for 242.

**264-265. Calculus with Coordinate Geometry. (3, 3)**

Rigorous development of integral and differential calculus of one variable with some applications to differential equations. Assignments require use of the computing lab. Prerequisite: 163.

**275. Algorithms, Computation and Mathematics. (3)**

An elementary introduction to computing science. The objective of the course is an understanding of the relationship between mathematics, computing, and problem solving. Prerequisite or co-requisite: 120 or 121 or 150 or 162 or 180.

**276. Introduction to Data Structures. (3)**

Lists, arrays, and strings. Machine language instruction, sub-routines and relative addressing. In-put and out-put processing. Prerequisite: 275.

**II. COURSES FOR TEACHERS AND EDUCATION STUDENTS**

The following courses are intended primarily for undergraduate and graduate students in the College of Education and for participants in Teacher's Institutes. Other persons may be admitted to these courses by permission of the Department Chairman.

**111. Arithmetic for Elementary School Teachers. (3)**

The intuitive and logical background of arithmetic; drill in fundamental operations; algorithms of arithmetic in base ten and other bases; problem solving.

**200. Fundamental Concepts of Mathematics. (3)**

Survey of elementary logic, algebra, trigonometry, analytic geometry, and calculus stressing fundamental concepts and applications.

**211. Foundations of Elementary Mathematics. (2)**

Topics from elementary arithmetic, algebra, and geometry designed for the in-service teacher.

**212. Structure of Arithmetic. (3)**

Properties of natural numbers, integers, and rationals and operations therewith; decimal representation and the reals; measurement. Prerequisite: 111 or equivalent.

**213. Elementary Algebra from a Modern Viewpoint. (3)**

Algebraic systems; axiomatic approach to the real number system; functions.

**214. Elementary Geometry from a Modern Viewpoint. (3)**

Ideas of intuitive geometry; concepts of informal geometry with attention to precise terminology.

**†300. Vector Geometry. (3)**

A vector treatment of lines, planes, curves, and surfaces.

<sup>1</sup> Credit may be received for only one of the courses 120, 121, sequence 150-151-163 or sequence 162-163.

† Graduate credit for the degree of Master of Arts in Secondary Education, Master of Arts in Teaching Mathematics, and Master of Education in Science.

- †301. **Introductory Analysis I.** (3)  
Functions, limits, and derivatives with applications.
- †302. **Introductory Analysis II.** (3)  
Definite integrals with applications.
- †303. **Sequences and Series.** (3)  
Convergence and error analysis for sequences and series. Prerequisite: 302.
- †304. **Foundations of Secondary Mathematics.** (3)  
Sets, Boolean algebras, applications to logic.
- †306-307. **Topics in Geometry.** (3, 3)  
Geometric transformations, convex sets, intuitive topology.
- †308. **Problem Solving in Algebra.** (3)  
Related topics centering in theory of equations, determinants, and inequalities together with appropriate problem solving techniques.
- †309-310. **Applications of Mathematics.** (3-5, 3)  
Introduction to programming, computer-oriented mathematics, and topics in numerical analysis.

### III. UPPER LEVEL UNDERGRADUATE COURSES.

- \*\*\*311. **Engineering Mathematics.** (3)  
Vector algebra and calculus; ordinary differential equations. Prerequisite: 265.
- \*\*\*312. **Advanced Engineering Mathematics I.** (3)  
Infinite sequences and series of functions; uniform convergence; Taylor and Fourier expansions with applications to ordinary and partial differential equations; special functions. Prerequisite: 311.
- \*\*\*313. **Advanced Engineering Mathematics II.** (3)  
Theory of functions of a complex variable with applications to physical and engineering problems. Prerequisite: 311.
- \*\*\*314. **Linear Algebra with Applications.** (3)  
Effective solution of systems of linear equations. Eigenvalues and eigenfunctions of symmetric linear operators. Applications to problems in the physical and social sciences. Prerequisite: 1 year elementary calculus.
- \*\*\*315. **Generalized Functions and Operational Methods.** (3)  
Theory of integral transforms and generalized functions, with applications to differential and integral equations arising in engineering and mathematical physics. Prerequisite: 313.
- \*\*\*318. **Combinatorial Analysis.** (3)  
Permutations, combinations, recurrence relations, generating functions, enumeration techniques, and graph theory.
- \*\*\*319-320. [319] **Theory of Numbers.** (3, 3)  
Divisibility, congruences, primitive roots, quadratic residues, diophantine equations, continued fractions, partitions, number theoretic functions.
- \*\*\*321-322. **Introduction to Higher Algebra.** (3, 3)  
Vector spaces, linear transformations, systems of linear equations, matrices, similarity; Euclidean and unitary spaces, groups, rings, and fields.
- \*\*\*331-332. **Survey of Geometry.** (3, 3)  
Topics from affine, projective, Euclidean, and hyperbolic geometries.
- \*\*\*341-342. **Probability Theory.** (3, 3)  
The mathematical model for random experiments, random variables and their distributions, expectation, generating functions. Chebychev's inequality, central limit theorems, laws of large numbers, random walks, and other discrete random processes. Prerequisite: 265 or equivalent.
- \*\*\*343-344. **Mathematical Statistics.** (3, 3)  
Mathematical theory of hypothesis testing, point and interval estimation, regression and topics from the analysis of variance, elementary decision theory, sequential analysis, non-parametric methods. Prerequisite: 341.

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† Graduate credit for the degree of Master of Arts in Secondary Education, Master of Arts in Teaching Mathematics, and Master of Education in Science.

\*\*\* A maximum of 2 of these courses may be used for graduate work in Mathematics. These courses are available for graduate work in fields other than Mathematics.



- \*\*\*345-346. Statistics for the Sciences and Engineering. (3, 3)**  
A survey of statistical methods and their rationales useful in the physical, biological and social sciences and engineering. Concepts in probability theory and statistics will be developed as needed. Prerequisite: One year of elementary calculus.
- 351-352. Undergraduate Honors Seminar. (1-3 hrs. each semester)**  
The use of induction, analogy, generalization, specialization, and other techniques in solving mathematical problems. Permission of instructor required. **May be repeated for credit with permission of instructor.**
- \*\*\*361-362. Advanced Calculus. (3, 3)**  
A rigorous development of the differential and integral calculus of functions of one and several real variables.
- \*415. Foundations of Mathematics. (3)**  
Peano axioms; ordinal and cardinal numbers, axiom of choice.
- \*431. Introduction to Topology. (3)**  
Metric spaces, topological spaces, continuity, concepts used in analysis.
- \*434. Introduction to Differential Geometry. (3)**  
Differential geometry of curves and surfaces in Euclidean 3-space.
- \*441. Stochastic Processes for the Physical Sciences. (3)**  
Stationary processes and harmonic analysis, renewal theory, discrete and continuous-time Markoff processes. Probability models and applications of importance in the physical sciences. Prerequisite: 341 or 345.
- \*461. Functions of a Complex Variable. (3)**  
Analytic functions, Cauchy theorem and consequences, conformal mapping.
- \*462. Introduction to Ordinary Differential Equations. (3)**  
Physical origins of differential equations, elementary methods solution, existence theorems, series and asymptotic solutions, perturbation and numerical methods, phase-plane analysis, and elements of Sturm-Liouville theory. Prerequisite: 361 or consent of instructor.
- \*472. Fourier Series and Integrals. (3)**  
Convergence and summability theory of trigonometric series; Bessel's and Parseval's relations; Fourier integrals and their inversion; expansions in series of orthogonal functions; selected applications. Prerequisite: 361 or consent of instructor.
- \*473-474. Integral Equations and Boundary Value Problems. (3, 3)**  
Theory of integral equations, eigenfunction expansions, boundary-value problems, conversion into integral equations, variational methods, approximation methods. Prerequisite: 314 or 321; corequisite: 312 or 362.
- \*475. Elements of Numerical Analysis. (3)**  
Fortran programming. Numerical integration and differentiation, numerical solution of equations and systems of equations, and ordinary differential equations. Prerequisites: 361-362 or 311 and 312.
- \*476. Numerical Applied Mathematics. (3)**  
Numerical analysis of problems of wave propagation, vibration. The eigenvalue problem. Existence theorems. Prerequisite: 475.
- \*477. Computational Mathematics.<sup>1</sup> (3)**  
This course will vary from time to time depending upon demand and staff availability. Topics which may be covered are linear, dynamic, and integer programming, perturbation and asymptotic methods, Monte Carlo methods, computational methods for linear algebra, ordinary differential equations, partial differential equations, approximation theory, quadrature, roots of equations.
- \*481. Linear Spaces. (3)**  
Linear spaces, normed linear spaces, Hilbert spaces, applications to differential and integral equations. Prerequisite: 431.
- 499. Individual Study. (1-3)**  
Guided study, under the supervision of a faculty member, of selected topics not covered in regular courses. Admission by approval of the Department Chairman. **May be repeated for a maximum total of 6 hours.**

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\*\*\* A maximum of 2 of these courses may be used for graduate work in Mathematics. These courses are available for graduate work in fields other than Mathematics.

<sup>1</sup> May be repeated for credit with permission of the Department Chairman.

## IV. GRADUATE COURSES

Satisfactory completion of 321-322 and 361-362, or evidence of equivalent preparation, is required for admission to any of the following courses.

- \*511-512. **Analytic Number Theory.** (3, 3) Entringer  
Prime number theorem, twin primes, Dirichlet's theorem, selected topics.
- \*513-514. **Algebraic Number Theory.** (3, 3) Bierstedt  
Arithmetic in number fields, ideals, valuations; class field theory. Prerequisite: 321.
- \*519. **Selected Topics in Number Theory.**<sup>1</sup> (3) Bierstedt, Entringer
- \*521-522. **Modern Algebra.** (3, 3) Dubois, Hillman, Steger  
Topics in groups, rings, and fields.
- \*523-524. **Abelian Groups.** (3, 3) Dubois  
Structure of Abelian groups and modules over special rings. Homological and duality theorems. Prerequisite: 521.
- \*525-526. **Lattice Theory.** (3, 3)  
Distributive, modular and orthomodular lattices, Boolean algebras. Lattice congruences, products and sums of lattices. Selected topics. Prerequisites: 521-522.
- \*527-528. **Theory of Rings.** (3, 3) Steger  
Ideal theory of commutative rings. Special types of rings, representation and structure theory. Prerequisites: 521-522.
- \*529. **Selected Topics in Algebra.**<sup>1</sup> (3) Bierstedt, Dubois, Hillman, Steger
- \*531-532. **Topology.** (3, 3) A. Steiner  
Convergence structures, uniform spaces, characterization theorems, selected topics.
- \*533-534. **Algebraic Topology.** (3, 3)  
Homology theory, fundamental theorem, cohomology theory, homotopy.
- \*536. **Differential Geometry.** (3)  
Introduction to the theory of differential manifolds.
- \*539. **Selected Topics of Geometry and Topology.**<sup>1</sup> (3) Kao, Mayer
- \*541-542. **Probability Theory.** (3, 3) Blum, Koopmans, Rosenblatt  
Probability spaces, random variables, characteristic functions, conditional probability, limit theorems. Prerequisites: 563-564. Recommended: 341-342.
- \*543-544. **Mathematical Statistics.** (3, 3) Blum, Koopmans  
Decision theory, hypothesis testing, point and interval estimation, selected topics. Prerequisites: 343-344 or permission of instructor.
- \*545-546. **Stochastic Processes.** (3, 3) Blum  
Structure theorems, martingales, Markov processes, stationary processes, selected topics. Prerequisites: 541-542.
- \*549. **Selected Topics in Probability and Statistics.**<sup>1</sup> (3) Blum, Koopmans, Rosenblatt
- \*551-552. **Problems.**<sup>1</sup> (1-3 hrs. each semester) Staff
- \*561-562. **Functions of a Complex Variable.** (3, 3) Davis, Epstein, Hersh  
Analyticity, Cauchy theorem and formulas, Taylor and Laurent series, singularities and residues, conformal mapping, selected topics.
- \*563-564. **Functions of a Real Variable, Measure, Integration.** (3, 3) Hersh, Metzler  
Functions of one and several real variables, measure theory, integration, function spaces.
- \*565. **Classical Harmonic Analysis.** (3) Davis, Hersh  
Fourier series and integrals, extensions and generalizations to  $L^1$  and  $L^2$ .
- \*566. **Algorithmic Languages and Compilers.** (3)  
Concepts and properties of an algorithm, analysis of computational problems, and development of algorithms, description of algebraic languages and techniques used in their compilation, study of syntax semantics, ambiguities, procedures, replication, iteration, and recursion.
- \*569. **Selected Topics in Analysis.**<sup>1</sup> (3) Epstein, Davis, Hersh, Metzler
- \*571-572. **Ordinary Differential Equations.** (3, 3) Epstein, Hersh, Wing  
Existence and uniqueness theorems, linear systems, stability theory, asymptotic integration, topology of integral curves. Prerequisites: 461 or 561. Recommended: 473-474.

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<sup>1</sup> May be repeated for credit with permission of the Department Chairman.

- \*573-574. Partial Differential Equations.** (3, 3) Hersh, Epstein, Wing  
Equations of first order, classification of equations and systems, elliptic equations and introduction to potential theory, hyperbolic equations and systems, parabolic equations. Prerequisites: 473-474.
- \*575. Calculus of Variations.** (3) Hersh, Lewis, Wing  
Classical theory, Euler-Lagrange equations, conditions for a minimum, Hamilton-Jacobi theory, direct methods, applications. Prerequisites: 473-474.
- \*576. Approximation Theory.** (3) Staff  
Chebyshev's approximation,  $L^p$  approximation, theories of Sard, and Golomb and Weinberger, rational approximation, Jackson's theorem, nonlinear approximation. Prerequisites: 563-564. Recommended: 581-582.
- \*577-578. Integral Equations.** (3, 3) Epstein, Wing  
Non-singular and singular integral equations; Cauchy and Wiener-Hopf type equations, dual equations; applications. Prerequisites: 561-562.
- \*579. Selected Topics in Applied Mathematics.<sup>1</sup>** (3) Epstein, Hersh, Lewis, Morse
- \*581-582. Functional Analysis.** (3, 3) Davis, E. Steiner  
Linear transformations on Banach and Hilbert spaces, integral equations, spectral theory, semi-groups of operators, Banach algebras, topics in nonlinear analysis. Prerequisites: 563-564. Recommended: 473-474.
- \*583. Linear Topological Spaces.** (3) Metzler  
Locally convex spaces, separation axioms, duality, generalized functions. Prerequisite: 481.
- \*584. Banach Algebras and Spectral Theory.** (3)  
Representation of commutative and non-commutative Banach algebras, abstract harmonic analysis, spectral decomposition of linear algebras. Prerequisites: 431, 481. Recommended: 531.
- \*589. Selected Topics in Functional Analysis.<sup>1</sup>** (3) Davis, Metzler
- \*599. Master's Thesis.** (1-3 hrs. per semester)  
See the *Graduate School Bulletin* for total credit requirements.
- \*619. Seminar in Number Theory.<sup>1</sup>** (1-3) Staff
- \*621-622. Theory of Groups.** (3, 3) Dubois  
Permutation groups, free groups, Abelian groups, Sylow theorems, solvable, super-solvable and nil-potent groups. Prerequisites: 521-522.
- \*623-624. Multilinear and Homological Algebra.** (3, 3) Dubois  
Tensor products, tensor and exterior algebras. Derived functors, homological dimension, cohomology theories. Prerequisites: 521-522.
- \*629. Seminar in Algebra.<sup>1</sup>** (1-3) Staff
- \*631-632. Algebraic Geometry.** (3, 3) Kao  
General theory of places, algebraic varieties, absolute theory of varieties, products, projections, and correspondence, normal varieties, divisors and linear systems, differential forms.
- \*639. Seminar in Geometry and Topology.<sup>1</sup>** (1-3) Staff
- \*649. Seminar in Probability and Statistics.<sup>1</sup>** (1-3) Staff
- \*650. Reading and Research.<sup>1</sup>** (1-6) Staff
- \*669. Seminar in Analysis.<sup>1</sup>** (1-3) Staff
- \*673-674. Theoretical Numerical Analysis.** (3, 3) Staff  
Mathematical foundations of interpolation and approximation theory, finite difference methods for ordinary and partial differential equations. Emphasis on convergence proofs and error estimates. Prerequisite: permission of instructor.
- \*675-676. Differential Operators.** (3, 3) Hersh  
*Detailed study of linear ordinary differential operators and of various classes of linear partial differential operators, using methods of functional analysis.* Prerequisites: 481, 473-474 or 573-574. Recommended: 581-582.
- \*677. Applications of Mathematics to Computing Science.** (3) Bell, Morrison  
The objective of the course is to apply mathematical tools, in particular, algebraic tools, to problems in computing science. Topics to be studied are finite automata, pattern recognition, theorem proving, information retrieval, and data communication. Mathematical tools to be studied and employed include groups of transformations, semi-groups and their ideals, in particular free semi-groups, graph theory and Galois fields.

<sup>1</sup> May be repeated for credit with permission of the Department Chairman.

\*679. Seminar in Applied Mathematics.<sup>1</sup> (1-3) Staff

\*689. Seminar in Function Analysis.<sup>1</sup> (1-3) Staff

\*699. Dissertation. (3-6 hrs. per semester) Staff

See the Graduate School Bulletin for total credit requirements.

## MECHANICAL ENGINEERING

See Engineering, Mechanical

## MEDICAL SCIENCES

### Anatomy

PROFESSOR A. J. Ladman (Chairman); ASSOCIATE PROFESSOR L. M. Napolitano; ASSISTANT PROFESSORS S. E. Dietert, T. J. Leppi; INSTRUCTOR N. J. Adamo.

### Biochemistry

PROFESSOR R. B. Lofffield (Chairman); ASSOCIATE PROFESSOR F. N. LeBaron; ASSISTANT PROFESSORS T. J. Scallen, G. Wild; ASSISTANT RESEARCH PROFESSOR L. F. Smith; INSTRUCTOR B. M. Woodfin.

### Epidemiology

PROFESSOR R. O. Oseasohn (Chairman); ASSOCIATE PROFESSOR I. Miller; ASSISTANT PROFESSORS B. Eberle, A. Pressman; INSTRUCTORS R. M. Kropinak, N. Quenk.

### Medicine

PROFESSORS S. Papper (Chairman), R. H. Fitz (Dean); ASSOCIATE PROFESSORS O. Appenzeller, T. N. Finley, A. H. Greenhouse, E. Liske, A. N. Longfield, E. R. Simon, J. S. Trier; ASSISTANT PROFESSORS J. M. Bicknell, G. M. Boyden, R. T. Cauthorne, J. K. Conrad, W. S. Curran, L. Garcia-Bunuel, W. G. B. Graham, W. R. Hardy, A. L. Kish, E. L. Klinger, J. K. Leach, W. S. Lovekin, G. S. Nakai, W. H. R. Nye, D. L. Palmer, R. Pesch, R. D. Snyder, S. W. Thompson, C. A. Vaamonde, R. S. Watts, R. Whang; INSTRUCTORS R. L. Barenberg, R. M. Kropinak, S. Libo, F. W. Watkins, N. H. Zeller.

### Microbiology

PROFESSOR L. C. McLaren (Chairman); ASSOCIATE PROFESSOR J. V. Scaletti; ASSISTANT PROFESSORS T. Baker, C. E. Cords, Jr., S. Tokuda.

### Obstetrics-Gynecology

PROFESSOR R. A. Munsick (Chairman); ASSISTANT PROFESSOR P. Henderson; ADJUNCT INSTRUCTORS B. Branch, F. Cohn.

### Pathology

PROFESSOR R. S. Stone (Chairman); ASSOCIATE PROFESSORS R. E. Anderson, W. Hentel; ASSISTANT PROFESSORS S. W. Jordan, M. Kornfeld, L. Leonard, M. L. Ovitz; INSTRUCTORS C. Barringer, C. Lengyel, T. S. McConnell, S. Weitzner.

### Pediatrics

PROFESSOR E. A. Mortimer, Jr. (Chairman); VISITING PROFESSOR C. Weymuller; ASSOCIATE PROFESSOR R. F. Castle; ASSISTANT PROFESSORS J. A. Browder, W. K. Castle, A. H. Cushing, W. N. Michener, A. Pressman, R. Snyder; ADJUNCT ASSISTANT PROFESSOR L. G. McMurray.

### Pharmacology

PROFESSOR T. Cooper (Chairman); ASSOCIATE PROFESSOR A. Despopoulos; ASSISTANT PROFESSORS V. Jones, D. V. Priola; INSTRUCTOR T. F. Burks.

### Physiology

PROFESSOR S. Solomon (Chairman); ASSOCIATE PROFESSOR A. Despopoulos; ASSISTANT PROFESSORS D. T. Frazier, J. Q. Koenig, A. Ratner.

<sup>1</sup> May be repeated for credit with permission of the Department Chairman.

### Psychiatry

PROFESSORS S. Papper (Chairman), ASSOCIATE PROFESSORS O. Appenzeller, T. N. Finley, A. H. Greenhouse, E. Liske, A. N. Longfield, E. R. Simon, J. S. Trier; ASSISTANT PROFESSORS J. M. Bicknell, G. M. Boyden, R. T. Cauthorne, J. K. Conrad, W. S. Curran, L. Garcia-Bunuel, W. G. B. Graham, W. R. Hardy, A. L. Kish, E. L. Klinger, J. K. Leach, W. S. Lovekin, G. S. Nakai, W. H. R. Nye, D. L. Palmer, R. Pesch, R. D. Snyder, S. W. Thompson, C. A. Vaamonde, R. S. Watts, R. Whang; INSTRUCTORS R. L. Barenberg, R. M. Krapinak, S. Libo, F. W. Watkins, N. H. Zeller.

### Radiology

PROFESSOR B. G. Brogdon (Chairman); ASSOCIATE PROFESSOR D. Wolfel; ASSISTANT PROFESSOR R. W. Papper.

### Surgery

PROFESSOR J. S. Clarke (Chairman); ASSOCIATE PROFESSOR J. Wilson; ASSISTANT PROFESSORS W. R. Blakeley, R. J. Kaplan, H. Lackner, L. Lamb, R. Pesch, E. Peter, M. Pollay, J. C. F. Simpson, D. E. Smith; ADJUNCT ASSISTANT PROFESSORS I. C. S. Knight, J. Weaver.

## CLINICAL SCIENCE

### 504-505. Clinical Science I. (5, 5)

The basis for and methods of evaluating the patient as a human being. Lectures and seminars, practical demonstrations and experience.

### 530-531. Clinical Science II. (5, 5)

Continues to emphasize the development of the student's skills in evaluating the numerous factors which influence human behavior in health and disease. Further experience in history-taking and physical examination, coordinated with study of the disease process as it affects the various organ systems of the body. The significance of emotional, environmental, and sociocultural factors in determining the success or failure of the total adaptation of the individual, family, or group. Field trips to take advantage of the special opportunity available in New Mexico to study firsthand the influence of unique cultural and environmental factors in various health problems. Prerequisites: 504-505.

### 556-557. Clinical Science III. (19, 19)

Will comprise experience with hospitalized and ambulatory patients in the major clinical disciplines, including Internal Medicine, Obstetrics and Gynecology, Pathology, Pediatrics, Psychiatry, and Surgery. Students will be given increasing degrees of responsibility for patient care in the hospital setting under the direct supervision of faculty members who hold key positions on the staffs at the teaching hospitals. Prerequisites: Clin Sci 504-505, 530-531; Med Biol 500-501, 502L-503L, 526-527, 528L-529L.

### 560. Neurobiology; General Surgery. (16)

This quarter occupies the student's full time in two consecutive block periods of six weeks each. The Neurobiology portion is devoted to a clinical experience in neurology and in neurosurgery. During the period of assignment to General Surgery an opportunity is also included to participate in patient care activities in several of the surgical sub-specialties.

### 561. Clinical Science IV. (16)

The student may elect a sub-internship assignment on one of the several major clinical services in a medical school teaching hospital. The student's selection is made following consultation with members of the faculty and advice based on the student's previous academic accomplishments and current interests. During this quarter it is expected that the student will have immediate but supervised responsibility for patient care, will attend departmental and inter-departmental conferences, and occupy considerable time in self-instruction using the medical literature.

## MEDICAL BIOLOGY

### \*420. Biochemistry of the Nervous System. (2) LeBaron, Wild

An intermediate level treatment of biochemical topics especially pertinent to the nervous system. These will include: Metabolism and function of transmitter substances; the basic biochemical processes occurring in nervous tissue; alterations in these processes which are associated with functional activity and with pathological states; and the biochemical bases of the effects of drugs on function of the nervous system. Prerequisite: one year college-level biology and one year college-level chemistry.

**500-501. Medical Biology I. (13, 13)**

A unified and interdisciplinary study of biological principles basic to medicine; selected pertinent material from Anatomy, Biochemistry, Physiology, Microbiology, Pathology, and Pharmacology; biological organization and function from the molecular through cell, tissue, organ system, and whole organism biology. Lectures and seminars. Prerequisites: Math 162; Chem 101L, 102L, 301, 302, 303L, 304L; Biol 101L, 102L; Physics 111, 112, 113L, 114L.

**502L-503L. Medical Biology I Laboratory. (6, 6)**

Laboratory experience designed to illustrate experimentally those biological principles being considered in 500-501. Prerequisites: same as for 500-501.

**526-527. Medical Biology II. (11, 11)**

A transdisciplinary study of biological principles, basic to the manifestations of disease in human beings; a unified approach utilizing pertinent material from Microbiology, Immunology, Pharmacology, Preventive Medicine, and Pathology; clinical aspects of disease commonly studied in introductory courses in Medicine, Obstetrics and Gynecology, Pediatrics, and Surgery; the interrelationships between altered structure and function are considered at the several levels of biological organization. Lectures and seminars. Prerequisites: 500-501, 502L-503L.

**528L-529L. Medical Biology II Laboratory. (6, 6)**

Laboratory experience designed to illustrate experimentally those biological principles being considered in 526 and 527. Prerequisites: 500-501, 502L-503L.

**532-533. Elective Project and Tutorial. (2, 2)**

Each student is required to develop, under faculty guidance, an independent scholarly project related to studies in progress during the semester.

**552-553. Medical Biology III. (6, 6)**

Will reinforce, in relation to clinical problems, the principles presented in Medical Biology I and II. Prerequisites: 500-501, 502L-503L, 526-527, 528L-529L.

**562. Tutorial. (16)**

During this quarter the student is assigned to a preceptor of his choosing. Together with his tutor, the student selects a topic of intensive study and is required to submit a critical manuscript on the designated topic. The student may supplement this study period by a laboratory or clinical experience complementary to his topical assignment.

**563. Open Quarter. (16)**

Considerable flexibility is permitted the student in his choice of activity during this quarter. Some students may choose to take a vacation for all or part of the time, perhaps utilizing the occasion to visit prospective internship situations. Others may use the quarter for research activity, additional clinical study, or in occasional instances, to make up scholastic deficiencies as may be required by the faculty.

**\*590-591. Medical Biology I. (3-13 hrs. each semester)**

Same content as 500-501, except that credit is variable and will be arranged with the instructors. Prerequisites: same as for 500-501.

**\*592L-593L. Medical Biology I Laboratory. (6, 6)**

Same content as 502L-503L. Prerequisites: same as for 500-501.

**\*594-595. Medical Biology II. (3-11 hrs. each semester)**

Same content as 526-527, except that credit is variable and will be arranged with the instructors. Prerequisites: 590-591, 592L-593L.

**\*596L-597L. Medical Biology II Laboratory. (1-6 hrs. each semester)**

Laboratory experience designed to illustrate experimentally those biological principles being considered in 594-595. Prerequisites: same as for 594-595.

**\*610L. Experimental Cytology. (3-6)** Adamo, Dietert, Ladman, Leppi, Napolitano

Detailed survey of cellular structure as related to function in a variety of tissues and species. Selected laboratory experience with fixatives and staining methods. Prerequisites: 590-591 or equivalents.

**\*611L. Fine Structure and Electron Microscopy. (6-12)** Dietert, Ladman, Leppi, Napolitano

A consideration of the ultrastructure of various cells and tissues as revealed by the electron microscope. A systematic examination of all the organelles with particular emphasis on the evolution of current thought of structure as related to function. In the laboratory, theory and instruction in the techniques basic to tissue processing, sectioning and use of the electron microscope. Some practical photographic techniques involved in data recording. Prerequisites: 590-591 and 610 or equivalent and approval of Anatomy Department Chairman.

- \*612L. Histochemistry and Cytochemistry.** (4-6) Dietert, Ladman, Leppi, Napolitano  
An exposition of the theory and practice of methods used to elucidate chemical constituents and activities in cells and tissues. Consideration given to methods used in protein, lipid and carbohydrate localizations. Special emphasis directed towards enzyme localization and modification. Selected topics including radio-autography, differential centrifugation, and in vitro cell systems. In the laboratory, opportunities to have experience in several of these areas will be given. Prerequisites: 590-591 and 610L or equivalent.
- \*613. History of Anatomy.** (1-2) Ladman  
A consideration of past and present workers and their impact on the substance of the Anatomical Discipline.
- \*618. Seminar in Anatomy.** (1) Staff  
Weekly or biweekly discussions of pertinent information in the current literature relative to selected topics in morphology.
- \*620. Advanced Biochemistry.** (4) LeBaron, Loftfield, Scallen, Smith  
An exhaustive treatment of one or two broad topics in Biochemistry, the subject being different each year and rotating in a 3 or 4-year cycle. Topics will include: Chemistry and Metabolism of Nucleic Acids and Proteins, Metabolic Control Mechanisms, Chemistry and Metabolism of Macromolecules, Chemistry and Metabolism of Carbohydrates and Complex Polysaccharides. Prerequisites: Chem 311-312 and either Chem 481-482 or Med Sci 590-591. **May be repeated for credit under different topics.**
- \*621. Biochemistry of Proteins.** (3) Loftfield  
In alternate years the structure of proteins or the metabolism of proteins will be covered in depth. The former will cover the physical chemistry and ultrastructure of the protein molecules and determination of amino acid sequences. The alternate course will cover protein biosynthesis and breakdown and the interrelationships of protein synthesis and nucleic acid metabolism. Prerequisites: Chem 311-312 and either Chem 481-482 or Med Sci 590-591. **May be repeated for credit under different topics.**
- \*622. Biochemistry of Phospholipids.** (3) LeBaron  
A detailed discussion of the chemistry and metabolism of phospholipids, their interrelationships with other constituents in macromolecular complexes, their relationships to membranes, and their other possible functions. Prerequisites: Chem 323 or 481-482 or Med Sci 590-591.
- \*623. Biochemistry of Steroids.** (3) Scallen  
Includes such topics as the isolation, proof of structure, chemical synthesis, stereochemistry and absolute configuration of important steroids; biosynthesis and metabolism of cholesterol, adrenal steroids, androgens and estrogens. Prerequisites: Chem 301-302; Chem 323 or 481 or Med Sci 590-591.
- \*631L. Introduction to Research Techniques in Microbiology.** (2) Staff  
Methods and techniques employed for research in microbial physiology, genetics, virology and immunology; includes independent literature review, laboratory experimentation, interpretation and expression of data in acceptable science writing form. Prerequisite: Approval of Microbiology Department Chairman. **May be repeated for credit under different topic and instructor.**
- \*632. Advanced Microbiology.** (3) Scaletti  
Chemical and physical properties of microorganisms; special staining; growth; influence of environment on growth, nutrition, enzymes and metabolism. Prerequisites: biochemistry, general microbiology or equivalent. (Offered in alternate years.)
- \*633L. Advanced Microbial Physiology and Metabolism.** (4) Scaletti  
Advanced treatment of microbial metabolic cycles, enzymes and energy-yielding reactions, electron transport systems in fermentation and oxidative processes; advanced metabolic methods for microbial enzyme studies. Prerequisites: biochemistry, general microbiology or equivalent. (Offered in alternate years.)
- \*634. Biochemical Genetics.** (4) Baker  
Advanced treatment of genetics and molecular biology in microbial systems, a student participation course. Limited to 8 students. Prerequisites: 500 or Biochemistry; Introductory Genetics and Microbiology.
- \*635L. Immunochemistry.** (3-4) Tokuda  
Advanced treatment of the nature of antigens and antibodies; chemical basis of immunologic specificity; qualitative and quantitative aspects of antigen-antibody reactions; hypersensitivity; transplantation and tumor immunity. Prerequisites: biochemistry, general microbiology and permission of instructor. (Offered in alternate years.)

- \*636. **Advanced Virology.** (3) Cords, McLaren  
Advanced treatment of the biology and biochemistry of bacterial and animal viruses. Prerequisites: biochemistry, immunology, virology or equivalent. (Offered in alternate years.)
- \*637L. **Virology Laboratory.** (2) Cords, McLaren  
Research techniques related to virology. Prerequisites: biochemistry; pre- or corequisites: immunology and virology. (Offered in alternate years.) 6 hrs. lab.
- \*638. **Microbiology Seminar.** (1) Staff
- \*650. **Translocations in Biological Systems.** (3) Solomon  
Survey of mechanisms by which solutes and water move across membranes in biological systems. Theoretical basis of solute movement will first be considered followed by a detailed description of translocation in specific cells and tissues. Prerequisites: 590-591 or Biol 429L, 430L and permission of instructor; pre- or corequisite: Chem 311-312.
- \*651. **Integrative Functions of the Endocrine System.** (3) Despopoulos  
Advanced seminar emphasizing interactions of the endocrine secretions in tissues of sex and reproduction, growth and intermediary metabolism. Prerequisites: 590-591 or equivalent and permission of instructor.
- \*652. **Advanced Neurophysiology.** (4)  
Advanced treatment of some of the principles and problems of neurophysiology. Lecture and laboratory. Prerequisites: 590-591 or its equivalent and permission of the instructor.
- \*653. **Renal Water and Electrolyte Metabolism.** (4) Solomon, Papper, and Physiology and Medicine Staffs  
A comprehensive advanced treatment of nephron function followed by a treatment of gross aspects of water and electrolyte metabolism. Prerequisites: 590-591, or Biol 429L, 430L and permission of instructor.
- \*658. **Physiological Techniques.** (3-6) Staff  
The student works with individual members of the Physiology staff learning current research techniques. Prerequisites: 590-591 or Biol 429L, 430L.
- \*659. **Seminar in Physiology.** (2) Staff
- \*690. **Research in Medical Sciences.** (2-6 hrs. per semester to a maximum of 12 hrs.)
- \*695. **Research.** (2-6 hrs. per semester to a maximum of 12 hrs.) Staff
- \*699. **Dissertation.** (3-6 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

## MODERN AND CLASSICAL LANGUAGES

PROFESSORS R. R. MacCurdy† (Chairman), R. M. Duncan, J. Kolbert, D. A. McKenzie, M. R. Nason; ASSOCIATE PROFESSORS E. T. Book, N. J. Davison, P. H. Fernandez, J. E. Tomlins, S. R. Ulibarri, J. E. White; ASSISTANT PROFESSORS C. M. Book, R. Cobos, R. Herron, R. Holzapfel, T. Holzapfel, R. C. Jespersen, G. A. Jocums, E. E. Lamadrid, P. Murphy, T. A. Sackett, D. B. Thompson; INSTRUCTORS L. J. Marquez, M. Metcalf, L. N. Santa Anna, R. Welsh; PART-TIME INSTRUCTORS K. Bierstedt, A. Carmona-Morgan, L. Hoshour, M. O. Knoblock, A. H. Luft, E. Robert.

### GROUP REQUIREMENTS

Portuguese 396, Spanish 345, 346, Modern Languages 306, 497, and courses in the Folklore Division are not accepted toward fulfillment of Foreign Language group requirements (Group II in the College of Arts and Sciences).

### LANGUAGE LABORATORY

The Department operates a Language Laboratory where students in beginning languages and conversation and composition classes go for weekly exercises in pronunciation. Any student having special difficulties may be assigned work in the Laboratory. No extra credit is allowed for this work which is done chiefly in connection with regular courses.

† Sabbatical leave, Semester I, 1968-69.



## PLACEMENT OF FRESHMEN

Students who have studied FRENCH or GERMAN in high school and who intend to continue the same language at the University are required to take a placement examination administered by the department. Students who have studied LATIN, RUSSIAN, or SPANISH in high school are not required to take a placement examination. Normally students with 2 years' high school credit in LATIN, RUSSIAN, or SPANISH who intend to continue the study of the same language will take a second (102) semester course; students with 3 years will take a third (251) semester course; students with 4 or more years will take a fourth (252) semester or higher course. However, a student may elect to take the beginning course (101) for credit. Students who wish to begin the study of ITALIAN or PORTUGUESE must have studied 6 hours of another Romance language or Latin (or the equivalent). Students should not plan on taking GREEK to satisfy the language requirement since the second year course is offered only when there is sufficient demand.

## PERIOD MINOR

Students majoring in any foreign language may take the period minor described under COMPARATIVE LITERATURE offerings on page 269.

## MODERN LANGUAGES

No major or minor study offered.

**306. Introduction to the Study of Foreign Literatures. (3) Davison**

Designed to give students experience in the methods and techniques of literary criticism by means of exercises in various procedures of analysis. Recommended for all undergraduate majors in modern languages. Prerequisites: the intermediate courses or equivalent.

**497. Undergraduate Problems in Language. (1-4)**

Qualified students may register for the course more than once, to a maximum of 4 sem. hrs. in any one language. This course may not be used to satisfy the language requirement.

**\*515. Medieval Paleography. (1) White****\*516. Old Provençal-Old Catalan. (3) White****\*517. Comparative Romance Philology. (3) White**

## CLASSICS

## MAJOR STUDY

15 hours of Latin in courses numbered above 250, including 251, 252, or 303, 304; 9 hours of Greek numbered above 250; History 313, 314; and Philosophy 201.

## MINOR STUDY

Not offered.

## COMPARATIVE LITERATURE

The major in Comparative Literature is an interdepartmental major administered jointly by the Department of English and the Department of Modern and Classical Languages. See p. 268.

## FOLKLORE

No major or minor study offered.

297. Southwestern Hispanic Folklore. (2)

\*361. Hispanic Folktales. (2)

\*362. Hispanic Folk Ballads and Songs. (2)

## FRENCH

## MAJOR STUDY

24 hours in French courses numbered above 290, including 301, 302, 351, 352, 405; and 2 years of college work in another foreign language (or reading knowledge).

## MINOR STUDY

12 hours in French courses numbered above 290 including 301 or 302.

## ELEMENTARY AND INTERMEDIATE COURSES—PLACEMENT

**Students who have studied French in high school and who plan to continue it at the University are required to take a placement test administered by the department.**

101-102. Elementary French. (3, 3) Yr. T. Book and Staff

Credit for 101 suspended until 102 (or more advanced course) is completed.

251-252. Intermediate French. (3, 3) Murphy and Staff

Grammar, reading, and translation. Prerequisites: 101-102, or equivalent.

254. French Conversation and Composition. (3) C. Book, Hoshour

Designed primarily to give qualified students of 251-252 extra practice in the oral use of the language; therefore, it is recommended that it be taken concurrently with 251 or 252. Enrollment limited to 15 students.

General prerequisites for the following courses: French 251, 252, or the equivalent.

\*301-302. Advanced Composition and Conversation. (3, 3) C. Book, Hoshour, Kolbert, Murphy  
Prerequisite: 254 or the equivalent.

306. Introduction to the Study of Foreign Literatures. (3)  
(Same as Mod Lang 306.)

\*351-352. Survey of French Literature. (3, 3) C. Book, Murphy, White  
351: Origins to 1800. 352: 1800 to present.

\*401. French Stylistics and "Explication de Textes". (3) C. Book  
Required for the M.A. degree.

\*405. French Phonology. (3) T. Book  
Phonetic and phonemic system of French. Required for the undergraduate major.

\*410. French Classical Theatre. (3) T. Book, White  
Corneille, Molière, Racine.

\*415. French Prose and Non-dramatic Poetry of the 17th Century. (3) White

\*420. French Literature of the 18th Century. (3) Murphy

\*430. French Prose of the 19th Century. (3) T. Book, Kolbert

\*435. Modern French Drama. (3) T. Book  
Begins with Romanticism and includes contemporary period.

\*440. Teaching of French. (3) T. Book  
(Same as Sec Ed 440.)

\*441. French Prose of the 20th Century. (3) T. Book, Kolbert

\*460. Survey of French Poetry. (3) Kolbert  
From the Middle Ages to date.

- \*470. **French Literature of the 16th Century.** (3) Kolbert  
Prerequisite: 15 sem. hrs. of college French numbered above 250.
- 498. **Reading and Research for Honors.** (3)  
Open to juniors and seniors approved by the Honors Committee.
- 499. **Honors Essay.** (3)  
Open only to seniors enrolled for departmental honors.
- \*501. **History of the French Language.** (3) White  
Evolution of Latin to French with selected medieval readings. Required for the M.A. degree.
- \*502. **Readings in Medieval French Literature.** (3) White
- \*505. **Introduction to Research Methods.** (1) C. Book, T. Book, Kolbert  
Resources available for research and how to use them. Required for the M.A. degree.
- \*510. **History of French Literary Criticism.** (3) Kolbert  
This course or Comparative Literature 466 is required for the M. A. degree.
- \*515. **Medieval Paleography.** (1) White  
(Same as Mod Lang 515.)
- \*516. **Old Provençal-Old Catalan.** (3) White  
(Same as Mod Lang 516.)
- \*517. **Comparative Romance Philology.** (3) White  
(Same as Mod Lang 517.)
- \*520. **French Thought.** (3) Murphy, White
- \*551-552. **Problems in French Literature.** (1-3 hrs. each semester) C. Book, T. Book, Kolbert, Murphy, White
- \*560. **Seminar in French Literature.** (3)  
Topic may deal with individual authors, genres, or periods. May be repeated for credit as subject matter varies.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the *Graduate School Bulletin* for total credit requirements.

## GERMAN

### MAJOR STUDY

24 hours in German courses numbered above 290, including 301-302, 352, and 405; and 2 years of college work in another foreign language (or reading knowledge).

### MINOR STUDY

12 hours in German courses numbered above 290.

### ELEMENTARY AND INTERMEDIATE COURSES—PLACEMENT

**Students who have studied German in high school and who plan to continue it at the University are required to take a placement test administered by the department.**

### CHOICE OF READING OR ORAL EMPHASIS IN SECOND YEAR

Students have the choice in the second year of a reading or an oral emphasis. The completion of either 204 or 252 or 262 satisfies the foreign language requirement of the College of Arts and Sciences.

101-102. **Elementary German.** (3, 3) Yr. Jespersen and Staff  
Credit for 101 suspended until 102 (or more advanced course) is completed.

203-204. **Intermediate German—Oral Emphasis.** (3, 3) Jocums and Staff  
Prerequisites: 101-102 or the equivalent.

251-252. **Intermediate German—Reading Emphasis.** (3, 3) R. Holzapfel, McKenzie, Welsh  
Prerequisites: 101-102, or the equivalent.

**254. German Conversation and Composition. (3)**

For intermediate students who want to improve speaking and writing skills. With permission of the course instructor, may be taken concurrently with 203-204 or 251-252.

**262. Scientific German. (3) McKenzie, Welsh**

Prerequisite: 251 or equivalent.

General prerequisites for the following courses: German 204 or 252. Students who have not had an oral preparation are encouraged to take 254.

**\*301-302. Advanced Conversation and Composition. (3, 3) Jespersen, Jocums, Welsh****306. Introduction to the Study of Foreign Literatures. (3)**

(Same as Mod Lang 306.)

**307. Introduction to German Literature. (3) R. Holzapfel**

307 is a prerequisite for all literature courses listed below.

**345. German Civilization. (3) Welsh****\*351-352. Survey of German Literature. (3, 3) R. Holzapfel, Jespersen****\*405. German Phonology. (3) Jocums**

Phonetic and phonemic system of German. Required for the undergraduate major.

**\*445. Teaching of German. (3) Jocums**

(Same as Sec Ed 445.)

**\*455. Medieval and Renaissance Literature. (3) McKenzie****\*460. Classicism. (3)****\*465. Romanticism. (3) Jespersen****\*470. Realism and Naturalism. (3) Jespersen****\*475. Contemporary Literature. (3) R. Holzapfel****\*477. Modern German Drama. (3) R. Holzapfel****\*480. The "Novelle". (3) Jespersen****\*485. Lyric Poetry. (3) Jocums****490. Undergraduate Seminar. (3) R. Holzapfel, Jespersen, McKenzie****\*551-552. Problems. (1-3 hrs. each semester) R. Holzapfel, Jespersen, McKenzie****GREEK****MAJOR STUDY**

Not offered.

**MINOR STUDY**

A minor may possibly be worked out if sufficient demand arises.

Students who contemplate attending a school of theology requiring an undergraduate degree should plan to take Greek 101 and 102 in the junior year and Greek 301 and 302 in the senior year.

**101-102. Elementary Greek. (3, 3) Yr. Baltzell, Thompson, White**

Preparation for work in Classical Greek or in New Testament Greek. Credit suspended for 101 until 102 (or more advanced course) is completed.

**301-302. The Greek New Testament. (3, 3)**

Close scrutiny of meanings of words. (Offered only on sufficient demand.)

**\*339. Greek Drama in Translation. (3) Baltzell, Thompson****\*342. Greek Non-Dramatic Literature in Translation. (3) Baltzell****\*551-552. Problems. (1-3 hrs. each semester.)****ITALIAN**

No major or minor study offered.

**275-276. Beginning Italian (Accelerated). (3, 3)**

Prerequisite: 6 hours (or equivalent) of another Romance language or Latin. (Offered in alternate years.)

- \*475. Dante. (3) White  
(Same as Comp Lit 475.)

## LATIN

### MAJOR STUDY

Not offered.

### MINOR STUDY

12 hours in courses numbered above 250.

### ELEMENTARY AND INTERMEDIATE COURSES—PLACEMENT

Normally students with 2 years' high school credit in Latin will take the second (102) semester course; students with 3 years will take the third (251) semester course; students with 4 years will take the fourth (252) semester or higher course. However, a student may elect to take the beginning course (101) for credit.

101-102. Elementary Latin. (3, 3) Yr. Knoblock, Thompson, White  
Credit for 101 suspended until 102 (or more advanced course) is completed.

251-252. Intermediate Latin. (3, 3) Thompson  
Prerequisites: 101-102 or the equivalent.

303-304. Readings in Latin Literature. (3, 3)  
Designed for students with 3 or 4 years of high school Latin or other students who are capable of work more advanced than Latin 251-252. The readings assigned may vary to fit the needs and interests of the students. Regular consultations with the instructor scheduled. May be repeated with different authors by approval of the instructor and the Chairman of the Department.

\*340. Latin Literature in Translation. (3) Zavadil, Thompson

\*351-352. Latin for Language Students. (3, 3) McKenzie  
A comparative study of Latin and its relationship to modern languages for upper-division and graduate students; the reading of selected classical and medieval texts.

\*551-552. Problems. (1-3 hrs. each semester)

## PORTUGUESE

### MAJOR STUDY

30 hours in Portuguese courses including 301, 302, 351, 357, and 2 years college work in another foreign language (or reading knowledge).

### MINOR STUDY

18 hours in Portuguese courses.

275-276. Beginning Portuguese (Accelerated). (3, 3)  
Prerequisite: 6 hours (or equivalent) of another Romance language or Latin.

277-278. Portuguese Drill. (2, 2) Carmona-Morgan  
Corequisite: 275-276.

General prerequisites for the following courses: Portuguese 275-276, or the equivalent.

\*301-302. Advanced Composition and Conversation. (3, 3) Carmona-Morgan, Herron, Tomlins

\*303. Portuguese Drill. (2) Carmona-Morgan  
Corequisite: 301 or 302.

306. Introduction to the Study of Foreign Literatures. (3)  
(Same as Mod Lang 306.)

307. Introduction to Portuguese and Brazilian Literature. (3) Herron, Tomlins  
Prerequisites: 275-276.

- \*351. Survey of Portuguese Literature. (3) Herron, Tomlins
- \*352. Contemporary Portuguese Literature. (3) Herron
- \*357. Survey of Brazilian Literature. (3) Herron, Tomlins
- \*358. Contemporary Brazilian Literature. (3) Herron
- \*365. Camões and Gil Vicente. (3) Tomlins
- \*396. Iberian History. (3)  
(Same as Hist 396.)
- \*501. History of the Portuguese Language. (3)  
Evolution of Latin to Portuguese with selected medieval readings. Required for the M.A. degree.
- \*515. Medieval Paleography. (1) White  
(Same as Mod Lang 515.)
- \*516. Old Provençal-Old Catalan. (3) White  
(Same as Mod Lang 516.)
- \*517. Comparative Romance Philology. (3) White  
(Same as Mod Lang 517.)
- \*551-552. Problems. (1-3 hrs. each semester) Herron, Tomlins  
For M.A. candidates.
- \*560. Seminar in Portuguese Literature. (3)  
Topic will deal with individual authors, genres, or periods. May be repeated for credit as subject matter varies.
- \*570. Seminar in Brazilian Literature. (3)  
Topic will deal with individual authors, genres, or periods. May be repeated for credit as subject matter varies.
- \*599. Master's Thesis. (1-3 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.
- \*651-652. Problems. (1-3 hrs. each semester) Herron, Tomlins  
For Ph.D. candidates.

## RUSSIAN

### MAJOR STUDY

Not offered.

### MINOR STUDY

18 hours in Russian courses numbered above 250, including Russian 254 and 307.

### ELEMENTARY AND INTERMEDIATE COURSES—PLACEMENT

Normally the student with 2 years of high school Russian will take a second (102) or third (251) semester course; the student with 3 years will take the third (251) or the fourth (252) semester course. However, a student may elect to take the beginning course (101) for credit.

- 101-102. Elementary Russian. (3, 3) Yr. A. Luft, Metcalf  
Credit for 101 suspended until 102 (or more advanced course) is completed.
- 251-252. Intermediate Russian. (3, 3) Luft, Metcalf  
Prerequisites: 101-102, or the equivalent.
- 254. Russian Conversation and Composition. (3)  
May be taken concurrently with 251 or 252.
- 306. Introduction to the Study of Foreign Literatures. (3)  
(Same as Mod Lang 306.)
- 307. Introduction to Russian Literature. (3) T. Holzapfel  
Prerequisite for 351-352.
- \*338. Russian Literature in Translation. (3) T. Holzapfel

**345. Russian Civilization.** (3) T. Holzapfel  
Required for the major in Russian Studies.

**\*351-352. Survey of Russian Literature.** (3, 3)  
Prerequisite: 307.

## SPANISH

### MAJOR STUDY

24 hours in Spanish courses numbered above 290, including 301-302, 351-352, and 453; and 2 years of college work in another foreign language (or reading knowledge). (It is recommended that students who do not speak Spanish natively take 254 concurrently with 251 or 252.)

### MINOR STUDY

12 hours in Spanish courses numbered above 290.

### ELEMENTARY AND INTERMEDIATE COURSES—PLACEMENT

No placement examination is given to new students to assign them to Spanish classes. Normally students with 2 years' high school credit will take the second (102) semester course; students with 3 years will take the third (251) semester course; students with 4 or more years will take the fourth (252) semester or higher course. However, the student may elect to take the beginning course (101) for credit.

### COURSES FOR SPANISH-SPEAKING STUDENTS

New Mexican students who speak Spanish natively and who have had less than 2 years of high school Spanish should take Spanish 201. Those who have had 2 or more years of high school Spanish should take Spanish 255, 256. Students who take 255, 256 cannot receive credit for 251, 252, or 254. Spanish 201, 255, 256 are not designed for foreign students whose education has been in Spanish.

**101-102. Elementary Spanish.** (3, 3) Yr. Lamadrid, Staff  
Credit for 101 suspended until 102 (or more advanced course) is completed.

**201. Español elemental para estudiantes de habla española.** (3) Davison, Marquez  
Exercises in grammar, speech correction and vocabulary building. For New Mexican Spanish-speaking students who have had less than 2 years of high school Spanish.

**251-252. Intermediate Spanish.** (3, 3) Duncan, Sackett, Staff  
251 and 252 offered every semester.

**254. Elementary Spanish Conversation.** (3)  
Designed primarily to give qualified students of 251-252 extra practice in the oral use of the language; therefore, it is recommended that it be taken concurrently with 251 or 252. Enrollment limited to 15 students.

**255-256. Español avanzado para estudiantes de habla española.** (3, 3) Cobos, Marquez  
For New Mexican Spanish-speaking students who have had 2 or more years of high school Spanish or Spanish 201.

**292. Introduction to Spanish Literature.** (3) T. Holzapfel, Sackett, Ulibarri  
Assignments of advanced reading material and discussion of principal Spanish literary figures and movements. Prerequisites: 251-252, or the equivalent.

**\*301-302. Advanced Composition and Conversation.** (3, 3) Cobos, Fernandez, Marquez, Nason, Ulibarri  
Prerequisite: 254 or 256 or the equivalent.

**\*303. Patterns of Modern Spanish.** (3) Cobos, Lamadrid  
A review of Spanish in terms of structural linguistics with oral pattern drills and written composition.

306. **Introduction to the Study of Foreign Literatures.** (3)  
(Same as Mod Lang 306.)

Spanish 292 or the equivalent is prerequisite for all literature courses listed below.

- \*345. **Hispanic Civilization.** (2) Fernandez, Ulibarri
- \*346. **Ibero-American Civilization.** (2) Cobos
- \*347. **Introduction of Spanish-American Fiction.** [The Spanish-American Novel.] (3) Davison, Nason
- \*350. **The Spanish Novel.** (3) Fernandez, Sackett, Ulibarri
- \*351-352. **Survey of Spanish Literature.** (3, 3) Fernandez, MacCurdy
- \*357-358. **Survey of Spanish-American Literature.** (3, 3) Davison, Nason, T. Holzapfel  
Required of candidates for a graduate degree.
- \*401. **Expository Writing.** (3) Fernandez  
A study of stylistics, text analysis, and critical writing in Spanish.  
Prerequisites: 301-302.
- \*421. **Modern Spanish Drama.** (3) Sackett
- \*441. **Teaching of Spanish.** (3) Lamadrid, Ulibarri  
(Same as Sec Ed 441.)
- \*453. **Spanish Phonology.** (3) Duncan, Nason  
Phonetic and phonemic system of Spanish.
- \*460. **Spanish Poetry.** (3) Ulibarri
- \*461. **Contemporary Spanish Literature.** (3) Fernandez
- \*462. **Spanish-American Theater.** (3) T. Holzapfel
- \*463. **Contemporary Spanish-American Poetry.** [Mexican Literature] (3) Davison
- \*464. **Criollismo in Spanish-American Literature.** [The Literature of Argentina, Uruguay, and Chile] (3) Nason
- \*465. **Special Topics in Spanish-American Literature.** (3) Staff
- \*466. **Spanish Drama from the Beginning through the 17th Century.** (3) MacCurdy
- \*475. **Cervantes: The Quijote.** (3) MacCurdy  
A detailed analysis of the *Quijote* and treatment of its place in world literature.
- \*476. **Cervantes: Other Works.** (3) MacCurdy  
Works other than the *Quijote* with emphasis on the *Novelas Ejemplares* and the theatre.
- 498. **Reading and Research for Honors.** (3)  
Open to juniors and seniors approved by the Honors Committee.
- 499. **Honors Essay.** (3)  
Open only to seniors enrolled for departmental honors.
- \*501. **History of the Spanish Language.** (3) Duncan  
Introduction to linguistics and study of the phonological, morphological and semantic evolution from Latin to Spanish; intensive reading of selected Old Spanish texts. Required of all candidates for a graduate degree.
- \*504. **Interdepartmental Seminar.** (3) Staff  
(Same as Ibero-American Studies 504.)
- \*505. **Introduction to Research Methods.** (1) Duncan, MacCurdy, T. Holzapfel, Sackett  
Required of all candidates for a graduate degree.
- \*506. **Spanish Bibliography.** (1) Duncan, MacCurdy, T. Holzapfel, Sackett  
Required of candidates for the Ph.D. degree.
- \*507. **Seminar in the Spanish Novel.** (3) Fernandez, Sackett
- \*515. **Medieval Paleography.** (1) White  
(Same as Mod Lang 515.)
- \*516. **Old Provençal-Old Catalan.** (3) White  
(Same as Mod Lang 516.)
- \*517. **Comparative Romance Philology.** (3) White  
(Same as Mod Lang 517.)



- \*540. Seminar in the Language of Spain or Spanish America. (3) Duncan, T. Holzapfel, Nason  
Topic selected according to the specialization of the professor and of the students.
- \*541. Research Methods for Teachers. (3) Lamadrid
- \*551-552. Problems. (1-3 hrs. each semester) Staff  
For M.A. candidates.
- \*554. Spanish Linguistics: Theory and Application to Teaching. (3) Lamadrid  
Pre- or corequisite: 453.
- \*556. Proseminar in Problems of Language Instruction. (3) Lamadrid  
Pre- or corequisites: 453 and 554.
- \*557. Application of Linguistics to Language Instruction in the Elementary School. (3) Ulibarri
- \*558. Preparation of Language Materials for the Elementary School. (4) Ulibarri
- \*559. Proseminar in Problems of Language Instruction in the Elementary School. (4) Ulibarri
- \*560. Seminar in Spanish Literature. (3) Staff  
Topic will deal with individual authors, genres, or periods. May be repeated for credit as subject matter varies.
- \*562. The Modernist Movement in Spanish-American Poetry. [Seminar in Spanish-American Poetry] (3) Davison
- \*563. Seminar in 20th Century Spanish-American Fiction. [Seminar in Spanish-American Prose] (3) Staff
- \*564. Seminar in Spanish-American Essay. (3) Staff
- \*565. Seminar in the 20th Century Essay. (3) Fernandez
- \*566. Seminar: Golden Age Drama. (2) MacCurdy
- \*567. Seminar in Spanish-American Literature. (3) Davison, Nason, T. Holzapfel  
Topic will deal with individual authors, genres, or periods. May be repeated for credit as subject matter varies.
- \*571. Spanish Poetry. (3) Ulibarri
- \*578. Seminar: The Spanish Picaresque Novel. (2) MacCurdy
- \*599. Master's Thesis. (1-3 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.
- \*651-652. Problems. (1-3 hrs. each semester) Staff  
For Ph.D. candidates.
- \*699. Dissertation. (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

## MUSIC

PROFESSORS W. Keller (Acting Chairman), J. Blankenship, K. Frederick, H. M. Miller, W. E. Rhoads, G. Robert, J. Stephenson; ASSOCIATE PROFESSORS J. Batcheller, D. McEwen, D. McRae, M. Schoenfeld, J. Snow, J. Thornton; ASSISTANT PROFESSORS F. Bowen, J. de Keyser, W. Seymour, E. Waters, J. Whitlow; PART-TIME INSTRUCTOR W. Selby; ARTIST-IN-RESIDENCE H. Garcia.

### Applied Music faculty:

Piano	W. Keller, G. Robert, M. Schoenfeld, W. Seymour
Organ	W. T. Selby
Violin and Viola	K. Frederick
Cello and String Bass	J. de Keyser, J. Stephenson
Wind Instruments and Percussion	J. Blankenship, F. Bowen, W. Rhoads
	W. Seymour, J. Thornton, J. Whitlow
Voice	D. McEwen, D. McRae, J. Snow
Classical Guitar	H. Garcia

### MAJOR STUDY

For curricula leading to the Bachelor of Music, see pp. 212-214.  
See following page for additional requirements.

## MINOR STUDY IN MUSIC

College of Arts and Sciences: 20 hours including Music 105, 106, 107, 108, 139, 140, and 4 hours of applied music. (Minor in Music Education, see p. 361.)

## PERIOD MINOR

For requirements, see Comparative Literature.

## MINOR STUDY IN DANCE

20 hours, including 9 hours chosen from Music 105 with 107, 106 with 108, 139 and 140, 3 hours in drama elective, and 8 hours in Music 259 and 359. Students working toward a minor in dance are required to present a dance demonstration and to perform with the Dance Workshop.

## ENSEMBLE

One credit hour represents from 2 to 4 hours a week of rehearsal.

Course numbers for ensemble music are: 143, 233, 241, 243.

Every undergraduate music major must participate in a major ensemble (band, chorus, or orchestra) during each semester of full time enrollment (12 or more hours), meeting the specific requirements listed below as a minimum.\* Excess credits in ensemble music will not count toward a degree.

## THEORY AND COMPOSITION CONCENTRATION

8 hours of ensemble, 2 of which must be in chorus

## APPLIED MUSIC (PIANO OR ORGAN) CONCENTRATION

4 hours of ensemble, 2 of which must be in chorus.

## APPLIED MUSIC (INSTRUMENTAL OTHER THAN PIANO OR ORGAN) CONCENTRATION

8 hours of ensemble

## APPLIED MUSIC (VOCAL) CONCENTRATION

8 hours of ensemble

## APPLIED MUSIC (PEDAGOGY) CONCENTRATION

8 hours of ensemble (Piano or organ majors follow the requirements for the Applied Music concentration)

## GENERAL (LIBERAL ARTS) CURRICULUM

4 hours of ensemble, 2 of which must be in chorus

## MUSIC EDUCATION CURRICULUM

8 hours of ensemble (Piano or organ concentrates: 6 hours all in chorus)

## HISTORICAL MUSIC LITERATURE

Students may be required to attend listening periods of 1 to 3 hours each week at the option of the instructor.

The following courses come under the heading of "Historical Music Literature": 271, 272, 273, 274, 311, 312, 375, 411, 412, 476, 477, 478, 479, 493.

## APPLIED MUSIC (PRIVATE INSTRUCTION)

Applied music is offered in the following areas: piano, voice, string instruments, wind instruments, percussion, organ, and classical guitar.

Students registering for Applied Music must file a teacher assignment card in the Department of Music office.

Students studying Applied Music must perform before a faculty jury for grading and course number assignment at the conclusion of each semester of study.

Applied Music courses may be repeated upon recommendation by the faculty.

\* Except for piano or organ majors or concentrates, who need only to meet the specific requirements.

In applied music, the Department offers degree courses, and also secondary courses for students desiring a cultural background in music. The student may continue these courses through 4 years.

Students who have had previous training elsewhere will take a placement examination.

The degree courses are 119-120, 201-202, 301-302, 401-402, 501-502 (graduate course); 591-592 (graduate recital). Degree courses carry 2 or 4 hours credit each for 1 or 2 half-hour lessons per week respectively. The secondary courses are 119-120, 219-220, 319-320, 419-420, 519-520 and 569-570 (graduate courses), and carry 1 hour credit each for 1 half-hour lesson a week.

#### REQUIREMENT FOR JUNIOR STANDING IN MUSIC

Before entering the junior year of study each student majoring in music or music education must appear before the music faculty for approval to pursue a stated degree program. Applicants should have completed or be currently enrolled in Music 206 and 208. Music Education students may not receive student teaching assignments until they have been approved for the degree program.

#### PIANO PROFICIENCY

Before graduation every candidate for the bachelor's degree in a professional curriculum must demonstrate proficiency at the piano by successfully passing an examination. This examination should be taken before the junior standing examination, upon written application to the Department Chairman. Students should consult adviser for graduation requirements.

#### MUSIC EDUCATION REQUIREMENTS

##### Requirements for admission to student teaching

1. Attainment of junior standing in the Department of Music.
2. Attainment of a 2.5 grade-point average in music and music education, and a 2.0 grade-point average over-all.
3. Applied music: passed proficiency examination for piano and voice; instrumental student teachers must have taken at least 2 courses (or the equivalent) in woodwinds, 2 courses in brass, and 1 course in strings.
4. For the additional requirements for student teaching by the College of Education, see page 170.

##### Requirements for graduation in music education

1. A proficiency examination in piano, voice, and secondary orchestra instruments. (Choral-elementary concentrate must have 3 hours of orchestra instruments; wind concentrates must have 3 hours of other woodwinds, 3 hours of brass, 1 hour of percussion, and 1 hour of strings; string concentrates must have 1 hour of woodwinds, 1 hour of brass, 1 hour of percussion, and 4 hours of other strings.)
2. All or part of a senior recital in the major area of performance.
3. A senior comprehensive examination in music and music education.
4. General requirements see page 214.

A student whose field of concentration is applied music is required to give a public recital in the junior year and another in the senior year. Students should consult the appropriate advisers before enrolling for applied music.

#### RECITAL AND CONCERT ATTENDANCE REGULATION

All students registered for 5 or more hours in the department are required to attend a specified number of the departmental recitals and concerts each semester as a regular part of their musical education. The number of recitals and concerts required is determined by the department at the beginning of each semester. Fulfillment of this requirement is necessary for graduation.

**Applied music fees of \$32 per credit hour, in addition to regular tuition, will be charged all full-time University students enrolling for applied music courses beyond their curriculum requirements. Part-time students should consult the Music Department for a schedule of applied music fees.**

103. **Fundamentals of Music Theory.** (2) Staff  
Rudiments of music theory. Students who fail to pass a fundamentals of music theory test must pass this course before being admitted to enroll in Music 105 and 107. Credit is not allowed toward a major or minor in music.
105. **Music Theory I.** (2) Staff  
Fundamentals of music: scales, key signatures, intervals, triads, simple four-part writing.
106. **Music Theory II.** (2) Staff  
Diatonic part-writing and analysis: inversions, dominant seventh chords, non-harmonic tones, simple modulation. Prerequisite: 105 with grade of C or better.
107. **Ear-Training I.** (2) Staff  
Apprehension through sound of the materials of 105, with special emphasis on melodic, rhythmic and harmonic dictation, and the singing of melodies and intervals.
108. **Ear-Training.** (2) Staff  
Apprehension through sound of the materials of 106, with more advanced singing and dictation. Prerequisite: 107 with grade of C or better.
- 109-110. **Group Voice.** (1, 1) Staff  
Open to all beginners in voice exclusive of voice majors.
111. **Group Piano.** (1) Seymour  
Open to all beginners in piano exclusive of piano majors.
112. **Group Piano.** (1) Seymour  
Prerequisite: 111.
- 119-120. **Applied Music.** Freshman major, secondary or elective course. (1 or 2 hrs. each semester)
139. **Introduction to Music.** [Music Appreciation] (3) Miller, Whitlow  
The basic materials and properties of music; media, forms. Not open to students majoring in music.
140. **Introduction to Music Literature.** [Music Appreciation] (3) Miller, Whitlow  
Symphony, opera, religious music, solo song, dance music, and other major categories of music literature. Not open to students majoring in music.
143. **University Chorus.** (1) McEwen  
Open to all University students. **May be repeated for credit.**
155. **Orchestral Instruments.** (1) Staff  
Group instruction in the playing of woodwind, brass, percussion, high string instruments and low string instruments. **May be repeated for credit.**
- 201-202. **Applied Music.** Major Sophomore Course. (2 or 4 hours each semester)
205. **Music Theory III.** (2) Staff  
Chromatic alterations and analysis: secondary dominants, chorale harmonization, remote modulation. Prerequisites: 106 and 108 with grade of C or better.
206. **Music Theory IV.** (2) Staff  
Continued chromatic alterations and analysis. Prerequisite: 205 with grade of C or better.

207. **Ear-Training III.** (2) Staff  
More advanced singing and dictation, correlated with the materials of 205. Prerequisite: 108 with grade of C or better.
208. **Ear-Training IV.** (2) Staff  
Continuation of advanced singing and dictation. Prerequisite: 207 with grade of C or better.
211. **Group Piano.** (1) Seymour  
Open to all students. Prerequisites: 112 and permission of instructor.
212. **Group Piano.** (1) Seymour  
Open to all students. Particular attention given to preparation for the piano proficiency examination. Prerequisites: 211 and permission of instructor.
214. **Fundamentals of Music Theater.** (2)  
(Same as Music Ed 214.)
- 219-220. **Applied Music.** Sophomore Secondary or Elective Course. (1 or 2 hours each semester)
- †230. **Opera Workshop.** (2) Frederick, Snow  
Designed to give singers the fundamentals in practical operatic experience.
- †231. **Chamber Music.** (1) Staff  
The practice, performance, and study of chamber music in various ensemble groups.
- †233. **Symphony Orchestra.** (1) Frederick  
Study and public performance of symphonic literature.
- †241. **University Band.** (1) Rhoads  
Study and performance of marches and concert band literature. Appearance and performance in uniform at football games, Commencement, and other University functions.
243. **A Cappella Choir.** (1) McEwen  
Auditions required. Open to all University students with permission of instructor. **May be repeated for credit.**
259. **Modern Dance.** (1-2) Waters  
Explorations in movement leading into choreography. Open to all University students with permission of instructor. **May be repeated for credit.**
271. **Music Literature I.** (2) McRae, Miller  
Introduction to the study of music history. Survey of music before 1580.
272. **Music Literature II.** (2) McRae, Miller  
Survey of music from 1580 to 1750.
273. **Opera.** (2) McRae  
The history of opera and its principal composers.
274. **Concerto.** (2) McRae  
The form and its principal composers from Bach to the present.
295. **Music in Recreation.** (2) Batcheller, Stephenson  
The social foundations and practices of music in recreation. Stress will be placed on equipping the recreational leader with effective means to deal musically with young children, older children, and adults. Emphasis will be placed on all phases of the public performance from planning to production.
296. **Music in Recreation.** (2) Batcheller, Stephenson  
Designed to prepare the major in recreational leadership for practical supervision of recreational music programs covering appreciation of music, music in the hospital as entertainment and therapy, music in the industrial plant, and music in the community center. Prerequisites: 295 or permission of instructor.
- 301-302. **Applied Music.** Major Junior Course. (2 or 4 hrs. each semester)
- 309-310. **Form and Composition.** (2, 2) Keller, Miller  
Analysis of the structural elements of music from Gregorian Chant to the present, and the application of standard formal procedures to the creative process of music composition. Prerequisites: 206, 208.
311. **Music Literature III.** (2) Miller, Whitlow  
Survey of music from 1750 to 1900.

† Maximum of 8 hours' credit allowed toward degrees in the College of Fine Arts or College of Education, 4 hours in other colleges.

- 312. Music Literature IV. (2)** Miller, Whitlow  
Survey of music since 1900.
- \*319-320. Applied Music. Junior Secondary or Elective Course. (1 or 2 hours each semester)**  
Prerequisite: 4 hrs. credit in the instrument to be studied, or equivalent. **Maximum allowable graduate credit 4 hrs. or equivalent.**
- 359. Dance Workshop. (1-2)** Waters  
Rehearsal and production experiences. Open to all University students with permission of instructor. **May be repeated for credit.**
- 363. [263] Conducting. (2)** Staff  
Basic theory and technique of conducting. Prerequisites: 206, 208; junior standing in the major field; piano proficiency.
- 364. [264] Choral Conducting. (2)** McEwen  
Choral conducting, techniques, score reading, interpretation. Prerequisite: 363.
- 365. Instrumental Conducting. (2)** Frederick, Rhoads, Thornton  
Instrumental conducting techniques, score reading, interpretation. Prerequisite: 363.
- 371-372. General History of Music. (3, 3)** Miller  
From antiquity to the present. Non-technical study of the forms, styles, schools, principal composers, and representative masterpieces of each era. Not open to students majoring in music.
- 375. Symphonic Literature. (2)** McRae, Miller  
A survey of the developments in orchestral music from Bach to the present.
- †387. Vocal Coaching. (1)** Robert  
One half-hour of private instruction per week. Required of all senior voice majors and open to juniors with permission of instructor.
- 388-389. Music Pedagogy. (2, 2)** Staff  
Designed especially for the music student who plans to teach privately, the course is concerned with preparation in teaching beginners in music at various age levels. Second semester will treat problems in teaching intermediate and moderately advanced students. Prerequisite: junior standing in music.
- 391-392. Undergraduate Problems. (1-3 hours each semester)**
- ††395. Accompanying. (1)** Robert  
One half-hour of private instruction per week carries one hour credit. Students accompany other students in practice and at recitals as part of the requirement for receiving credit.
- 401-402. Applied Music. Major Senior Course. (2 or 4 hours each semester)**
- \*405. Counterpoint. (2)** Frederick, McRae, Robert  
Analysis and techniques of writing in the contrapuntal forms and styles of the 16th century. Prerequisite: Permission of instructor.
- \*406. Counterpoint. (2)** Frederick, McRae, Robert  
Analysis and techniques of writing in the contrapuntal forms and styles of the period of Bach. Prerequisite: Permission of instructor.
- 409-410. Composition. (2, 2)** Keller  
Techniques and procedures in the composition of music in various forms, styles, and media. Prerequisite: 310.
- \*411. Contemporary Period. (2)** McRae, Miller  
Stylistic innovations and tendencies in the music of the twentieth century and the study of representative works by the principal composers. Prerequisite: Permission of instructor.
- \*412. Baroque Period. (2)** Keller, Miller  
A study of the music of Western Europe from 1600 to 1750 with emphasis on forms, styles, principal composers, and performance practices. Prerequisite: Permission of instructor.
- \*419-420. Applied Music. Senior Secondary or Elective Course. (1 or 2 hrs. each semester)**  
Prerequisite: 4 hrs. credit in the instrument to be studied, or equivalent. **Maximum allowable graduate credit 4 hrs. or equivalent.**
- \*449. Music Repertory. [Piano Repertory] (2)** Staff  
Comprehensive study of the solo repertory for voice or individual instruments. The specific area to be studied is announced in the class schedule when the course is offered. **May be repeated for credit.**

† May be repeated to the limit of 4 hours' credit.

†† Maximum of 8 hours' credit allowed toward degrees in the College of Fine Arts or College of Education, 4 hours in other colleges.

- \*451. **Foundations of Musical Behavior.** (3)  
(Same as Music Ed 451.)
- 453. **Instrumentation.** (2) Rhoads, Thornton  
Properties and limitations of band and orchestral instruments; detailed score study of instrumental techniques from the past to the present, scoring of works carrying through to completion of projects for actual performance. Prerequisites: 206, 208.
- \*463. **Advanced Instrumentation.** (2) Rhoads  
The scoring of larger works for the major ensembles carrying through to actual performance. Prerequisite: 453.
- \*471. **The Classical Period.** (2) McRae, Miller  
The music of the age of Haydn, Mozart, and Beethoven, their immediate forerunners and their contemporaries. Prerequisite: Permission of instructor.
- \*472. **The Romantic Period.** (2) McRae, Miller  
Music in the nineteenth century after Beethoven; a study of the leading composers and their works. Prerequisite: Permission of instructor.
- \*476. **The Medieval Period.** (2) Keller  
A study of music from the Early Christian era to the mid-fifteenth century. Prerequisite: Permission of instructor.
- \*477. **The Renaissance Period.** (2) Keller  
The music of Western Europe from the middle of the fifteenth century to the close of the sixteenth century; its structure, styles, principal composers, and its place in Renaissance society. Prerequisite: Permission of instructor.
- \*478. **History of Chamber Music.** (2) Miller, de Keyser  
A survey of chamber music literature from the Baroque to the present.
- \*479. **Choral Literature.** (2) McRae  
The principal developments in choral music from Gregorian Chant to the present.
- 490. **Interdepartmental Proseminar.** (3) Honors Staff  
(Same as Fine Arts 490.)
- \*493. **United States Composers.** (2) McRae  
The creative trends in the art music of the United States from the 17th century to the present. Special emphasis upon the style and contributions of the most important composers.
- 499. **Senior Thesis.** (3) Staff  
Open to seniors approved by the departmental honors committee.
- \*501-502. **Applied Music.** Major Graduate Course. (2 or 4 hrs. each semester)
- \*505. **Advanced Composition.** (2) Keller  
Individual guidance in composing for various instrumental and vocal ensembles; survey of techniques in appropriate fields; completion of one or more major works for public performance. May be repeated to the limit of 4 hrs. credit.
- \*519-520. **Applied Music.** Graduate Secondary or Elective Course. (1 or 2 hrs. each semester)
- \*531. **Bibliography and Research.** (3) Miller, Stephenson  
The study and application of basic methods in musical bibliography, acquaintance with major reference sources; projects in bibliography. Materials and basic techniques of musical research. Prerequisite: permission of instructor.
- \*533. **Seminar in Music.** (3) Blankenship, Miller, Stephenson  
Explorations in various areas of musical research. Prerequisite: permission of instructor. May be repeated for credit.
- \*535. **History of Music Theory.** (3) McRae  
The historical development of theoretical principles in music, and their application from earliest times up to the present. Study of the relevant documents and texts. Prerequisite: Permission of instructor.
- \*537. **Selected Topics in Music Literature.** (3) Staff  
Detailed study of limited areas of music literature selected with respect to composer, medium, or historical period. May be repeated for credit with permission of the Department Chairman. Prerequisite: permission of instructor.
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff
- \*564. [457] **Advanced Choral Conducting.** (2) McEwen  
Prerequisites: 363 and 453, or the equivalent.
- \*565. [458] **Advanced Instrumental Conducting.** (2) Frederick, Thornton, Rhoads  
Prerequisites: 363 and 453, or the equivalent.

**\*569-570. Applied Music. Graduate Secondary or Elective Course (1 or 2 hrs. each semester)**

**\*591-592. Graduate Recital. (2, 2)**

For the degree of Master of Music in Applied Music the student is required to perform a full-length graduate recital (a) which he has selected and prepared subject to the approval of a committee comparable to a graduate thesis committee and (b) for which he has written comprehensive program annotations (also subject to the approval of the same committee) and which will be printed on the program of the graduate recital. Work in 591, 592, is to be in addition to that done in 501, 502 (performance majors) or in 519-520, 569-570 (music education concentrators). Students may distribute their major applied study over more than one year but in such cases will be subject to the current fee for applied music for each one-half hour lesson after the first year of study has been completed.

**\*599. Master's Thesis. (1-3 hrs. per semester)** Blankenship, Keller, Miller, Rhoads

See the *Graduate School Bulletin* for total credit requirements.

## MUSIC EDUCATION

### CURRICULUM

See p. 214.

- 214. Fundamentals of Music Theater. (2) Staff**  
Technical and performing aspects of music theater at the beginning level.
- 293. Music Skills for the Elementary Classroom Teacher. [Primary School Music] (2) Batcheller**
- 294. The Teaching of Music in the Elementary Schools. [Intermediate School Music] (2) Batcheller**  
Prerequisite: 293 for non-music majors.
- 313. [Mus 313] Administration of Instrumental Music (2) Rhoads, Stephenson**  
Organization and administration of band, marching band, and orchestra. Prerequisite: Junior standing in music.
- 366. Beginning Student Teaching in Music. (2) Staff**  
Supervised student teaching experiences at The University of New Mexico. Prerequisite: Admission to Student teaching and Junior Standing in Music. See pp. 170 and 361.
- \*429. Workshop. (1-4)**  
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 172 of this catalog or consult the *Graduate School Bulletin*.
- \*440. Investigations in Music Education. (3) Stephenson**  
A specific area for investigation is announced in the class schedule when the course is offered.
- \*443. Music for the Pre-school Child. (2) Batcheller**  
Directed toward the teacher in private pre-school institutions, church school, kindergarten, and the music consultant.
- \*444. Supervision of Music in the Elementary Schools. (2) Batcheller**  
Emphasis on the role of the music consultant, curriculum development, and the materials of instruction. Prerequisite: 294.
- \*445. Junior High School Music. [Junior High Music] (2) Stephenson**  
The junior high school student, the position of music in the junior high school curriculum, and methods and materials for junior high school music activities.
- \*446. Secondary School Music. [Senior High Music] (2) Stephenson**  
The secondary schools, the students, the music curricula, the methods and materials.
- \*451. Foundations of Musical Behavior. (3) Stephenson**  
Acoustics, perception, learning and affective response in musical behavior. Prerequisite: Permission of the instructor.
- \*459. Advanced Elementary Music Education. (3) Batcheller**  
The teaching of music in the elementary classroom: the development of techniques in the teaching of melodic and harmonic music reading; advanced investigations in the use of instrumental and vocal materials; guided research in the current audio-visual aids and the evaluation of music ensemble participation. Prerequisite: permission of instructor.
- \*550. Philosophy of Music Education. (3) Batcheller, Stephenson**  
Philosophical foundations and principles of music education and their application to practices in school. Prerequisite: permission of instructor.
- \*551-552. Problems in Music Education. (1-3 hrs. each semester) Blankenship**



- \*599. Master's Thesis. (1-3 hrs. per semester) Batcheller, Blankenship, Stephenson  
See the *Graduate School Bulletin* for total credit requirements.

## NAVAL SCIENCE

PROFESSOR K. B. Brown, Captain, USN (Chairman); ASSOCIATE PROFESSOR J. E. Buynak, Lieutenant Colonel, USMC; ASSISTANT PROFESSORS W. C. Bennett, Lieutenant, USNR; J. T. Bowlin, Major, USMC; J. C. Clarke, Lieutenant, USN; David James, III, Lieutenant, USN; N. L. Jeter, Lieutenant Commander, USN.

### CURRICULUM

See p. 239.

101. **Naval Orientation.** (3)  
An introduction to basic customs, traditions of the U. S. Navy; organization for national defense; junior officer responsibilities, components of modern Navy; U. S. Naval ships and aircraft; seamanship.
102. **Evolution of Sea Power.** (3)  
The roles of navies of the world in shaping world affairs socially, politically, and economically with emphasis on naval strategy and tactics.
201. **Naval Weapons.** (3)  
The principles of modern weapons systems, including materials and processes, fluid theory, energetics, mechanics, optics, electronics, physics of underwater sound, and atomic theory, stressing the application of these principles in weapons systems. (Confidential security clearance required.)
301. **Navigation.** (3)  
The theory and application of terrestrial and celestial navigation to enable prospective officers to become proficient naval navigators aboard ships and aircraft.
302. **Naval Operations.** (3)  
To provide the student with a basic understanding of relative motion, tactical communications and instructions, Rules of the Nautical Road, fleet communications, operational importance of weather and an introduction to electronic countermeasures.
333. **Evolution of the Art of War, Part I.** (3)  
A survey of the evolution of warfare from the earliest recorded times to 1865.
334. **Evolution of the Art of War, Part II; Modern Basic Strategy and Tactics.** (3)  
Continuation of the evolution of warfare from 1865 including a consideration of U. S. military and foreign policy and the theoretical principles behind modern strategy and tactics.
401. **Naval Engineering.** (3)  
Naval engineering plants, machinery and systems, including nuclear propulsion, to provide a basic understanding necessary for all naval officers.
402. **Principles and Problems of Leadership.** (3)  
A study of effective naval leadership based upon three precepts—personal example, good management practices, and moral responsibility.
444. **Amphibious Warfare, Part I.** (3)  
A survey of the development of amphibious warfare doctrine from Gallipoli to the Korean War.
445. **Amphibious Warfare, Part II; Leadership and Military Justice.** (3)  
Continuation of 444. Provides basic indoctrination in the principles of the Uniform Code of Military Justice, military leadership and Marine Corps administration.

## NUCLEAR ENGINEERING

See Engineering, Nuclear

## NURSING

PROFESSORS R. F. Hall (Dean), V. Crenshaw; VISITING PROFESSOR (Part-Time) B. D. Storrs, M.D.; ASSOCIATE PROFESSOR M. B. Hicks; ASSISTANT PROFESSORS L. Amos, J. Baca, E. Bear, T. LaPlante, C. Oseasohn, P. Weins; INSTRUCTORS C. Rhinehart, D. Carter (on military leave), H. Slapp†, S. Yeomans; CLINICAL INSTRUCTORS P. Alderson, D. Earp, A. Swain†, F. Truskowski, C. Waldorf.

† On leave.

## CURRICULUM

See pp. 224-225.

101. **Introduction to Professional Nursing.** (3)  
Presentation of the scope and trend of nursing; relation of liberal arts knowledge to nursing; significance of past events to the present and future of nursing practice.
102. [102L] **Introduction to Nursing Process.** (3)  
Development of professional characteristics, communication skills; demonstration of nursing approach to patient care. Prerequisite: 101.
250. **Fundamentals of Nursing Process.** (2)  
Study of basic concepts and examination of nursing role, human growth and development, interpersonal relations in clinical areas and definitions of illness. Prerequisite: Sophomore standing in the College of Nursing. Corequisite 251L.
- 251L. **Nursing Process, Laboratory.** (3)  
Learning skills in problem-solving, observation, collection and analysis of data and inference systems. Prerequisite: Sophomore standing in the College of Nursing. Corequisite: 250. 2 lectures, 3 hrs. lab.
252. **Fundamentals of Medical-Surgical Nursing.** (3)  
A continuation of the study of skills in nursing focusing on the application of nursing process in the care of adult patients with basic medical and surgical problems. Prerequisite: Sophomore standing in the College of Nursing. Corequisite: 253L.
- 253L. **Laboratory Practice, Fundamentals of Medical-Surgical Nursing.** (2)  
An application of the skills and nursing process in the care of patients with medical and surgical problems in the laboratory situation. Prerequisite: Sophomore standing in the College of Nursing. Corequisite: 252.
303. **Advanced Medical-Surgical Nursing.** (4)  
A study of scientific principles in the nursing process for patients with complex medical and surgical conditions; physiological, emotional, cultural components; preventive and therapeutic nursing care including operative surgery. Prerequisite: Junior standing in the College of Nursing. Corequisite: 304L.
- 304L. **Laboratory in Advanced Medical-Surgical Nursing.** (6)  
Application of the nursing process in the laboratory setting. Prerequisite: Junior standing in the College of Nursing. Corequisite: 303. 18 hrs. lab.
320. [Part of 323L] **Pediatric Nursing.** (2)  
A study of the principles of growth and development from birth through adolescence which guide the nursing care of children at home, in the hospital and in community facilities. Includes a survey of the major health problems which occur during childhood. Prerequisite: Junior standing in the College of Nursing. Corequisite: 321L.
- 321L. [Part of 323L] **Pediatric Nursing Laboratory.** (3)  
Clinical practice in selected facilities offering services and care to children and their families. Prerequisite: Junior standing in the College of Nursing. Corequisite: 320.
330. [Part of 323L] **Maternity Nursing.** (3)  
A family-centered approach to the study of human reproduction, pregnancy, birth, and infancy. Studies in gynecological conditions. Prerequisite: Junior standing in the College of Nursing. Corequisite: 331L.
- 331L. [Part of 323L] **Maternity Nursing Laboratory.** (3)  
Clinical practice in selected facilities to increase skill in the use of the nursing process in assessing, planning and implementing the nursing care necessary to meet the needs of the childbearing family. Prerequisite: Junior standing in the College of Nursing. Corequisite: 330.
351. **Psycho-Cultural Aspects of Nursing.** (2)  
Nursing process approach to the interrelated dynamics of psychological and cultural factors in human behavior and patient care. Prerequisite for Psychiatric Nursing.
352. **Fundamentals of Public Health Science.** (2)  
Health administration, prevention and control of disease, vital statistics, sanitation and health legislation. Not restricted to students in Nursing; open to any juniors interested in the health professions.
- 451L. **Psychiatric Nursing.** (7)  
Principles and practice of nursing care of patients with psychiatric disorders; interpersonal, physiological, emotional, cultural factors. Prevention and treatment of mental illness; learning experiences in hospital and community agencies. Prerequisites: 351 and senior standing. 3 lectures, 12 hrs. lab.

**452L. Public Health Nursing. (9)**

Principles and practice of nursing in community programs for promotion of health, prevention and control of disease and disability, rehabilitative and supportive functions; epidemiological, cultural, socio-economic, educational factors influencing community organization for health, nurse-family group relationships in nursing care and health education; experience in homes, health department, and other community agencies. Prerequisite: senior standing. 4 lectures, 15 hrs. lab.

**462. Advanced Nursing Process Seminar. (5)**

Analysis of problems in professional nursing designed for senior students preparing for beginning practice in professional nursing. Prerequisite: completion of all 300-level nursing courses.

**463L. Advanced Nursing Process (Practicum). (6)**

Analysis of and participation in identifying and working toward the solution of problems in professional nursing. Learning experiences in hospitals and community agencies. Prerequisite: completion of all 300 level nursing courses.

**497. Special Studies in Nursing. (1-3)**

Prerequisite: senior standing and permission of the instructor.

**498. Independent Study. (3)**

Limited to students in Departmental Honors.

**499. Senior Thesis. (3)**

Limited to students in Departmental Honors.

## PALEOECOLOGY

COMMITTEE IN CHARGE: ASSOCIATE PROFESSOR R. Y. Anderson (Geology), Chairman; PROFESSORS J. S. Findley (Biology), F. C. Hibben (Anthropology), S. A. Northrop (Geology), L. D. Potter (Biology).

Interdepartmental undergraduate and graduate minors in Paleoeology are offered to majors in the Departments of Anthropology, Biology, Chemistry, and Geology.

### UNDERGRADUATE MINOR

The minor requires 30-36 hours in courses listed in the "Paleoeology Pool" including Paleoeology 301L. No more than 18 hours may be taken in any one department and courses in the major field may not be used for the minor. The following courses have been approved (see appropriate departmental listings for course descriptions and prerequisites).

Anthropology 266F, 303L, 307L

Biology 101L, 102L, 363L, 371L, 372L, 393L, 408, 410, 471L, 484L, 487L, 489L

Chemistry 101L, 102L or 122L, 253L, 301, 302, 303L, 304L, 311, 312

Geology 101-102-105L-106L or 120L, 201L, 302L, 309L, 421L, 432L, 433L, 441L, 501L

Mathematics 241, 242, 341, 342

### GRADUATE MINOR

Requirements are listed in the **Graduate School Bulletin**.

**301L. Concepts in Paleoeology. (2)** Anderson, Findley

The basic concepts and principles of environmental reconstruction. Limitations and applications of research tools. 1 lecture, 3 hrs. lab. (Offered in alternate years.)

**451-452. Problems in Paleoeology. (2, 2)**

\*551-552. Problems in Paleoeology. (2-3 hrs. each semester)

## PHARMACEUTICAL CHEMISTRY

## PHARMACOGNOSY

**PHARMACOLOGY**

See Pharmacy.

**PHARMACY**

PROFESSORS E. L. Cataline (Dean), G. L. Baker; ASSOCIATE PROFESSORS W. C. Fiedler, K. H. Stahl; INSTRUCTOR G. G. Ferguson.

**CURRICULUM**

See p. 230.

**231-232. Orientation I, II. (1, 1) Cataline**

A survey of the profession of pharmacy. 231 is prerequisite to 232.

**341L. Introductory Pharmacy. (5) Fiedler**

Fundamental principles and processes of pharmacy, including metrology and pharmaceutical calculations. Prerequisites: Chem 302-304L; Biol 393L (or concurrent enrollment); Physics 112-114L. 2 lectures, 2 recitations, 3 hrs. lab.

**420. Pharmaceutical Law. (3) Cataline**

Laws and regulations relating to the practice of pharmacy. Prerequisite: 232, 444L (or concurrent enrollment).

**421. Pharmacy Management. (3) Cataline**

Principles of management of retail pharmacies. Prerequisites: 232, 341L, Bus Ad 105, Econ 200.

**434. History of Pharmacy. (2) Fiedler**

The historical development of pharmacy with emphasis on its history in North America. Prerequisite: 447L.

**443L-444L. Operative Pharmacy I, II. (5, 5) Fiedler**

A survey of the preparations of pharmacy; the applications of physical principles to compounding and the manufacture of preparations; technology of pharmacy. Prerequisites: 341L; Pharmacog 372L; Pharm Chem 361. 443L is prerequisite to 444L. 3 lectures, 6 hrs. lab each semester.

**447L. Dispensing Pharmacy I. (5) Baker**

Dispensing pharmacy is broadly defined as the translation of the sciences underlying pharmacy into the art of pharmacy. More specifically it is the application of the scientific and practical knowledge upon which the practice of pharmacy is based to the extemporaneous compounding of drugs and medicines and making these available under proper control. Prerequisite: 444L; Pharmacol 476L. 3 lectures, 6 hrs. lab.

**448L. Dispensing Pharmacy II. (5) Baker**

A continuation of 447L. The compounding and dispensing of prescriptions including incompatibilities. 3 lectures, 6 hrs. lab.

**493. Inspection Trip. (0)**

Required for graduation. Annual inspection tour to leading pharmaceutical manufacturing plants in various sections of the country. Approximately one week is spent on this tour. Corequisite: 447L.

**497-498. Problems in Pharmacy. (1-3 hrs. each semester)**

Experimental and library problems in some phases of pharmacy. Prerequisites: permission of instructor and of the Dean.

**PHARMACEUTICAL CHEMISTRY****361. Inorganic Pharmaceutical Chemistry. (2) Baker**

The chemical and pharmaceutical properties of the official and non-official inorganic substances used in medicine or in the preparation of medicinal substances. Prerequisite or corequisite: Pharm 341L.

**463-464. [463L-464L] Organic Pharmaceutical Chemistry I and II. (3, 3) Stahl**

A study, from the chemical viewpoint, of organic substances used in pharmacy and medicine. Prerequisite: Chem 253L, 323. 463 is prerequisite to 464.

**465L-466L. Organic Pharmaceutical Chemistry Laboratory I and II. (2, 2) Stahl**

The synthesis and analysis of representative organic compounds used as drugs. Corequisite: 463 or 464. 6 hrs. lab.

**497-498. Problems in Pharmaceutical Chemistry. (1-3 hrs. each semester) Stahl**

Experimental and library problems in some phases of pharmaceutical chemistry. Prerequisite: permission of instructor and of the Dean.

**PHARMACOGNOSY**

**372L. General Pharmacognosy. (4) Stahl**

Drugs of plant and animal origin. Prerequisites: Chem 253L, 302, 304L; Biol 102L. 3 lectures, 3 hrs. lab.

**497-498. Pharmacognosy Problems. (1-3 hrs. each semester) Stahl**

Experimental and library problems in some phases of pharmacognosy. Prerequisite: permission of instructor and of the Dean.

**PHARMACOLOGY**

**276. Principles of Pharmacology. (3) Ferguson**

The actions of drugs on living tissue and the basis upon which drugs are classified for their therapeutic usefulness. Includes the subdivisions of pharmacology: pharmacodynamics, posology, toxicology, and pharmacy. Prerequisites: Biol 393L; Chem 142L or 281. Pre- or corequisites: Biol 136-139L or 236L. (Open only to students in the College of Nursing and in the Dental Hygiene Program.)

**278L. Principles of Pharmacology Laboratory. (1) Ferguson**

Instruction and practice in pharmaceutical calculations. The actions of drugs in important pharmacological classes upon living animals will be demonstrated. Pre- or corequisite: 276. (Open only to students in the College of Nursing and the Dental Hygiene Program.) 3 hrs. lab.

**\*475L. Pharmacology I. (4) Ferguson**

A study of the effects produced by drugs and the mechanisms whereby these effects are produced. Includes the subdivisions of pharmacology, materia medica, therapeutics, posology, toxicology, and biometrics. The actions of the more important drugs are demonstrated upon living animals. Prerequisites: Chem 323; Biol 429L, 430L. 3 lectures, 3 hrs. lab.

**\*476L. Pharmacology II. (5) Ferguson**

A continuation of 475L. 4 lectures, 3 hrs. lab.

**477. Pharmacology III. (3) Ferguson**

Agents used locally or systemically for the prevention or treatment of microbial and parasitic infections; immunological products, antibacterial, antiviral, antiprotozoal, and antifungal drugs, as well as those used in helminth diseases. Prerequisite: 476L.

**497-498. Pharmacology Problems. (1-3 hrs. each semester)**

Experimental and library problems in some phases of pharmacology. Prerequisites: permission of instructor and of the Dean.

**PHILOSOPHY**

PROFESSORS P. Schmidt (Chairman),<sup>‡</sup> H. Alexander, A. Bahm, M. Evans;† ASSOCIATE PROFESSOR J. Hassett; ASSISTANT PROFESSORS B. O'Neil, P. Sanborn, H. Tuttle, H. Zacks.

Philosophical studies are one basic way to focus a liberal education. The philosophy major is designed to meet the needs of several different groups of students: (1) as a central background for a liberal education; (2) as a pre-professional major (for example, pre-law, pre-theological or even pre-medical); (3) as an inter-disciplinary program (for example, English-Philosophy, or Economics-Philosophy, or other courses in the philosophy of some field); and (4) for graduate study in Philosophy. A detailed statement is available from the department.

**MAJOR STUDY**

24 hours in Philosophy courses numbered 200 or above, chosen in consultation with the departmental adviser. Combined majors will consult both departments.

<sup>‡</sup> Sabbatical Leave 1968-69.

<sup>†</sup> Acting Chairman 1968-69.

## MINOR STUDY

12 hours in courses numbered 200 or above, chosen in consultation with the departmental adviser.

For departmental honors consult your department adviser.

## PERIOD MINOR

For requirements, see Comparative Literature.

100. **Introduction to Philosophical Problems.** (3)  
Selected problems in values, knowledge and reality. Social, political and religious philosophy.
- 101-102. **Humanities.** (3)  
Introduction to comparative religions, philosophies, and arts.
145. **Thought and Expression.** (3)  
Processes of communicating, symbolizing, thinking abstractly, imagining, generalizing, defining and inferring.
156. **Introduction to Logic.** (3)  
Fallacies of argument; traditional forms of deductive and inductive inference.
201. **Ancient European Philosophy.** (3)  
An historical study; especially of Greek philosophy.
202. **Modern European Philosophy.** (3)  
An historical study from the Renaissance through Kant.
255. **Scientific Method.** (3)  
Meaning and verification, scientific truth, hypotheses, models, empirical evidence, measurement, induction and probability, statistical knowledge.
- 263-264. **Comparative Religions.** (3)  
Introduction to the world's religions. 263: Eastern religions; 264: Western religions.
- 301-302. **Interdepartmental Studies in the Culture of the U.S.** (3, 3)  
(Same as American Studies 301-302.) May be taken for departmental credit only with the consent of the Chairman.
- \*303. **Medieval European Philosophy.** (3)  
Major thinkers from Augustine through Ockham.
- \*323. **Hispanic and Latin-American Philosophy.** (3)  
Major movements and trends.
- \*332. **North American Philosophy.** (3)  
Early developments, idealism, pragmatism, naturalism, realism, and analysis.
- \*334. **Indian Philosophy.** (3)  
Jainism, Buddhism, Samkhya, Yoga, Vedanta, and recent schools.
- \*336. **Chinese Philosophy.** (3)  
Confucian, Taoist, Mohist, Legalist schools and their influence on Buddhist and modern developments.
- \*344. **Recent Philosophy.** (3)  
From Kant to mid-Twentieth Century.
- \*346. **Contemporary Philosophy.** (3)  
Post World War II philosophies.
- \*348. **Comparative Philosophy.** (3)  
Examination of conflicting ideals and presuppositions of Hindu, Chinese and Western philosophies. Prerequisite: acquaintance with the history of Hindu, Chinese, and Western philosophies.
- \*354. **Metaphysics, Ontology and Cosmology.** (3)  
Principles and systems of reality, being, existence; origin and structure of the universe.
- \*356. **Symbolic Logic.** (3)  
Methods and techniques of modern logic.
- \*358. **Ethical Theory.** (3)  
Inquiry concerning goodness, rightness, obligation, justice and freedom.
- \*365. **Philosophy of Religion.** (3)  
Inquiry into the nature of religion.

- \*367. **Philosophy of Art and Aesthetics.** (3)  
Concepts and theories about aesthetic experience and judgment; artistic meaning and evaluation.
- \*370. **Philosophy of History.** (3)  
(Also offered as History 470.) Nature, structure and presuppositions of theories of history and historical method.
- \*375. **Philosophy of the Natural Sciences.** (3)  
Critical examination of methods and concepts of the natural sciences.
- \*380. **Philosophy of Law and Morals.** (3)  
Nature and function of public law and its relation to moral belief.
- \*385. **Philosophy of Mind and Knowledge.** (3)  
Classical and contemporary problems in epistemology.
- \*390. **Philosophy of the Social Sciences.** (3)  
Examination of the structure, methods and presuppositions of social sciences.
- \*391. **Philosophy of Language.** (3)  
Philosophies of meaning with special attention to the relations between language and thought. Prerequisite: 145 or permission of instructor.
- \*429. **Aesthetics Institute Workshop.** (1) SS  
A one-week session in Taos, New Mexico, at the Lawrence Ranch and Harwood Foundation, featuring lectures in general aesthetics, discussions, and gallery talks by Taos artists. Carries graduate credit when specifically approved by the Graduate Committee. **May be repeated to a maximum of 3 hours.**
- \*441. **Philosophical Movements.** (3)  
Topic varies; **course can be repeated.**
- \*442. **Individual Philosophers.** (3)  
Figure varies; **course can be repeated.**
- \*480. **Philosophy and Literature.** (3)  
(Same as English-Philosophy 480.)  
Prerequisites: 6 hours of literature and 3 hours of philosophy from the courses specified as requirements for the program.
- \*485. **Philosophical Foundations of Economic Theory.** (3)  
(Same as Economics-Philosophy 485.) Prerequisite: Econ 201.
- 497. **Honors Seminar.** (3)  
For departmental honors in philosophy. **May be repeated.**
- 498. **Reading and Research.** (3)  
**May be repeated.**
- 499. **Senior Thesis.** (3)  
For departmental honors.
- \*501. **Interdepartmental Seminar in the Culture of the United States.** (3)  
(Same as American Studies 501.)
- \*516. **Seminar in Historical Problems.** (3)
- \*526. **Seminar in Asian Philosophers.** (3)
- \*536. **Seminar in Interdisciplinary Problems.** (3)
- \*546. **Seminar in Contemporary Problems.** (3)
- \*551. **M.A. Problems.** (1-3 hrs. per semester)
- \*552. **M.A. Seminar.** (3)
- \*599. **M.A. Thesis.** (1-3 hrs. per semester)
- \*651. **Ph.D. Problems.** (1-3)
- \*652. **Ph.D. Seminar.** (3)
- \*654. **Ph.D. Seminar in Metaphysics.** (3)
- \*655. **Ph.D. Seminar in Epistemology.** (3)
- \*656. **Ph.D. Seminar in Logic.** (3)
- \*658. **Ph.D. Seminar in Value Theory.** (3)
- \*699. **Ph.D. Dissertation.** (3-6 hrs. per semester)

## PHILOSOPHY-ECONOMICS

See Economics-Philosophy.

## PHILOSOPHY-ENGLISH

See English-Philosophy.

## PHYSICAL EDUCATION

See Education, Health, Physical Education, and Recreation

## PHYSICAL SCIENCE

No major or minor study offered.

261-262. Introduction to Physical Science. (3, 3)

Prerequisite: permission of instructor.

## PHYSICS AND ASTRONOMY

PROFESSORS V. H. Regener (Chairman), J. G. Breiland, C. Dean, J. W. Evans, J. R. Green, C. P. Leavitt, R. Thomas; ASSOCIATE PROFESSORS H. S. Ahluwalia, C. L. Beckel, H. C. Bryant, J. L. Howarth, A. W. Peterson; ASSISTANT PROFESSORS S. S. Alpert, P. M. Campbell, C. Chandler, C. L. Hyder, D. S. King, D. B. Swinson; LECTURERS S. F. Hayes, M. Shafi.

Prerequisite to major and minor study in Physics and in Astrophysics are the basic courses Physics 260, 261, 262, 263L†, 264L†, 267, and Mathematics 264, 265.

### MAJOR STUDY IN PHYSICS

Physics 301, 302, 303, 304, 305, 306, 307L, 308L; Mathematics 311, 312; Chemistry 101L, 102L.

### MINOR STUDY IN PHYSICS

Four courses selected from Physics 301, 302, 303, 304, 305, 306; Mathematics 264, 265, and 311.

### MAJOR STUDY IN ASTROPHYSICS

Physics 301, 302, 303, 304, 305; Astronomy 270, 271, three of the courses 311L, 312L, 421, 422, 423, 424, 425, 426, 437; Mathematics 311.

### MINOR STUDY IN ASTROPHYSICS

Physics 302; Astronomy 270, 271, one of the courses 311L, 312L, 421, 422, 423, 424, 425, 426, 437; Mathematics 311.

### GRADUATE STUDY

Prerequisite for all courses numbered 500 and above: an undergraduate major in Physics equivalent to that outlined above.

## PHYSICS

102. Introduction to Physics. (3) Howarth, Shafi  
An elementary course, including demonstrations.

103. Meteorology. (3) Breiland  
Introduction to the physics of the atmosphere. Weather analysis and forecasting.

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† Not required for the minor study in Astrophysics.



- 111. General Physics. (3)**  
Mechanics, sound, heat. The sequence 111, 112, 113L, 114L is required of premedical, pre dental, and preoptometry students, also of NROTC students in A. & S. and of Pharmacy students. Prerequisites: One of the courses Math 120, 121, 150 or 162.
- 112. General Physics. (3)**  
Electricity and magnetism, optics. Prerequisite: 111.
- 113L. General Physics Laboratory. (1)**  
Mechanics, sound, heat. Pre- or corequisite: 111. 3 hrs. lab.
- 114L. General Physics Laboratory. (1)**  
Electricity, magnetism, optics. Pre- or corequisite: 112. 3 hrs. lab.
- 260. General Physics. (3)**  
Mechanics, sound. The sequence Physics 260, 261, 262, 263L, 264L is required of students planning to major in certain sciences and in engineering. Pre- or corequisite: Math 150 or 162.
- 261. General Physics. (3)**  
Heat, electricity, magnetism. Prerequisite: 206; pre- or corequisite: Math 151 or 163.
- 262. General Physics. (3)**  
Optics, modern physics. Prerequisite: 261; pre- or corequisite: Math 264.
- 263L. General Physics Laboratory. (1)**  
Mechanics, sound, heat. Pre- or corequisite: 261. 3 hrs. lab.
- 264L. General Physics Laboratory. (1)**  
Electricity, magnetism, optics. Pre- or corequisite: 262. 3 hrs. lab.
- 267. General Physics. (3)**  
A fourth semester of general physics for science majors. Pre- or corequisite: Math 265.
- \*\*301. Heat and Thermodynamics. (3)** Alpert, Bryant, Dean, Green, Howarth, Thomas  
Kinetic theory; specific heats; conduction, convection, radiation; change of state; classical thermodynamics. Pre- or corequisite: Math 311. (Semester I)
- \*\*302. Optics. [Physical Optics] (3)** Alpert, Bryant, Dean, Green, Howarth, Leavitt, Thomas  
Geometrical optics; wave theory of light; Fresnel and Fraunhofer diffraction; polarization; dispersion, absorption and scattering. Pre- or corequisite: Math 311. (Semester II).
- \*\*303-304. Analytical Mechanics. (3, 3)** Bryant, Chandler, Dean, Green, Leavitt, Thomas  
Statics and dynamics of particles and rigid bodies; introduction to Lagrange's method. Pre- or corequisites: Math 311, 312.
- \*\*305-306. Electricity and Magnetism. (3, 3)** Beckel, Bryant, Dean, Green, Howarth, Thomas  
Electrostatic and electro-magnetic field theory. Direct and alternating current circuit theory. Pre- or corequisites: Math 311, 312.
- \*\*307L-308L. Junior Laboratory. (2, 2)** Alpert  
Heat, electricity, electronics, optics. 1 lecture, 3 hrs. lab. each semester.
- \*\*330. Atomic and Nuclear Physics. (3)** Alpert, Bryant, Dean, Green, Leavitt, Swinson, Thomas  
Special relativity, quantum effects, atomic structure, X-rays, nuclear structure and nuclear reactions, instruments of modern physics. Prerequisite: 262 or equivalent.
- \*\*351. Introduction to Atomic and Nuclear Physics. (3)** SS  
Elementary particles, electro-magnetic radiation, structure of the atom, radioactivity, nuclear reactions. Prerequisite: one year of college physics. (Offered in the summer session primarily for secondary-school teachers.)
- \*400. Seminar. (1 hr. per semester)** Staff
- \*430. Physics of Matter. (3)** Dean, Green, Leavitt  
An introduction to experiment and theory in the structure of matter: physical properties and mechanics of fluids, binding in solids, mechanical and thermal properties of solids, electrical and magnetic properties of matter, semi-conductors, plasmas. Prerequisite: 330 or equivalent.
- \*434. Radiological Physics. (3)** Howarth  
Radiation dosimetry, applications to diagnostic and therapeutic radiology, the use of radioactive materials in biology and medicine.
- \*437. Introduction to Space Physics. (3)** Leavitt, Peterson  
(Also offered as Astronomy 437.) Solar activity and the solar wind, interplanetary particles, solar-terrestrial effects, the earth's magnetosphere and radiation belts, lunar and planetary measurements, cosmic radiation in space.

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**\*\* Available for graduate credit except for graduate majors in Physics.**

- \*440. **Atmospheric Physics.** (3) Breiland  
Distribution of gases in the atmosphere; the ozone problem; distribution and variation of temperature; the ionosphere; aurora and the light from the night sky; atmospheric electricity.
- \*445. **Cosmic Radiation.** (3) Ahluwalia, Swinson  
(Also offered as Astronomy 445.) Primary cosmic radiation, the production and detection of secondary radiation, time variations, extensive air showers, applications to high-energy physics.
- \*461-462. **Experimental Research Methods.** (1, 1) Alpert, Bryant, Dean, Green, Howarth, Hyder, Leavitt, Peterson, Regener, Swinson  
Advanced laboratory work.
- \*463-464. **Experimental Research Methods.** (2, 2) Alpert, Bryant, Dean, Green, Howarth, Hyder, Leavitt, Peterson, Regener, Swinson  
Advanced laboratory work.
- \*466. **Methods of Theoretical Physics.** (3) Beckel, Dean, Thomas  
Problems of diffusion, heat conduction, wave motion, and potential theory.
- \*491-492. **Contemporary Physics.** (3, 3) Bryant, Campbell, Dean, Green, Leavitt, Regener  
Theory of special relativity, introduction to quantum mechanics; atomic and nuclear physics, cosmic rays.
- \*493L-494L. **Contemporary Physics Laboratory.** (2, 2) Bryant, Swinson  
Spectrographic methods; lasers; atomic structure; natural and artificial radioactivity; cosmic rays. 6 hrs. lab.
- \*500. **Advanced Seminar.** (1-3 hrs. per semester) Staff
- \*503. **Classical Mechanics I.** (3) Campbell, Green, Thomas  
Lagrangian dynamics, rigid bodies, oscillations, continuous systems.
- \*504. **Classical Mechanics II.** (3) Campbell  
Hamiltonian dynamics, canonical transformations, Hamilton-Jacobi theory, applications of mechanics. Prerequisite: 503.
- \*505. **Statistical Mechanics and Thermodynamics.** (3) Thomas  
Classical and quantum statistics with applications to molecules and elementary particles.
- \*511. **Electrodynamics I.** (3) Campbell, Green, Thomas  
Electrostatics, Maxwellian theory of fields, classical theory of radiation.
- \*512. **Electrodynamics II.** (3) Green, Thomas  
Covariant form of field equations, classical theory of charged particles. Prerequisite: 511.
- \*521. **Quantum Mechanics I.** (3) Green, Leavitt, Thomas  
Experimental foundation, Schrodinger equation, operator formulation, perturbation theory.
- \*522. **Quantum Mechanics II.** (3) Thomas  
Approximation techniques, scattering theory, symmetry properties, semi-classical theory of radiation, introduction to relativistic quantum theory. Prerequisite: 521.
- \*523. **Quantum Mechanics III.** (3) Thomas  
Relativistic wave equations, quantum theory of fields. Prerequisite: 522.
- \*530. **Selected Topics in Solid State Physics.**<sup>1</sup> (3) Dean  
Structure and properties of crystal lattices, insulators and electronic conductors, semi-conductors. Prerequisite: 521.
- \*531. **Atomic Structure.** (3) Beckel  
Hydrogen atom, complex atoms, methods of calculating atomic properties. Prerequisite: 521.
- \*532. **Molecular Structure.** (3) Beckel  
Rotational, vibrational, and electronic properties of simple molecules. Prerequisite: 531.
- \*534. **Selected Topics in Biophysics.**<sup>1</sup> (3) Howarth  
Biological and medical applications of physical principles and methods, aspects of radiation dosimetry and radiological physics, physical aspects of radiobiology, the physics of perception.
- \*537. **Selected Topics in Space Physics.**<sup>1</sup> (3) Leavitt  
(Also offered as Astronomy 537.) Particles and fields in space: plasmas and magnetic fields, trapped radiation, solar effects, acceleration mechanisms, origins and composition of galactic radiation, experimental techniques.

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<sup>1</sup> May be repeated for credit with permission of the Department Chairman.

- \*539. Selected Topics in Laser Physics.<sup>1</sup>** (3) Alpert  
Principles of lasing systems, transition probabilities, spectral line shapes, optical cavity mode structure, rate equations, coherence, giant pulse techniques, nonlinear phenomena. Prerequisites: 302 and 521.
- \*541. Theoretical Nuclear Physics I.** (3) Chandler, Green, Leavitt, Thomas  
Properties of nuclei, decay processes, nuclear reactions, two-nucleon problem. Prerequisite: 521.
- \*542. Theoretical Nuclear Physics II.** (3) Chandler  
Nuclear Models. Prerequisite: 541.
- \*543. Selected Topics in High-Energy Physics.<sup>1</sup>** (3) Leavitt, Thomas  
S-matrix theory, field theory, symmetries, weak interactions, electromagnetic interactions, hadron resonances. Prerequisite: 522.
- \*551-552. Problems.** (2-4 hrs. each semester) Staff
- \*566. Advanced Methods of Theoretical Physics.** (3) Beckel, Thomas
- \*570. Theory of Relativity. [General Relativity]** (3) Campbell  
Special relativity, tensor analysis and Riemannian geometry, selected topics in general relativity. Prerequisite: 503.
- \*599. Master's Thesis.** (1-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.
- \*650. Research.** (6-12) Staff
- \*699. Dissertation.** (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

## ASTRONOMY

- 101. Introduction to Astronomy.** (3) King, Peterson  
A non-technical course, including observations with the telescope.
- 270-271. General Astronomy.** (3, 3) King, Peterson  
Prerequisite: Physics 260.
- \*\*311L-312L. Observational Astronomy I and II.** (2, 2) Peterson  
The photographic process, darkroom procedures, astronomical photography with the equatorial telescope; basic precepts of visual observation, photoelectric photometry with the equatorial telescope. Prerequisite: 270-271. 1 lecture, 3 hrs. lab.
- \*421. Introduction to Astrophysics.** (3) King  
Distances, motions, masses, luminosities, colors, and spectra of stars. Binary stars, interstellar material, stellar photometry and evolution of stars.
- \*422. Solar System.** (3) King, Peterson  
Configuration of the planets and their satellites, planetary surfaces and atmospheres, the interplanetary medium, comets and meteors.
- \*423. Solar Physics.** (3) Hyder  
The sun as a star, photosphere, chromosphere, corona, solar activity, solar emission of matter and radiation, experimental techniques. Prerequisite: 421.
- \*424. Stellar Structure.** (3) King  
Chemical composition, temperature, energy sources of the stars. Prerequisite: 421.
- \*425. Galactic Nebulae and Interstellar Matter.** (3) Peterson  
Formation and evolution of gaseous nebulae, excitation mechanisms, elemental abundances, absorption, scattering and polarization by interstellar grains and gases. Star formation.
- \*426. Dynamical Systems in Astronomy.** (3) Campbell  
Principles of celestial mechanics, planetary systems and satellite orbits, binary and multiple stars; clusters, structure and evolution of galaxies. Prerequisite: Physics 303, 304.
- \*437. Introduction to Space Physics.** (3) Leavitt, Peterson  
(Also offered as Physics 437.) Solar activity and the solar wind, interplanetary particles, solar-terrestrial effects, the earth's magnetosphere and radiation belts, lunar and planetary measurements, cosmic radiation in space.

<sup>1</sup> May be repeated for credit with permission of the Department Chairman.

\*\* Available for graduate credit except for graduate majors in Physics.

- \*445. Cosmic Radiation.** (3) Ahluwalia, Swinson  
(Also offered as Physics 445.) Primary cosmic radiation, the production and detection of secondary radiation, time variations, extensive air showers, applications to high-energy physics.
- \*537. Selected Topics in Space Physics.**<sup>1</sup> (3) Leavitt  
(Also offered as Physics 537.) Particles and fields in space: plasmas and magnetic fields, trapped radiation, solar effects, acceleration mechanisms, origins and composition of galactic radiation, experimental techniques.

## POLITICAL SCIENCE

**PROFESSORS** E. C. Hoyt (Chairman), D. I. Cline, C. F. Heady, A. H. Rosenthal; **ASSOCIATE PROFESSORS** M. C. Needler, M. Neuweld, R. J. Sickels; **ASSISTANT PROFESSORS** H. Ingram, L. Littwin, H. V. Rhoads, H. P. Stumpf, T. P. Wolf.

### MAJOR STUDY

A total of 33 hours including Political Science 100, 102, 203, and 8 upper division courses in Political Science, including a minimum of one course from each of the following four groups:

Group A (International Relations and Comparative Government): 342, 343, 351, 355, 356, 357, 358, 442, 450, 457, 458, 459, 469.

Group B (Local Government and Public Administration): 301, 302, 304, 308, 321, 422, 425.

Group C (Political Theory): 361, 362, 368.

Group D (National Government and Politics): 305, 306, 311, 312, 375, 410, 412, 475.

Up to 6 hours of the major study requirement may be satisfied by related courses from other departments, chosen with the prior approval of the Department of Political Science.

### MINOR STUDY

A total of 21 hours including Political Science 100, 102, and 203.

### DISTRIBUTED MINOR FOR POLITICAL SCIENCE MAJORS

With the consent of the Departmental Chairman, a major may offer an American Studies minor as well as a minor in a single department. For requirements, see American Studies.

- 100. American Government.** (3)  
**102. Comparative Politics.** (3)  
**203. International Politics: Basic Factors.** (3)  
**\*301. Municipal Government and Administration.** (3) Cline  
The organization, administration, and problems of counties, municipalities, metropolitan areas, and administrative districts. Prerequisite: 100.  
**\*302. State Government in the United States.** (3) Cline  
Prerequisite: 100 (Alternates with 304.)  
**303. Problems of Democracy.** (3)  
Government problems of special contemporary importance. (No credit toward Political Science major or minor.)  
**\*304. The Government of New Mexico.** (3) Cline  
Prerequisite: 100. (Alternates with 302.)  
**\*305. Public Opinion and Propaganda.** (3) Wolf  
Public opinion as it affects party alignments and governmental programs; the methods used by special interests in influencing public opinion.

<sup>1</sup> May be repeated for credit with permission of the Department Chairman.

- \*306. **Political Parties.** (3) Wolf  
The American party system, national, state, and local.
- \*308. **Politics in Action.** (3) Cline  
Current political action: local campaigns, primaries, legislative programs, lobbying.  
Prerequisite: 100 or 102.
- \*310. **Problems of Communism and the Soviet Union.** (3) Hoyt, Tobias  
An interdisciplinary study of Communist ideology and Soviet power, dealing with historical origins and present nature of the Soviet system; the relationships between the Russian Communist leaders and revolutionaries in other countries; the place of communist ideology in world history and world politics and its relation to rival political beliefs and systems. (Special course for secondary school teachers. Not counted toward Political Science major.) Permission of instructor required.
- \*311. **The Legislative Process.** (3) Sickels  
The recruitment, formal and informal procedure, and power structure of legislative bodies; their place in contemporary American Government. Prerequisite: 100.
- \*312. **The American Presidency.** (3) Ingram  
The constitutional base of the office, its roles and responsibilities, and its relations with other political institutions. Prerequisite: 100.
- \*321. **Public Administration.** (3) Staff  
Introduction to the general problems of public administration in the modern state. Prerequisite: 100.
- \*342. **American Foreign Policy.** (3) Hoyt  
Prerequisite: 203.
- \*343. **International Law and Organization.** (3) Hoyt  
Prerequisite: 203.
- \*350. **Public Finance.** (3) Therkildsen  
(Also offered as Econ 350.) Taxation, government borrowing, financial administration, and public expenditures. Prerequisite: 201.
- \*351. **Comparative Politics: Developing Countries.** (3)
- \*355. **Governments and Politics of Latin America.** (3) Needler  
The political dynamics of the Latin American republics in the context of political development. Recommended preparation: Hist 282.
- \*356. **Governments and Politics of Latin America.** (3) Littwin  
Contemporary political problems of Latin America, with emphasis on the problem of revolution and the politics of nationalism, communism, and the non-Communist radical left. Prerequisite: 355.
- \*357. **Government and Politics of the Soviet Union I.** [Government and Politics of the Soviet Union] (3) Neuwelt  
A study of the evolution of the Soviet political system with emphasis on dynamics and institutional structure. Prerequisite: 102 or permission of instructor.
- \*358. **Mexican Government and Politics.** (3) Needler  
Prerequisite: 355 plus reading knowledge of Spanish.
- \*361. **Political Theory from Plato to Locke.** (3) Rhodes  
Knowledge of ancient and medieval history is recommended.
- \*362. **Political Theory from the Enlightenment to Today.** (3) Rhodes  
Knowledge of modern European history is recommended.
- \*363. **Latin American Political Theory.** (3)  
The development of political philosophy in Latin America with emphasis on contemporary thinkers. Knowledge of modern Latin American history is recommended.
- \*368. **American Political Thought.** [American Political Theory] (3) Rhodes  
The origin and development of political ideas in the U.S. from colonial times to the present.
- \*375. **Law and Politics I.** (3) Stumpf  
The nature of the judicial process and the role of law and courts in the American political system, with emphasis on the United States Supreme Court. Prerequisite: 100 or permission of instructor.
- \*410. **The Policy-Making Process.** (3) Staff  
The political interaction of interest groups, administrative agencies, executives, and legislative bodies in the formulation of policy in field chosen by instructor. Prerequisite: 100.

- \*422. **The Administrative Process.** (3) Staff  
Policy formulation; problems of decision-making; conflicts of interest in administration; the contribution of administration to social satisfaction. Prerequisite: 321.
- \*425. **Public Personnel Administration.** (3) Rosenthal
- \*442. **International Politics II.** (3) Staff  
Contemporary problems of international politics considered on a regional basis; foreign policies of the United States and other powers. Prerequisite: 203.
- \*450. **Politics and Governments of Modern Asia.** (3)
- \*457. **Government and Politics of the Soviet Union II.** (3) Neuwend  
Contemporary political problems of the Soviet Union, with emphasis on tensions and accommodations between political leadership and socio-economic forces. Prerequisite: 357 or permission of instructor.
- \*458. **Government and Politics of Eastern Europe.** (3) Neuwend  
A study of the institutional structures and socio-political forces of the Communist countries of Eastern and South-Eastern Europe (exclusive of the USSR). Prerequisite: 357 or permission of instructor.
- \*459. **[457] Soviet Foreign Policies.** (3) Neuwend  
A survey and analysis of goals and methods of Soviet foreign policies toward the West, the uncommitted countries, Communist China and Eastern Europe. Prerequisite: 203 or 357.
- \*465. **Introduction to City Planning.** (3) Weismantel  
(Also offered as Arch, Econ, and Soc 465.) Topics include perceptual form of the city; the city in art and literature; public control over development; urbanization of the South-west; urban social welfare planning; planning for the developing nations. This is a multi-discipline introduction to urban studies, with emphasis on planning and control.
- \*469. **Comparative Politics: Industrial Democracies.** (3) Wolf  
Recommended preparation: 102.
- \*475. **Law and Politics II.** (3) Stumpf  
Prerequisite: 375 or permission of instructor.
- \*498. **Readings in Political Science.** (3)  
Seminar open to graduate students and to undergraduates who have had 18 hours of B-level work in Political Science.
- \*499. **Senior Thesis.** (3)
- \*501. **Interdepartmental Seminar in the Culture of the United States.** (3) Arms, Tedlock, G. W. Smith  
(Same as American Studies 501.)
- \*506. **Seminar in Political Parties.** (3) Wolf
- \*511. **Seminar in Urban Government.** (3) Cline
- \*521. **Seminar in Public Administration.** (3) Rosenthal
- \*531. **Pro-Seminar in Political Theory.** (3) Staff
- \*541. **Seminar in International Relations.** [Seminar in International Law and Organization] (3)  
Hoyt, Needler, Littwin
- \*551-552. **Problems.** (1-3 hrs. each semester) Staff
- \*575. **Seminar in Public Law.** (3) Stumpf
- \*580. **Seminar in Comparative Government.** (3) Neuwend, Needler, Wolf, Littwin
- \*584. **Interdisciplinary Seminar on Problems of Modernization in Latin America.** (3) Liepe, Lieuwen, Needler Schwerin  
(Also offered as Anthro, Econ, Hist, Soc 584.)
- \*596. **Methodology and Bibliography.** (3) Stumpf  
Required course for M.A. candidates. Also open to qualified Political Science majors.
- \*599. **Master's Thesis.** (1-3 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

## PORTUGUESE

See Modern and Classical Languages.

## PSYCHOLOGY

PROFESSORS F. A. Logan (Chairman), D. T. Benedetti, H. C. Ellis, G. R. Grice, R. D. Norman;  
ASSOCIATE PROFESSORS L. E. Price, J. M. Rhodes, S. Rosenblum, B. K. Ruebush; ASSISTANT  
PROFESSORS D. W. Bessemer, D. P. Ferraro, P. J. Johnson, K. P. Koenig.

The student wanting a complete introduction to Psychology should take both 101 and 102 with their associated laboratories, 103L and 104L. These courses are strongly recommended for all students and are **required** for major and minor programs and for most upper-level courses. However, credit can be obtained for 101 and/or 102 separately. Normally, students should take at least one 200-level course before registering for more advanced courses. Acceptance of transferred credits toward a major or minor in Psychology must be approved by the department.

#### MAJOR STUDY

The Psychology major is encouraged to broaden his training in related fields, especially Biology, Mathematics, and the Social Sciences. Toward this end, up to 8 hours credit toward the major requirements (if not used toward the minor requirement) may be counted from the following courses: Biology 323, 324L, 371L, 386L; Mathematics 121, 122, 241, 242, 341, 342; Anthropology 354, 308; Economics 300, 407; Sociology 331, 471; and others justified by the student and approved by his adviser.

The Honors major requires 30 hours credit beyond 8 hours General Psychology, including 280, 391, 392, 491, 492, and one laboratory course numbered above 300.

The standard major requires 26 hours credit beyond 8 hours General Psychology, including 280, 470 and one laboratory course numbered above 300.

The degree of Bachelor of Science is conferred if the minor is in or distributed among Biology, Chemistry, Mathematics or Physics. Otherwise, the Bachelor of Arts degree is conferred.

#### MINOR STUDY

12 hours beyond 8 hours General Psychology.

#### DEPARTMENTAL HONORS

Superior sophomore students, especially those anticipating graduate study in Psychology or interested in research training, are invited to apply for admission to the undergraduate Honors Program beginning in the junior year.

[NOTE: For convenience in advance planning of curricula, the course numbering system has the following code: course numbers ending in zero typically offered during both semesters; odd course numbers (except those ending in 7) offered first semester only; even course numbers (except those ending in zero) offered second semester only; course numbers ending in 7 offered summer only.]

- 101. **General Psychology I.** (3) Logan  
An introduction to the areas of learning, motivation, and comparative-physiological psychology.
- 102. **General Psychology II.** (3) Norman  
An introduction to the areas of testing, perception, and personality-social psychology.
- 103L. **General Psychology I Laboratory.** (1) Logan, Staff  
Classroom projects and demonstrations. 2 hrs. lab. requiring bi-weekly reports. Pre- or corequisite: 101.
- 104L. **General Psychology II Laboratory.** (1) Norman, Staff  
Classroom projects and demonstrations. 2 hrs. lab. requiring bi-weekly reports. Pre- or corequisite: 102.
- 107. **Introductory Psychology.** (3) SS  
A general introductory course for special summer school students.

- 210. Educational Psychology.** (3) Price  
(Also offered as Ed Fdns 310.) Introduction to the application of psychological principles to the learning and teaching process. Prerequisite: 101 or 102.
- 221. Psychology of Learning.** (3) Ellis  
Survey of laboratory learning situations with application of principles to practical situations. Prerequisite: 101.
- 260. Psychology of Adjustment.** (3) Benedetti  
A study of adjustive processes, with emphasis upon motivation, frustration and conflict, defensive behaviors, and psychological health. Prerequisite: 102.
- 262. Interpersonal Relations.** (3)  
Structure and processes involved in relationships between individuals. Prerequisite: 102.
- 280. Psychological Statistics I.** (3)  
An introduction to inferential statistics: sampling theory, estimation techniques, evaluation of experimental data. Prerequisite: Math 010 or 120; or eligibility for Math 121.
- 282. Psychological Research Techniques.** (3) Johnson  
An introduction to the methods of behavioral research. Individual projects. Prerequisite: 280.
- 295. Physiological Psychology.** (3) Rhodes  
Survey of research on the biological bases of behavior. Prerequisite: 101.
- \*301. Social Psychology.** (3)  
The behavior of individuals as influenced by other humans. Prerequisite: 221 or 260.
- \*303L. Social Psychology Laboratory.** (2)  
Laboratory study of the role of social factors influencing psychological processes. Prerequisite: 280; corequisite 301. 4 hrs. lab.
- \*305. Psychology of Personality.** (3) Koenig  
Theories, development, and measurement of personality. Prerequisite: 221 or 260.
- \*308. Abnormal Psychology.** (3) Koenig  
An introduction to the field of psychopathology. Prerequisite: 221 or 260.
- \*311. Developmental Psychology.** (3) Rosenblum  
The child from conception through adolescence with emphasis upon experimental analyses of behavioral development. Prerequisite: 102.
- \*312. Child Clinical Psychology.** (3) Rosenblum  
Theories and practices related to the problems of mentally subnormal, gifted, physically disabled, and emotionally disturbed children and adolescents. Prerequisite: 311.
- \*313. Mental Subnormality.** (3) Rosenblum  
Biological and psycho-cultural factors related to mental deficiency and retardation. Prerequisite: 311.
- \*321. Learning: Human Skills.** (3) Johnson, Ellis  
Methods, principles and theories of human verbal and perceptual-motor learning. Prerequisite: 221.
- \*322. Psychology of Perception.** (3) Benedetti  
Methods, principles and theories of perception. Prerequisites: 101, 102.
- \*323L. Human Skills Laboratory.** (2) Johnson, Ellis  
Laboratory projects. Prerequisite: 280; corequisite: 321. 4 hrs. lab.
- \*324L. Psychology of Perception Laboratory.** (2) Benedetti  
Laboratory projects. Prerequisite: 280; corequisite: 322. 4 hrs. lab.
- \*325. Learning: Conditioning.** (3) Ferraro  
Methods, principles and theories of classical, instrumental and operant conditioning. Prerequisite: 221.
- \*327L. Conditioning Laboratory.** (2) Ferraro  
Laboratory projects. Prerequisite: 282; corequisite: 325. 4 hrs. lab.
- \*331. Psychological Testing.** (3) Norman  
Problems related to mental measurement; review of various types of tests and their practical applications. Prerequisite: 280.
- 391-392. Junior Honors Seminar.** (3, 3) Ferraro  
Contemporary viewpoints and issues in historical perspective. Prerequisite: 221 and permission of instructor; pre- or corequisite: 280.



- \*411. **Conceptual Processes in Children.** (3) Johnson  
The development of conceptual, intellectual and linguistic behavior in children. Prerequisites: 101, 102.
- \*412. **Advanced Educational Psychology.** (3) Rosenblum  
Emphasis on the research applications of psychology to education. Prerequisite: 221.
- \*414. [516] **Learning, Motivation and Perception in Children.** (3) Price  
Analysis of theoretical and experimental literature on learning, motivation, and perception in simple and complex situations with children. Prerequisite: 311.
- \*417. **Programmed Learning.** (2) SS Ferraro, Ellis  
Application of principles of learning necessary for the preparation and use of programmed instructional materials, with practice in frame-writing, construction and evaluation of programs. Prerequisite: 221.
- \*422. **Motivation of Behavior.** (3)  
Principles and theories of motivation. Prerequisite: 221.
- \*424L. **Motivation Laboratory.** (2)  
Laboratory projects. Prerequisite: 280; corequisite: 422. 4 hrs. lab.
- \*426. **Learning: Conceptual Processes.** (3) Johnson  
Methods, principles and theories of thinking, concept formation and problem solving. Prerequisite: 221.
- \*428L. **Conceptual Processes Laboratory.** (2) Johnson  
Laboratory projects. Prerequisite: 282; corequisite: 426. 4 hrs. lab.
- \*451. **Industrial Psychology.** (3)  
Application of psychological principles to industrial needs. Prerequisite: 102.
- \*452. **Engineering Psychology.** (3)  
Problems arising from man-machine relationships. Prerequisite: 102.
- \*466. **Introduction to Clinical Neuropsychology.** (3) Rhodes  
Application to psychophysiological techniques and principles to clinical problems. Prerequisite: 221 or 260.
- \*470. **History of Psychology.** (3) Benedetti  
Survey of the major developments and systems in the history of psychology. Prerequisite: 101 or 102.
- \*473. **Mathematical Psychology.** (3) Bessemer  
Survey of mathematical descriptions of behavior. Prerequisite: 280.
- \*482. **Psychological Statistics II.** (3)  
Multiple and partial correlation, multivariate analysis, factor analysis. Prerequisite: 280 or equivalent.
- 491-492. **Senior Honors Seminar.** (3, 3) Ellis  
Experimental methods and laboratory techniques. Senior thesis based on independent research. Prerequisite: 392.
- \*493. **Advanced Physiological Psychology.** (3) Rhodes  
Intensive examination of neurophysiological bases of behavior. Prerequisite: 221.
- \*494. **Comparative Psychology.** (3) Bessemer  
Heredity, maturation, learning, and the higher mental processes as revealed in various animals. Prerequisite: 221.
- \*495L. **Advanced Physiological Psychology Laboratory.** (2) Rhodes  
Laboratory projects. Prerequisite: 280; corequisite: 493. 4 hrs. lab.
- \*496L. **Comparative Psychology Laboratory.** (2) Bessemer  
Laboratory projects. Prerequisite: 280; corequisite: 494. 4 hrs. lab.
- 499-498. **Undergraduate Problems.** (1-3 hrs. each semester; maximum 6.)
- \*501. **Advanced Social Psychology.** (3)  
Prerequisite: 301.
- \*503. **Theories of Personality.** (3) Norman  
Prerequisite: 308.
- \*505. **Research Techniques in Experimental Psychology.** (2) Ferraro  
Shop techniques, elementary principles of electric circuits.
- \*509. **Seminar in Teaching.** (3) Benedetti  
A seminar/practicum in the teaching of psychology. Prerequisite: permission of instructor.

- \*511. **Research Methods in Child Development.** [Advanced Developmental Psychology] (3)  
Price  
Review of principal research methods and designs in child development. Supervised research experience. Prerequisite: 311.
- \*512. **Theory in Educational Psychology.** (3) Logan  
The relation of theories of learning to educational psychology.
- \*516. **Seminar in Developmental Abnormalities.** (3) Rosenblum  
Critical examination of research on developmental disorders in children and adolescents. Prerequisite: 312.
- \*521. **Psychological Statistics III.** (3) Bessemer  
Probability theory, analysis of variance, nonparametric tests. Prerequisite: 280 or equivalent.
- \*522. **Design of Experiments.** (3) Bessemer  
Examination of problems of design, control and evaluation of experiments. Prerequisite: 521.
- \*531. **Introduction to Projective Techniques.** (3) Norman  
Prerequisite: 308.
- \*532L. **Individual Mental Testing.** (3) Norman  
Practical laboratory study and discussion of Binet and Wechsler tests. Prerequisite: 331.
- \*551-552. **Graduate Problems.** (2-3 hrs. each semester.)
- \*558. **Advanced Industrial Psychology.** (3)  
Prerequisites: 280, 451.
- \*568. **Cognitive Processes.** (3) Johnson  
A study of thinking, concept formation, judgment, and problem-solving.
- \*571. **Theories of Learning.** (3) Logan  
Systematic examination of the major issues in learning. Prerequisite: 321.
- \*572. **Seminar in Discrimination Learning.** (3) Logan  
Critical analysis and development of theories of discrimination and related learning processes. Prerequisite: 571.
- \*574. **Experimental Analysis of Operant Behavior.** (3) Ferraro  
An advanced study of the experimental literature, methodology, and applications of free-operant conditioning. Prerequisite: permission of instructor.
- \*578. **Human Learning: Transfer and Retention.** (3) Ellis  
An examination of experimental issues and theoretical interpretations of transfer and retention.
- \*582. **Perceptual Learning.** (3) Ellis  
Analysis of the processes by which conditions of learning modify perceptual behavior.
- \*591. **Animal Learning: Complex Processes.** (3) Bessemer  
Analysis of complex learning processes and problem solving in animals, with emphasis on the primates.
- \*596. **Seminar in Physiological Psychology.** (3) Rhodes  
Examination of current research and issues. Prerequisite: 496L.
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.
- \*614. **Seminar in Treatment of Disturbed Children and Adolescents.** (3) Ruebush  
Review of theory and research in the major types of therapeutic intervention and methods of behavior change with children and adolescents. Supervised experience in treating a disturbed child or adolescent. Prerequisite: permission of instructor.
- \*615-616. **Experimental Psychotherapy I, II.** (3, 3), Koenig  
Application of experimental methods and theories to clinical problems. Prerequisite: permission of instructor.
- \*699. **Dissertation.** (3-6 hrs. per semester) Staff  
See the Graduate School Bulletin for total credit requirements.

## RECREATION

See Education, Health, Physical Education, and Recreation.

## RUSSIAN

See Modern and Classical Languages.

## RUSSIAN STUDIES

COMMITTEE IN CHARGE: ASSOCIATE PROFESSOR H. Tobias (History), Chairman; PROFESSOR R. Murphy (Geography); ASSOCIATE PROFESSORS M. Neuweld (Political Science), W. Wagar (History); ASSISTANT PROFESSORS P. Chung (Economics), R. Holzapfel (Modern Languages).

The combined major in Russian Studies is administered by the interdepartmental committee listed above. The object of the program is to provide the student with a broad knowledge of modern Russia through study of the social sciences, humanities, and language. Study of the Russian language beyond a reading knowledge is required. The major requires no minor field for graduation. The program also offers a minor.

### Major in Russian Studies

FOREIGN LANGUAGE, 18 hours

Russian 101, 102, 251, 252, 307, 345

ECONOMICS, GEOGRAPHY, AND POLITICAL SCIENCE, 18 hours

Economics 200, 201, 450 or 455

Geography 333

Political Science 357, and one of the following, 457, 458, or 459

HISTORY, 12 hours

History 102, 303, 348, 349

ADDITIONAL REQUIREMENTS, 15 hours to be selected following consultation with the adviser

Economics 360

Geography 102, 331

Political Science 203, 361, 362

History 335, 336, 340, 354

Russian 338

Sociology 101, 451, 461

### Minor in Russian Studies, 21 hours

FOREIGN LANGUAGE

Russian 101, 102, 251, 252

9 ADDITIONAL HOURS CHOSEN FROM:

Economics 450, 455

Geography 333

Political Science 357, 457, 458, 459

History 303, 348, 349

Russian 307, 338, 345

## SOCIOLOGY

ASSOCIATE PROFESSORS N. L. S. Gonzalez, Richard F. Tomasson (Chairman), Charles E. Woodhouse; ASSISTANT PROFESSORS L. C. Dilatush, J. L. Dyer, M. A. Forslund, H. C. Meier, G. W. Merks, A. Ugalde, and Staff.

### MAJOR STUDY

36 hours of course work, including 101 (or 401), 371, 471, and 481, and including two courses in Economics, Political Science, and/or Anthropology at the 200 level or above.

### MINOR STUDY

18 hours in Sociology courses, of which 9 must be above 300, and including 101 (or 401) and 371 or 471.

## DISTRIBUTED MINOR FOR SOCIOLOGY MAJORS

With the consent of the departmental chairman, a major may offer an American Studies minor as well as a minor in a single department. For requirements, see American Studies.

- 101. Introduction to Sociology.** (3) Tomasson  
Basic course; prerequisite to most other courses in the department. Open only to freshmen and sophomores; others must elect Sociology 401.  
General Prerequisite: 101 (or 401) or equivalent.
- 211. Social Problems.** (3) Forslund  
A sociological approach to understanding social problems with emphasis on current American social problems.
- 215. Social Stratification.** (3) Dyer  
An examination of class, status, and power in society, including some of the consequences of stratification systems.
- 216. [316] Race and Cultural Relations.** (3)  
The historical, comparative, and social psychological study of race and cultural relations in the United States and elsewhere.
- 225. Structure and Functions of the Family.** (3) Dyer, Meier  
Functional analysis of family structure in varying societal contexts; functional foundations of marriage and family institutions, alternative patterns of family role organization, and interconnections with other social structures of wider social systems.
- 301-302. Interdepartmental Studies in the Culture of the U.S.** (3, 3)  
(Same as American Studies 301-302.) May be taken for departmental credit only with the consent of the Chairman.
- \*312. Juvenile Delinquency.** (2-3) Forslund  
The nature of juvenile delinquency, its prediction, prevention and control.
- \*313. Criminology.** (3) Forslund  
The nature of crime, types of criminal behavior, and explanations of crime.
- \*314. Sociology of Corrections.** [Probation and Parole] (3) Forslund  
The police, courts, prisons, probation and parole and recent developments in the area of crime control. Prerequisite: 312 or 313.
- \*321. Sociology of Medical Practice.** (3) Dilatush  
Analysis of medical care settings like hospitals with special attention on the professional roles of medical practitioners and the role of the patient.
- \*331. Collective Behavior.** (3) Woodhouse  
Theoretical analysis of groups which emerge spontaneously in response to social strain, and of social behavior in the form of panics, crazes, hostile outbursts, and social movements.
- \*341. Industrial Sociology.** [Sociology of Industrial Relations] (3) Dyer  
An examination of the social organization of the work place, work and society, role of labor organizations in industry.
- \*361. Social Implications of Technological Change.** (3) Gonzalez  
(Also offered as Anthropology 361.) The impact of technological change on societal institutions with special attention to underdeveloped areas.
- \*365. Urbanization in Latin America.** (3) Gonzalez  
(Also offered as Anthropology 365.) Analyzes the processes related to urbanization in Latin America, comparing them with developments following industrialization and rural-to-urban migrations elsewhere. Emphasis on social and cultural changes accompanying rural-to-urban migration.
- \*371. History of Social Thought.** (3) Woodhouse  
Examination of the rise of sociology as a scientific discipline, principally during the 19th century, with special attention to the contributions of Comte, Marx, Durkheim, Tönnies, Simmel, and Weber.
- \*401. Systematic Sociology.** (3) Meier  
A general orientation to the field of sociology with an emphasis on systematic conceptual and methodological treatment of sociological data. Junior, senior, and graduate students having no background in sociology must elect this course in place of 101; for such students, this course is prerequisite to any further course work in sociology.

- \*411. **Deviant Behavior.** (3) Forslund  
The nature of deviant behavior as it is revealed through a review of theory and research on deviant behavior. Selective examination of particular types of individual and sub-cultural deviancy. Prospects for the emergence of a general theory of deviant behavior. Prerequisite: 312 or 313.
- \*421. **Sociology of Education.** (3) Tomasson  
The comparative study of the structure and functioning of educational institutions in the developing and developed societies.
- \*425. **Latin American Institutions.** (3)  
A study of selected institutional arrangements in various Latin American societies.
- \*435. **Small Group Analysis.** (3) Meier  
Behavioral dynamics and emergent structures in small groups and interpersonal networks; the interplay of informal and institutionalized patterns of social relationships.
- \*441. **Formal Organizations.** [Industry and Society] (3) Dyer  
An examination of the nature and types of formal organizations, formal organizations and society, and various aspects of their internal structure.
- \*445. **Occupations and Professions.** (3) Woodhouse  
A comparison of occupational subcultures; the patterns of interaction and the social norms which characterize relations among colleagues, and their relations with the people being served; recruitment and mobility within occupations; the process of professionalization.
- \*451. **Population Problems.** (3)  
Study of fertility, mortality, migration, and the composition of populations. Emphasis on sources and evaluation of data.
- \*461. **Social Change.** (3) Woodhouse  
The conditions and processes related to the formation of new social structures and the emergence of new social norms as exemplified by political revolutions, reform movements, and cultural diffusion. Theories of social change will be critically analyzed.
- \*465. **Introduction to City Planning.** (3) Weismantel  
(Also offered as Arch, Econ, and Pol Sci 465.) Topics include perceptual form of the city; the city in art and literature; public control over development; urbanization of the Southwest; urban social welfare planning; planning for the developing nations. This is a multi-discipline introduction to urban studies, with emphasis on planning and control.
- \*471. **Contemporary Sociological Theory.** (3) Woodhouse  
Analysis and comparison of major contributions to sociological theory since 1900, considering their continuity with older theoretical positions and application in contemporary research.
- \*481. **Research Methods in Sociology.** (3) Meier  
A consideration of the sociological research enterprise from problem formulation to the interpretation of findings; elementary principles of theory verification, research design, instrumentation, and the treatment of empirical data. Field and/or laboratory exercises. Prerequisite: 9 hours of sociology or permission of the instructor.
- 490. **Directed Study.** (1-3 hrs. up to maximum of 6) Dyer, Forslund, Gonzalez, Meier, Tomasson, Woodhouse  
Restricted to students with substantial background in Sociology. Permission of Chairman required.
- \*500. **Seminar: Social Organization.** (3) Gonzalez
- \*501. **Interdepartmental Seminar in the Culture of the United States.** (3) Staff  
(Same as American Studies 501.)
- \*502. **Seminar: Social Systems Analysis.** [Seminar: Social Processes] (3) Meier  
Critical examination of alternative approaches to social system analysis; conceptual analysis of system elements, processes, and organization from the standpoint of heuristic utility.
- \*503. **Seminar: Political Sociology.** [Seminar: Social Control] (3) Woodhouse  
An exploration of sociological theories pertinent to the functioning of political systems, and the application of these theories to case studies of political behavior.
- \*504. **Seminar: The Control of Deviance.** [Seminar: Human Ecology] (3) Forslund  
A consideration of social processes and structures tending to prevent or reduce deviance. Prerequisite: 312, 313, or 411.
- \*505. **Seminar: Theory of Complex Organizations.** (3) Dyer  
The development and formalization of various contributions to complex organization theory.

- \*506. **Seminar: Comparing Nations.** (3) Tomasson  
Comparative study of the structure and functioning of various institutions in the developed societies. Topics will change from year to year.
- \*507. **Seminar: Sociological Theory.** (3) Staff  
Detailed analysis of theoretical contributions to sociology by individuals and/or schools of thought. Subject depends upon instructor. **May be repeated for credit.**
- \*551-552. **Problems.** (2-3 hrs. each semester) Dyer, Forslund, Gonzalez, Meier, Tomasson, Woodhouse
- \*584. **Interdisciplinary Seminar on Problems of Modernization in Latin America.** (3) Liepe, Lieuwen, Needler, Schwerin  
(Also offered as Anthro, Econ, Hist, and Pol Sci 584.)
- \*599. **Master's Thesis.** (1-3 hrs. per semester) Dyer, Forslund, Gonzalez, Meier, Tomasson, Woodhouse  
See the **Graduate School Bulletin** for total credit requirements.

## SPANISH

See Modern and Classical Languages.

## SPECIAL EDUCATION

See Education, Guidance and Special Education.

## SPEECH

PROFESSORS W. C. Eubank (Chairman), F. M. Cheirst; ASSOCIATE PROFESSORS E. W. Bundy, C. B. Owens, H. O. Ried; ASSISTANT PROFESSORS D. S. Butt, J. W. Carey, R. C. Dick, J. D. Gibb, J. D. Hughey, L. E. Lamb, B. E. Porch, M. J. VanGraber; INSTRUCTORS D. W. Betz (part-time), B. J. Hancock; CONSULTANT IN AUDIOLOGY T. W. Norris; CONSULTANT IN TELEVISION F. C. Hemen.

### MAJOR STUDY

36 hours in Speech including 101 and 102 (or equivalent), 251, 260, 280, 303, 470, 495 or 496, and 498.

SPEECH MAJOR WITH EMPHASIS IN TELEVISION-RADIO. 42 hours completed in the Departments of Speech and Dramatic Art. Required Speech courses: 101, 102, 251, 260, 265, 280, 303, 470, 480, 495 or 496 or 498, and 3 hours selected from 465 and 466. Required Dramatic Art courses: 351 and 6 hours selected from 305, 306, and 352.

SPEECH MAJOR WITH EMPHASIS IN TELEVISION-RADIO JOURNALISM. 42 hours completed in the Departments of Speech and Journalism. Required Speech courses: 101, 102, 251, 260, 265, 280, 303, 470, 480, 495 or 496 or 498, and three hours selected from 465 and 466. Required Journalism courses: 251, 252 and 494.

SPEECH MAJOR WITH EMPHASIS IN SPEECH CORRECTION. 39 hours in the Department of Speech: 101, 102, 280, 285, 303, 321, 330, 430, 435, and 9 hours (3 hours upper-division) selected from areas other than Speech Pathology and Audiology.

### MINOR STUDY

21 hours completed in the Department of Speech, including 101, 102, 260, 280 and 470.

Students in the College of Arts and Sciences may minor in Dramatic Art. For course requirements, see p. 272.

101. **Fundamentals of Speech.** (3) Staff  
The preparation and delivery of original extempore speeches and experience with selected interpersonal communication situations; emphasis on the study of speech communication principles.
102. **Fundamentals of Speech.** (3) Staff  
An introduction to the areas of study in the field of speech. Students will perfect speaking abilities and investigate special topics.
103. **Speech Improvement.** (3) Butt, Chreist  
Articulation, voice and language problems in formal and informal speech situations. 2 lectures, 2 hrs. lab.
105. **Speech for Foreign Language Students.** (3) Butt, Chreist  
Designed for the student who speaks English with a foreign accent or who lacks English speech patterns and rhythms. Considerable work will be given in International Phonetics. 2 lectures, 2 hrs. lab.
250. **Parliamentary Procedure.** (1) Eubank, Owens, Van Graber  
Study and practice of the rules governing the proceedings of groups and deliberating assemblies.
251. **Introduction to Radio and Television.** (3) Bundy  
Origin and development of broadcasting; nature, functions, obligations, and responsibilities of radio and television in modern society; observation of studio operations and techniques. Prerequisite: permission of instructor.
255. **Public Speaking.** (3) Staff  
Critical analysis of significant public speeches. Emphasis on audience analysis and adaptation, organization and delivery. Speech majors and minors should take 101 and 102, and not 255. Credit will not be allowed for both 101 and 255. Students having completed 255 may take 305.
260. **Oral Interpretation.** (3) Eubank, Van Graber  
Voice training with emphasis upon the developing of voice and body in oral communication; oral reading of poetry and prose excerpts. Prerequisite: 101 or 255.
265. **Production Procedures in Radio and Television.** (3) Bundy  
Theory, methods, tools, and techniques of basic television-radio production. Prerequisite: 251 or permission of instructor.
277. **Discussion and Leadership Training.** (3) Dick, Eubank, Hughey, Owens  
Theory and practice of elements of discussion and related leadership training. Prerequisite: permission of instructor.
278. **Argumentation and Debate.** (3) Carey, Dick, Eubank  
Theory and practice of principles of argumentative speaking and debate aimed at training the student to be a more effective advocate in the public forum. Prerequisite: permission of instructor.
280. **Scientific Bases of Speech.** (3) Chreist  
The bases of the speech process as presented in the scientific materials of such related fields as physics, physiology, psychology, and linguistics.
285. **Introduction to Speech Pathology.** (3) Butt, Chreist  
Nature, diagnosis, and treatment of speech disorders. Prerequisite: 280 or permission of instructor.
- \*303. **Phonetics.** (3) Chreist  
English phonetics as applied to the problems of articulation, pronunciation, rhythm, dialects, and to the teaching of speech, English, and to speech correction.
- \*305. **Advanced Public Speaking.** (3) Carey, Eubank, Gibb, Owens  
Rhetorical principles combined with construction and delivery of various forms of public address. Prerequisites: 101 and 102 or 255 or permission of instructor.
- \*311. **Problems of Interpersonal Communication.** (3) Hughey  
Application of modern communication theory in the interview and small group environment. Emphasis upon identifying and eliminating barriers to communication. Prerequisite: Permission of instructor.
- \*321. **Introduction to Audiology.** (3) Lamb  
History of audiology; the auditory stimulus; pathological conditions of the auditory system; basic methods of individual pure tone audiometry. Prerequisite: permission of instructor.

- \*330. **Speech Pathology in the Schools.** (3) Butt, Chreist  
An introduction to types of speech and hearing problems found in the schools. Prerequisite: permission of instructor.
- \*354. **The Nature of Language.** (3) Newman  
(Same as Anthropology 354.)
- \*359. **Language and Culture.** (3) Rigsby  
(Same as Anthropology 359.)
- \*361. **Advanced Oral Interpretation.** (3) Eubank, Van Graber  
Theory and techniques involved in the interpretation of prose, drama, and poetry. The student will build and present a lecture-recital. Prerequisite: 260 or permission of instructor.
- \*403. **History of the English Language.** (3) Baltzell, Kuntz  
(Same as English 403.)
- \*411. [310] **Theories of Communication.** (3) Hughey  
Critical analysis of contemporary theories, concepts, models, and empirical research relevant to communicative processes ranging from intrapersonal communication to mass communication. Prerequisite: Permission of the instructor.
- \*412. **Business and Organizational Communication.** (3) Hughey  
Examination of theoretical and research literature of industrial and organizational communication; analysis of basic interpersonal communication problems in industry. Prerequisite: Permission of instructor.
- \*422. **Hearing Conservation.** (3) Lamb  
The role of the speech and hearing specialist in hearing conservation programs; screening audiometry; special tests for infants and children; hearing problems in industry. Prerequisite: 321 or permission of the instructor.
- \*430. **Development of Speech and Language.** (3) Butt, Chreist  
The study of acquisition of phonetic and morphemic skills in the child and in the adult. Prerequisites: 280, Psych 311, Ed Fdns 300, or permission of instructor.
- \*435. **Pathological Problems in Speech.** (3) Chreist  
Problems of speech and hearing associated with cleft palate and laryngectomy. Prerequisite: 285 or permission of the instructor.
- \*436. **Stuttering.** (3) Kelly  
The various theories of stuttering and other rhythmic disorders as well as corrective therapies will be studied. Prerequisite: 285 or permission of instructor.
- \*437. **Aphasia.** (3) Chreist, Porch  
Symbolic disorders of communication, including receptive and expressive speech and language problems. Prerequisites: 285 and 430 or permission of the instructor.
- \*450. **Anatomy and Neurophysiology of Speech and Hearing.** (3) Lamb  
Structure and function of the speech and hearing mechanisms as they relate to normal and disordered communication. Prerequisite: 280 or permission of the instructor.
- \*458. **Clinical Practice.** (3) Butt, Chreist  
Speech pathology and audiology in the clinic. Prerequisites: 321, 435, 436, or permission of instructor.
- \*465. **Broadcast Programming and Policy.** (3) Bundy  
Principles of television and radio programming; analysis of programming practices; regulations governing broadcasting; responsibilities of broadcasters. Prerequisites: 251 and permission of instructor.
- \*466. **Television and Radio Writing.** (3) Bundy  
Theory, analysis, and practice in writing station and program continuity. Prerequisite: permission of instructor.
- \*470. **Teaching Speech in the Schools.** (3) Eubank  
For teachers in the elementary and secondary schools. Prerequisite: permission of instructor.
- \*480. **Advanced Television-Radio Production and Directing.** (3) Bundy  
Practicum in television-radio. Detailed study of directing techniques; planning, preparation, and presentation of program projects. Prerequisite: completion of all other requirements of Television-Radio Emphasis.
- \*490. **Administration of the Forensic Program.** (3) Dick, Eubank, Owens  
Directing competitive speech activities: debate, discussion, oratory, extemporaneous and impromptu speaking, oral interpretation, tournaments and festivals in high school and college. Prerequisite: 470 or permission of instructor.
- \*492. [392] **Introduction to Linguistics.** (3) Pickett  
(Same as English 492.)



493. **Reading and Research in Honors.** (3)
494. **Senior Thesis.** (3)
- \*495. **American Public Address.** (3) Eubank, Owens  
Speeches of great American speakers studied against the background of their lives and the issues of the times. Prerequisites: 101, 102, 277, or permission of instructor.
- \*496. **British Public Address.** (3) Eubank, Owens  
Speeches of great British speakers studied against the background of their lives and the issues of the times. Prerequisites: 101, 102, 277, or permission of instructor.
- \*498. **Persuasion.** (3) Eubank, Owens  
Open to seniors and graduates. Theory of persuasion. Construction and delivery of persuasive speeches. Prerequisite: permission of instructor.
- \*499. [540] **Classical Rhetoric.** (3) Carey, Eubank, Gibb, Owens  
Roots of rhetorical thought from the fifth century B.C. to the first century A.D. Primary attention to the relevant works of Plato, Aristotle, Isocrates, Cicero and Quintilian.
- \*500. **Introduction to Graduate Study.** (3) Chreist, Eubank, Owens, VanGraber  
The various areas within the field of speech with emphasis on research problems, techniques and bibliography. Each student will submit a seminar paper demonstrating research ability. Required of all graduate students.
- \*520. **Seminar in Television and Radio.** (3) Bundy
- \*529. **Basic Communication Workshop.** (4) SS Hughey, Simons
- \*530. [535] **Retarded Speech and Language Development.** (3) Butt, Chreist  
Differential diagnosis and therapy for developmental retardation in speech and language. Prerequisite: permission of instructor.
- \*531. **Communication Problems of the Cerebral Palsied.** (3) Butt  
Etiology and symptomatology of cerebral palsy, evaluation of cases, and varied approaches to therapy. Prerequisite: 285 or permission.
- \*535. **Seminar in Cleft Palate.** [Speech and Hearing Problems of the Retarded] (3) Staff
- \*536. **Seminar in Research in Stuttering.** (3) Butt  
Prerequisite: 436 or permission of instructor.
- \*537. **Seminar in Aphasia.** (3) Porch  
Prerequisite: 437 or permission of instructor.
- \*540. [499] **Renaissance and Modern Rhetoric.** [Classical Rhetoric] (3) Carey, Gibb, VanGraber  
Development of rhetorical thought from the Middle Ages through the 19th century, focusing on such theorists as Erasmus, Wilson, Ramus, Campbell, Blair and Whately. Emphasis on adherence to and significant deviation from Classical theories and traditions. Prerequisite: Permission of instructor.
- \*541. **Contemporary Rhetoric.** (3) VanGraber  
Critical consideration of rhetorical thought in the 20th century, with emphasis on the contribution of general semantics, linguistics, philosophy and literary criticism. Focus on theorists such as I. A. Richards, Kenneth Burke, A. J. Ayer, and Stephen Toulmin. Prerequisite: permission of instructor.
- \*542. **Communication Research.** (3) Hughey  
Critical consideration of the nature and selection of research problems in speech communication, with special emphasis on measurement methodologies, techniques of data collection and analysis, and interpretation of results. Prerequisite: permission of instructor.
- \*545. **Seminar in Public Address.** (3) Eubank, Gibb, Owens  
Prerequisite: 495 or 496.
- \*551-552. **Problems.** (2-3 hrs. each semester) Staff
- \*560. **Audiology and Audiometry.** (3) Lamb  
Techniques of evaluating residual hearing; administration and interpretation of differential diagnostic hearing tests; speech audiometry and hearing aid evaluation. Prerequisites: 321 or permission of instructor.
- \*565. **Seminar in Aural Rehabilitation.** (3) Lamb  
Prerequisite: 321 or equivalent.
- \*599. **Master's Thesis.** (1-3 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

## STATISTICS

See Mathematics & Statistics.

## WESTERN EUROPEAN STUDIES

COMMITTEE IN CHARGE: ASSOCIATE PROFESSOR H. Tobias (History), Chairman; PROFESSOR R. Murphy (Geography); ASSOCIATE PROFESSORS M. Neuweld (Political Science), W. Wagar (History); ASSISTANT PROFESSORS P. Chung (Economics), R. Holzapfel (Modern Languages).

The combined major in Western European Studies is administered by the interdepartmental committee listed above. The object of the program is to provide the student with a broad knowledge of the area in the social sciences and the humanities buttressed by a strong background of language study. Proficiency in French, German or Spanish is required. Students are expected to use the languages as tools in the advanced courses of the program. No minor is required.

### FOREIGN LANGUAGE, 24 hours

One of the following is required:

French 101, 102, 251, 252, 301, 302

German 101, 102, 203, 204, 301, 302

Spanish 101, 102, 251, 252, 301, 302

In addition, six hours above 300 are required in the literature since 1800 conducted in the respective language. In Spanish, the literature must be Peninsular.

### HISTORY, 24 hours

History 101, 102, 335, 336

Twelve additional hours chosen from 303, 333, 340, 341, 344, 396, 428, 429, 438, 442

### ECONOMICS, GEOGRAPHY, POLITICAL SCIENCE, AND SOCIOLOGY, 30 hours

Economics 200, 201, 450

Geography 332

Political Science 102, 203, 362, 469

Six additional hours chosen from the following:

Economics 360, 364, 424

Geography 381

Political Science 442

Sociology 371

### LITERATURE, ART, MUSIC, 6 hours chosen from the following:

English 432, 435, 437, 478, 481, 482, 486

Music 312

Art 481, 482, 491

## ENROLLMENT AND DEGREE STATISTICS

### \*ENROLLMENT FOR 1967-68

	Men	Women	Total
Semester I, 1967-68	8,352	5,478	13,830
Semester II, 1967-68	7,842	5,182	13,024
Summer Session, 1967 (including workshops)	2,619	2,498	5,117

### SUMMARY OF DEGREES CONFERRED 1901-1967

Earned Degrees				Total Earned Degrees	Honorary Degrees
Bachelor's	Master's	Law	Doctor's		
16,555	4,467	330	383	21,735	105

\* Exclusive of correspondence, extension, and non-credit courses.

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