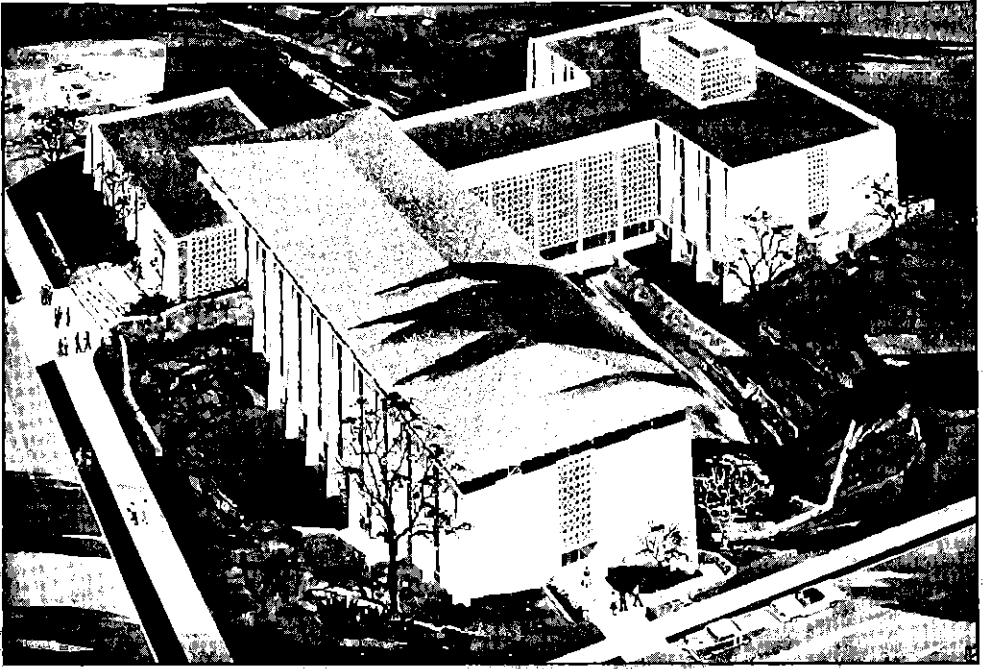


BULLETIN



NEW LIBERAL ARTS BUILDING

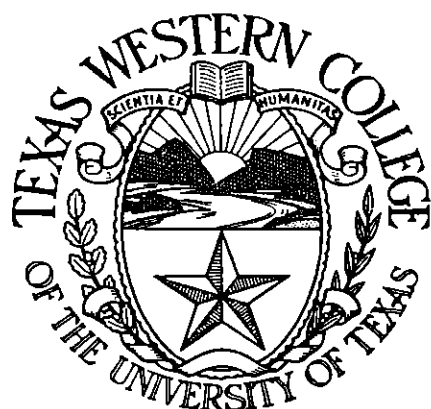
Texas Western College
OF THE UNIVERSITY OF TEXAS
El Paso, Texas

1961-1962

1961-1962

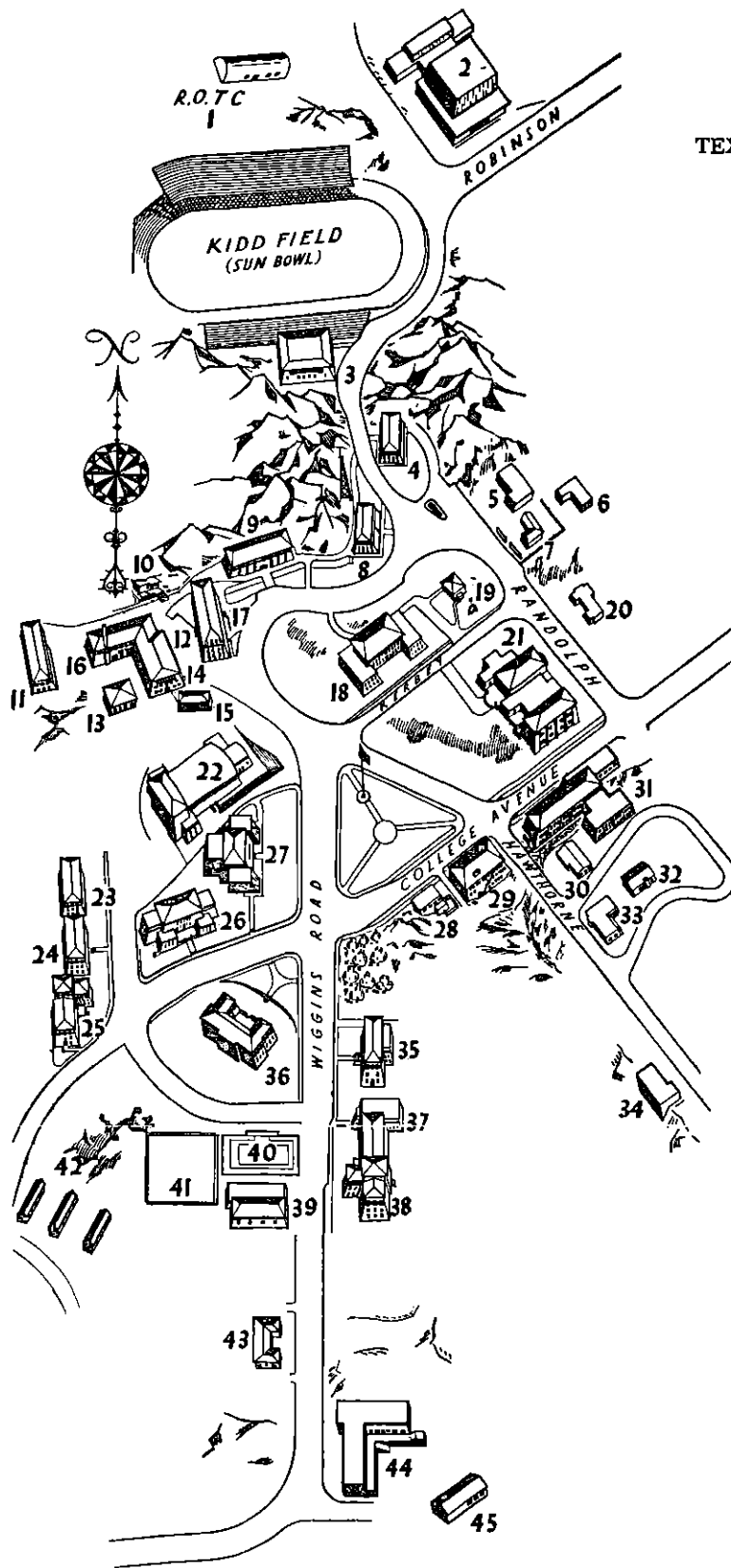
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CAMPUS MAP

TEXAS WESTERN COLLEGE



1. Military Area
2. Field House and Gym
3. Holliday Hall (Gym)
4. Burges Hall
5. Tri-Delta Lodge
6. Baptist Student Center
7. Chi Omega Lodge
8. Kelly Hall
9. Math and Physics
10. Kidd Memorial Seismic Laboratory
11. Seamon Hall
12. Engineering Building
13. Engineering Laboratories
14. Schellenger Research Laboratories (Office)
15. Engineering Laboratories
16. Power Plant
17. Geology Building
18. Science Building
19. Residence
20. Data Analysis Center*
21. Student Union Building
22. Magoffin Auditorium
23. Miners Hall
24. Worrell Hall
25. Hudspeth Hall
26. Cotton Memorial
27. Library
28. Zeta Tau Alpha Lodge
29. Administration Building
30. Lambda Chi Alpha Lodge
31. Classroom Building
32. Phi Kappa Tau Lodge
33. Kappa Sigma Lodge
34. Methodist Student Center
35. Benedict Hall
36. Museum
37. Dining Hall
38. Bell Hall
39. Girl's Gymnasium
40. Swimming Pool
41. Tennis Courts
42. Housing Area
43. Residence
44. Warehouse and Shops
45. Optical and Mechanical Test Center*

*Schellenger Research
Laboratories

Texas Western College

OF THE UNIVERSITY OF TEXAS

El Paso, Texas

MEMBER

SOUTHERN ASSOCIATION OF COLLEGES

TEXAS ASSOCIATION OF COLLEGES

TEXAS ASSOCIATION OF GRADUATE SCHOOLS

ARTS *and* SCIENCES

MINES *and* ENGINEERING

GRADUATE STUDY

Published bimonthly by TEXAS WESTERN COLLEGE at El Paso

Volume XLVI

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Number 6106

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El Paso, Texas, under the Act of August 24, 1912

CALENDAR FOR FALL SEMESTER – 1961

| SEPTEMBER | | | | | | | OCTOBER | | | | | | | NOVEMBER | | | | | | | DECEMBER | | | | | | |
|-----------|----|----|----|----|----|----|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|----------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| | | | | | 1 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | 1 | 2 | 3 | 4 | | | | | | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 29 | 30 | 31 | | | | | 26 | 27 | 28 | 29 | 30 | | | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| | | | | | | | | | | | | | | | | | | | | | 31 | | | | | | |

SEPTEMBER

8—*Friday*. Condition, proficiency and postponed examinations.

Approved petition forms must be in the Registrar's Office 4 days in advance.

11—*Monday*. General faculty meeting, 3:30 p.m. Magoffin Auditorium.

11, 12—*Monday, Tuesday*. Freshmen convocation and guidance tests.

8:30 a.m., Magoffin Auditorium.

11, 12—*Monday, Tuesday*, 7-9:30 p.m. Registration for night classes.

Students must register for classes which meet 4:30 p.m. or later at this registration.

13, 14, 15—*Wednesday, Thursday, Friday*. Registration for day students.

16—*Saturday*, 8:30-11:30 a.m. Late registration.

Registration closes for the fall semester. After this date a student must have permission of his Academic Dean to register.

18—*Monday*. All classes begin.

21—*Thursday*. Last day for adding courses and transferring sections.

NOVEMBER

11—*Saturday*. Home Coming, classes dismissed.

13—*Monday*. Mid-semester reports.

Last day courses can be dropped without grade of WF unless drop is initiated by student's Academic Dean. Senior information forms due in Academic Dean's office.

23-25—*Thursday through Saturday, inclusive*. Thanksgiving Holidays.

DECEMBER

21 - January 2—*Wednesday thru Tuesday, inclusive*. Christmas Vacation.

JANUARY

— 1962 —

3—*Wednesday*. Classes resume.

6—*Saturday*, 2:00 p.m. Arithmetic Test for Elementary Education Majors, Geology Building 209.

19-26—*Friday through Friday*. Final examinations for first semester.

CALENDAR FOR SPRING SEMESTER – 1962

JANUARY (continued)

29—*Monday*. Freshmen convocation and guidance tests.
Magoffin Auditorium, 8:30 a.m.

29-30—*Monday, Tuesday*, 7-9:30 p.m. Registration for night classes.
Students must register for classes which meet 4:30 p.m. or later at this registration.

30—*Tuesday*. Condition, postponed, and proficiency examinations.
Approved petition forms must be in the Registrar's Office 4 days in advance.

31 - February 1, 2—*Wednesday, Thursday, Friday*. Registration for day students.

FEBRUARY

3—*Saturday*, 8:30-11:30 a.m. Late registration.
Registration closes for the spring semester. After this date a student must have permission of his Academic Dean to register.

5—*Monday*. All classes begin.

8—*Thursday*. Last day for adding courses and transferring sections.

MARCH 26—*Monday*. Mid-semester reports.

Last day courses can be dropped without grade of WF unless drop is initiated by student's Academic Dean. Senior information forms due in Academic Dean's office.

APRIL 19-23—*Thursday through Monday, inclusive*. Easter Holidays.

MAY 23-30—*Wednesday through Wednesday*. Final examinations.

JUNE 2—*Saturday*. Commencement.

5—Registration, First Six Weeks Summer School.

| JANUARY | | | | | | | FEBRUARY | | | | | | | MARCH | | | | | | | APRIL | | | | | | |
|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|-------|----|----|----|----|----|----|-------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| | 1 | 2 | 3 | 4 | 5 | 6 | | | | | 1 | 2 | 3 | | | | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 28 | 29 | 30 | 31 | | | | 25 | 26 | 27 | 28 | | | | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 29 | 30 | | | | | |

| MAY | | | | | | | JUNE | | | | | | | JULY | | | | | | | AUGUST | | | | | | |
|-----|----|----|----|----|----|----|------|----|----|----|----|----|----|------|----|----|----|----|----|----|--------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| | 1 | 2 | 3 | 4 | 5 | | | | | | 1 | 2 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | 1 | 2 | 3 | 4 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 27 | 28 | 29 | 30 | 31 | | | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 29 | 30 | 31 | | | | | 26 | 27 | 28 | 29 | 30 | 31 | |

Board of Regents of The University of Texas

THORNTON HARDIE, *Chairman*
W. W. HEATH, *Vice Chairman*
BETTY ANNE THEDFORD, *Secretary*

M E M B E R S

Terms Expire January 1963

J. P. BRYAN, Freeport
THORNTON HARDIE, El Paso
JOE C. THOMPSON, Dallas

Terms Expire January 1965

W. W. HEATH, Austin
WALES H. MADDEN, JR., Amarillo
A. G. MCNEESE, JR., Houston

Terms Expire January 1967

DR. H. FRANK CONNALLY, JR., Waco
WALTER P. BRENAN, San Antonio
JOHN S. REDDITT, Lufkin

Chancellor of The University of Texas

HARRY H. RANSOM, PH.D.

TEXAS WESTERN COLLEGE

Officers of Administration

JOSEPH MALCHUS RAY

President, 1960

B.A., M.A., Ph.D., The University of Texas

ANTON HELMER BERKMAN, *Dean of Arts and Sciences, 1927*

B.A., M.A., The University of Texas; Ph.D., University of Chicago

EUGENE MCRAE THOMAS, *Dean of Mines and Engineering, 1930*

B.S., Texas College of Mines & Metallurgy; M.S., Massachusetts

Institute of Technology; E.M., Texas College of Mines & Metallurgy

CHARLES LELAND SONNICHSEN, *Dean of Graduate Division, 1927*

B.A., University of Minnesota; M.A., Ph.D., Harvard University

GEORGE COURTNEY MCCARTY, *Dean of Men, 1953*

B.S., M.A., New Mexico State University

MRS. LOUISE FLETCHER RESLEY, *Dean of Women, 1940*

B.A., Texas Western College; M.A., The University of Texas

HALBERT GARVICE ST. CLAIR, *Business Manager, 1960*

B.B.A., The University of Texas; Certified Public Accountant

JOSEPH MCSWAIN WHITAKER, *Registrar and Director of Admissions, 1954*

B.A., Agricultural and Mechanical College of Texas;

M.A., Texas Western College

BAXTER POLK, *Librarian, 1936*

B.A., Hardin-Simmons University; B.S. (Library Science), University of Oklahoma; M.S. in L.S., Columbia University

REX ERVIN GERALD, *Curator of Museum, 1958*

B.A., University of Arizona; M.A., University of Pennsylvania

Date indicates year of original appointment.

CARL HERTZOG, *Director of the Press*, 1948

BRYAN STEELE JONES, *Director of News and Information*, 1956
B.A., University of Arkansas

CLYDE EASTMAN KELSEY, JR., *Director of Testing, Guidance, and Consultation*, 1947
B.A., Texas Western College; M.A., University of Tulsa; Ph.D., Univ. of Denver

JAMES ANDREW CAVALLERI, *Director of Placement and Classified Personnel*, 1960
B.A., Southern Methodist University

MARVIN R. HOLLENSHEAD, *Director of Physical Plant*, 1960
B.A., Trinity University; M.A., The University of Texas

Administrative Assistants

LU VENIA EVERETT ARNOLD, *Assistant Registrar*, 1940
B.A., Texas Western College

RICHARD E. CANFIELD, *Auditor*, 1960
B.S., Centenary College

FRANCES CLAYTON, *Assistant Librarian*, 1943
B.A., Texas Western College; M.L.S., The University of Texas

ROY CLARENCE FISK, *Assistant Business Manager*, 1949
B.B.A., Texas Western College

BURT FRANKLIN JENNESS, *Director Emeritus of Health Service*, 1917
M.D., Dartmouth College

DOROTHY ORMSBEE, *Reference Librarian*, 1960

MRS. FRANCES SMITH STEVENS, *Administrative Assistant, Office of the President*, 1931

Dormitory Staff

MRS. CECILE WALLER, *Director, Women's Dormitories*

MRS. ALMA T. DAWKINS, *Assistant Resident Director, Bell Hall*

MRS. MARTON WILLEY, *Assistant Resident Director, Benedict Hall*

MRS. ELSIE J. ROSS, *Resident Director, Hudspeth Hall*

MRS. MAY STUART, *Resident Director, Worrell Hall*

The Faculty

- HAROLD EDWIN ALEXANDER, *Associate Professor of Chemistry*, 1955
B.S., Texas Western College; M.A., Ph.D., University of Texas
- FREDERICK WILLIAM BACHMANN, *Professor of Modern Languages*, 1933
B.A., M.A., Stanford University; Ph.D., University of Chicago
- KENNETH KYLE BAILEY, *Associate Professor of History*, 1960
B.A., M.A., Ph.D., Vanderbilt University
- HAROLD NOBLE BALLARD, *Assistant Professor of Physics*, 1957
B.S., Texas Western College; M.S., Texas Agricultural and Mechanical College
- THOMAS GREGG BARNES, *Professor of Physics and Engineering*, 1938
B.A., Hardin-Simmons University; M.S., Brown University;
Sc.D., Hardin-Simmons University
- ROBERT LEE BENNETT, *Asst. Professor of Economics & Business Administration*, 1956
B.A., M.A., University of Texas
- RALPH PORTER BENTZ, *Associate Professor of Mathematics*, 1952
B.S., Pennsylvania State Teachers College; M.Ed., Pennsylvania State College;
Ph.D., Peabody College
- ANTON HELMER BERKMAN, *Professor of Biological Sciences*, 1927
B.A., M.A., University of Texas; Ph.D., University of Chicago
- CALEB ARUNDEL BEVANS, *Associate Professor of Modern Languages*, 1950
B.B., Northwestern University; M.A., Ph.D., University of Chicago
- LELAH BLACK, *Associate Professor of Business Administration*, 1946
B.Ed., Western Illinois State Teachers College; M.A., University of Iowa
- LAWRENCE PHILLIPS BLANCHARD, *Assistant Professor of Business Administration*, 1959
B.A., LL.B., The University of Texas
- LANIS LOY BOSWORTH, *Assistant Professor of Psychology*, 1950
B.B.A., M.A., University of Texas
- DUNCAN STEWART BOUGHNER, *Assistant Professor of Military Science & Tactics*, 1957
B.S., Salem College; Major, Artillery, U. S. Army
- JACK JULES BOURQUIN, *Instructor in Engineering*, 1958
B.S., Texas Western College
- WILLIAM STANLEY BOYERS, *Assistant Professor of Military Science and Tactics*,
Captain, U. S. Army. B.S., New Mexico Western College
- HALDEEN BRADY, *Professor of English*, 1946
B.A., East Texas State Teachers College; M.A., University of Texas;
Ph.D., New York University
- MICHAEL BRAND, *Associate Professor of Economics*, 1958
B.A., University of Washington; M.A., University of Colorado
- FRED MEZA BREWER, *Instructor in Spanish*, 1955
B.A., University of New Mexico; M.A., Texas Western College
- RALPH CLEMENS BRIGGS, *Associate Professor of Music*, 1950
B.Mus., M.M., Cincinnati Conservatory of Music
- RUSSELL CHARLES BRINKER, *Professor of Civil Engineering*, 1958
B.S.C.E., Lafayette College; M.S.C.E., C.E., University of Minnesota
- JOHN MORGAN BROADDUS, JR., *Instructor in History*, 1954
B.A., M.A., Texas Western College
- WILLIAM ANO BURGESS, *Instructor in Mathematics*, 1958
B.S., Naval Academy; M.S., Purdue University
- ROBERT NORTH CUTT BURLINGAME, *Associate Professor of English*, 1954
B.A., M.A., University of New Mexico; Ph.D., Brown University

* Leave of absence, 1960-61

FACULTY

- RICHARD WEBSTER BURNS, *Associate Professor of Education*, 1952
B.A., Iowa State Teachers College; M.S., Ph.D., State University of Iowa
- JOSEPH HARRY BUYS, *Professor of Military Science and Tactics*, 1958
B.S., Brigham Young University; Colonel, U. S. Army
- MRS. ROSEMARY M. BYMARK, *Instructor in Business Administration*, 1959
B.A., Highlands University
- AUGUST NORBERT CARNOVALE, *Assistant Professor of Music*, 1958
B.M., Louisiana State University; M.A., Teachers College, Columbia University
- CLARENCE JOE Cervenka, *Assistant Professor of Engineering Drawing*, 1952
B.S., M.Ed., Agricultural and Mechanical College of Texas, 1952
- ABRAHAM CHAVEZ, JR., *Instructor in Music*, 1955
B.M., Texas Western College
- PETER STANLEY CHRAPLIWY, *Instructor in Biological Sciences*, 1960
A.B., University of Kansas; A.M., Ph.D., University of Illinois
- RALPH MONROE COLEMAN, *Professor of Engineering Drawing*, 1946
B.S., M.S., North Texas State College
- MRS. MARY LILLIAN COLLINGWOOD, *Assistant Professor of English*, 1947
B.A., Texas Western College; M.A., University of Michigan
- BENNY WESLEY COLLINS, *Asst. Professor of Health and Physical Education*, 1950
B.A., Texas Western College; M.S., University of Utah
- ROSS DAVIS COMPTON, *Instructor in Chemistry*, 1958
B.S., M.S., North Texas State College
- ELLEN WINIFRED COOGLER, *Assistant Professor of Art*, 1944
B.S., Sul Ross State College; M.A., Teachers College, Columbia University
- ALBERT ROBERT COX, *Assistant Professor of Business Administration*, 1960
B.B.A., M.S., Baylor University; Certified Public Accountant
- ROBERT G. COX, *Instructor in Military Science*, 1958
Sergeant, United States Army
- MRS. KATHLEEN CRAIGO, *Assistant Professor of Physical Education*, 1945
B.A., M.A., North Texas State College
- CECIL CLEMENT CRAWFORD, *Professor of Philosophy*, 1953
B.A., M.A., Ph.D., Washington University
- HAROLD LEONARD DAVIS, *Assistant Professor of Health and Physical Education*, 1959
B.S., Louisiana Polytechnic Institute; M.S., North Texas State College
- JAMES FRANCIS DAY, *Professor of Education; Coordinator of Teacher Education*, 1955
B.S., M.S., Utah State University; Ed.D., Stanford University
- MOTLEY FREMONT DEAKIN, *Instructor in English*, 1960
B.A., Brigham Young University; M.A., Ph.D., University of California
- FLOYD ARCHIE DECKER, *Professor of Electrical Engineering*, 1935
B.S.E.E., E.E., Kansas State College; M.S.E.E., University of Michigan;
Registered Engineer
- JOHN WILLIAM DENNY, *Instructor in History and Government*, 1956
B.A., M.A., Texas Western College
- MRS. LURLINE HUGHES DOUGLAS, *Assistant Professor of English*, 1954
B.A., M.A., University of Texas
- WALTER DUCOFF, *Instructor in Engineering Drawing*, 1957
B.S., University of New Mexico
- MRS. MARY ELEANOR DUKE, *Associate Professor of Biological Sciences*, 1947
B.A., Texas Western College; M.A., University of Texas
- OLAV ELLING EIDBO, *Professor of Music*, 1950
B.A., Concordia College; M.A., Texas Western College; Ph.D., Univ. of N. Dakota
- FRANCIS ALAN EHMANN, *Assistant Professor of English*, 1950
B.A., Texas Western College; M.A., Harvard University
- HENRY PHILIP EHRLINGER, *Associate Professor of Mining and Metallurgy*, 1959
B.S., E.M., University of Wisconsin
- FLOYD EMMETT FARQUEAR, *Professor of Education*, 1942
B.S., Miami University; M.A., University of Chicago; Ed.D., University of Texas

* Leave of absence, 1960-61

- ALONZO NEIL FOSTER, *Professor of Education*, 1951
B.S., Southwest Texas State Teachers College; M.A., University of Missouri;
Ed.D., Colorado State College of Education
- DONALD KEITH FREELAND, *Assistant Professor of Economics and Business Administration*, 1949. B.S., Austin College; M.B.A., North Texas State College
- FRANCIS LYLE FUCATE, *Assistant Professor of English*, 1949
B.A., B.J., University of Missouri
- WAYNE EDISON FULLER, *Associate Professor of History*, 1955
B.A., Univ. of Colorado; M.A., Univ. of Denver; Ph.D., Univ. of California
- MRS. GRETCHEN REINEMUND GABRIEL, *Assistant Professor of Spanish*, 1943
B.A., M.A., Stanford University
- KENNETH ROSS GEORGE, *Instructor in Physical Education*, 1957
B.A., Texas Western College
- REX ERVIN GERALD, *Assistant Professor of Sociology*, 1958
B.A., University of Arizona; M.A., University of Pennsylvania
- CHARLES HERMAN GLADMAN, *Associate Professor of Mathematics*, 1948
B.S., M.A., Ohio State University
- MRS. LYNETTE GLARDON, *Assistant Professor of Physical Education*, 1951
B.A., M.A., Texas Western College
- PAUL WERSHUB GOODMAN, *Instructor in Sociology*, 1957
B.A., M.S., Syracuse University
- JOHN FRASER GRAHAM, *Professor Emeritus of Mining and Metallurgy*, 1925
B.S., E.M., Michigan College of Mining and Technology
- GLADYS GREGORY, *Professor of Government*, 1928
B.S., Southwestern University; M.A., Ph.D., University of Texas
- JOHN HERBERT HADDOX, *Assistant Professor of Philosophy*, 1957
B.A., M.A., Ph.D., University of Notre Dame
- HENRY GLENN HAMPTON, *Instructor in Biological Sciences*, 1957
B.A., Texas Western College
- JESSE APLEY HANCOCK, *Professor of Chemistry*, 1941
B.S., M.S., Gonzaga University; Ph.D., University of Colorado
- FRANK RAY HARLAND, *Assistant Professor of Drama and Speech*, 1958
B.F.A., M.F.A., The University of Texas
- THEODORE DELANO HARRIS, *Instructor in History*, 1958
B.A., University of Denver; M.A., Western Reserve University
- WILTZ HARRISON, *Associate Professor of Art*, 1948
B.A., Texas Western College; M.A., University of Denver
- WADE JAMES HARTNUCK, *Professor of Business Administration*, 1944
B.A., Texas Technological College; M.B.A., Ph.D., University of Texas
- JAMES CARDWELL HARVEY, *Assistant Professor of History and Government*, 1957
B.A., Southern Methodist University; M.A., Ph.D., The University of Texas
- PAUL CLIFFORD HASSLER, JR., *Associate Professor of Civil Engineering*, 1948
B.S., Grove City College; M.S., University of New Mexico; Registered Engineer
- EVERETT BALDWIN HEINS, *Assistant Professor of Business Administration*, 1957
B.B.A., Texas Western College; M.B.A., Texas Technological College
- MRS. LOZIER CONDON HENDERSON, *Professor of Education*, 1949
B.A., University of Alabama; M.S., University of South Carolina;
Ed.D., The University of Texas
- RICHARD EUGENE HENDERSON, *Assistant Professor of Music*, 1952
B.A., College of Puget Sound; M.M., Florida State University
- MRS. NORMA GONZALEZ HERNANDEZ, *Instructor in Mathematics*, 1960
B.A., Texas Western College; M.A., The University of Texas
- CARL HERTZOG, *Special Lecturer and Director of Press*, 1948
- VIRGIL HICKS, *Associate Professor of Radio and Television*, 1945
B.A., Texas Western College; M.A., University of Southern California
- WILFRED SHUMWAY HIGGINS, *Assistant Professor of Art*, 1960
B.A., University of Missouri; M.F.A., State University of Iowa

FACULTY

- MRS. ROBERTA MAY HOFFMAN, *Instructor in English*, 1955
B.A., Hunter College
- JOHN ANTHONY HOVEL, JR., *Instructor in Government*, 1958
B.A., M.A., University of Wisconsin
- DILMUS DELANO JAMES, *Assistant Professor of Economics*, 1958
B.A., M.A., The University of Texas
- JOSEPH HOPKINS JAMES, *Associate Professor of English*, 1938
B.A., M.A., University of Alabama
- JONES EUGENE JOHNSON, *Assistant Professor of Business Administration*, 1958
B.A., Texas Agricultural and Mechanical College
- RICHARD SIKES JOHNSON, *Instructor in English*, 1959
B.A., Southern Methodist University; M.A., University of Oregon
- MRS. CLARICE MATTHEWS JONES, *Assistant Professor of Speech*, 1946
B.S., West Texas State College; M.A., Texas State College for Women
- CLYDE EASTMAN KELSEY, JR., *Associate Professor of Psychology*, 1947
B.A., Texas Western College; M.A., University of Tulsa; Ph.D., Univ. of Denver
- EDWIN JOHN KNAPP, *Professor of Mathematics and Physics*, 1931
Ph.B., Ph.D., University of Wisconsin
- ORVILLE CLEON KRUSCHWITZ, *Instructor in Mathematics*, 1956
A.B., Ohio Wesleyan University; M.A., George Peabody College
- WILLIAM WALTER LAKE, *Professor of Chemistry*, 1927
B.S., M.S., Ohio State University; Ph.D., University of Chicago
- JOSEPH LEE LEACH, *Professor of English*, 1947
B.A., Southern Methodist University; Ph.D., Yale University
- ROBERT MILTON LEECH, *Associate Professor of Drama and Speech*, 1949
B.F.A., M.F.A., University of Texas
- MRS. MONA H. LOPEZ, *Instructor in Health and Physical Education*, 1957
B.S., Texas Christian University
- RALPH LYNN LOWENSTEIN, *Assistant Professor of Journalism and Business Administration*, 1956
B.A., M.S., Columbia University
- MRS. ELIZABETH CRYMES MANNING, *Instructor in Biological Sciences*, 1960
B.S., M.A., The University of Texas
- ROBERT JOSEPH MASSEY,* *Assistant Professor of Art*, 1953
B.A., Oklahoma Agricultural & Mechanical College; M.F.A., Syracuse University
- D. W. MAYES, *Instructor in Military Science and Tactics*, 1958
Master Sergeant, U. S. Army
- GEORGE COURTNEY MCCARTY, *Asso. Professor of Health and Physical Education*, 1953
B.S., M.A., New Mexico State University
- JOSE McDONALD, JR., *Instructor in Mining and Metallurgy*, 1958.
B.S. (Metallurgy), B.S. (Mining), Texas Western College
- OSCAR HARRY MCMAHAN, *Associate Professor of Physics*, 1943
B.S., Oklahoma Agricultural and Mechanical College; M.S., University of Arizona
- JOHN HAMILTON MCNEELY, *Associate Professor of History*, 1946
B.A., American University; M.A., George Washington University;
Ph.D., The University of Texas
- JACK HOUSTON MEADOWS, *Professor of Education*, 1954
B.S., M.A., Sam Houston State College; Ed.D., Texas Technological College
- MRS. LORAIN EXTER MERRILL, *Instructor in Music*, 1956
B.M., M.M., American Conservatory of Music
- VLADIK ADOLPH MICULKA, *Assistant Professor of Mathematics*, 1955
B.S., Southwest Texas State Teachers College; M.S., Texas Technological College
- JOHN JUDY MIDDACH, *Associate Professor of Journalism*, 1948
B.J., University of Missouri; M.A., Texas Western College
- NACIM MILEDI, *Instructor in Chemistry*, 1957
B.S., Texas Western College

* Leave of absence, 1960-61

- ROBERT LEE MILLER, *Instructor in Mathematics*, 1959
B.S., U. S. Military Academy; M.S., Purdue University
- FRANK FREEMAN MITER, *Instructor in Mathematics*, 1957
B.S., United States Military Academy
- ROSS MOORE, *Instructor in Physical Education*, 1940
B.A., Texas Western College
- LEON DENNY MOSES, *Associate Professor of English*, 1927
B.A., M.A., Columbia University
- SAMUEL DALE MYRES, JR., *Associate Professor of Government*, 1955
B.A., M.A., Southern Methodist University;
Ph.D., The University of Texas; LL.D., Trinity University
- LYDD ALVENO NELSON, *Professor of Geology*, 1920
E.M., Texas College of Mines; M.S., Ph.D., Univ. of Colorado; Registered Engineer
- MRS. CATHERINE BURNSIDE O'MALLEY, *Assistant Professor of Education*, 1955
B.A., Texas Western College; M.A., University of Southern California
- ROBERT GLENN OMUNDSON, *Instructor in Mathematics*, 1957
B.A., Texas Western College
- FLOYD BRELAND O'NEAL, *Associate Professor of Chemistry*, 1954
B.S., The Citadel; M.S., Tulane University;
Ph.D., Georgia Institute of Technology
- RAYMOND EDGAR PAST, *Associate Professor of English*, 1952
A.B., University of Pennsylvania; M.A., Ph.D., University of Texas
- MRS. BULAH LILES PATTERSON, *Assistant Professor of Mathematics*, 1927
B.A., University of Texas; M.A., University of Chicago
- PEARL OLIVE PONSFORD, *Associate Professor of English*, 1936
B.A., Wellesley College; M.A., Ph.D., University of Southern California
- EUGENE OLIVER PORTER, *Professor of History*, 1940
B.A., Ohio Wesleyan College; M.A., Ph.D., Ohio State University
- CHARLES ALEXANDER PUCKETT, *Professor Emeritus of Education*, 1927
B.A., University of Texas; M.A., Harvard University
- JACK RIORDAN PYTCHER,* *Instructor in Chemistry*, 1955
B.S., Texas Western College
- MRS. JOAN PHELAN QUARM, *Instructor in English*, 1957
B.A., Reading University (England)
- HOWARD EDMUND QUINN, *Professor of Geology*, 1924
E.M., M.S., University of Minnesota; Ph.D., Harvard University
- MRS. MARY KELLY QUINN, *Associate Professor of Sociology*, 1925
B.A., Wellesley College; M.A., Boston University
- JOSEPH M. RAY, *Professor of Government*, 1960
B.A., M.A., Ph.D., The University of Texas
- JAMES BLANCHETTE REEVES,* *Assistant Professor of Biological Sciences*, 1955
B.S., M.S., Louisiana State University
- MRS. LOUISE FLETCHER RESLEY, *Assistant Professor of Mathematics*, 1940
B.A., Texas Western College; M.A., University of Texas
- MRS. BERTHA REYNOLDS, *Associate Professor of Education*, 1928
B.A., M.A., University of Colorado
- EUGENE CHARLES REYNOLDS, *Assistant Professor of Speech*, 1958
B.A., Otterbein College; M.A., Bowling Green State
- JOSEPH CHARLES RINTELEN, JR., *Professor of Mining and Metallurgy*, 1949
B.S., Brooklyn Polytechnic Institute; M.S., Cornell Univ.; Ph.D., Duke University
- DAVID BERNARD ROZENDAL, *Assistant Professor of Engineering*, 1960
B.S., South Dakota School of Mines and Technology; M.S., University of Minnesota
- EDGAR THOMAS RUFF, *Professor of Modern Languages*, 1945
B.A., M.A., Northwestern University; Ph.D., University of Texas
- WILLIAM MAURICE RUSSELL, *Assistant Professor of Modern Languages*, 1955
B.A., Birmingham-Southern College; M.A., University of North Carolina

FACULTY

- CHARLES SCHOTTA, JR., *Assistant Professor of Economics*, 1960
B.A., Texas Christian University; A.M., Brown University
- ROBERT LOUIS SCHUMAKER, *Assistant Professor of Physics*, 1946
B.S., Texas Western College; M.S., University of Arizona
- JOSEPH WALLACE SCRUGGS, *Assistant Professor of Chemistry*, 1946
B.S., Texas Agricultural and Mechanical College; M.A., Texas Western College
- LE ROY GEORGE SEILS, *Professor of Health and Physical Education*, 1950
A.B., Denison University; M.Ed., D.Ed., Boston University
- JOHN MCCARTY SHARP, *Professor of Modern Languages*, 1949
B.A., Westminster College; M.A., Ph.D., University of Chicago
- FRANK YUKIMASA SHIOJI, *Instructor in Chemistry*, 1956
B.S., Texas Western College
- GARY POTTER SIMS, *Instructor in Chemistry*, 1959
B.S., University of Oklahoma
- HARRY SCHULTZ SLUSHER, *Instructor in Mathematics*, 1957
B.A., University of Tennessee
- MRS. GRACE KNOX SMITH, *Assistant Professor of English*, 1953
B.A., M.A., Texas Western College
- CHARLES LELAND SONNICHSEN, *Professor of English*, 1931
B.A., University of Minnesota; M.A., Ph.D., Harvard University
- RICHARD DALE SPIESE, *Instructor in English*, 1958
B.A., M.A., Pennsylvania State University
- BARTON M. SPROULE, *Associate Professor of Mining and Metallurgy*, 1959
B.S., E.M., Michigan College of Mines and Technology
- WILLIAM SAMUEL STRAIN, *Associate Professor of Geology*, 1937
B.S., West Texas State College; M.S., University of Oklahoma
- REX WALLACE STRICKLAND, *Professor of History*, 1936
B.A., Austin College; M.A., Southern Methodist Univ.; Ph.D., University of Texas
- JAMES EDWARD SUBLETTE, *Associate Professor of Biological Sciences*, 1960
B.S., M.S., University of Arkansas; Ph.D., University of Oklahoma
- ROBERT LEWIS TAPPAN, *Assistant Professor of Modern Languages*, 1954
B.A., M.A., Texas Western College; Ph.D., Tulane University
- EUGENE McRAE THOMAS, *Professor of Mining and Engineering*, 1930
B.S., (Mining Engineering), Texas College of Mines; M.S., Massachusetts Institute of Technology; E.M., Texas College of Mines; Registered Engineer
- ENGBRET A. THORMODSGAARD, *Professor of Music*, 1949
B.A., Concordia College; M.A., Ed.D., Teachers College, Columbia University
- MRS. EDYTHE LUCILLE THREADGILL, *Instructor in Mathematics*, 1946
B.A., Texas Western College
- WILBERT HELD TIMMONS, *Professor of History*, 1949
B.A., Park College; M.A., University of Chicago; Ph.D., University of Texas
- GEORGE CAMBRIDGE TOMPKINS, *Assistant Professor of Business Administration*, 1958
B.S., M.S., University of Illinois
- JAMES HENRY TUCKER, *Instructor in Drama and Speech*, 1957
B.S., University of Alabama; M.F.A., University of Texas
- WILLIAM PRESTON TUCKER, *Instructor in Biological Sciences*, 1960
B.A., University of California at Los Angeles
- MRS. ELEANORE HERNDON TULLEY, *Instructor in Biological Sciences*, 1958
B.S., New Mexico State College; M.S., Iowa State College
- MRS. EMILY HOLMES VOWELL, *Instructor in Geology*, 1955
B.S., Texas Western College; M.S., University of Oklahoma
- JACK CARUTHERS VOWELL, JR., *Instructor in Government*, 1955
B.S. in F.S., M.S. in F.S., Georgetown University; M.A., Texas Western College
- MRS. MARIE LANDAU WADDELL, *Assistant Professor of English*, 1954
B.A., Howard Payne College; M.A., Scarritt College
- JIMMY REEVES WALKER, *Assistant Professor of Health and Physical Education*, 1958
B.A., M.A., Texas Western College

* Leave of absence, 1960-61

- JOHN LEROY WALLER, *Professor Emeritus of History*, 1931
B.S., University of Okla.; M.A., University of Colorado; Ph.D., University of Texas
- WILLIAM FLETCHER WEBB, *Assistant Professor of Modern Languages*, 1945
B.A., M.A., University of Texas
- JOHN AUBREY WHITACRE, JR., *Associate Professor of Engineering*, 1959
B.S., M.S., Texas Agricultural and Mechanical College
- RANDOLPH HOWARD WHITWORTH, *Assistant Professor of Psychology*, 1960
B.S., Ph.D., The University of Texas
- VERA WISE, *Professor of Art*, 1939
B.A., Willamette University; Chicago Academy of Fine Arts, Kansas City Art. Inst.
- PHILIP WAYNE YOUNG, *Assistant Professor of Engineering*, 1957
B.S. in C.E., Texas Western College; M.E. in S.E., Texas Agricultural and Mechanical College; Registered Engineer.

Part-Time Instructors

- MRS. PATRICIA G. ADKINS, *Department of Drama and Speech*, 1960
B.A., Texas Western College
- MICHAEL EUGENE BRADY, *Dept. of Economics and Business Administration*, 1959
B.A., M.S., Creighton University
- GERALD R. BOVARD, *Department of Economics and Business Administration*, 1960
B.S., Grove City College
- ROBERT C. BROWN, *Department of Economics and Business Administration*, 1957
B.B.A., M.B.A., Texas Technological College
- CONREY BRYSON, *Department of History*, 1959
B.A., M.A., Texas Western College
- MRS. FLORENCE B. BUCKNER, *Dept. of Economics and Business Administration*, 1947
B.A., Sul Ross State College; Certified Public Accountant
- MRS. BARBARA JEAN CAUSEY, *Department of English*, 1960
B.A., Texas Western College
- MRS. MARJORIE T. CERVENKA, *Department of English*, 1958
B.S., M.A., Texas Western College
- JAMES D. CHAPMAN, *Department of Economics and Business Administration*, 1958
M.B.A., Texas Technological College
- DANIEL ALLMAN CONNOR, *Department of History, Government, and Sociology*, 1948
B.A., George Washington University; M.A., Texas Western College
- CLARENCE H. COOPER, *Department of Mathematics and Physics*, 1959
B.S., Texas Western College; M.S., Vanderbilt University
- EUGENE ALAN DEAN, *Department of Mathematics and Physics*, 1958
B.S., Texas Western College
- GEORGE BERNARD DICKINSON, *Dept. of Economics and Business Administration*, 1954
B.B.A., Texas Western College; Certified Public Accountant
- FLOYD S. FIERMAN, *Special Lecturer in Philosophy*, 1957
Ph.B., John Carroll University; B.H.L., M.H.L., Hebrew Union College;
Ph.D., University of Pittsburgh
- ROBERT CHARLES GARNER, *Department of English*, 1960
B.A., Abilene Christian College; M.A., Texas Western College
- JAMES R. GILGER, *Department of Economics and Business Administration*, 1957
B.S., University of Colorado; Certified Public Accountant
- GILBERT RODOLFO GRADO, *Department of Engineering*, 1960
B.S., Texas Western College
- CLARENCE GORDON HACKETT, *Department of Philosophy and Psychology*, 1955
B.E., Milwaukee State Teachers College; M.A., State University of Iowa;
Ph.D., Purdue University

FACULTY

- MRS. ELEANOR CREET HALL, *Department of English*, 1960
B.A., M.A., Texas Western College
- INGEBORG HEUSEN, *Department of Music*, 1960
- CUENTHER HINTZE, *Department of Engineering*, 1958
B.S.E.E., M.S.E.E., Technical University, Breslau, Germany
- WILLIAM A. KOLLIKER, *Department of Art*, 1959
- MRS. ROBERTA C. LOCERMAN, *Dept. of History, Government, and Sociology*, 1959
B.A., University of California; M.A., Kansas State University
- WILLIAM L. LYON, JR., *Department of Engineering*, 1957
B.S.E.E., The University of Texas
- CARLOS McDONALD, *Department of Mathematics and Physics*, 1958
B.S., Texas Western College
- MRS. ROSEMARY MERKIN, *Department of Drama and Speech*, 1960
B.A., Texas Western College
- WILLIAM L. MERKIN, *Department of Economics and Business Administration*, 1959
B.A., The University of Texas; L.L.B., St. Mary's University
- RICHARD C. MONTGOMERY, *Department of Mathematics and Physics*, 1960
B.S., California Institute of Technology
- LEIF NEPRUD, *Department of Mathematics and Physics*, 1956
B.S., United States Military Academy
- MRS. LUCILE V. NOLD, *Department of English*, 1960
B.A., Texas Western College
- MAUREEN O'BRIEN, R.N., *Department of Chemistry*, 1957
B.S., Texas Western College
- MRS. BARBARA P. PREWITT, *Department of Music*, 1960
B.A., Texas Western College
- MRS. PAULINE N. RAMSEY, *Department of English*, 1960
B.A., University of California
- MRS. PATRICIA NEWTON RENNICK, *Department of Philosophy and Psychology*, 1957
B.A., M.A., University of Arizona
- EDWARD S. RICE, *Department of Economics and Business Administration*, 1960
B.A., Fordham University; M.A., University of Pennsylvania
- SALLY KING ROBERTSON, *Department of English*, 1960
B.A., Texas Western College
- TONY J. STAFFORD, *Department of English*, 1960
B.A., Wake Forest College
- LYNN THAYER, *Department of Music*, 1959
B.M., University of Michigan; M.Ed., University of Pittsburgh
- JOHN P. VANN, *Department of Economics and Business Administration*, 1960
B.S., Rutgers University; M.B.A., Syracuse University
- MRS. ROBERTA RUTH WALKER, *Department of English*, 1948
B.A., M.A., Texas Western College
- JARDON N. WEEMS, *Department of Economics and Business Administration*, 1960
B.A., Texas Agricultural and Mechanical College
- CLAUDE B. WIVEL, *Department of Education*, 1960
B.A., University of Denver; M.A., Ph.D., University of Arizona
- MRS. EDITH S. ZANKER, *Department of Education*, 1960
B.A., M.A., Texas Western College
-

*You are invited to view the campus
at Texas Western College*



FOURTEEN different degrees are obtainable at Texas Western College in a wide variety of subjects from highly technical engineering degrees to liberal arts courses and teacher education programs, as well as graduate study in advanced fields.

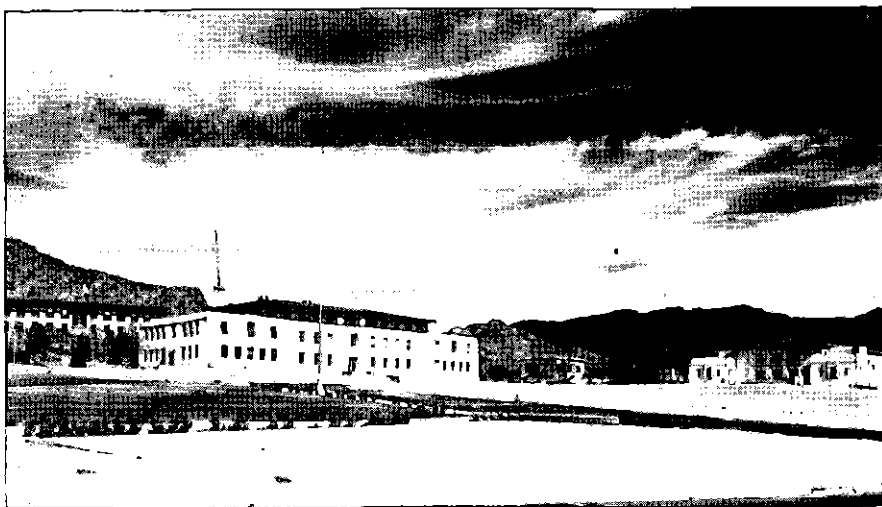
Although the college offers a range of courses from Art to Zoology, the largest departments are in English, Mathematics, and the Sciences, with library, laboratory and classroom facilities commensurate with the importance of these subjects.

Student Expenses

The tuition and fees for a student who is a resident of Texas approximates \$140 a year (two semesters) and for non-residents about \$440. Board and room in the dormitories averages \$650 for two semesters. Although some costs may be higher in specialized fields, the average expense for books and supplies is about \$100 per year.

Financial Assistance

Several hundred students are employed on the college campus in jobs ranging from semi-skilled labor to laboratory and teaching assistants. Off campus work is also available in the El Paso area. More than 60 different scholarships are offered by organizations and industries to qualifying students.



PHYSICS BUILDING

SCIENCE BUILDING

STUDENT UNION

Over 4000 Students — 160 Faculty Members

TEXAS WESTERN COLLEGE which has greatly expanded its facilities and staff in the last few years offers unusual opportunities through its location as well as its large faculty and well-equipped buildings.

El Paso, the fifth largest city in Texas, has the cultural advantages of a metropolitan area. There is a local symphony orchestra, under the direction of an internationally-known conductor. El Paso has a regular program of ballets, and musical and dramatic productions, and the residents of the city support many other intellectual and aesthetic activities.

Within a radius of from one to ten miles are found in great variety those geological formations and structures usually associated with the mineral industry, not only in metal mining, but in coal mining, oil fields, and non-metallic deposits as well. In opportunity for geological study, no school in the United States is more fortunately located.

One of the largest custom smelters in the world is situated near the College. Within a short distance is also a most modern electrolytic copper refinery, which has the largest capacity of any refinery in the world. Nearby are located a large cement plant, several large brick plants and three oil refineries. The manufacture of lime, tile, and other non-metallics is carried on in the immediate neighborhood of the College.

Local and adjacent industries offer opportunities for scientific and business observation. In addition to those mentioned above are non-ferrous

and potash mining, oil and natural gas production, cotton processing, textile and clothing manufacturing, and meat and vegetable packing. Several important army installations are nearby, including the famous rocket testing area at White Sands Missile Range in New Mexico.

Buildings and Grounds

THE PHYSICAL PLANT of the College is attractive, functional, and adequate for an extensive educational program. The campus proper, approximately sixty acres, is decidedly picturesque. The unique *architectural style* of the major buildings is Bhutanese, sometimes referred to as Tibetan, and the rugged mountainous setting is a fitting background.

In addition to administrative and academic facilities there are available for curricular and extra-curricular activities, a swimming pool, military science building, a newly enlarged Student Union Building and the *Sun Bowl* stadium. There are seven sorority and fraternity lodges adjacent to the campus, and 72 housing units available for married students.

Magoffin Auditorium has big-theater stage facilities with the most modern sound equipment—seats 1600 and is completely air-conditioned. Towering over the College is the antenna of KVOF-FM, a complete laboratory Radio Station operated by the Journalism and Radio Department.

Dormitories

THERE ARE FIVE modern and conveniently located residence halls on the campus, three for men and two for women. These five dormitories have a capacity of 350 students. Meals are served in a dining hall located between the two women's dormitories. Three meals daily are served, with the exception of Sunday night supper. All students residing in the dormitories are required to take their meals in the dining hall.



Bell Hall — Women's Dormitory

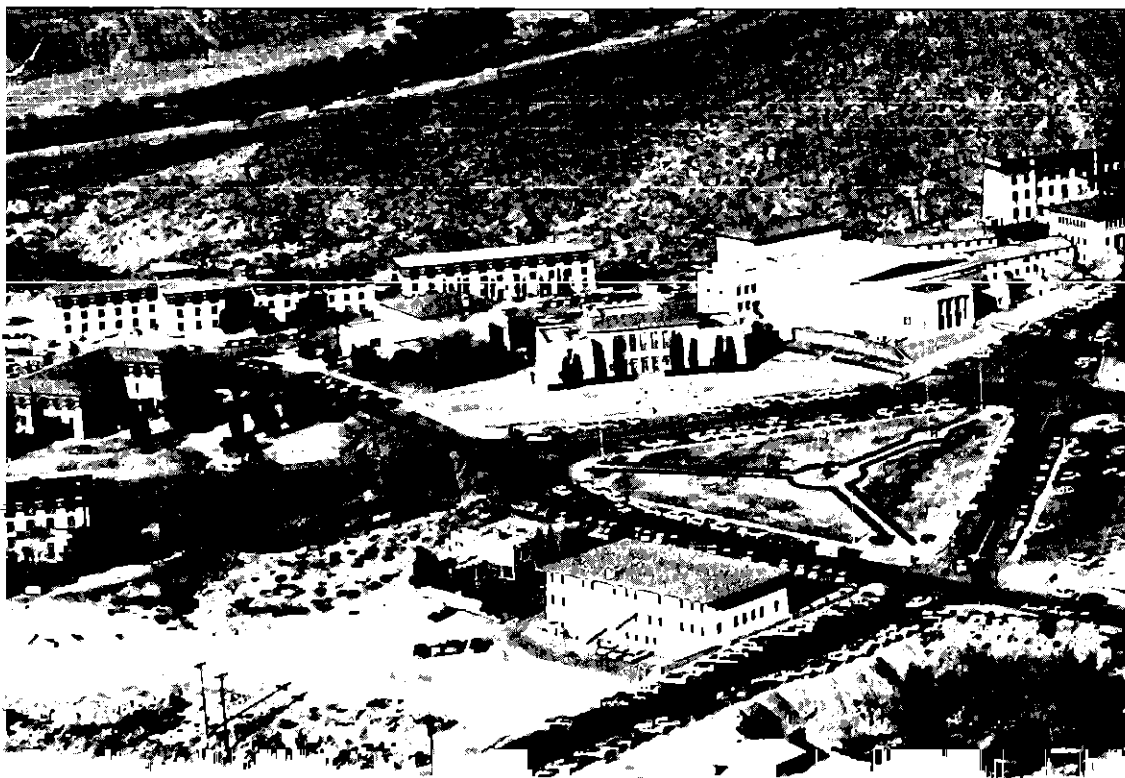
History of the College

THE PRESENT TEXAS WESTERN COLLEGE of the University of Texas was created in 1913 as the School of Mines and Metallurgy by a legislative act. This act, passed by the Thirty-third Legislature, charged the institution with teaching and research in mining, metallurgy and allied subjects, and placed it under the control of the Board of Regents of The University of Texas.

The school opened in September, 1914, in the buildings of the former El Paso Military Institute, which were donated by the City of El Paso. In 1916 the Main Building burned, resulting in a decision to move to the present site west of Mount Franklin. The Thirty-fifth Legislature voted an emergency appropriation of \$100,000 for new buildings. In 1919 the Thirty-fifth Legislature made the "School" or "College" a branch of The University of Texas.

During the next several years the "College of Mines," as it became known, experienced a growth that justified expansion of its educational program. The liberal arts were included in the curriculum as early as 1927, and in 1931 the Board of Regents authorized the College to confer the degree of Bachelor of Arts. At successive dates the Bachelor of Science, Bachelor of Business Administration, and Bachelor of Music were added. In 1940 the board approved the Master of Arts degree.

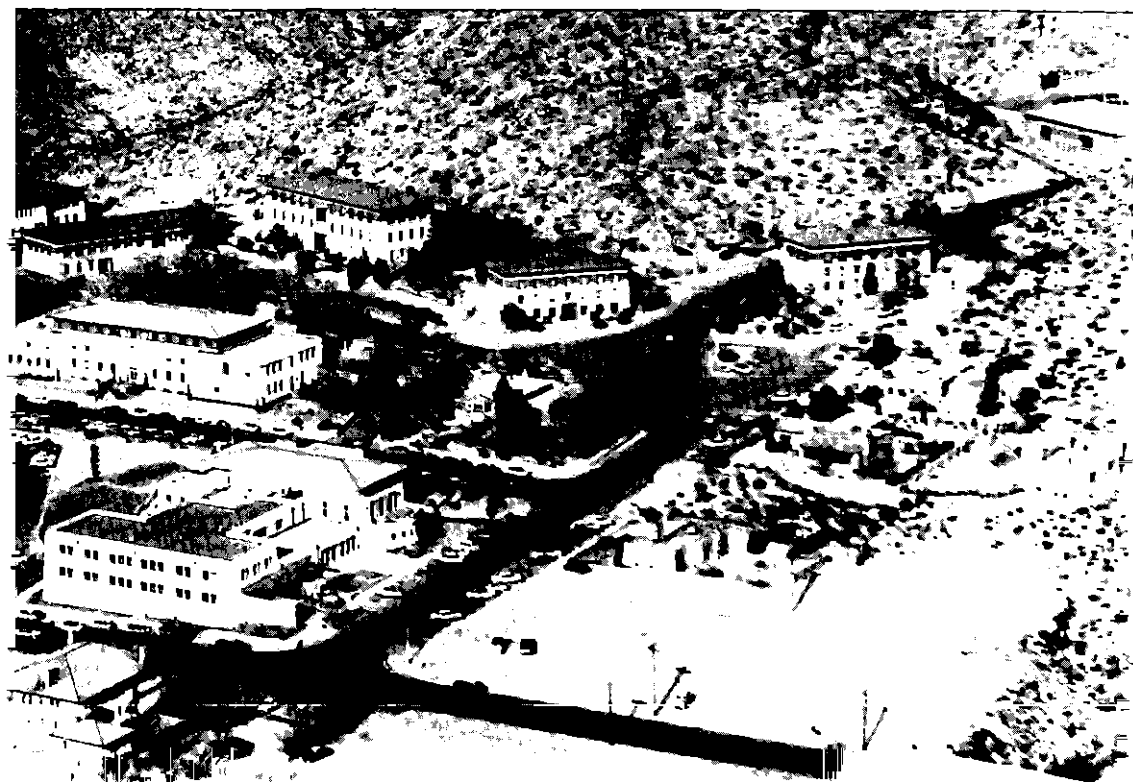
During early years the chief administrative official of the College was a dean who took his authority through the President of The University of Texas, at Austin. In 1931 the Board of Regents provided a presidency and



vested direct administrative authority in that office. From 1931 to 1950 the College operated directly under the Board of Regents. During the period September, 1950, to September, 1954, The University of Texas operated under a chancellorship system. In September, 1954, the office of Chancellor was abolished and the title of President was given to the chief administrative officer of the university system. Texas Western College retains a semiautonomous position with its president reporting directly to the president of the system.

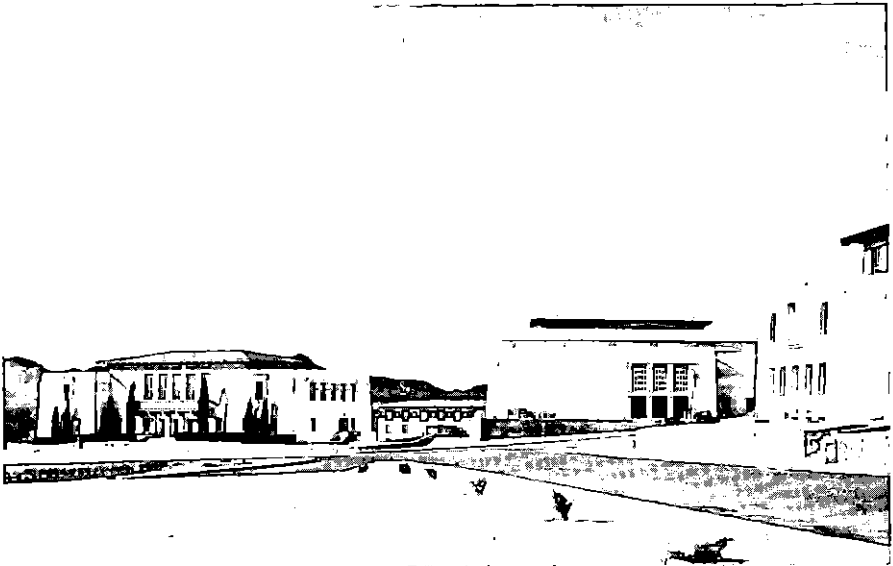
The name of the school was changed to Texas Western College on June 1, 1949. This was done in order to recognize the expansion of the curriculum into various fields, thus enabling the College to present itself as an institution with a broad program, attractive to a variety of students from many different places.

Today Texas Western College, a coeducational institution with an enrollment of over 4,000 students, offers the following degrees: Engineer of Mines, Bachelor of Science in Mining Engineering, Metallurgical Engineering, Civil Engineering, Electrical, and Mechanical Engineering; Bachelor of Arts, Bachelor of Science in the Sciences, and in Education; Bachelor of Business Administration, Bachelor of Music, Master of Arts and Master of Science in Education. The College is primarily an undergraduate institution with emphasis on instruction. Proper attention, however, is given to the Masters Degree; and the curriculum is expanding on that level in accordance with faculty, facilities, and students available for graduate work.



LIBRARY BUILDING

MACOFFIN AUDITORIUM



The Library

THE OPEN-STACK collection of over 100,000 volumes is amplified by periodicals, microfilm files and a circulating collection of phonograph records, both musical and literary selections. Several special collections particularly appropriate for our part of the country are maintained.

Especially notable are the geological, mining, Spanish literature and historical collections. Gifts of rare and modern books in Spanish from Dr. John H. McNeely, a member of the history faculty, have made this collection worthy of special mention. Valuable files of the United States Geological Survey and Bureau of Mines bulletins and reports are available.

A former student has established, anonymously, the Howard E. Quinn Fund for Geology books. The Commonwealth Foundation made contributions for the purchase of research materials in the Liberal Arts. The Jack C. Vowell Fund was given for books to be selected by the chairman of the History Department, and some funds from the Cotton Estate have been used recently for the purchase of scarce books and periodicals in all the liberal arts.

The library regularly receives over 1,000 periodicals—technical, general, literary and popular—and about 12 newspapers. A microfilm file of the *El Paso Times* and other valuable local documents is available for research. Active inter-library loan relations are maintained with other university and state libraries as well as a sponsoring membership in the Bibliographical Center for Research, Denver. This service is available to all students. Borrowers are required to pay all postage on loans from other libraries.



The Museum

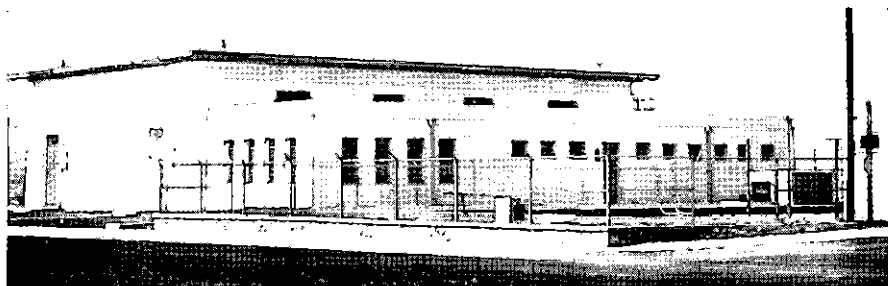
THE FIRST building a campus visitor sees as he turns onto College Avenue from the Mesa highway is the EL PASO CENTENNIAL MUSEUM which was allocated by the Commission of Control for the Texas Centennial Celebration. The building was located on the campus of the College by authority of the El Paso County Advisory Committee and was erected in 1936.

In addition to the preservation of natural and man-made objects of scientific and lay interest the Museum supplements the efforts of the College in the fields of education and research.

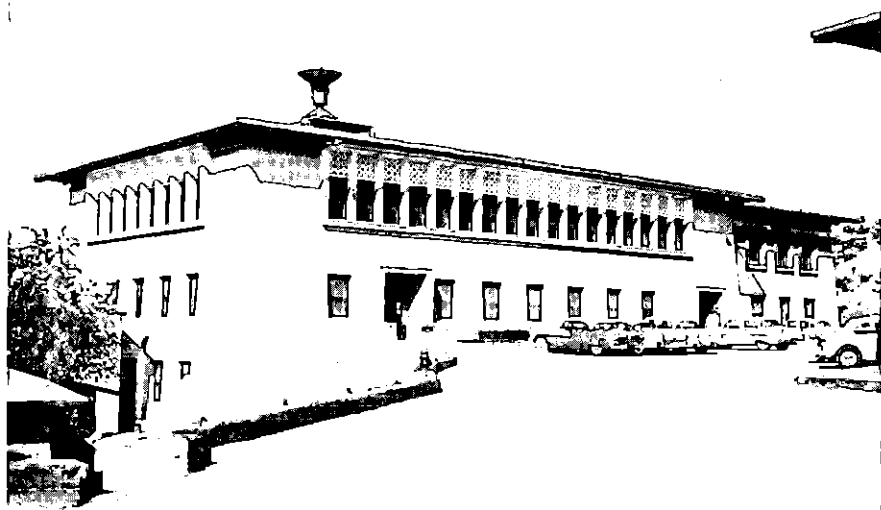
Guided lecture tours are offered to classes, clubs, and societies interested in the Museum's exhibits on anthropology, history, geology, paleontology, and zoology. The Museum's collection of Casas Grandes pottery is outstanding as is the mineral collection and the Peak collection of animal pelts and heads. Special illustrated lectures in the fields of science and natural history are offered to public school classes.

The unique location on the international border places the El Paso Centennial Museum in a position admirably suited for anthropological research in the virtually unknown regions of northern Mexico. In 1959 the Museum initiated its first Mexican Archaeological Research Project.

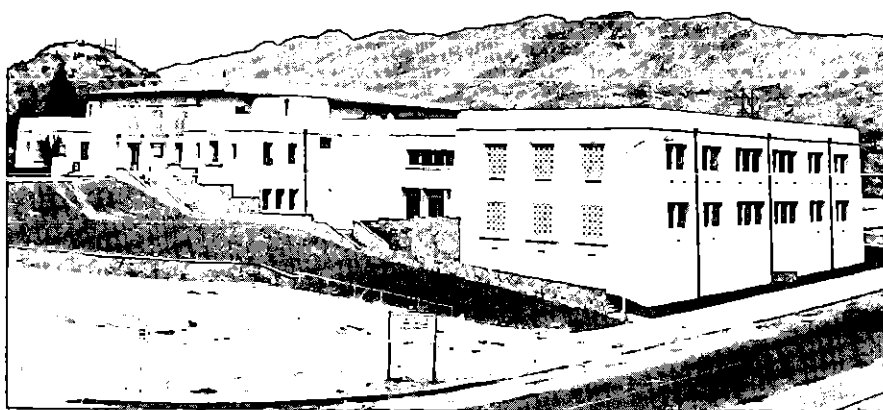
The general public and students alike are urged to visit the museum without special invitation. Except during holiday periods the building is open from eight to five, Monday through Friday; from eight to twelve on Saturday, and from two to five on Sunday.



Women's Gymnasium and College Swimming Pool



Engineering Building – South Wing



Newly Enlarged Student Union Building

How to Enter Texas Western College

First: If you do not have a personal copy of this catalog and an *Application Form*, write the Registrar, Texas Western College, El Paso, Texas. He will send them to you without charge and will be glad to answer any questions about your qualifications and about the College.

Second: Request the Principal or Superintendent of the high school from which you graduated to send the Registrar a complete record (transcript) of your high school work. *Transfer Students:* A student who has been enrolled in another college or university must have a complete and official transcript sent directly from the institution last attended. Sending your transcript does not obligate you to attend this college.

Third: When you receive the application form, fill it out and mail it to the Registrar. This is all you need to do. Within a few days, if you meet the entrance requirements, you will receive an official *Notice of Acceptance*.

Room Reservation: As soon as a decision to attend Texas Western College has been made, Dormitory room reservations should be made by sending a deposit of \$10.00 to the Business Office of the College. All students whose homes are not in El Paso are required to live in the dormitories on campus to the full capacity of the facilities.

Freshman Guidance Service

Provisions are made to assist you in getting off to a good start at Texas Western. The opening program of assemblies and personal advisory service by faculty members will introduce you to the College and acquaint you with its social and academic organizations and activities. Through the Bureau of Testing, Guidance, and Consultation, all Texas Western students are offered a complete program in aptitude testing and vocational counseling. This service aids the student in planning his college career and his life work. Note the dates, times and place of convocation and orientation exercises in the Calendar at the front of this catalog. You must attend these events so that you will have the necessary information for a good beginning in your school work at the College.

Information for Veterans

Texas Western College is approved by the Veterans Administration for the training of veterans. Provision has been made to help ex-service men and women obtain the benefits to which they are entitled. The Registrar will gladly answer questions about admission, credit for training in the armed services, college courses and programs of study.

A limited number of housing units are available on the campus for married veterans and their families. Inquiries should be addressed to the Business Manager, Texas Western College.

Regulations Concerning Registration

Admission to the College is controlled by the Faculty and administered by the Registrar. Information about registration procedures will be posted in the Administration Building several days before registration, and published in the local newspapers.

Registration Dates: Students are admitted four times during the year: September, January, June, and July. (See "Calendar" at front of this catalog.) Applications and transcripts should be submitted early to insure acceptance and to avoid delay in registration.

Co-Education: Both sexes are admitted to all branches of the College on equal terms regardless of race.

Character: The College is open only to applicants of good moral character.

Health: Each new student is required to have a physical examination at his own expense. This must be done before the students' registration can be completed. The form required may be obtained from the Admissions Office.

Loyalty Oath: By Act of the Texas Legislature, each applicant who is a citizen of the United States must take an oath of loyalty to the Government of the U. S.

Hazing Pledge: By Act of the Texas Legislature, each applicant is required to sign a pledge that he will not "encourage nor participate in hazing or rushes . . ."

Late Registration: Eligible students whose transcripts have been received by

the Registrar will be allowed to register for a limited time after the regular registration listed on the Calendar. Each class missed because of late registration will be counted as an absence, and classroom and laboratory work missed will be counted as zero unless the individual instructor grants the student permission to make up the work.

Warning: Due to class load limits, closed classes, and other factors, late registrants may expect some delay and difficulty in getting satisfactory programs. After classes have begun, the student will be asked to enroll for a reduced program, depending on the lateness of his registration.

Freshman Orientation: All regular freshmen (full-time "day" students with less than thirty semester hours college credit) who have not previously attended a long-session semester at Texas Western are required to attend convocations and take freshman tests, as noted in Calendar.

Note: A student's test grades do not affect his admission to the College. The tests are used for guidance into suitable major fields, and for placement in mathematics and English courses. Additional class periods are provided for the student who needs extra help in mathematics.

Procedure for Veterans

As early as possible before registration, apply at the nearest Veterans Administration Office for a Certificate of Eligibility. (In case of previous attendance at another school under the Veteran's Bill, or change

of educational objective, a Supplementary Certificate is required.)

With the exception of the above requirement, veterans register in the same manner as other students, as set forth above.

Information for Foreign Students

Specialized counseling is provided for students from other countries through the office of Dean of Students and the Registrar. Foreign students are counseled in all phases of their adjustment to college life from the time of their arrival on campus, and assistance is given in helping them

understand and conform with federal, state and local regulations.

Detailed information on the special problems of registration which will be encountered by foreign students may be obtained by writing the Registrar, Texas Western College, El Paso, Texas.

Methods of Admission to the College

There are three ways to qualify:

1. High School Graduation.
2. Individual Approval.
3. Transfer from Other Colleges.

1. High School Graduation

A graduate from an accredited high school with fifteen acceptable units as outlined in the following patterns and who has shown an aptitude for college studies will be granted clear admission. Drill subjects (penmanship, physical education, military training, etc.) are not acceptable. One unit of foreign language may be counted.

Arts and Sciences Division

| | |
|---|----|
| a. English | 3 |
| b. Mathematics | 2 |
| c. Foreign Language, Natural Science, Social Studies | 4 |
| d. Elective Units | 6 |
| TOTAL | 15 |

Mines and Engineering Division

| | |
|---|-------|
| a. English | 3 |
| b. Algebra | 2 |
| Plane Geometry | 1 |
| Trigonometry | 1/2 |
| c. Foreign Language, Natural Science, Social Studies | 4 |
| d. Mechanical Drawing | 1 |
| e. Physics | 1 |
| f. Elective Units | 2 1/2 |
| TOTAL | 15 |

Solid Geometry is strongly recommended.

Quality Provisions Concerning High School Credits

Conditional Admission—A student may be permitted to enter with a condition in any subject or group except English. Special consideration may be allowed an

applicant with a strong high school record, provided he meets the English requirement and has fifteen acceptable units.

Removal of Condition — High school credit conditions will be removed without penalty if the student makes an average grade of C in his first thirty semester hours of work completed in the College. (See Engineering exceptions, below.) Otherwise, conditions must be removed by using college credit, on the basis of two semester hours college credit for one-half unit high school deficiency, and three semester hours for one unit deficiency.

Engineering Exceptions — All of the above provisions apply also to Engineering, except that mathematics, drawing and physics deficiencies must be made up after admission to the College. A condition in algebra may be removed by taking Mathematics 3103, in mechanical drawing by Drawing 2100 and in physics by Physics 3100. While removing conditions the student must postpone part of his regular freshman work. If possible, it is better to clear admission conditions before entering the College, or in the Summer Session prior to beginning the regular program.

2. Individual Approval Method

An applicant over twenty-one years old (veterans over eighteen) may, at the discretion of the Registrar, be admitted by Individual Approval. The applicant must furnish evidence that he has sufficient ability and seriousness of purpose to do the work desired with profit to himself and to the satisfaction of the College. He will be required to show that he has an adequate command of English. Applica-

tion shall be made on special forms obtainable from the Registrar.

A student admitted by Individual Approval may clear his admission condition by (1) making no grade below C in his first thirty semester hours of work completed at the College, or (2) making C average in his first sixty semester hours completed. Failure to make the required grade average will involve loss of college credit to absolve the admission deficiency.

3. Transfer from Other Colleges

Eligibility — Qualified applicants with honorable dismissal from other colleges and universities will be admitted to Texas Western. A student ineligible to return to the institution last attended will not be admitted to the College. Others who have been suspended, who have failed, have been placed on probation, or have a record of low grades may be refused admission, or admitted on probation or any other condition that seems suitable.

Transcript — Each applicant, including the student who seeks re-admission to Texas Western, is responsible for the direct transfer of an official transcript of his entire college record. This requirement applies to admission to the Summer Session as well as the Long Session.

Trouble and time will be saved by having the Registrar of the College last attended send a transcript directly to the Registrar of Texas Western College as soon as possible. Registration cannot be completed until this transcript is received.

An applicant who has attended another college is not at liberty to disregard his collegiate record and apply for admission on the basis of his high school record, but must submit his college record. This rule applies even if the student attended

another institution for only a brief period; it also applies without regard to whether or not the student wishes credit here for college work done elsewhere.

Transfer of Credit—College work completed in another accredited institution with grades of C or better may be transferred insofar as the transfer work will fit into the student's curriculum. D grades will ordinarily not be accepted. Subject to the grade requirement of C, work done in an unaccredited institution usually may be transferred in accordance with the policy of the state university of the state in which the unaccredited institution is located.

Subject to the C grade requirement, Junior College credit (freshman and sophomore levels) will be accepted up to a maximum of sixty-six semester hours insofar as the courses will fit into the student's curriculum.

Extension and Correspondence

Not more than thirty semester hours of credit secured by extension and/or correspondence may be offered for a degree. Of that thirty semester hours not more than eighteen may be offered by correspondence.

How to Plan Your College Curriculum

If you are a beginning student, you may not yet be decided as to a career or final goal in college. However, there are certain subjects generally required of ALL students — thus, a student can begin by acquiring credits most applicable to all Majors (in case he has difficulty in choosing a Major and Minor, or later wishes to change his program).

To assist in planning your schedule, requirements for the Bachelor of Arts and the Bachelor of Science degrees are outlined on the next two pages. Requirements for Engineering degrees are listed on pages 32-37. Each Academic Dean counsels students and approves their degree plans, but it is not usually necessary to file a degree plan until 4 semesters have been completed. Chairmen of the separate departments will in the meantime give advice and explain special requirements for specific Majors.

Degrees Offered at Texas Western College

School of Mines and Engineering

ENGINEER OF MINES

BACHELOR OF SCIENCE IN MINING ENGINEERING

BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

School of Arts and Sciences

BACHELOR OF ARTS

(Major and Minor Subjects listed on page 39)

BACHELOR OF SCIENCE (IN SCIENCES)

BACHELOR OF BUSINESS ADMINISTRATION

BACHELOR OF MUSIC

BACHELOR OF SCIENCE IN EDUCATION

Graduate Division

MASTER OF ARTS

MASTER OF EDUCATION

Suggested Outline for the Bachelor of Arts Degree

Basic Subjects generally required of all students in bold face type.

Exceptions and variations are specified in the REQUIREMENTS for MAJORS on pages 40-42, and by the Departments at beginning of Course Descriptions.

| FRESHMAN YEAR | |
|---|-------------------|
| (16 to 19 hours are recommended for each semester) | |
| | Semester Hours |
| English 3101-02 | 6 |
| American History 3101-02 | 6 |
| Foreign Language (completion of 4102) | 4 (8) |
| <i>(Students with two years of High School credit in Language will not take 4101; but those who cannot pass beginner's examination will take 4101 and receive credit for 4 hours)</i> | |
| Mathematics | 6 |
| Laboratory Science | 6 |
| Economics 3101 | 3 |
| Health Education | 3 |
| Physical Education Service Course (or Military Science) | 2 (1) |
| <i>NOTE — If your Major is not included above, you may postpone one of the above subjects until your second year, in order to get a start in your Major.</i> | |

| SOPHOMORE YEAR | |
|--|--------|
| English 3211-12 (or 3213-14 or 3215 and 3216) | 6 |
| Government 3210-11 | 6 |
| Foreign Language (completion of 3201-02) | 6 |
| Laboratory Science | 6 |
| Physical Education or Military Science | 2 (1) |
| <i>(a total of 3 semesters required)</i> | |
| Courses in Major or Minor subjects | 6 (12) |

| THIRD AND FOURTH YEARS | |
|---|----|
| Philosophy 3301 or 3311 | 3 |
| "Major" subjects — advanced courses | 12 |
| <i>(a total of 24 hours required in the Major subject)</i> | |
| "Minor" subjects — advanced courses | 6 |
| <i>(a total of 18 hours required in the Minor subject)</i> | |
| Required Courses not already taken in previous years | — |
| Electives may be taken when all requirements have been met | — |

All required freshman numbered courses in the student's curriculum must be completed by the time the student reaches senior classification; otherwise, no credit will be granted toward fulfilling degree requirements for the courses even though the courses must be completed.

General Requirements for Bachelor of Arts Degree:

- 123 semester hours of credits (minimum total)
- 30 hours must be taken in advanced courses
- 24 hours in Major (12 advanced)
- 18 hours in Minor (6 advanced)

Suggested Outline for Bachelor of Science Degree

Exceptions and variations specified in requirements for Majors and Minors on p. 41.

MAJOR SUBJECTS: *Biological Sciences, Chemistry, Geology, Mathematics, Physics.*

MINORS: *Biological Sciences, Chemistry, Geology, Mathematics, Metallurgy, Physics.*

This plan does not apply to Bachelor of Science in Education, see p. 45.

See pages 32-37 for Engineering Degree Plans.

| FRESHMAN YEAR | Semester Hours |
|--|-------------------|
| English 3101-02 | 6 |
| American History 3101-02 | 6 |
| Mathematics 3115, 2116, and 4111 | 9 |
| <i>(Math 3101-02 may be substituted in the Biological Sciences Major, Geology Minor)</i> | |
| Laboratory Science | 8 |
| Economics 3101 | 3 |
| Health Education | 3 |
| Physical Education Service Course (or Military Science) | 2 (1) |
| <i>(16 to 19 hours are recommended for each semester)</i> | |

| SOPHOMORE YEAR | |
|---|--------|
| English 3211-12 (or 3213-14 or 3215 and 3216) | 6 |
| Government 3210-11 | 6 |
| German 4101-02 | 8 |
| <i>(Required for Chemistry Major)</i> | |
| Laboratory Science | 6 |
| Physical Education or Military Science | 2 (1) |
| <i>(a total of 3 semesters required)</i> | |
| Courses in Major or Minor subjects | 6 (12) |

| THIRD AND FOURTH YEARS | |
|--|----|
| Philosophy 3301 or 3311 | 3 |
| Laboratory Science (other than Major or Minor) | 6 |
| "Major" subjects — advanced courses | 15 |
| <i>(a total of 30 hours required in the Major subject)</i> | |
| "Minor" subjects — advanced courses | 6 |
| <i>(a total of 18 hours required in the Minor subject)</i> | |
| Required Courses not already taken in previous years | — |
| Electives may be taken when all requirements have been met | — |

All required freshman numbered courses in the student's curriculum must be completed by the time the student reaches senior classification; otherwise, no credit will be granted toward fulfilling degree requirements for the courses even though the courses must be completed.

General Requirements for Bachelor of Science Degree:

- 135 semester hours of credits (minimum total)
- 36 hours must be taken in advanced courses
- 30 hours in Major (15 advanced)
- 18 hours in Minor (6 advanced)

General Requirements for Undergraduate Degree

Degree Plan—The student should secure from his Dean by the beginning of his third year a plan for the completion of the requirements for the degree.

No honorary degree will be conferred.

Catalog Requirements

A student may obtain a degree according to the requirements of the catalog in force at the time of his admission to the College, or of a later catalog, subject to the restriction that all requirements must be completed within six years of the date of the catalog chosen.

Students entering Texas Western College for the first time during a summer session will be subject to the requirements set forth in the catalogue for the next long session.

Application for Degree

At the beginning of the session in which he intends to graduate, the student will file a degree application with his Dean.

Personal Information Forms

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

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

Advanced Courses

These are junior-senior or upper division courses and are designated by 3 or 4 as the second digit of the course number.

Complete Courses

In a course extending through two semesters no credit is given toward a degree until both semesters have been completed.

Government and History Required

By action of the Legislature of the State of Texas, all students entering the College after September, 1954, and all students graduating after September 1, 1957 are required to complete six hours of work in government, covering the Federal and Texas Constitutions, Government 3210-3211. (Government 3211 not required of

students who have completed four semesters of advanced R.O.T.C.)

By action of the State Legislature all students graduating from the College after July 1, 1956, must complete six hours of American History (three semester hours of which may be Texas History).

Grade Point Average

The student must make an average of at least two grade points per semester hour in all courses taken at the college. In the case of interdivisional or intradivisional transfers grades of *F* or *WF* will not be counted provided they were made prior to the first transfer. Grades of *F* or *WF* made subsequent to the first transfer will be considered unless removed by repetition of the course.

One-Hour Courses

All courses carrying only one hour of credit, except for those courses offered in the School of Mines and Engineering, are subject to the following regulations:

(1) These courses may not be used to satisfy the requirements for removal of probation, (2) These courses may not be used in determining the requirements to maintain good scholastic standing, (3) Not more than eight of these one hour courses, exclusive of required courses in physical education and ROTC, may be used in fulfilling degree requirements, (4) These courses will not be used in compiling the honor roll.

Second Degree

No second bachelors degree will be conferred until the candidate has completed at least twenty-four semester hours at Texas Western College in addition to those counted toward the bachelor's degree requiring the higher number of semester hours of credit. Two bachelor's degrees may not be awarded to any candidate at the same commencement.

Students working toward a second bachelor's degree will register as undergraduate students.

Commencement—no degree will be conferred except publicly at Commencement.

Absence from Commencement

Each candidate is expected to attend in person the Commencement at which the degree is to be conferred. In case of absence, he must petition his dean in writing before the date of commencement to have the degree conferred in absentia.

School of Mines and Engineering

Degrees Offered

ENGINEER OF MINES

BACHELOR OF SCIENCE IN MINING ENGINEERING

Options: 1. Mining 2. Mining-Geology

BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Engineer of Mines

The degree of Engineer of Mines may be conferred upon graduates of Texas College of Mines who have received the degree of Bachelor of Science in Mining Engineering, and who attended a college prior to September 1, 1931. The applicant must have completed at least four years of successful professional work in mining, metallurgy, or geology, subsequent to receiving the bachelor's degree, and present a satisfactory thesis.

Bachelor of Science

A candidate for a bachelor's degree in engineering must complete one of the following plans:

PLAN 1, leading to the degree of Bachelor of Science in Mining Engineering (Mining Option).

PLAN 2, leading to the degree of Bachelor of Science in Mining Engineering (Mining-Geology Option).

PLAN 3, leading to the degree of Bachelor of Science in Metallurgical Engineering.

PLAN 4, leading to the degree of Bachelor of Science in Civil Engineering.

PLAN 5, leading to the degree of Bachelor of Science in Electrical Engineering.

PLAN 6, leading to the degree of Bachelor of Science in Mechanical Engineering.

Special Requirements for Bachelor's Degree

1. All candidates must take at least twenty-four hours in advanced courses, in class at the College, out of the last thirty semester hours offered.

2. Each student must make an average of at least a C in the specified courses taken in his degree-granting department.

3. In order to become a candidate for a degree, a student must (1) have satisfied all admission requirements, (2) have an over-all C average at the beginning of his last semester of attendance.

4. Each student is strongly urged to spend at least one summer in practical work related to the degree desired.

Work Preparatory to Other Engineering Degrees

Uniform Freshman Year — Chemistry 4103-04, Drawing 2101, 2102, English 3101-02, Engineering 1101, History 3101, 3102, Mathematics 3115, 2116, and 4111, Physical Education, or Military Science.

Additional courses are offered at Texas Western College which will enable a student to complete at least the sophomore year for any engineering degree.

Abbreviations Used in Degree Plans

| | |
|-------------------------------------|---------------------|
| Ch. . . . Chemistry | M. . . Mathematics |
| Dr. . . . Drawing | Me. . . Metallurgy |
| Ec. . . . Economics | Mi. . . . Mining |
| E. English | Ph. Physics |
| Ge. Geology | Sp. Speech |
| Go. . . Government | P.E. . Physical Ed. |
| Hi. History | M.S. . Military Sc. |
| C.E. Civil Engineering | |
| E.E. Electrical Engineering | |
| M.E. Mechanical Engineering | |

DEGREE PLANS

**PLAN 1 — Leading to the Degree of
Bachelor of Science in Mining Engineering**
(Mining Option)

| | <i>Semester Hours</i> |
|---|---------------------------|
| Chemistry 4103-04, 4460 | 12 |
| Drawing 2101, 2102 | 4 |
| Economics 3101 | 3 |
| English 3101-02, 3369 | 9 |
| Civil Engineering 1101, 3213, 3215, 2314, 4334, 3335, 2338, 3354 | 21 |
| Electrical Engineering 4331 | 4 |
| Mechanical Engineering 3349 | 3 |
| Geology 3101, 3102, 3216, 2217, 4321, 3322, 2464 | 20 |
| Government 3210-11 | 6 |
| History 3101, 3102 | 6 |
| Mathematics 3115, 2116, 4111, 4212, 4317, 3326 | 20 |
| Metallurgy 4302, 3305 | 7 |
| Mining 1102, 3201, 2301, 3302, 2304, 3402, 2403, 4404, 3406, 2421 | 25 |
| Physics 4215, 4216, 4317 | 12 |
| Physical Education or Military Science | 4 |
| TOTAL | 156 |

ARRANGEMENT OF COURSES

| Freshman Year — 1st Semester | <i>Semester Hours</i> | Freshman Year — 2nd Semester | <i>Semester Hours</i> |
|---|---------------------------|---|---------------------------|
| Ch. 4103, General Chemistry | 4 | Ch. 4104, General Chemistry | 4 |
| Dr. 2101, Engineering Drawing | 2 | Dr. 2102, Descriptive Geometry | 2 |
| E. 3101, Freshman English | 3 | E. 3102, Freshman English | 3 |
| Hi. 3101, History of the United States | 3 | C.E. 1101, Elementary Engineering Problems | 1 |
| Ma. 3115, College Algebra | 3 | Ge. 3101, Physical Geology | 3 |
| Ma. 2116, Trigonometry | 2 | Ma. 4111, Analytic Geometry & Calculus | 4 |
| Mi. 1102, The Mineral Industry | 1 | P.E. Service Course or M.S. Military Sci. | 1 |
| P.E. Service Course or M.S. Military Sci. | 1 | Total | 18 |
| Total | 19 | | |
| Sophomore Year — 1st Semester | | Sophomore Year — 2nd Semester | |
| Ge. 3102, Historical Geology | 3 | C.E. 3213, Plane Surveying | 3 |
| Ge. 3216, Mineralogy | 3 | C.E. 3215, Statics | 3 |
| Hi. 3102, History of the United States | 3 | Ge. 2217, Mineralogy | 2 |
| Ma. 4212, Analytic Geometry & Calculus | 4 | Ma. 4317, Analytic Geometry & Calculus | 4 |
| Ph. 4215, Mechanics and Heat | 4 | Mi. 3201, Elements of Mining | 3 |
| *P.E. Service Course | 1 | Ph. 4216, Electricity, Magnetism and Wave Motion | 4 |
| Total | 18 | *P.E. Service Course | 1 |
| | | Total | 20 |
| Summer — First Term | | Summer — Second Term | |
| C.E. 2314, Field Surveying | 2 | C.E. 2338, Dynamics | 2 |
| Co. 3210, American Government | 3 | Co. 3211, American Government | 3 |
| Total | 5 | Total | 5 |
| Junior Year — 1st Semester | | Junior Year — 2nd Semester | |
| Ch. 4460, Physical Chemistry | 4 | Ec. 3101, Principles of Economics | 3 |
| Ge. 4321, Advanced General Geology | 4 | E.E. 4331, Electrical Circuits & Machines | 4 |
| Ma. 3326, Differential Equations | 3 | Ge. 3322, General Economic Geology | 3 |
| Me. 3305, Engineering Physical Metallurgy | 3 | Me. 4302, Mineral Dressing I | 4 |
| Mi. 2301, Mining Methods | 2 | Mi. 3302, Mine Surveying | 3 |
| Ph. 4317, Light and Modern Physics | 4 | Total | 17 |
| Total | 20 | | |
| Summer | | Mi. 2304, Mine Surveying | 2 Semester Hours |

*Not required if M.S. 2101-02 completed. Student may elect Health Education 3101 for 1 semester of P.E.

DEGREE PLANS

| Senior Year — 1st Semester | Semester Hours | Senior Year — 2nd Semester | Semester Hours |
|--|-------------------|--|-------------------|
| E. 3369, Technical Writing | 3 | C.E. 3335, Reinforced Concrete | 3 |
| C.E. 4334, Mechanics of Materials | 4 | M.E. 3349, Heat Engineering | 3 |
| Ge. 2464, Field Geology | 2 | C.E. 3354, Fluid Mechanics | 3 |
| Mi. 3402, Mine Examination & Valuation | 3 | Mi. 2403, Mine Management | 2 |
| Mi. 4404, Mine Plant | 4 | Mi. 3406, Rock Mechanics | 3 |
| Total | 16 | Mi. 2421, Mining Trip | 2 |
| | | Total | 16 |

**PLAN 2 — Leading to the Degree of
Bachelor of Science in Mining Engineering
(Mining-Geology Option)**

| | Semester Hours |
|---|-------------------|
| Chemistry 4103-04, 4460 | 12 |
| Drawing 2101, 2102 | 4 |
| Economics 3101 | 3 |
| English 3101-02, 3369 | 9 |
| Civil Engineering 1101, 3213, 3215, 2314, 4334, 2338, 3354 | 18 |
| Mechanical Engineering 3349 | 3 |
| Geology 3101, 3102, 3216, 2217, 4321, 3322, 4323, 4327, 3461, 4463, 2464, 2421 | 37 |
| Government 3210-11 | 6 |
| History 3101, 3102 | 6 |
| Mathematics 3115, 2116, 4111, 4212, 4317, 3326 | 20 |
| Metallurgy 4302 | 4 |
| Mining 1102, 3201, 2301, 3302, 2304, 3402, 2403, 3406 | 19 |
| Physics 4215, 4216, 4317 | 12 |
| Physical Education or Military Science | 4 |
| TOTAL | 157 |

ARRANGEMENT OF COURSES

Freshman and Sophomore Years Same as for Plan 1

| Junior Year — 1st Semester | Semester Hours | Junior Year — 2nd Semester | Semester Hours |
|--|-------------------|---|-------------------|
| Ch. 4460, Physical Chemistry | 4 | M.E. 3349, Heat Engineering | 3 |
| Ec. 3101, Principles of Economics | 3 | Ge. 3322, General Economic Geology | 3 |
| Ge. 4321, Advanced General Geology | 4 | Ge. 4327, Petrology and Petrography | 4 |
| Ma. 3326, Differential Equations | 3 | Me. 4302, Mineral Dressing I | 4 |
| Mi. 2301, Mining Methods | 2 | Mi. 3302, Mine Surveying | 3 |
| Ph. 4317, Light and Modern Physics | 4 | Total | 17 |
| Total | 20 | | |

Summer Mi. 2304, Mine Surveying 2 Semester Hours

| Senior Year — 1st Semester | | Senior Year — 2nd Semester | |
|--|----|---|----|
| E. 3369, Technical Writing | 3 | C.E. 3354, Fluid Mechanics | 3 |
| C.E. 4334, Mechanics of Materials | 4 | Ge. 3461, Advanced Economic Geology | 3 |
| Ge. 4323, Structural Geology | 4 | Ge. 4463, Geology of Petroleum and Natural Gas | 4 |
| Ge. 2464, Field Geology | 2 | Mi. 2403, Mine Management | 2 |
| Mi. 3402, Mine Examination & Valuation | 3 | Mi. 3406, Rock Mechanics | 3 |
| Total | 16 | Ge. 2421, Geological Trip | 2 |
| | | Total | 17 |

PLAN 3—Leading to the Degree of

Bachelor of Science in Metallurgical Engineering

| | Semester Hours |
|--|-------------------|
| Chemistry 4103-04, 2211, 4214, 2221, 4460 | 20 |
| Drawing 2101, 2102 | 4 |
| Economics 3101 | 3 |
| English 3101-02, 3369 | 9 |
| Civil Engineering 1101, 3215, 4334, 2338 | 10 |
| Electrical Engineering 4331 | 4 |
| Geology 3217 | 3 |
| Government 3210-11 | 6 |
| History 3101, 3102 | 6 |
| Mathematics 3115, 2116, 4111, 4212, 4317, 3326 | 20 |
| Metallurgy 3301, 4302, 4308, 3309, 3402, 3403, 3404, 3405, 4407, 4408, 4411, 4412, 3413, 3414, 2421 | 50 |
| Mining 1102, 3201, 2301 | 6 |
| Physics 4215, 4216, 4317 | 12 |
| Physical Education or Military Science | 4 |
| TOTAL | 157 |

ARRANGEMENT OF COURSES

| Freshman Year — 1st Semester | Semester Hours | Freshman Year — 2nd Semester | Semester Hours |
|--|-------------------|---|-------------------|
| Ch. 4103, General Chemistry | 4 | Ch. 4104, General Chemistry | 4 |
| Dr. 2101, Engineering Drawing | 2 | Dr. 2102, Descriptive Geometry | 2 |
| E. 3101, Freshman English | 3 | E. 3102, Freshman English | 3 |
| Ma. 3115, College Algebra | 3 | C.E. 1101, Elementary Engineering Problems | 1 |
| Ma. 2116, Trigonometry | 2 | Hi. 3102, History of the United States | 3 |
| Mi. 1102, The Mineral Industry | 1 | Ma. 4111, Analytic Geometry & Calculus | 4 |
| Hi. 3101, History of the United States | 3 | P.E. Service Course or M.S. Military Sci. | 1 |
| P.E. Service Course or M.S. Military Sci. | 1 | Total | 18 |
| Total | 19 | | |
| Sophomore Year — 1st Semester | | Sophomore Year — 2nd Semester | |
| Ch. 2211, Qualitative Analysis | 2 | Ch. 4214, Quantitative Analysis | 4 |
| Ch. 2221, Organic Chemistry | 2 | Ge. 3217, Mineralogy | 3 |
| Eco. 3101, Principles of Economics | 3 | Ma. 4317, Analytic Geometry & Calculus | 4 |
| Go. 3210, American Government | 3 | Mi. 3201, Elements of Mining | 3 |
| Ma. 4212, Analytic Geometry & Calculus | 4 | Ph. 4216, Electricity, Magnetism and Wave Motion | 4 |
| Ph. 4215, Mechanics and Heat | 4 | *P.E. Service Course | 1 |
| *P.E. Service Course | 1 | Total | 19 |
| Total | 19 | | |
| Summer — First Term | | Summer — Second Term | |
| C.E. 3215, Statics | 3 | C.E. 4334, Mechanics of Materials | 4 |
| Go. 3211, American Government | 3 | C.E. 2338, Dynamics | 2 |
| Total | 6 | Total | 6 |
| Junior Year — 1st Semester | | Junior Year — 2nd Semester | |
| Ch. 4460, Physical Chemistry | 4 | E. 3369, Technical Writing | 3 |
| Ma. 3326, Differential Equations | 3 | E.E. 4331, Electrical Circuits & Machines | 4 |
| Me. 3301, Principles of Process Metallurgy | 3 | Me. 4302, Mineral Dressing I | 4 |
| Me. 3309, Physics of Metals | 3 | Me. 4308, Physical Metallurgy I | 4 |
| Mi. 2301, Mining Methods | 2 | Me. 3403, Non-Ferrous Process Metallurgy | 3 |
| Ph. 4317, Light and Modern Physics | 4 | Total | 18 |
| Total | 19 | | |
| Senior Year — 1st Semester | | Senior Year — 2nd Semester | |
| Me. 3404, Electrometallurgy | 3 | Me. 3402, Ferrous Process Metallurgy | 3 |
| Me. 4407, Physical Metallurgy II | 4 | Me. 3405, Metallurgical Research | 3 |
| Me. 4408, Mineral Dressing II | 4 | Me. 4412, Physical Metallurgy IV | 4 |
| Me. 4411, Physical Metallurgy III | 4 | Me. 3414, Thermodynamics of Metals | 3 |
| Me. 3413, Thermodynamics of Metals | 3 | Me. 2421, Metallurgical Trip | 2 |
| Total | 18 | Total | 15 |

*Not required if M.S. 2101-02 completed. Student may elect Health Education 3101 for 1 semester of P.E.

**PLAN 4—Leading to the Degree of
Bachelor of Science in Civil Engineering**

| | <i>Semester Hours</i> |
|---|---------------------------|
| Chemistry 4103-04 | 8 |
| Drawing 2101, 2102 | 4 |
| Economics 3101 | 3 |
| Civil Engineering 1101, 2212, 3213, 3215, 2314, 2322, 4334, 3335, 2338, 3343, 3354, 1355, 2356, 3426, 1427, 3440, 3441, 3442, 3446, 3448, 3460, 3461 | 56 |
| Electrical Engineering 4331 | 4 |
| Mechanical Engineering 3349 | 3 |
| English 3101-02, 3369 | 9 |
| Geology 3101 | 3 |
| Government 3210-11 | 6 |
| History 3101, 3102 | 6 |
| Mathematics 3115, 2116, 4111, 4212, 4317, 3326 | 20 |
| Metallurgy 3305 | 3 |
| Physics 4215, 4216, 4317 | 12 |
| Physical Education or Military Science | 4 |
| Speech 3101 | 3 |
| Approved Electives | 6 |
| TOTAL | 150 |

ARRANGEMENT OF COURSES

| Freshman Year — 1st Semester | <i>Semester Hours</i> | Freshman Year — 2nd Semester | <i>Semester Hours</i> |
|---|---------------------------|---|---------------------------|
| Ch. 4103, General Chemistry | 4 | Ch. 4104, General Chemistry | 4 |
| Dr. 2101, Engineering Drawing | 2 | Dr. 2102, Descriptive Geometry | 2 |
| E. 3101, Freshman English | 3 | E. 3102, Freshman English | 3 |
| Hi. 3101, History of the United States | 3 | C.E. 1101, Elementary Engr. Problems | 1 |
| Ma. 3115, College Algebra | 3 | Hi. 3102, History of the United States | 3 |
| Ma. 2116, Trigonometry | 2 | Ma. 4111, Analytic Geometry & Calculus | 4 |
| P.E. Service Course or M.S. Military Sci. | 1 | P.E. Service Course or M.S. Military Sci. | 1 |
| Total | 18 | Total | 18 |
| Sophomore Year — 1st Semester | | Sophomore Year — 2nd Semester | |
| Ec. 3101, Principles of Economics | 3 | C.E. 3213, Plane Surveying | 3 |
| Ge. 3101, Physical Geology | 3 | C.E. 3215, Statics | 3 |
| Co. 3210, American Government | 3 | Co. 3211, American Government | 3 |
| Ma. 4212, Analytic Geometry & Calculus | 4 | Ma. 4317, Analytic Geometry & Calculus | 4 |
| Ph. 4215, Mechanics and Heat | 4 | Ph. 4216, Electricity, Magnetism and Wave Motion | 4 |
| *P.E. Service Course | 1 | *P.E. Service Course | 1 |
| Total | 18 | Total | 18 |
| Summer — First Term | | Summer — Second Term | |
| C.E. 2314, Field Surveying | 2 | C.E. 2212, Concrete Mixtures | 2 |
| C.E. 2322, Route Surveying | 2 | C.E. 2338, Dynamics | 2 |
| Total | 4 | C.E. 3354, Fluid Mechanics | 3 |
| | | Total | 7 |
| Junior Year — 1st Semester | | Junior Year — 2nd Semester | |
| C.E. 4334, Mechanics of Materials | 4 | E. 3369, Technical Writing | 3 |
| C.E. 1355, Fluid Mechanics Laboratory | 1 | C.E. 3335, Reinforced Concrete | 3 |
| M.E. 3349, Heat Engineering | 3 | C.E. 3343, Elementary Structural Analysis | 3 |
| Ma. 3326, Differential Equations | 3 | C.E. 2356, Hydraulic Engineering | 2 |
| Me. 3305, Engineering Physical Metallurgy | 3 | E.E. 4331, Electrical Circuits & Machines | 4 |
| Ph. 4317, Light and Modern Physics | 4 | Sp. 3101, Basic Principles of Speech | 3 |
| Total | 18 | Total | 18 |
| Senior Year — 1st Semester | | Senior Year — 2nd Semester | |
| C.E. 3426, Engineering Economics | 3 | C.E. 3440, Highway Engineering | 3 |
| C.E. 1427, Concrete Design | 1 | C.E. 3442, Sewerage & Sewage Disposal | 3 |
| C.E. 3441, Public Water Supplies | 3 | C.E. 3446, Contracts and Specifications | 3 |
| C.E. 3448, Soil Engineering | 3 | C.E. 3461, Structural Design | 3 |
| C.E. 3460, Indeterminate Structures | 3 | Approved Elective | 3 |
| Approved Elective | 3 | Total | 15 |
| Total | 16 | | |

*Not required if M.S. 2101-02 completed. Student may elect Health Education 3101 for 1 semester of P.E.

PLAN 5 — Leading to the Degree of

Bachelor of Science in Electrical Engineering

| | Semester Hours |
|--|-------------------|
| Chemistry 4103-04 | 8 |
| Drawing 2101, 2102 | 4 |
| Economics 3101 | 3 |
| Civil Engineering 1101, 3215, 2216, 4334, 2338, 3354, 3426 | 18 |
| Electrical Engineering 3319, 3321, 4339, 4340, 3357, 4358, 4366, 3444, 3447, 3464, 4467, 4468 | 42 |
| Mechanical Engineering 3349, 3350 | 6 |
| English 3101-02, 3369 | 9 |
| Government 3210-11 | 6 |
| History 3101, 3102 | 6 |
| Mathematics 3115, 2116, 4111, 4212, 4317, 3435, 3436 | 23 |
| Metallurgy 3305 | 3 |
| Physics 4215, 4216, 4317 | 12 |
| Physical Education or Military Science | 4 |
| Approved Electives | 6 |
| TOTAL | 150 |

ARRANGEMENT OF COURSES*Freshman Year — Same as for Plan 4*

| Sophomore Year — 1st Semester | Semester Hours | Sophomore Year — 2nd Semester | Semester Hours |
|--|-------------------|--|-------------------|
| C.E. 2216, Elementary Plane Surveying | 2 | C.E. 3215, Statics | 3 |
| Ec. 3101, Principles of Economics | 3 | Go. 3211, American Government | 3 |
| Go. 3210, American Government | 3 | Me. 3305, Engineering Physical Metallurgy | 3 |
| Ma. 4212, Analytic Geometry & Calculus | 4 | Ph. 4216, Electricity, Magnetism and Wave Motion | 4 |
| Ph. 4215, Mechanics and Heat | 4 | P.E. Service Course or M.S. Military Sci. | 1 |
| P.E. Service Course or M.S. Military Sci. | 1 | Total | 18 |
| Total | 17 | | |
| Summer — First Term | | Summer — Second Term | |
| E.E. 3319, Elements of Elect. Engineering | 3 | E.E. 4366, Direct-Current Machines | 4 |
| M.E. 3349, Heat Engineering | 3 | M.E. 3350, Heat Engineering | 3 |
| Total | 6 | Total | 7 |
| Junior Year — 1st Semester | | Junior Year — 2nd Semester | |
| C.E. 2338, Dynamics | 2 | C.E. 4334, Mechanics of Materials | 4 |
| C.E. 3354, Fluid Mechanics | 3 | E.E. 3321, Electromagnetic Field Theory | 3 |
| E.E. 4339, Electronics | 4 | E.E. 4340, Theory and Application of Electron Tubes | 4 |
| E.E. 3357, Alternating-Current Circuits | 3 | E.E. 4358, Alternating-Current Circuits | 4 |
| Ma. 3435, Higher Mathematics for Engineers and Physicists | 3 | Ma. 3436, Higher Mathematics for Engineers and Physicists | 3 |
| Ph. 4317, Light and Modern Physics | 4 | Total | 18 |
| Total | 19 | | |
| Senior Year — 1st Semester | | Senior Year — 2nd Semester | |
| E. 3369, Technical Writing | 3 | C.E. 3426, Engineering Economics | 3 |
| E.E. 3444, Measurements and Instrumentation | 3 | E.E. 3464, Servomechanisms | 3 |
| E.E. 3447, Lines and Networks | 3 | E.E. 4468, Alternating-Current Machines | 4 |
| E.E. 4467, Alternating-Current Machines | 4 | Approved Elective | 3 |
| Approved Elective | 3 | Total | 13 |
| Total | 16 | | |

*Not required if M.S. 2101-02 completed. Student may elect Health Education 3101 for 1 semester of P.E.

**PLAN 6 — Leading to the Degree of
Bachelor of Science in Mechanical Engineering**

| | <i>Semester Hours</i> |
|--|---------------------------|
| Chemistry 4103-04 | 8 |
| Drawing 2101, 2102 | 4 |
| Economics 3101 | 3 |
| Civil Engineering 1101, 3215, 2216, 4334, 2338, 3354, 1355, 3426 | 19 |
| Electrical Engineering 4477, 4478 | 8 |
| Mechanical Engineering 4323, 2324, 3336, 3362, 3375, 3376, 3381, 4382, 4479, 4480 | 33 |
| English 3101-02, 3369 | 9 |
| Government 3210-11 | 6 |
| History 3101, 3102 | 6 |
| Mathematics 3115, 2116, 4111, 4212, 4317, 3326 | 20 |
| Metallurgy 3305 | 3 |
| Physics 4215, 4216, 4317 | 12 |
| Physical Education or Military Science | 4 |
| Approved Electives | 15 |
| TOTAL | 150 |

ARRANGEMENT OF COURSES

Freshman and Sophomore Years same as for Plan 5

| Summer — First Term | <i>Semester Hours</i> | Summer — Second Term | <i>Semester Hours</i> |
|---|---------------------------|--|---------------------------|
| C.E. 4334, Mechanics of Materials | 4 | C.E. 3354, Fluid Mechanics | 3 |
| C.E. 2338, Dynamics | 2 | M.E. 3336, Manufacturing Processes | 3 |
| Total | 6 | Total | 6 |
| Junior Year — 1st Semester | | Junior Year — 2nd Semester | |
| M.E. 4323, Mechanisms | 4 | C.E. 1355, Fluid Mechanics Laboratory | 1 |
| M.E. 3375, Thermodynamics | 3 | M.E. 2324, Dynamics of Machinery | 2 |
| M.E. 3381, Heat Power Engineering | 3 | M.E. 3362, Industrial Engineering | 3 |
| Ma. 3326, Differential Equations | 3 | M.E. 3376, Thermodynamics | 3 |
| Ph. 4317, Light and Modern Physics | 4 | M.E. 4382, Heat Power Engineering | 4 |
| Total | 17 | Approved Elective | 3 |
| | | Total | 16 |
| Senior Year — 1st Semester | | Senior Year — 2nd Semester | |
| E. 3369, Technical Writing | 3 | C.E. 3426, Engineering Economics | 3 |
| E.E. 4477, Direct & Alternating Current | 4 | E.E. 4478, Direct & Alternating Currents | 4 |
| M.E. 4479, Machine Design | 4 | M.E. 4480, Machine Design | 4 |
| Approved Elective | 6 | Approved Elective | 6 |
| Total | 17 | Total | 17 |

Required Performance

To stay in school and remain enrolled in the college students must maintain minimum standards, determined by grade points.

The grade of A is rated as 4 points per semester hour, a grade of B as 3 points, a grade of C as 2 points, a grade of D as one point.

A student in his first semester must make a minimum of 15 grade points; in his second, third or fourth semester he must make a minimum of 18 grade points. In the fifth and succeeding semesters he must make a minimum of 24 grade points. A student taking less than 12 semester hours must make at least a 1.5 grade point average for all work taken during the semester, or summer term.

Honors at Graduation

Honors will be granted at graduation in the following categories:

1. **Highest Honors** — Highest Honors will be granted to one person (except in case of a tie) who has the highest over-all average, based on grades and a profile which is submitted by every instructor who has taught the candidate.

In consideration of the candidate, his grade average will be given a value of 60 percent and the results of the profile a value of 40 percent.

No candidate shall be considered for Highest Honors who has less than a 3.80 grade average.

No transfer student shall be eligible for Highest Honors.

2. **High Honors** — High Honors will be granted to those students who have a minimum grade average of 3.80 and whose over-all average (grades plus profile) is not less than 3.60.

A transfer student must have had 75 percent of his work at Texas Western College to be eligible for High Honors.

3. **Honors** — Honors will be granted to those students who have maintained a minimum grade average of 3.50.

No profile will be used in the consideration of candidates for this category.

A transfer student must have had 50 percent of his work at Texas Western College to be eligible for Honors.

No student with an F on his record shall be eligible for Highest Honors.

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

Pre-Law

Students entering Texas Western College after the fall semester of 1959, will not be permitted to offer a Pre-Law major in fulfillment of any degree requirement. It has been demonstrated by experience that the ordinary student is better prepared for the completion of his legal studies if he has obtained a bachelor's degree before admission to law school. Students having questions concerning this or any other matter relating to pre-legal studies are urged to consult the Pre-Law Advisor for additional information.

Pre-Medical

Students who plan to satisfy requirements for admission to a school of medicine, a school of dentistry, or a school of veterinary medicine, or a school of medical technology are requested to consult with the Dean of Arts and Sciences (Pre-Medical Advisor).

School of Arts and Sciences

Requirements for Undergraduate Degrees

BACHELOR OF ARTS

BACHELOR OF BUSINESS ADMINISTRATION

BACHELOR OF SCIENCE IN THE SCIENCES

BACHELOR OF MUSIC

BACHELOR OF SCIENCE IN EDUCATION

In the School of Arts and Sciences the College offers work leading to undergraduate degrees with majors in twenty-two fields, as well as prerequisite courses for students wishing to begin their legal and medical training at Texas Western College. In the following pages prerequisite work for the various degrees is set forth in tabular form.

Bachelor of Arts

Major Subjects

| | | |
|-------------------------|------------------------|--------------------|
| Art | French | Mathematics |
| Biological Sciences | Geology | Philosophy |
| Business Administration | Government | Physical Education |
| Chemistry | History | Physics |
| Drama and Speech | Inter-American Studies | Psychology |
| Economics | Journalism | Radio-Television |
| English | | Spanish |

Minor Subjects

| | | |
|-------------------------|------------------|--------------------|
| Art | French | Music |
| Biological Sciences | Geology | Philosophy |
| Business Administration | Government | Physical Education |
| Chemistry | Health Education | Physics |
| Drama and Speech | History | Psychology |
| Economics | Journalism | Radio-Television |
| Education | Mathematics | Sociology |
| English | Metallurgy | Spanish |

Major Examinations: At the discretion of the department concerned a major examination may be required in the major subject under the following conditions: (a) four hours written, or three hours written and one hour oral; (b) on the date fixed by the Calendar next preceding the completion of the degree; (c) the chairman of the department fixes the time and place, and supervises the examination; (d) in case of failure the student may take another examination no sooner than the next date provided in the Calendar.

Bachelor of Arts

Variations from the general requirements, including additional semester hours as well as specific courses to be included for a particular major subject, are listed under each Department's Course Descriptions (following page 51 of this catalog).

Bachelor of Arts *All-Levels Teaching Programs* are outlined on page 46.

Minimum Semester Hours

- 24 -- MAJOR SUBJECT: including 12 advanced hours. (A minimum of 33 required in Art including 12 advanced.)
 - 18 -- MINOR SUBJECT: including 6 advanced hours. (In the sciences, the minor must be in another science unless otherwise recommended by the chairman of the major department and approved by the dean.) No minor required in Inter-American Studies.
 - 12 -- ENGLISH 3101-02, 3211-12 or 3213-14 or 3215-16.
 - § -- FOREIGN LANGUAGE: completion of 3201-02.
 - 12 -- LABORATORY SCIENCES: for non-science majors or minors. (Including Zoology 3101-02 for Psychology majors.)
 - 6 -- MATHEMATICS: (Mathematics 4115-16 for majors in Mathematics, Chemistry, Physics, and for a minor in Physics.)
 - 3 -- ECONOMICS 3101. (For majors in Economics and Business Administration, 3103-04.)
 - 6 -- HISTORY 3101-02.
 - 6 -- GOVERNMENT 3210-11.
 - 3 -- PHILOSOPHY 3301 or 3311.*
 - 3 -- PHYSICAL EDUCATION: 3 semesters (not required of students taking 3 semesters of Military Science).
 - 3 -- HEALTH EDUCATION 3101 (Men) and 3102 (Women) as prescribed in the freshman and sophomore years.
 - § -- ELECTIVES: to make a minimum of 123 semester hours, including 30 semester hours in advanced courses. Not more than 66 semester hours may be in the major and minor subjects.
- * *Philosophy 3301 strongly recommended for majors in the sciences. Philosophy 3311 for non-science majors.*
- § *Varies according to student's capabilities.*
-

BACHELOR OF ARTS

Inter-American Studies

In addition to the general requirements for the degree of Bachelor of Arts the following course program and requirements are prescribed for degree in Inter-American Studies.

- 1) GOVERNMENT 3332 or 3333.
- 2) HISTORY 3347, 3348 or 3349.
- 3) ECONOMICS 3366 and 3 additional semester hours of advanced hours.
- 4) PSYCHOLOGY 3101.
- 5) SPANISH: completion of 3357, and one of the following, 3324, 3360, 3362, 3363, 3365 — and completion of a comprehensive examination in Spanish.
- 6) SOCIOLOGY 3336.
- 7) A total of 12 additional semester hours to be elected from Business Administration, Economics, Government, History, Languages and Philosophy (Phil. 3212).

Bachelor of Science

(SCIENCES)

MAJORS: Biological Sciences, Chemistry, Geology, Mathematics, Physics.

MINORS: Biological Sciences, Chemistry, Geology, Mathematics, Metallurgy, Physics.

**Minimum
Semester
Hours**

- § - MAJOR: at least 30 semester hours including 15 semester hours of advanced courses. (Specified for Chemistry: Chemistry 4324, 4321-22, 4460, 4461, 6 additional advanced semester hours in Chemistry, and German 4101-02.)
- § - MINOR: at least 18 semester hours including 6 semester hours of advanced courses.
- 6 - SCIENCE: another laboratory science as listed above. For the Mathematics Major, 12 semester hours of another of the sciences listed above.
- 6 - GOVERNMENT 3210-11.
- 6 - HISTORY 3101 and 3102.
- 3 - ECONOMICS 3101.
- 3 - PHILOSOPHY 3301* or 3311.
- 12 - ENGLISH 3101-02, and 3211-12 or 3213-14 or 3215 and 3216.
- § - MATHEMATICS 3115, 2116, 4111. (Exception: Mathematics 3101 and 3102 may be substituted in the Biological Sciences major, Geology minor.)
- 3 - PHYSICAL EDUCATION: 3 semesters (not required of students taking 3 semesters of Military Science).
- 3 - HEALTH EDUCATION 3101 (for men) or 3102 (for women) as prescribed in freshman and sophomore years.
- § - ELECTIVES: to make a minimum total of at least 135 semester hours, including a total of 36 semester hours in advanced courses. Foreign language should be included if the student plans graduate work.

* *Philosophy 3301 is strongly recommended for the Bachelor of Science degree.*

§ *Varies according to student's capabilities.*

Bachelor of Business Administration

- 39 - BUSINESS ADMINISTRATION: including 4111, 4112, 3220, 3251, 3325, 3326, 3331, 3340, 4361.
- 12 - ECONOMICS: including 3103, 3104.
- 12 - ENGLISH 3101-02 and 3211-12 or 3213-14 or 3215 and 3216.
- 6 - HISTORY 3101 and 3102.
- 6 - LABORATORY SCIENCES.
- 6 - MATHEMATICS 3103 and 3104.
- 6 - GOVERNMENT 3210-11.
- 6 - ANTHROPOLOGY, PHILOSOPHY, PSYCHOLOGY or SOCIOLOGY.
- 3 - SPEECH.
- 3 - PHYSICAL EDUCATION: 3 semesters (not required of students taking 3 semesters of Military Science).
- 3 - HEALTH EDUCATION 3101 (for men) or 3102 (for women) as prescribed in freshman and sophomore years.
- § - ELECTIVES: to make a minimum total of 123 semester hours including 30 hours in advanced courses. Not more than 66 semester hours may be in the major subjects.

§ *Varies according to student's capabilities.*

Bachelor of Music

Major Subjects: Music Theory and Composition; Music Education; All-Levels Program (see page 46), Vocal or Instrumental Teaching; Applied Music: (1) Orchestral Instruments, (2) Organ, Piano, (3) Voice.

Note for Music Majors: Auditions in piano and voice are required of all music majors.

Note for Majors in Music Education: A grade average of 2.5 in the teaching field, Education, Music Education, a minimum grade average of 2.0 in both English 3101-3102 and Speech 3101 is required for graduation and for permission to do student teaching.

Note for Minors in Music: A minor in music requires participation in the ensemble of the major instrument (band, choir, orchestra), the number of semester hours depending on background of student.

Note Concerning Music Theory: A private interview and a proficiency test are required in Music Theory to determine the level of study.

Minimum
Semester
Hours

GENERAL REQUIREMENTS FOR ALL MAJORS IN MUSIC

Except for the ALL-LEVELS Program, see page 46.

- 12 — ENGLISH 3101-02, 3211-12 or 3213-14 or 3215-16 (*exception:* Music Education requires only 9 semester hours).
- 12 — MUSIC LITERATURE (*exception:* Music Education requires only 3 semester hours).
- 3 — SPEECH (not required in: 1. Music Theory and Composition and 2. Organ-Piano).
- 6 — HISTORY 3101-02.
- 6 — GOVERNMENT 3210-12.
- 3 — PHYSICAL EDUCATION: 3 semesters (not required of students who are taking 3 semesters of Military Science).
- 3 — HEALTH EDUCATION 3101 (Men) and 3102 (Women) as prescribed in the freshman and sophomore years.
- 16 to 20 — MUSIC THEORY 3114, 2111,* 2112,* 3213-14, 1211, 1212, 2315, 3411 or 3412.
- 12 — APPLIED MUSIC — major instrument.
- 7 — MUSIC EDUCATION 3331, 3333, and 1101 (*exception:* Music Theory and Composition requires only three semester hours and 1101).
- 3 — MUSIC 3113 (essentials of acoustics and music theory).
- Participation in the ensemble of the major instrument (band, orchestra, or choir) each semester in residence. For details, consult with department chairman.
- Recital participation and/or attendance considered as laboratory for other music courses.

* May be omitted by passing satisfactorily a proficiency examination.

Teaching Certificates

The new teacher certification laws of Texas, which became effective September 1, 1955, provides for two general types of certificates: the permanent provisional and the permanent professional. The permanent provisional certificate is based on a bachelor's degree and a prescribed state approved certification program. The professional certificate is based on a minimum of an approved fifth year of graduate school work beyond the bachelor's degree. At Texas Western College all professional certificates are based on the master's degree.

The Texas Education Agency, the administrative agency for teacher certification in Texas, no longer analyzes the college transcripts of individual students for specific courses as a basis for issuing teaching certificates except in the case of out-of-state graduates. Certificates are now issued by the Agency upon receiving from the certifying agent of a particular college (1) verification that the student has completed a program approved for that college and (2) recommendation from the college that the applicant possesses personal attributes indicative of a successful teacher. Graduates of out-of-state colleges may send their transcripts directly to the Texas Education Agency to be evaluated for certification purposes.

The Texas Education Agency has approved specific programs in teacher certification for the various colleges of the State of Texas. Certificates can be obtained through a particular college only in those areas and fields so approved for that college. A student no longer can complete the elements of a particular program as set forth in State bulletins on teacher certification requirements and obtain a teaching certificate.

These bulletins are now directed to colleges to guide the colleges in developing their certification programs. They are not directed to individual students or to individual applicants for teaching certificates.

Texas Western College has approved provisional certificate programs at both the elementary and secondary school levels. In certain highly specialized fields, Texas Western College has approved programs which will qualify the individual for teaching his special subject at both the elementary and the secondary school levels. These special area certificates carry what is known as an all-levels endorsement. Texas Western College has approved all-levels programs in Art, Health and Physical Education, Music, and Speech and Drama. In the field of special education the college is approved for the provisional mentally retarded certificate program.

Texas Western College has approved *provisional* certificate programs as follows:

1. Elementary Education—specific courses in this program are outlined on page 45 of this catalog as Plan I.
2. Secondary Education—there are two general programs for this certificate, Plan II and Plan III as outlined on page 45 of this catalog.
3. All-Levels Program—this program is described on page 46 of this catalog.
4. Mentally Retarded—this program is described on page 45 of this catalog.

Texas Western College has approved *professional* certificate programs in the following areas:

1. Elementary Education.
2. Secondary Education.
3. Elementary School Principal.
4. Secondary School Principal.
5. Educational Supervisor in Elementary School.
6. Educational Supervisor in Secondary School.
7. Counseling and Guidance.

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

Direct questions concerning certificates to Coordinator of Teacher Education.

General Education Requirements in Teacher Programs

Students preparing to be teachers and working toward a provisional certificate will be required to offer toward graduation a total of at least 45 semester hours of work in general education. This requirement applies to all students working in the following programs and corresponding degrees:

| PROGRAM | DEGREE | |
|---|----------------------------------|------------------------------------|
| Elementary Education | Bachelor of Science in Education | |
| Secondary Education | Bachelor of Science in Education | |
| Mentally Retarded | Bachelor of Science in Education | |
| Music Education (All-levels) | Bachelor of Music | |
| Art (All-levels) | Bachelor of Arts | |
| Drama and Speech (All-levels) | Bachelor of Arts | |
| Health and Physical Education (All-levels) | Bachelor of Arts | |
| | | <i>Required Semester Hours</i> |
| I. Communications | | 9 to 12 |
| A. English 3101-02 (required) | | |
| B. Speech 3101, 3102 | | |
| A grade point average of not less than 2.0 is required in both English and Speech under communications. Any student declared deficient in speech by the certifying or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average. | | |
| II. Social Science | | 12 |
| A. History 3101, 3102 | | |
| B. Government 3210, 3211 | | |
| III. Humanities and Aesthetics | | 6 to 9 |
| A. English 3211-12 or 3213-14 or 3213 or 3215 or 3216 (minimum of 3 semester hours required) | | |
| B. Fine Arts 3110 or Music 3121 or Drama 3113 | | |
| C. Philosophy 3301 | | |
| IV. Mathematics and Laboratory Science | | 9 to 18 |
| A. Mathematics (3 to 6 semester hours required, Math 3100 will not count as credit in general education) | | |
| B. Laboratory Science (6 to 15 semester hours required) | | |
| V. Health Education 3101 (men) or 3102 (women) | | 3 |
| VI. Other Generalized Courses | | 0 to 12 |
| A. Foreign Languages (as much as 6 semester hours in one language) | | |
| B. Economics 3101 | | |
| C. Sociology 3101 or 3104 or 3215 | | |

NOTE: For those students majoring in secondary education not more than six semester hours in a teaching field may be counted as general education. Thus, students who have English as a teaching field must complete six semester hours in "B" and "C" under Humanities and Aesthetics. Also, students having a science (biology, chemistry, or physics) as a teaching field can count no more than six semester hours of work in each science teaching field as general education.

Minimum
Semester
Hours

Bachelor of Science in Education

PLAN I – ELEMENTARY EDUCATION

- 45 – GENERAL EDUCATION, see page 44. Elementary education majors will complete only Biology 3105-06 and 3 semester hours of Mathematics (not Math 3100) to meet the Mathematics and Laboratory Science general education requirement. They also must complete six semester hours of laboratory physical science course work which is counted as Elementary Content, not general education.
- 24 – EDUCATION 3101, 3102, 3201, 3203, 3302, 3403, 3496, 3497. (A grade average of not less than 2.5 is required in Education classes.)
- 36 – ELEMENTARY CONTENT: Education 3205, 3303, 3304, 3405; Art Methods 3291; Music Education 3334; Mathematics 3100 (not required if proficiency examination is passed); Geography 3210; Physical Education 3205; Health Education 3302; and six semester hours of laboratory physical science. (A grade average of not less than 2.5 is required in Education classes.)
- 3 – Three semesters of physical education service courses as prescribed in freshman and sophomore years (not required of students taking 3 semesters of Military Science).
- § – ELECTIVES: to make a minimum of 123 semester hours.

PLAN II – SECONDARY EDUCATION

- 45 – GENERAL EDUCATION, see page 44.
- 24 – EDUCATION 3101, 3102, 3202, 3204, 3305, 3420, 3498, 3499. (A grade average of not less than 2.5 is required in this area.)
- * 24 – In the first teaching field, 12 hours of which must be advanced. (A grade average of not less than 2.5 is required in this area.)
- * 18 – In the second teaching field, 6 hours of which must be advanced. (A grade average of not less than 2.5 is required in this area.)
- 3 – Three semesters of physical education service courses as prescribed in freshman and sophomore years (not required of students taking 3 semesters of Military Science).
- § – ELECTIVES: to make a minimum of 123 semester hours.

PLAN III – SECONDARY EDUCATION

Requirements listed under Plan II also apply to Plan III with the exception of the substitution of a teaching field of concentration of 42 semester hours in place of the first and second teaching field.

A broad teaching field of concentration may be selected in Social Studies.

PLAN IV – MENTALLY RETARDED

- 45 – GENERAL EDUCATION, see page 44. (Same as in Plan I.)
 - 24 – EDUCATION 3101, 3102, 3201, 3203, 3302, 3435, 3496, 3497.
 - 36 – ELEMENTARY CONTENT. (Same as in Plan I.)
 - 12 – MENTAL RETARDATION: Education 3409, 2421, 3422, 2429, 2436.
 - 3 – Three semesters of physical education service courses as prescribed in freshman and sophomore years (not required of students taking 3 semesters of Military Science).
 - § – ELECTIVES: to make a minimum total of 132 semester hours.
- * The teaching fields must be selected from the following: Biological Sciences, Business Administration (Secretarial Science), Business Administration (Bookkeeping and General Business), Chemistry, Drama and Speech, English, French, Health and Physical Education, History, Journalism, Mathematics, Physics, and Spanish. The approved programs of these teaching fields are listed on pages 47-48.
- § Varies according to student's needs and capabilities.

All-Levels Teaching Programs

(ELEMENTARY AND SECONDARY)

An all-levels teaching field may be selected from the four subjects listed below.
(For additional information consult the Chairman of the Department concerned)

Physical education service courses not required of students completing 3 semesters of Military Science or Band.

Semester
Hours**Art**

45—GENERAL EDUCATION, see page 44.

Pre-professional courses:

6—EDUCATION 3101 and 3102.

Specialized Professional Courses:

12—EDUCATION 3201, 3202, 3203, 3204.

Professional Laboratory Experiences:

6—EDUCATION 3496 and 3498.

50—ART: Two semesters each of the following: 2103, 2105, 2141, 2181, 2211, 2261.

One semester each of 2121, 2131, 3301, 3302, 3291, 3392.

6 hours of upper level art courses in one area, and 4 hours art electives. A grade average of 2.5 in art is required.

3—Semester hours of physical education.

9—ELECTIVES: to make a minimum total of 131 semester hours including 30 advanced hours.

Health and Physical Education

45—GENERAL EDUCATION, see page 44.

The academic advisors of the Department will assist the student with electing in this area.

Pre-professional courses:

6—EDUCATION 3101, 3102.

Specialized Professional Preparation:

12—EDUCATION 3201, 3202, 3203 or 3302 or 3403, 3204.

Professional Laboratory Experiences:

6—PHYSICAL EDUCATION 3496, 3498

Content Courses:

30—PHYSICAL EDUCATION 3101, 3102 (men) or 3104 (women), 3202, 3203, 3205, 3303, 3304, 3412 (men) or 3302 (women), 3413 and Health Education 3302.

ELECTIVES:

—To make a minimum total of 123 hours, including 30 advanced hours.

Semester
Hours**Drama and Speech**

45—GENERAL EDUCATION, see page 44.

Pre-professional courses:

6—EDUCATION 3101 and 3102.

Specialized Professional Courses:

12—EDUCATION 3201, 3202, 3204, and Drama 3350.

Professional Laboratory Experiences:

6—EDUCATION 3496 and 3498.

46—SPEECH 3101, 3102, 3103, 3120, 3215, 3306, 3333, and 3410.

Drama 3113, 2130 & 2230 or 2330 & 2430, 3214, 3332, 3357, 3358, 3425.

3—Semester hours of physical education.

ELECTIVES: to make a minimum total of 127 semester hours, including 30 advanced hours.**Music Education**

45—GENERAL EDUCATION, see page 44.

Pre-professional Courses:

6—EDUCATION 3101-3102.

Specialized Professional Courses:

12—MUSIC EDUCATION 3331, 3333, 3336, and 3433.

Professional Laboratory Experiences:

6—EDUCATION 3496 and 3498.

3—MUSIC HISTORY 3321 or 3322.

16—MUSIC THEORY, see page 42.

APPLIED MUSIC:

30—a) Instrumental Field: Major instrument 12 hrs., voice 2 hrs., piano 6 hrs., and 10 hrs. of secondary instruments.

28—b) Choral Field: Major instrument 12 hrs., minimum of 8 semester hrs. or equivalent proficiency, in both Piano and Voice; 8 additional hrs., including one secondary instrument.

3—Semester hours of physical education.

9—ELECTIVES to make a total minimum of (a) 130 or (b) 128 semester hours, including 30 advanced hours.

Secondary Education Teaching Fields

APPROVED PROGRAMS FOR PLAN II

Department of Biological Sciences

FIRST TEACHING FIELD — PLAN A: Zoology 3101-3102, 3201-3202; and 12 hours of any combination of the following courses: Bacteriology 3301-3302; Biology 3301, 3401; Zoology 3301-3302. Total 24 hours.—PLAN B: Zoology 3101-3102; Biology 3202-3203, 3301, 3401; Bacteriology 3301-3302. Total 24 hours.

SECOND TEACHING FIELD — PLAN A: Zoology 3101-3102; Botany 3101-3102; Bacteriology 3301-3302. Total 18 hours.—PLAN B: Zoology 3101-3102; Biology 3202-3203, and 6 hours of any combination of the following courses: Bacteriology 3301-3302; Biology 3301. Total 18 hours.—PLAN C: Zoology 3101-3102, 3201-3202, and 6 hours of any combination of the following courses: Zoology 3301-3302; Biology 3301, 3401; Bacteriology 3301-3302. Total 18 hours.

The following courses are recommended to be used as electives whenever possible: Biology 3204; Botany 3101-3102, 3201; English 3362, 3369; Phys. Edu. 3202.

Department of Economics and Business Administration*Secretarial Science:*

FIRST TEACHING FIELD — B.A. 2102, 3101, 3201, 3202, 3303, 3304, 3320, 3321, 3340. Total 26 hours.

SECOND TEACHING FIELD — B.A. 2102, 3201, 3202, 3303, 3304, 3320, 3321. Total 20 hours.

Bookkeeping and General Business:

FIRST TEACHING FIELD — B.A. 4111, 4112, 3211, 3220, 3311, 3325 (or any three advanced hours in Economics or Business Administration), 3340 plus three additional advanced hours in Accounting or Economics. Total 26 hours.

SECOND TEACHING FIELD — B.A. 4111, 4112, 3251, 3325, 3340, plus three additional advanced hours in Economics. Total 20 hours.

Department of Chemistry

FIRST TEACHING FIELD — Chemistry 4103-4104, 3211, 4213, 4324, 3221-3222 (Chemistry 4321-4322 is recommended in place of Chemistry 3221-3222). Total 25 hours.

SECONDARY TEACHING FIELD — Chemistry 4103-4104, 2211, 4214, 2221-2222. Total 18 hours.

Department of Drama and Speech

FIRST TEACHING FIELD — Speech 3101, 3102 or 3215, 3120, 3305, 3333. Drama 3113, 3332, 3425. Total 24 hours.

SECOND TEACHING FIELD — Speech 3101, 3102, 3319, 3333. Drama 3113, 3425. Total 18 hours.

Department of English

FIRST TEACHING FIELD — English 3101 or examination and 3102; 3211-3212, 3309, 3311, 3312; plus 3 or 6 hours advanced English. Total 24 hours. (If the student was exempted from English 3101, he would be required to take two other advanced English courses; if not, he would need only one other such course to complete the 24 hour requirement.)

SECOND TEACHING FIELD — English 3101 or examination and 3102; 3211-12, 3311-12. If the person was exempted from English 3101 by examination, he would be required to take English 3309. Total 18 hours.

The subject-matter Committee strongly recommends that credit for 24 hours of English be the minimum requirement for any person teaching English at the secondary level.

Department of Health and Physical Education

FIRST TEACHING FIELD — MEN and WOMEN: Physical Education 3101, 3202, 3203, 3311, 3303, 3304, 3413 and Health Education 3302. MEN: P.E. 3102, 3412. WOMEN: P.E. 3104, 3302. Total 30 hours.

SECOND TEACHING FIELD — MEN and WOMEN: Physical Education 3202, 3303, 3304, 3413 and Health Education 3302. MEN: P.E. 3412. WOMEN: P.E. 3302. Total 18 hours.

The general education requirements for this program includes Zoology 3101, 3102; Biology 3202, 3203, 3301.

SECONDARY TEACHING FIELDS

History: Department of History, Government, and Sociology

FIRST TEACHING FIELD — History 3101-3102, 3106-3107, plus 12 additional advanced hours. Total 24 hours.

SECOND TEACHING FIELD — History 3101-3102, 3106-3107, plus 6 additional advanced hours. Total 18 hours.

SOCIAL STUDIES CONCENTRATION — History 3101-3102, 3106-3107, plus 6 additional advanced hours; Government 3210-3211, plus 3 additional advanced hours; Sociology 3101-3102, plus 3 additional advanced hours; Economics 3101; Geography 3210. Total 42 hours.

(Note: History 3317 is recommended as one of the advanced electives to be chosen in each of the three plans above.)

Department of Journalism

FIRST TEACHING FIELD — Journalism 4207, 3201-02, 3303, 3305, 3312, 3350; Publications 1104-05, 1304-05, 1404-05. Total 28 hours.

SECOND TEACHING FIELD — Journalism 4207, 3201-02, 3305, 3350; Publications 1104-05, 1304-05, 1404-05. Total 22 hours.

Both semesters of the Publications courses must be taken — for example 1104 and 1105 — in order for the student to receive one hour credit for the course for the semester. They are continuing courses in which credit will not be given until both are taken.

Mathematics: Department of Mathematics and Physics

FIRST TEACHING FIELD — Mathematics 3115, 2116, 4111, 4212; 12 additional advanced credits are to be elected from upper division courses. Total 25 hours.

SECOND TEACHING FIELD — Mathematics 3115, 2116, 4111, 4212; 6 additional advanced credits are to be elected from upper division courses. Total 19 hours. It is strongly recommended that both 3421 and 3422 be included in each program.

Physics:

FIRST TEACHING FIELD — PLAN A: Physics 4103, 4104, 4213, 4214; plus 12 additional hours of advanced credit to be selected from upper division courses. Total 28 hours. — PLAN B: Physics 4215, 4216, 4317; plus 12 additional advanced hours. Total 24 hours.

SECOND TEACHING FIELD — PLAN A: Physics 4103, 4104, 4213, 4214; plus 6 additional advanced hours. Total 22 hours. — PLAN B: Physics 4215, 4216, 4317; plus 6 additional advanced hours. Total 18 hours.

French: Department of Modern Languages

FIRST TEACHING FIELD — French 3201-3202; choice of 3 hours (Combined Conversation and Area Study) from 3110, 3111; French 3357 (Advanced Composition) and choice of 12 hours from 3321, 3332, 3333, 3335, 3337, 3339, 3341, 3358, and 3377 (Literature). Native speakers* will replace Conversational and Area Study with a literature course. Completion of 3201-3202 in a second language.

SECOND TEACHING FIELD — Two less literature courses from the above. Native speakers will replace Conversational and Area Study with a literature course. Total 18 hours.

Spanish:

FIRST TEACHING FIELD — Spanish 3201-3202; Choice of 3 hours (Combined Conversation and Area Study) from 3108, 3110, 3111, 3114; Spanish 3357 (Advanced Composition) and choice of 6 hours from 3321, 3328, 3332, 3333, 3335, 3337, 3341, 3358, 3361, 3377 (Spanish Literature) plus choice of 6 hours from 3324, 3339, 3360, 3362, 3363, 3364, 3365, and 3366 (Spanish American Literature). Native speakers* will replace Conversational and Area Study with a literature course. Completion of 3201-3202 in a second language.

SECOND TEACHING FIELD — One less course from each literature group above. Native speakers will replace Conversational and Area Study with a literature course. Total 18 hours.

* Oral competence will be determined by the Department.

Graduate Division

(The Graduate Division publishes a separate bulletin with complete details)

TEXAS WESTERN COLLEGE offers work leading to the degree of Master of Arts and Master of Education. Graduate Study is under the general supervision of the Graduate Council. The program carried by any student who has been admitted to the Graduate Division is under the administration of the Dean of the Graduate Division. Work of the individual student after admission will be directed by a professor in the major field. An average grade of at least *B* is required in all courses counted for graduate credit. A minimum of fifty per cent of the semester-hour requirements must be in graduate courses (3500 and above). Graduate courses are open to graduate students only, and have prerequisites of twelve semester hours of advanced courses in the particular field and a bachelor's degree.

Majors: Education, English, History, and Spanish.

Minors: Art, Biological Sciences, Business Administration, Chemistry, Economics, Education, English, French, Geology, Government, History, Mathematics, Music, Health and Physical Education, Philosophy, Physics, Psychology, Sociology, and Spanish.

ADMISSION TO GRADUATE DIVISION

1. Qualifications of Applicants:

An applicant for admission to the Graduate Division must hold a bachelor's degree from an accredited college or university. Twenty-four (24) semester hours of undergraduate work in the major subject and twelve semester hours in the minor subject are required. Removal of any undergraduate deficiencies will be subject to action of the Graduate Dean with the exception that deficiencies in the study of the Constitutions of the United States of America and of Texas must be satisfied in accordance with the state law.

2. Method of Application:

An application for admission must be made in the office of the Dean of the Graduate Division, where forms may be secured. Two complete transcripts must be provided—one for the Registrar, and one for the office of the Dean of the Graduate Division.

3. Transfer of Credit:

Acceptance of graduate credits from another institution may not exceed six semester hours, and is subject to approval by the Graduate Council.

Undergraduate Students Taking Work for Graduate Credit

An undergraduate student who has completed 108 semester hours of the requirements for a bachelor's degree may, upon petition to the Graduate Council, take courses for graduate credit.

Special Examinations

The Head of the major department may require a special examination (aptitude and/or subject) of any student petitioning for candidacy. These provisions are effective as of December 17, 1959.

Graduate Load for Teachers

Students who are employed in full-time teaching positions should be limited to three semester hours of work each semester. With the written approval of the school superintendent, as much as six semester hours of graduate credit for one semester may be approved; however, nine semester hours is the maximum that may be approved for one academic year.

Graduate Load for Veterans

Twelve semester hours of course work constitutes a full load for the regular semester; six semester hours for each term of the summer session.

Admission to Candidacy

After a graduate student has successfully completed twelve (12) semester hours of effective work toward the master's degree, a Petition for Candidacy is sent from the office of the Graduate Division which is to be signed by the student and returned to that office at the earliest possible date. The major department will then act upon the petition. If it is denied, a new petition may be made at a later date. *A student is not a candidate for the master's degree until this petition has been approved by the major department, and the student has taken such special examinations as may be recommended by the Head of the major department.*

Withdrawals and Changes

All drops, withdrawals, or changes of any nature are handled in the office of the Graduate Dean. Requests for such changes are made in the office of the Graduate Division.

Catalog Requirements

A student may obtain a degree according to the requirements of the catalog in force at the time of his admission to the Graduate Division or of a later catalog, subject to the restriction that all requirements must be completed within six years of the date of admission.

(See the Graduate Bulletin for complete details)

Residence

The minimum residence requirement for the master's degree is one long session or three summer sessions, or one semester of the long session and two summer sessions. In the case of students doing part-time graduate work during the long session, residence will be computed in terms of semester hours completed. No graduate credit may be secured for courses taken by correspondence or extension.

REQUIREMENTS FOR THE MASTER OF ARTS DEGREE

1. A thesis (six semester hours) and twenty-four (24) semester hours of course work.
2. A major with a minimum of eighteen (18) semester hours, including the thesis and a maximum of 24 semester hours.
3. A minor of not less than six (6) semester hours. There may be two minors of six (6) semester hours each, or one minor with a maximum of twelve (12) semester hours.
4. A transfer student must complete at least three (3) semester hours of the minor in residence.
5. There must be a minimum of fifteen (15) semester hours, including the thesis, of graduate courses (those numbered 3500 and above).

REQUIREMENTS FOR THE MASTER OF EDUCATION DEGREE

1. Thirty-six (36) semester hours of course work.
2. Not less than twenty-one (21) semester hours, nor more than thirty (30) semester hours of Education.
3. A minor of not less than six (6) semester hours nor more than fifteen (15) semester hours. There are two possibilities for a split minor: nine (9) semester hours in one subject and six (6) in another, or six (6) semester hours in each of two fields.
4. There must be a minimum of eighteen (18) semester hours of graduate courses (those numbered 3500 and above).

Research

The Schellenger Laboratories

THE SCHELLENGER RESEARCH LABORATORIES were created in 1953 by the last will and testament of Mrs. Emma H. Schellenger, which established the Schellenger Foundation in Electricity as a memorial to her late husband, Newton C. Schellenger, for the purpose of promoting, encouraging, and engaging in research and development.

The El Paso National Bank serves as Trustee of the Foundation. The Schellenger Committee acts as the board of Directors of the Schellenger Foundation and establishes research policy for the Schellenger Research Laboratories:

Thomas G. Barnes, *Chairman*

Anton H. Berkman

Floyd A. Decker

Robert L. Schumaker

Oscar H. McMahan

President Joseph M. Ray, *Ex-officio*

Halbert G. St. Clair, *Ex-officio*

The scope of the laboratories research has been expanded to include the life sciences, as well as the physical sciences. In 1960 the William L. Staley Trust was terminated, and income is being made available for research in the life sciences. Dr. Edward W. Rheinheimer is trustee.

The Schellenger Research Laboratories have five installations on the campus: The Electronic Research Center and Administrative Offices in the south wing of the Engineering Building, the Data Analysis Center on Randolph Street, the Environmental Chambers in the Physics Building, the Acoustic Research Chambers under the North Stands of Kidd Field, and the Optical and Mechanical Test Center near the Main Street entrance to the campus.

The staff is composed of more than fifty faculty members and students who engage in scientific research activities under various grants and contracts which total more than \$2,000,000. Research and development is currently being carried on in the fields of acoustics, electricity, electronics, meteorology, data analysis, computer techniques, optics, dosimetry, and the life sciences.

The laboratories furnish employment for many students, giving them the unusual opportunity of undergraduate participation in basic research in the fields of their major study endeavors. Employment opportunity is available to all students of the College and to all faculty members on the basis of abilities in the fields of science under current research application. Interested individuals should apply to the director of the laboratory.

As a result of such employment, undergraduate students have the opportunity for the experience and prestige to be gained from co-authoring reports and brochures. They also have the opportunity of association with scientists who visit the laboratories. The laboratories acted as host to the

First National Conference on the High Atmosphere, under the sponsorship of the American Meteorological Society and the American Rocket Society, for the purpose of integrating information on the upper atmosphere which was gained during the International Geophysical Year.

The latest scientific equipment is available, including an anechoic room, altitude and humidity chambers, 2,000 meter (multiple-traversal) infra-red absorption cell, electronic digital computer, analog computer, microwave system, mobile instrumentation vans, Rawin sets for tracking balloon-borne meteorological instruments, centrifuge, 2500-pound force-output shaker system, pistonphone, refraction chamber with associated shock tube and Schlieren photographic equipment, and the finest electronic instruments for recording, testing, and measurement.

The laboratory is a non-profit research organization, operating under pertinent regulations of The University of Texas. The laboratory is open to proposals for contracts and grants for pure and applied research and development from Governmental agencies, industrial organizations, and philanthropic foundations in the various fields of physics and mathematics, the life sciences, and allied areas. The laboratory has a top secret facility clearance. Acceptance of a particular project is dependent upon scientific personnel and laboratory facilities available at a given time. Tentative proposals and discussions of problems should be addressed to the Director, Schellenger Research Laboratories, Texas Western College, El Paso, Texas.

SCHELLENGER RESEARCH LABORATORIES STAFF

Thomas G. Barnes, *Director*

Robert L. Schumaker, *Assistant Director*

Francis L. Fugate, *Contract Administrator*

Physicists: Harold N. Ballard, Aurora Bustos, Clarence H. Cooper, E. Alan Dean, Gilbert I. Good, Edwin J. Knapp, Henry H. Launsbach, Carlos McDonald, Oscar H. McMahan, Richard C. Montgomery, David L. Mott.*

Mathematician: Alice Marie Parra.

Electrical Engineers: Leonard L. Chapin, Paul Harris, James G. Pruitt.

Research Engineers: Clarence J. Cervenka, Ralph M. Coleman.

*Leave of Absence, 1960-1961.

Gordon Ponder Memorial Heart Fund

THIS FUND was established by Mr. and Mrs. Jack Ponder in memory of their son Gordon, who died while a student at Texas Western College. This fund is open to contributions by individuals interested in furthering heart research. Many gifts are received in memory of friends and relatives. This fund is administered by Texas Western College in conjunction with heart research carried on in the Schellenger Research Laboratories. One of the projects has been the development of an electronic vector cardiograph, which is currently undergoing tests at one of the nation's largest research medical centers.

Course Descriptions

| | | | |
|-------------------------|-----|------------------------|-----|
| Art | 55 | Journalism | 107 |
| Bible | 58 | Mathematics | 112 |
| Biological Sciences . . | 59 | Metallurgy | 120 |
| Business Administration | 69 | Military Science . . . | 117 |
| Chemistry | 61 | Mining | 119 |
| Drama | 63 | Music Education . . . | 128 |
| Economics | 67 | Music | 126 |
| Education | 75 | Philosophy | 134 |
| Engineering | 80 | Physical Education . . | 96 |
| English | 86 | Physics | 114 |
| French | 122 | Psychology | 135 |
| Geography | 94 | Radio and Television . | 109 |
| Geology | 92 | Russian | 125 |
| German | 123 | Sociology | 105 |
| Government | 103 | Spanish | 123 |
| Health Education . . . | 95 | Specch | 65 |
| History | 99 | Zoology | 60 |

Explanation of Course Numbering System

CREDIT MEASUREMENT

The unit of measurement for credit purposes is the semester hour. A semester hour entails one hour of recitation and/or lecture (or the equivalent in shop or laboratory work) per week for one semester of eighteen weeks, unless otherwise specified in the course description. For each classroom hour two hours of preparation are expected. Three hours of shop or laboratory work are counted as equivalent to one classroom hour and the preparation for it. Unless otherwise stated in the course description, it can be assumed that a course will meet for one hour of recitation-lecture per week for each semester hour of credit.

COURSE NUMBERING SYSTEM

Courses are designated by four digit numbers. The first number indicates semester hour value of the course, the second number indicates level of the course: all courses with a second number of 1 are freshman courses, all courses with a second number of 2 are sophomore courses, all courses with a second number of 3 are junior courses, all courses with a second number of 4 are senior courses, and all courses with a second number of 5 are graduate courses. Any course with a second number of 3 or 4 may be counted as upper division work.

TWO SEMESTER COURSES

Courses requiring two semesters for completion are designated in the course description by a hyphen. For example, English 3101-02. In such cases no credit will be given until both semesters of the course have been completed. When any course requires two semesters for completion, the first semester is prerequisite for enrolling in the second semester.

COURSE FEES

Laboratory and other special fees for individual courses are indicated on a per-semester basis in parentheses following course titles:

GEOLOGY

3210 Principles of Geomorphology (\$2)

BIOLOGY

3105-06 General Biology (\$2 + \$2)

(Two Semesters — Two Fees)

Art

MISS VERA WISE, *Chairman*

Professor WISE; Associate Professor HARRISON;

Assistant Professors COOGLER, MASSEY,* HIGGINS

The art program permits students to specialize in the following directions: painting, design and advertising art, art education, the crafts and graphics. The third digit in course numbers indicates the area, i.e., 1 painting, 2 life drawing, 3 graphics, 4 jewelry, 5 enamels, 6 design, 7 ceramics, 8 art education. When two semesters are indicated, the last digit represents the semester in which a course is offered, odd numbers indicating the first semester and even ones the second. A third digit 0, generally, indicates a basic course. In courses repeated for credit, the same course number is used.

B. A. Degree — Specific courses required for the ART MAJOR are Art 3110, 3301, 3302; two semester hours of Design; two semester hours of Drawing 2105; four semester hours of Ceramics and of Jewelry (2 hours each). The Art Department reserves the right to keep a limited amount of student work for exhibition purposes for one year.

Basic Courses

For Undergraduates

2103 Basic Design

A course stressing principles of art, color theory, dimensionality, and other design qualities. The organization of ideas into creative design. May be repeated one semester for credit.

2105 Basic Drawing

Instruction in drawing forms, actions, etc., with emphasis upon learning skill in draftsmanship and perspective. Skill in various techniques of handling pencil, ink, charcoal, etc. May be repeated one semester for credit.

3110 Introduction to the Fine Arts

Enjoyments of the Arts through the understanding of their interrelationship and the expressive elements common to Music, Art, and Drama. Differences in mediums of expression and the tools of each Art. Required of Art majors. Not counted in addition to Music 3110 or Drama 3110.

For Undergraduates and Graduates

3311 History of Mexican Art

A survey of the art of Mexico, from the beginning of the Colonial Period to the present. The effect of the Revolution, the era of mural painting, and the national characteristics of Mexican art will be covered. *Prerequisite:* Junior standing.

3301 Art History and Appreciation

Art from Man's earliest period of esthetic expression through the Renaissance. *Prerequisite:* Junior standing.

3302 Art History and Appreciation

Study of great art concepts in works of the masters through the post-Renaissance period to contemporary times. *Prerequisite:* Junior standing.

Specific Areas:

Painting

For Undergraduates

2211 Painting (\$2)

The development of painting experience and creative forms. Organization of composition. May be repeated one semester for credit. *Prerequisite:* Two semesters of Design 2103.

2311 Painting (\$2)

Painting experiences with exploration of mediums of expression. May be repeated one semester for credit. *Prerequisite:* Two semesters of 2211.

* On leave of absence, 1960-1961.

2313 Painting (\$2)

Portrait and figure painting, with concentration on the specific problems involved, such as form color, composition, with one or more figures, drapery and texture. Techniques of portrait painting. *Prerequisite:* Two semesters of 2211.

2413 Mural Painting (\$2)

Exploration of mural techniques and media. May be repeated one semester for credit. *Prerequisite:* Two semesters of 2311.

For Undergraduates and Graduates

2411-12 Painting (\$2-\$2)

Emphasis on painting skills and clear expression of artistic intent. *Prerequisite:* Two semesters of 2311.

Life Drawing

For Undergraduates

2121 Life Drawing

Basic study of the human form with special attention given to head, hands, and feet. Requirement of skills and techniques. May be repeated three additional semesters for credit.

2321 Life Drawing

Emphasis on esthetic factors in interpreting the human form, and composition of group studies. May be repeated three additional semesters for credit. *Prerequisite:* Four semesters of 2121.

Graphics

For Undergraduates

2131 Graphics (\$2)

Introductory course for basic graphic processes. May be repeated one semester for credit.

2231 Etching (\$2)

Experimentation with line etching for various approaches, line or value. May be repeated one semester for credit. *Prerequisite:* Two semesters of 2131.

2232 Lithography (\$2)

Experimentation with lithographic processes on stone. May be repeated one semester for credit. *Prerequisite:* Two semesters of 2131.

2333 Lithography (\$2)

Advanced work in lithographic mediums. Color problems developed. May be repeated one semester for credit. *Prerequisite:* Two semesters of 2232.

For Undergraduates and Graduates

2331-32 Graphics (\$2-\$2)

Advanced work in all etching or intaglio mediums, including aquatint, lift, and soft ground. *Prerequisite:* Two semesters of 2231.

Jewelry

For Undergraduates

2141 Jewelry (\$5)

Basic techniques in jewelry construction. Lapidary and metal work. May be repeated three additional semesters for credit.

For Undergraduates and Graduates

2341-42 Jewelry (\$5-\$5)

Basic to advanced techniques in metalsmithing. *Prerequisite:* Four semesters of 2141.

Enameling*For Undergraduates***2151 Enameling**

Basic techniques in enameling from jewelry forms to the enameling of hollow ware. May be repeated three additional semesters for credit.

2351 Enameling

Advanced problems in enameling. Problems of design in enamel on copper and silver. Adapted to jewelry and other forms. *Prerequisite:* Four semesters of 2151.

Design*For Undergraduates***2261 Advertising Design**

Application of design principles to advertising art, and study of type faces and letter forms. May be repeated one semester for credit. *Prerequisite:* Two semesters of Design 2103. The second semester of Drawing 2105 must be taken previously or concurrently.

2361 Advertising Design and Production

Advanced study of advertising art and production on a professional level. May be repeated one semester for credit. *Prerequisite:* Two semesters of 2261.

2365 Three Dimensional Design (\$2)

Design experimentation in sculptural and other three dimensional forms using various materials and processes with emphasis on excellence of design and craftsmanship. May be repeated one semester for credit. *Prerequisite:* Basic art courses plus two semesters of crafts.

Ceramics**2181 Ceramics (\$5)**

Methods of construction by hand, pinch pot, coil, slab modeling and casting. Methods of practice in throwing and casting in large forms. May be repeated three additional semesters for credit.

*For Undergraduates and Graduates***2381-82 Ceramics (\$5-\$5)**

Advanced techniques in ceramics. Emphasis on study of clays, glazes, and technical aspects of ceramic production, including equipment. *Prerequisite:* Four semesters of 2181.

Art Education*For Undergraduates***3291 Concepts, Materials and Techniques in Elementary Art (\$2)**

A course for the prospective teacher; deals with concepts, processes, and handling of material that is available for use in the elementary school. One lecture and two 2-hour laboratory periods per week. *Prerequisite or concurrently:* Education 3201.

3392 Art Teaching Methods in the Secondary School (\$2)

Lectures, demonstrations and processes in the approach to teaching art on the secondary grade level. Seminar in Art Education for secondary teachers. *Prerequisite:* At least 20 hours of art and completion of Education 3204.

Research**1401 to 6401 Introduction to Research in Art Fields**

Credit will be given up to six semester hours for research satisfactorily completed by advanced students in the Art Department. Only specially qualified students approved by the Chairman of the Art Department will be accepted for this work. Credit will be granted only in the senior year on the recommendation of the Chairman of the Art Department. *Prerequisite:* Permission of the Chairman of the Art Department.

Bible

Credit toward college degrees is given for certain courses offered under the following regulations established by the Board of Regents to maintain the equivalence of these courses with other courses given in the College:

The plant in which the courses credited are given must (1) be located in El Paso, convenient to the College; (2) contain adequate classroom facilities — rooms, seats, blackboards, charts, maps, tables; (3) provide a library of books, dictionaries, and lexicons costing at least \$500 as an initial expenditure.

The instructors by whom the courses credited are given must (1) be under the control of some permanent religious organization of recognized standing; (2) possess at least the training demanded of instructors in the College; (3) devote their time primarily to teaching; (4) be approved by the President, subject to final action by the Board of Regents.

The courses credited must (1) be in the field of historical or literary, but not exegetical or doctrinal, study of the Bible; (2) be thoroughly organized, with syllabi showing the outlines and required readings; (3) be of college grade and on a subject suitable for college instruction; (4) be given in regular classes with meetings at least equal in number, in length of period, and in amount of preparation required, to those of a College course involving the credit asked; (5) include regular tests or examinations corresponding to those of the College, to be given at the time prescribed by the College for other examinations; (6) be subject to the same regulations and oversight as regular courses given in the College.

The students enrolled in the courses for credit (1) may be credited with no more than twelve semester hours in Bible on any bachelor's degree, (2) are subject to the regulations of the catalog on the amount of work which may be carried.

For Undergraduate Credit Only

Bible courses for which college credit is given are conducted by the Baptist Student Union and the Wesley Foundation.

Biological Sciences

DR. ANTON H. BERKMAN, *Chairman*

Professor BERKMAN; Associate Professors DUKE, SUBLETTE; Assistant Professor REEVES;
Instructors CHRAPLIWY, HAMPTON, MANNING, TUCKER, TULLEY*

Biology 3204 may not be used to satisfy the science requirement for the
Bachelor of Arts Degree or the Bachelor of Science Degree.

Biology

For Undergraduates

3101-02 Anatomy and Physiology (\$2-\$2)

Study of a typical animal cell: mitosis and cell division; meiosis; survey of mammalian histology, the human skeleton, muscles of the body, circulatory and nervous systems, physiology. Three lectures and two laboratory hours per week. This course is open only to students in a school of nursing.

3105-06 General Biology (\$2-\$2)

A Terminal course designed for the prospective elementary school teacher. A study of cellular biology; phylogenetic survey of plants and animals including a functional analysis of the organism at representative phylogenetic levels; adaptation and distribution of organisms. Three lectures and two laboratory hours per week. This course cannot be counted for credit in addition to Zoology 3101-02, and it may not be used to satisfy the prerequisite for Zoology 3201 nor for Biology 3232.

3201 Microbiology (\$2)

Survey of microbes with emphasis on pathogens, bacteria and protozoans; culture technique; staining technique; histology of the blood and typing of blood groups. Two lectures and three laboratory hours per week. *Prerequisite:* Chemistry 3106 and Biology 3101. This course is open only to students in a school of nursing.

3202 Biology of the Human Body (\$2)

Survey of the anatomy of the human body with emphasis on the skeletal and muscular systems. Three lectures and two laboratory hours per week. *Prerequisite:* Zoology 3102. This course may not be counted for credit in addition to Zoology 3202.

3203 Introduction to Human Physiology (\$2)

Body functions with emphasis on their relations to physical exercise. Three lectures and two laboratory hours per week. *Prerequisite:* Biology 3202 or Zoology 3202.

3204 Heredity (Genetics)

Principles of heredity in their application to animals, plants, and mankind. *Prerequisite:* Sophomore standing or six semester hours of a laboratory science.

For Undergraduates and Graduates

3301 Physiology of Exercise (\$2)

Brief review of embryogeny and histogenesis of muscles in Vertebrates; physiology of the nervous, muscular, digestive, and respiratory systems of man in relation to work and exercise; some aspects of external and internal stimuli, injuries, and health. Three lectures and two laboratory hours per week. *Prerequisite:* Biology 3203 or Zoology 3202.

3401 Technique in Histology and Cytology (\$2)

Fixing, imbedding, sectioning, staining and mounting tissues and cells for critical microscopical examination. One lecture and six laboratory hours per week. *Prerequisite:* Chemistry 4213, or 3221-22, or Bacteriology 3302, or 12 semester hours of zoology, or botany, and permission by the chairman of the department.

* Leave of Absence 1960-1961.

Bacteriology

3301 General Bacteriology (\$2)

Principles of bacteriology; application of pure culture method employing non-pathogenic forms; bacteriological analysis of water, milk, and sewage; staining technique; preparation of media. Three lectures and three laboratory hours per week. *Prerequisite:* Twelve semester hours in any one of the natural sciences or a combination of twelve semester hours in natural sciences and junior standing.

3302 Pathogenic Bacteria and Immunology (\$2)

Survey of pathogenic bacteria with emphasis on their pathogenicity, and application of principles in isolation; introduction to immunology and haematology. Three lectures and three laboratory hours per week. *Prerequisite:* Bacteriology 3301; for juniors and seniors, the equivalent of Bacteriology 3301 as determined by the Instructor and the Head of the department.

Botany

For Undergraduates

3101 General Botany (\$2)

Survey of the plant cell and plant body; mitosis and meiosis; survey of the algae and fungi coupled with an exposition of their functional relationship to man. Three lectures and two laboratory hours per week.

3102 General Botany (\$2)

Life cycles and survey of mosses, ferns, and seed plants. Three lectures and two laboratory hours per week. *Prerequisite:* Botany 3101.

3101 Local Flora (\$2)

Survey of flowering plants of the El Paso Region. Two lectures and three laboratory hours per week. *Prerequisite:* Six semester hours of a laboratory science, or Botany 3101 and sophomore standing.

Zoology

For Undergraduates

3101 General Zoology (\$2)

Fundamentals of Zoology; study of protoplasm, cells, and tissues; life histories, and development of representatives of the major invertebrate phyla; generalizations in biological theory. Three lectures and two laboratory hours per week.

3102 General Zoology (\$2)

Survey of the Chordata; the occurrence, classification, structure, function, adaptation, and development of representative vertebrates; heredity and evolution. Three lectures and two laboratory hours per week. *Prerequisite:* Zoology 3101, or three semester hours of general biology.

3201-02 Vertebrate Zoology and Comparative Anatomy (\$2-\$2)

Classification of the Chordata; anatomy of organ systems considered in respect to function, ontogeny, and phylogeny in the vertebrate series. Dissection of a selachian, a teleost, an amphibian, a reptile and a mammal. Two lectures and four laboratory hours per week. *Prerequisite:* Zoology 3102 or the equivalent.

For Undergraduates and Graduates

3301 Vertebrate Embryology (\$2)

Comparative embryology with special emphasis on avian and mammalian development. Two lectures and three laboratory hours per week. *Prerequisite:* Zoology 3202; for juniors and seniors, Zoology 3102 completed with a grade of C or higher, and Zoology 3201-02 concurrently. Zoology 3202 must be satisfactorily completed before credit is granted for Zoology 3301.

3302 Animal Cytology and Histology (\$2)

Structure and function of vertebrate cells, tissues and organs; proficiency in microscopy. Two lectures and three laboratory hours per week. *Prerequisite:* Zoology 3202; for juniors and seniors, Zoology 3102 completed with a grade of C or higher, and Zoology 3201-02 concurrently. Zoology 3202 must be satisfactorily completed before credit is granted for Zoology 3301.

Chemistry

DR. W. W. LAKE, *Chairman*

Professors LAKE, HANCOCK; Associate Professors ALEXANDER, O'NEAL; Assistant Professor SCRUGGS; Instructors COMPTON, MILEDI, O'BRIEN, PYTCHER, SHIOJI, SIMS*

B. S. Degree — The minimum course requirements in Chemistry for the Bachelor of Science Degree are Chemistry 4103-04, 3211, 4213, 4324, 4321-22; 4460, 4461, and six additional advanced hours in Chemistry. **B. A. Degree** outlined on page 40.

For Undergraduates

3101-02 General Chemistry (\$2-\$2)

A study of the fundamental principles of chemistry with applications in the fields of inorganic, organic, and biochemical processes. Two lectures, one demonstration hour, and two laboratory hours per week. May not be used as a prerequisite for any other chemistry course.

4103-04 General Chemistry (\$4-\$4)

The laws and theories of chemistry; the elements and their most important compounds with reference to their production and use. For students who need a foundation for work in advanced chemistry and related sciences. Three lectures and four laboratory hours per week.

3105 General Chemistry

A review of the fundamental principles of elementary chemistry and their application. Required of all students who, after trial and a qualifying examination, are found insufficiently prepared to carry Chemistry 4103 and who plan to register for that course the next succeeding semester. Two lectures and one demonstration hour per week. May not be used as a prerequisite for any chemistry course other than 4103.

3106 Chemistry for Nurses (\$2)

Elementary principles of chemistry with applications to the nursing profession. Three lectures and two laboratory hours per week. Open only to pre-clinical nurses and to students in a school of nursing.

3107 Chemistry for Nurses (\$2)

A continuation of Chemistry 3106. Three lectures and two laboratory hours per week. *Prerequisite:* Chemistry 3106.

3211 Qualitative Analysis (\$2)

Analytical reactions from the point of view of the laws of chemical equilibrium applied to solutions of electrolytes. Analysis of the common ions using the semimicro technique. One lecture and six laboratory hours per week. *Prerequisite:* Chemistry 4103-04 with a grade of not less than C in each semester.

2211 Qualitative Analysis (\$2)

Lectures the same as for Chemistry 3211 but with only three laboratory hours per week. *Prerequisite:* Chemistry 4103-04 with a grade of not less than C in each semester.

4213 Quantitative Analysis (\$6)

The theory and practice of quantitative chemical analysis. Two lectures and six laboratory hours per week. Three of the four credit hours may be counted as advanced. *Prerequisite:* Chemistry 3211.

*On leave, 1960-61.

4214 Quantitative Analysis (\$6)

A one semester course in gravimetric and volumetric analysis with special emphasis on ores and metallurgical products. Two lectures and six laboratory hours per week. *Prerequisite:* Chemistry 3211 or 2211. Not counted in addition to Chemistry 4213.

3221-22 Organic Chemistry (\$4-\$4)

A study of the fundamental types of carbon compounds. Two lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4103-04.

2221-22 Organic Chemistry

The same as Chemistry 3221-22 but without the laboratory. Two lectures per week. *Prerequisite:* Chemistry 4103-04.

*For Undergraduates and Graduates***4321-22 Organic Chemistry (\$6-\$5)**

A study of the fundamental types of carbon compounds. Three lectures and five laboratory hours per week. *Prerequisite:* Chemistry 4213.

4324 Quantitative Analysis (\$8)

A continuation of Chemistry 4213. Two lectures and six laboratory hours per week. *Prerequisite:* Chemistry 4213.

4460 Physical Chemistry (\$5)

Properties of substances in the gaseous, liquid, and solid state; solutions; thermochemistry. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4213 or 4214, Mathematics 4212, and two semesters of Physics.

4461 Physical Chemistry (\$4)

Homogeneous and heterogeneous equilibria; kinetics of reaction, electrochemistry, and chemical thermodynamics. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4460.

3462 Biochemistry (\$2)

Chemistry of food substances, digestion, vitamins, enzymes, absorption, and blood. Two lectures and three laboratory hours per week. *Prerequisite:* Chemistry 3221-22 or 4321-22.

3463 Biochemistry (\$2)

Immunochemistry, chemistry of respiration, hormones, intermediary metabolism, etc., with emphasis on cell metabolism. Two lectures and three laboratory hours per week. *Prerequisite:* Chemistry 3462.

4450 Instrumental Methods of Analytical Chemistry (\$2)

A study of the more important optical and electrical methods of chemical analysis. Two lectures and six laboratory hours per week. *Prerequisite:* Chemistry 4322, Mathematics 4212 and two semesters of Physics.

4451 Chemical Spectroscopy (\$8)

A study of emission spectroscopy and its applications to chemical analysis. Two lectures and six laboratory hours per week. *Prerequisite:* Chemistry 4213 or 4214, Mathematics 4212 and two semesters of Physics.

2496 to 6496 Introduction to Research (\$4)

Credit will be granted, up to six semester hours, for research satisfactory completed by advanced students in the Chemistry Department. Only specially qualified students approved by the Chairman of the Chemistry Department will be accepted for this work. Credit will be granted only in the senior year on the recommendation of the Chairman of the Chemistry Department. *Prerequisite:* Permission of the Chairman of the Chemistry Department.

Drama and Speech

MR. MILTON LEECH, *Chairman*

Associate Professor LEECH; Assistant Professors HARLAND, JONES, REYNOLDS;

Instructor TUCKER

Students wishing to major in this area may place emphasis on either Drama or Speech. Those planning to teach in the public schools are advised to take courses in both Drama and Speech.

All majors in this area are required to meet with the chairman of the department prior to their sophomore year in order that specific courses in this area may be determined in conference.

English 3314 and 3355 may be counted for credit in Drama.

Students preparing to enter law school are advised to take Speech 3101, 3215 & 3306.

Drama

For Undergraduates

3110 Introduction to Fine Arts

The enjoyment of the Arts through an understanding of their inter-relationship and of the expressive elements common to Music, Art, and the Drama. Not counted in addition to Art Methods 3110 and Music Literature 3110.

3113 An Introduction to Drama

A beginning course designed to familiarize the student with the major areas of theatre art, including acting, directing, lighting, costuming, playwriting, technical production, scenic design, types and styles of drama.

1111 College Players

The campus acting and producing organization. Members are required either to act or to do technical work in the major production, and in addition, must appear in one student-directed play. May be taken four semesters for credit.

3121 Beginning Drama Workshop

A lecture-laboratory course in play production involving all phases of dramatic art, leading to public presentation of major dramas. May be repeated for credit.

2130 Rehearsal and Performance

Evaluation of acting and crew work in major departmental productions, experimental theatre productions, and laboratory workshop productions. A minimum of six laboratory hours weekly for one semester.

3214 Acting

A workshop course in which a student may develop his ability to analyze a character and create a role. Two lecture and four workshop hours per week. *Prerequisite:* Six semester hours of Speech and/or Drama or Sophomore standing.

3218 Dramatic Script Writing

The principles of script writing for the stage, radio, and television. Drama majors will be required to write an original one-act play. Radio and Television majors will be required to write an original half-hour script. *Prerequisite:* English 3101-02 and Sophomore standing. May be repeated for credit.

2230 Rehearsal and Performance

Prerequisite: Drama 2130 with a grade of at least B and sophomore standing. A minimum of six laboratory hours weekly for one semester.

1311 College Players

May be taken four semesters for credit.

3320 Advanced Drama Workshop

A lecture-laboratory course in play production involving further work in the rehearsal and production of major dramas. May be repeated for credit. *Prerequisite:* Six hours of Drama courses, or the equivalent, and junior standing.

3321 Advanced Acting

Detailed study of characterization and styles of acting through assignment of individual roles and group rehearsal of scenes. Two lecture and four workshop hours per week. *Prerequisite:* Drama 3214 and junior standing. May be repeated for credit.

2330 Advanced Rehearsal and Performance

Prerequisite: Drama 2230 with a grade of at least B and junior standing. A minimum of six laboratory hours weekly for one semester.

3332 Technical Production and Design

Detailed study of the technical problems of theatre production. Methods of constructing and handling scenery, lighting, backstage organization, designer's drawings, properties, and sound effects. Two class and four workshop hours per week. *Prerequisite:* Six hours of Drama courses and junior standing.

3340 A History of Costume

A study of costumes from the earliest times to the present and their use on the stage. Practical application in designing and executing costumes for actual production. *Prerequisite:* Junior standing.

3350 Creative Dramatics in the Elementary School

Methods of developing original dramatizations with children and of creating plays from children's literature. Two lectures and one demonstration workshop weekly. *Prerequisite:* Junior standing.

3357 The Development of the Early Theatre

A survey of the development of theatre art from the earliest times through the later Elizabethans. Discussions include plays, playwrights, actors, costumes, and technical devices of each period. *Prerequisite:* English 3211-12, 3213-14, or 3215-16 and junior standing.

3358 The Development of the Modern Theatre

A survey of the development of theatre art from the Restoration to Broadway. Goethe, Ibsen, Maeterlinck, Pirandello, Chekhov, Synge, Shaw, O'Neill, Anderson, and others are studied as well as the actors, costumes, and technical devices in each period. *Prerequisite:* English 3211-12, 3213-14, or 3215-16 and junior standing.

3425 Directing

Study of techniques in direction, emphasizing style, type of play, mood, dramatic values and effects. Two class and four workshop hours per week. *Prerequisite:* Drama 3113 and junior standing.

2430 Advanced Rehearsal and Performance

Prerequisite: Drama 2330 with a grade of at least B. A minimum of six laboratory hours weekly for one semester.

3440 Seminar

Independent research in an area to be chosen from dramatic criticism, costume, lighting, technical production, or scene design plus service on technical crews where applicable for one semester. May be repeated once for credit. *Prerequisite:* Twelve hours of drama courses including Drama 3113.

Speech

For Undergraduates

3100 Speech for Foreign-Language Students

Practice in the use and comprehension of oral English and in the acquisition of sounds and rhythms of standard speech. Open to any student interested in the correction of a speech defect. May not be counted in addition to Speech 3103.

3101 Basic Principles of Speech

Emphasis on the development of poise and confidence in extemporaneous discourse, directness of approach, the conversational spirit, appropriate body action, the use of the voice.

3102 Platform Speaking

Planning, organizing, and delivering speeches intended to inform, to entertain, and to inspire, including speeches for various types of special occasions. *Prerequisite:* Speech 3101.

3103 Phonetics, Voice and Articulation

A course intended to develop clear articulation and enunciation, correct pronunciation, proper vowel placement, and control of the speaking voice. Required of all Speech and Drama majors and strongly recommended for Radio majors. May not be counted for credit in addition to Speech 3100.

3120 Beginning Oral Interpretation

Practice in the oral interpretation of literature and study of the techniques involved.

3215 Fundamentals of Argumentation and Debate

A course designed for those who wish to understand the basic techniques of formal argument. Preparation of briefs for participation in debates on timely issues. *Prerequisite:* Speech 3101 and sophomore standing.

3219 Business and Professional Speaking

A practical course designed to help the student meet situations in the business and professional world. Stress will be laid on the principles of organization and presentation of material and on the techniques of after-dinner speeches, sales talks, introductions, public discussions, political speeches, etc. *Prerequisite:* Sophomore standing.

3305 Oral Interpretation

A course for developing an adequate mental and emotional response to the meaning of literature with emphasis on improvement in voice, pronunciation, and enunciation. *Prerequisite:* Speech 3120 and Junior standing.

3306 Techniques of Public Discussion

A course intended to develop skill in leading and participating in discussion groups of all kinds. Attention is given to forums, panels, round tables, and symposiums, and to actual practice in the discussion of current problems. *Prerequisite:* Six hours of Speech or junior standing.

3315 Advanced Debate — Technique and Theory

A thorough analysis of the use of formal debate in our society. Emphasis on the ethical and logical means of persuasion, recognition of fallacies and the preparation of summations. *Prerequisite:* Speech 3215.

3319 Advanced Public Speaking

A course designed to further the student's ability through the study of speech theory and model speeches. Emphasis on the various types of public address. *Prerequisite:* Completion of Speech 3102 and Junior Standing.

3333 Direction of Speech Curriculum and Activities

For teachers of speech in elementary and secondary schools, emphasizing the development of an effective speech program, methods of criticism, correction of speech difficulties, and direction of speech activities. *Prerequisite:* Six hours of Speech or Junior standing.

3410 Principles of Speech Correction

A study of the nature, causes, and treatment of speech disorders and defects, designed to give classroom teachers basic skills in working with the speech-defective child. *Prerequisite:* Junior standing. May not be counted in addition to Education 3410.

3420 History of Public Address

A study of the major speeches and speakers of the western world. Emphasis on the political, social, and economic influence which oratory has exercised throughout history. Special reference to the classical origin of rhetoric. *Prerequisite:* Six hours of speech or Junior Standing.

3430 Seminar

Independent research in an area to be chosen from oral interpretation, phonetics, public address, speech and hearing therapy, discussion, or speech education. May be repeated once for credit. *Prerequisite:* Twelve hours of speech courses.

Economics and Business Administration

MR. MICHAEL BRAND, *Chairman*

Professors HARTRICK; *Associate Professors* BLACK, BRAND;

Assistant Professors BENNETT,* BUCKNER, COX, FREELAND, HEINS, JAMES, JOHNSON,

LOWENSTEIN, SCHOTTA, TOMPKINS; *Instructors* BLANCHARD, BYMARK;

Lecturers BOVARD, BRADY, BROWN, CHAPMAN, DIAMOND, DICKINSON, GILGER, MERKIN,
MULLIGAN, RICE, VANN, WEEMS.

Majors in this department may secure the degree of Bachelor of Business Administration or Bachelor of Arts. For those preparing particularly for business careers, the Bachelor of Business Administration degree is recommended. Students choosing the Bachelor of Arts degree may major in Economics or Business Administration.

B. A. Degree — Specific courses required are (1) for **ECONOMICS MAJOR**: Economics 3103-04, 3303, three of the following five courses: Economics 3310, 3330, 3340, 3365, 3375; and six other advanced courses, and B. A. 3101, 4361. (2) for **BUSINESS ADMINISTRATION MAJOR**: B. A. 4111, 4112, 3220, 4361, and three other advanced hours and Economics 3103-04 and six advanced hours in Economics. For **B. B. A. Degree** see page 41.

Each student is strongly advised to consult with the advisor in his field of concentration, including Accounting, Economics, Finance, Foreign Trade, Management, Marketing, and Secretarial Studies. Students wishing to teach subjects in economics or business in high school or college should plan their courses with the aid of the department chairman.

Note to majors and minors in this department: In order that your courses may be co-ordinated and planned in advance, you are urged to counsel with the chairman of this department before registration in your sophomore year. Advice at this stage may prevent subsequent difficulties in your program. Students interested in the study of law should consult with the pre-law advisor.

ECONOMICS

For Undergraduate Credit Only

3101 Survey of Economics

(Open only to non-economic and non-business administration majors.)

A survey course on the principles of economics designed to give a broad basic understanding of our economic world. (This course may be used by non-economic and non-business administration majors to satisfy the Economics 3104 requirement to advanced courses.)

3103-04 Principles of Economics

An introduction to the basic principles of Economics and an analysis of the manner in which they operate in the institutional complex of our society.

3303 Intermediate Economic Theory

A study of cost, demand, and price theory; the concepts, assumptions, and policy implications of aspects of particular equilibrium and general equilibrium theory; a critical survey of various concepts of the scope, methods, and approaches to Economics. *Prerequisite*: Economics 3104.

3310 Economic History of the United States

Survey of American economic development from colonial time to present; analyses of factors which have shaped that development. *Prerequisite*: Economics 3104.

For Graduates and Undergraduates

3321 History of Economic Thought

A study of the development of principal economic doctrines and schools of economic thought. *Prerequisite*: Economics 3104.

* On leave, 1960-61.

ECONOMICS

- 3325 Comparative Economic Systems**
A consideration of economic foundations of the capitalistic and other systems; objective study of economic construction of fascism, socialism, communism, capitalism. *Prerequisite:* Economics 3104.
- 3326 Business and Government**
A study of the impact of government planning upon business and the effect of governmental regulation and control upon industry, utilities, finance, and transportation. *Prerequisite:* Economics 3104.
- 3330 Public Finance**
Financial administration by agencies of local, state, and federal government; principles of taxation; sales, property, income, and inheritance taxes; analysis of government expenditures and public credit. *Prerequisite:* Economics 3104.
- 3340 Labor Problems**
An introductory course in labor-management relations, unions, management, and the government; including pertinent history, and labor legislation. *Prerequisite:* Economics 3104.
- 3355 Economics of Transportation**
History, economic characteristics and regulation of rail, motor, air, water and pipeline transportation agencies. *Prerequisite:* Economics 3104.
- 3363 Business Cycles and Forecasting**
History and theories; prediction of commodity prices, sales volume, industrial production, industrial growth and decay, security prices, and business profits; professional forecasting service. *Prerequisite:* Economics 3104.
- 3365 Introduction to International Economics**
Introductory course in international trade principles dealing with the principal theories of trade, foreign exchange, tariffs, and other trade barriers. Some time is devoted to import-export procedures, documents, and current problems. *Prerequisite:* Economics 3104.
- 3366 Economic Survey of Latin America**
Considers the historical setting, economic development, monetary and fiscal problems, investments, and trade practices of the area countries. *Prerequisite:* Economics 3104.
- 3367 Economic Development**
A course designed to familiarize the student with problems of economic growth. Particular emphasis will be directed toward Latin America; an intensive case study of Mexico will be included. Topics included are a study of basic resources, industrialization, technological development, capital formation, and the growth of international trade. *Prerequisite:* Economics 3104.
- 3375 Money and Banking**
A description of the history and present characteristics of the money and banking structure of the United States. Special emphasis is placed on monetary policy as it affects the level of economic activity. *Prerequisite:* Economics 3104.
- 3441 Wage Determination**
A study of collective bargaining, the theoretical aspects of wages and wage determination, and the relationship between wages, production, distribution, and employment. *Prerequisite:* Economics 3340.
- 3470 Monetary and Fiscal Policy**
An analysis and critique of monetary and fiscal policies and practices to facilitate economic stability and promote economic progress. *Prerequisite:* Economics 3375.

Seminar

For Graduates and Undergraduates

- 2495 to 6495 Seminar in Economics and/or Business Administration**
Special studies in areas for which a separate course is not organized. Credit will vary according to work performed, value being indicated by course numbers. *Prerequisite:* Eighteen hours of Business Administration and/or Economics, six of which must be advanced; consent of instructor and the department chairman.

BUSINESS ADMINISTRATION

Secretarial

For Undergraduate Credit Only

2101 Elementary Typewriting

Fundamentals of touch typewriting; keyboard, techniques, copy work and page placement. Five hours per week.

2102 Intermediate Typewriting

Advanced instruction in applied typewriting with emphasis upon increasing speed and accuracy; business letters and business forms; manuscript typing. Five hours per week. *Prerequisite:* Business Administration 2101 or equivalent.

4104-05 Elementary Shorthand

Principles of Gregg shorthand; reading, writing and elementary transcription. Five hours per week for two semesters. *Prerequisite:* Business Administration 2102 (may be taken concurrently).

3201-02 Advanced Shorthand and Transcription

Development of speed and accuracy in shorthand and typewriting; building of vocabulary, sustained dictation and transcription practice for secretarial efficiency. Three lectures and three laboratory hours per week for two semesters. *Prerequisite:* Business Administration 4105 and 2102.

3303-04 Secretarial Office Practice and Problems

Practice of all office procedures; duplicating and dictation machines; filing; receptionist's duties; secretarial attitudes and responsibilities; semi-executive duties. Three lectures and three laboratory hours per week for two semesters. *Prerequisite:* Business Administration 3201-02, or concurrently.

3320 Business Letters

Scope and importance of business communication; problems in letter writing for various types of business transactions, such as sales, adjustments, credit, and collection letters. *Prerequisite:* Business Administration 2101 or 2102, sophomore English, and junior standing.

3321 Report Writing

Techniques of business research and training in the organization and writing of business reports. *Prerequisite:* Business Administration 2101 or 2102, sophomore English, and junior standing.

Accounting

For Undergraduate Credit Only

3101 Survey of Accounting Principles

(Open only to non-economic and non-business administration majors.) A survey course designed to give a broad basic understanding of accounting; principles, elements of cost accounting, the preparation and interpretation of financial statements and budgeting.

4111 Theory and Practice in Accounting (\$2)

Principles of double-entry bookkeeping, theories of general financial accounting, analysis and recording of business transactions, adjusting and closing entries; financial statements, sole proprietorship accounting, practice set. Three classroom and three laboratory hours per week.

4112 Theory and Practice of Accounting (\$2)

Continuation of Business Administration 4111. Partnership accounting, corporation accounting, reserves and reserve funds, manufacturing accounts, asset valuation, practice sets. Three classroom and three laboratory hours per week. *Prerequisite:* Business Administration 4111.

3130 Introduction to Data Processing

An introduction to the principles of data processing as applied to accounting and statistics. The operation of the various machines used in processing data and their use in relation to accounts receivable, inventories, payrolls, audit controls, flow charting, card design, and other phases of accounting. *Prerequisite:* Business Administration 4112 or permission of instructor and Department Chairman.

3211 Intermediate Accounting, First Course

Classification and codification of accounts; form and content of financial statements; correction of books and statements; special phases of corporation accounting; cash and receivables; inventories; investments. *Prerequisite:* Business Administration 4112.

3212 Intermediate Accounting, Second Course

Tangible and intangible fixed assets; liabilities and reserves; analysis and interpretation of financial statements; application of funds and cash-flow statements; quasi-reorganizations; Income Tax allocation. *Prerequisite:* Business Administration 3211.

For Graduates and Undergraduates

3213 Introduction to Computers

Designed to familiarize the student with electronic computers and their social and economic impacts on society. Includes problem definition, flow charting, block diagramming, automatic coding, arithmetic operations, loading routines and other basic programming techniques. *Prerequisite:* Business Administration 3130 or permission of instructor and Department Chairman.

3214 Management in Data Processing

Principles of planning, organizing and controlling business establishments. Introduction to management objectives and philosophy, physical facilities, control evaluation, scheduling, input and output control, personnel administration and organizational structure. *Prerequisite:* Business Administration 3130 or permission of instructor and Department Chairman.

3311 Cost Accounting, First Course

A study covering cost procedures, cost control, cost reports, and cost analysis. Job order cost accounting and process cost accounting methods are studied. *Prerequisite:* Business Administration 4112.

3312 Cost Accounting, Second Course

This course includes a study of estimated costs, budgetary control with standard costs, and cost and profit analyses for decision-making purposes. *Prerequisite:* Business Administration 3311.

3313 Auditing, First Course

A study of auditing procedures used by internal auditors and independent public accountants. Includes the techniques of working paper preparation. *Prerequisite:* Business Administration 3212 (may be taken concurrently).

3314 Auditing, Second Course

A continuation of Business Administration 3313. An audit practice case is completed with the preparation of working papers and the audit report. Audit case studies involving auditing problems in special situations are presented. *Prerequisite:* Business Administration 3313.

3315 Federal Tax Accounting for Individuals

Theory and problems, income tax forms, most recent federal revenue acts, and application of federal tax problems to everyday personal and business questions. *Prerequisite:* Business Administration 4112.

3316 Federal Tax Accounting for Partnerships and Corporations

Theory and problems, estate and trust taxes, capital stock taxes, excess profits taxes, gift taxes, foreign income taxes, and problems of foreign taxpayers. *Prerequisite:* Business Administration 3315.

3317 Governmental and Institutional Accounting

Accounting principles and procedures characteristic of governmental units and institutions. *Prerequisite:* Business Administration 4112.

- 3411 **Advanced Accounting, First Course**
Special phases of partnership accounting; joint venture; consignments; accounting for insurance costs; statement of affairs and accounting for insolvent concerns; compound interest; home office and branch accounting. *Prerequisite:* Business Administration 3212.
- 3412 **Advanced Accounting, Second Course**
Consolidated balance sheets, consolidated income and surplus statements; holding companies; mergers. *Prerequisite:* Business Administration 3411.
- 3413 **C. P. A. Problems**
A study of problems and advanced theory dealing primarily with corporation accounting, assets and liabilities, analysis of statements, and cost accounting. Current C.P.A. examination problems will be stressed. *Prerequisite:* Twelve semester hours of courses in accounting.
- 3414 **C. P. A. Law Review**
Analysis of C.P.A. law examinations for recent years; fields of law covered by examinations; techniques of analyzing and answering law problems and cases. *Prerequisite:* Business Administration 3326.
- 3420 **Fundamentals of Accounting Systems**
A study of principles to be applied in designing accounting systems, and the relationship of the system to policies, organization, and operational procedures. *Prerequisite:* Business Administration 3212 and 3317.

Management

For Undergraduate Credit Only

- 3120 **Business Machines**
Principles of operation of various adding and calculating machines. Field trips to local firms to study how the system and flow of work is mechanized in various offices.
- 3121 **Introduction to Business**
A general survey of the major industries in the United States with special emphasis on the competitive technological and historical forces underlying their growth and development. Economics and Business Administration students can only earn credit if this course is taken before they have completed 31 credit hours.
- 3220 **Business Research and Communication**
Methods of business research and communication, with emphasis on techniques and proper English usage in business reports, letters and other written matter. *Prerequisite:* Sophomore standing and English 3101-02.

For Graduates and Undergraduates

- 3331 **Corporation Finance**
Promotion of corporations, sources of capital, capital structures, internal financial management, receiverships, reorganizations, relation of corporation finance to banking, social consequences of over-promotion. *Prerequisite:* Economics 3104.
- 3340 **Management Principles**
The principles and practices of the scientific approach to Management. The Management process and the functions that constitute the framework on which the concepts of Management are built. *Prerequisite:* Business Administration 4112 and Economics 3104.
- 3341 **Office Organization and Management**
Presentation of the fundamental principles and practices of office management providing essential information for the solution of office management problems. Emphasis placed on planning, organizing, and controlling office work. *Prerequisite:* Business Administration 3340.
- 3345 **Personnel Management**
Policies and practices of planning for and organizing personnel for the purpose of procuring, developing, maintaining, and utilizing employees. *Prerequisite:* Business Administration 3340.

3346 Industrial Management

Basic principles of industrial organization and management; problems connected with production and human relations; case studies. *Prerequisite:* Business Administration 3340.

3347 Foremanship and Supervision

Managerial problems on the level of first-line supervisors; leadership and discipline; relations with subordinates, with superiors, and with other departments; problems of absenteeism, grievances, morale, and safety. *Prerequisite:* Business Administration 3340.

3349 Purchasing

The practices which underlie the sound procurement of materials, parts, supplies and equipment required in the normal conduct of a business with special attention to the meaning, scope, organization and principles of purchasing procedure; the place of value analysis, standardization and the legal aspects in the purchasing function. *Prerequisite:* Business Administration 3340.

3378 Investments

Investment principles, investment banking, security analysis, security classification, including rails, industrials, utilities, governments, and others. Principally considers investor's viewpoint. *Prerequisite:* Business Administration 4112.

3448 Methods Improvement

An analysis of the procedures, processes and principles of motion economy and micromotion techniques; determining time standards and their relation to incentive systems; attendant human relations problems are examined. *Prerequisite:* Junior standing.

3449 Production Control

A study of the function of production control and its relationship with manufacturing, sales, and technical staff departments. Observations of the techniques used by business are made by means of field trips and case problems. *Prerequisite:* Junior standing.

Business Law

For Undergraduate Credit Only

3325 Business Law

Text and Case Study. The Law of Contracts and its effects on Business and Society as a whole. *Prerequisite:* Junior standing.

3326 Business Law

Text and Case Study. Law of Negotiable Instruments and other commercial aspects of law. *Prerequisite:* Business Administration 3325.

For Graduates and Undergraduates

3342 Labor Law

Historical development of labor law and the rights and duties of collective bargaining. Study of applicable Federal legislation. Administrative procedure, rulings and decisions. Significant Court Cases. *Prerequisite:* Junior standing.

3343 Real Estate Law

General principles of real estate law with particular reference to Texas. Estates and interests in land. Community and separate property. Adverse possession. Deeds, leases, and conveyancing. Liens and foreclosure procedures, etc. *Prerequisite:* Junior standing or permission of instructor and Department Chairman.

3344 Trade Regulation

A study of anti-trust regulation, functions and powers of the Federal Trade Commission, monopoly, conspiracies in restraint of trade, unfair competition, deceptive branding and advertising, copyright, trade mark and patent registration and infringement. *Prerequisite:* Junior standing or permission of instructor and Department Chairman.

Marketing and Statistics*For Undergraduate Credit Only***3228 Insurance Fundamentals**

The economic and social services, the important principles and practices, and the principal legal phases of all the common forms of insurance including life, property, casualty, and suretyship. *Prerequisite:* Business Administration 4112 or Economics 3104, or permission of instructor and Department Chairman.

3232 Real Estate Principles and Practices

Fundamentals of the real estate business. The economics of real property. Ownership, titles, and interests in real estate; liens, taxes, contracts, leases, deeds; financing and investment; valuation and appraisal principles; subdivision, home ownership, and housing; insurance, ethics, licensing requirements, and operating procedures. *Prerequisite:* Economics 3104, or permission of instructor and Department Chairman.

3251 Marketing

Considers functions, middlemen, institutions, law, policies, and practices in marketing. *Prerequisite:* Economics 3104.

*For Graduates and Undergraduates***3355 Owning and Operating a Small Business**

A study of steps essential in planning, organizing, and operating a single proprietorship or partnership enterprise. Special emphasis on meeting local, state, and federal requirements; locating, financing, insuring, accounting, and merchandising for profit. *Prerequisite:* Business Administration 4112, or permission of instructor and Department Chairman.

3350 Fundamentals of Advertising

Relation to other business functions. Study of campaigns, appropriations, media, and practical advertising activities. *Prerequisite:* Business Administration 3251, or permission of instructor and Department Chairman.

3351 Advertising, Copywriting and Special Layouts

Instruction and practice in preparing various types of copywriting and layouts. Study of marketing media, direct mail advertising, circulars, store layouts. Two classroom and two practice hours per week. *Prerequisite:* Business Administration 3350.

3352 Public Relations

Principles, techniques, and methods used in public relations; necessity and significance in the free enterprise system. Relationships include national, state, and local government, employees, customers, suppliers, social and religious institutions. *Prerequisite:* Junior standing or permission of instructor and Department Chairman.

3353 Business Salesmanship

Economic problems of personal selling, planning and execution of an interview, product and market analysis, building good will, salesman and employer relationship. *Prerequisite:* Business Administration 3251, or permission of instructor and Department Chairman.

4361 Principles of Statistics

Quantitative methods of analysis, graphic and tabular presentations, organizing and describing data; frequency distribution, measures of central tendency, dispersion, skewness, time series analysis, correlation. Three classroom and three laboratory hours per week. *Prerequisite:* Six semester hours of mathematics and junior standing.

3362 Intermediate Statistics

A continuation of the study of statistical methods and procedures with application to economic and business situations. Special emphasis on probability and theory of sampling; tests of significance and reliability; statistical induction; the normal curve; Chi-square test; analysis of variance; non-linear, multiple, and partial correlation; testing hypotheses. *Prerequisite:* Business Administration 4361.

3379 Credits and Collections

Considers the types of credit, credit terms, organization and operation of credit department, credit analysis and appraisal, credit information, collection devices, legal aspects, and procedure with past-due and insolvent accounts. *Prerequisite:* Business Administration 4112, Economics 3104, or permission of instructor and Department Chairman.

3450 Principles of Retailing

Survey of all phases of retailing, internal and external. *Prerequisite:* Business Administration 4112 and 3251, or permission of instructor and Department Chairman.

3451 Market Research and Analysis

Research methods and statistical techniques used in market research and analysis. Emphasis on collection of information from internal and external sources, analysis, interpretation, and presentation of research findings. *Prerequisite:* Business Administration 4361 and 3251.

3479 Credit Management Problems

A case study of credit problems developing professional approaches to responsibilities, policies, and skills of credit management. *Prerequisite:* Business Administration 3379, or permission of instructor and Department Chairman.

For Graduate Students Only

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

2597 Economic Theory

A systematic exposition of those tools and concepts of modern economic theory which are basic to an understanding of the functioning of an economic system, and including more specialized analysis of price theory, national income, and modern institutions. *Prerequisite:* Twelve semester hours of advanced courses in Business Administration and/or Economics.

2594 Statement Analysis

An analytical study of differential financial statements.

2595 Managerial Organization

A survey of the important literature in the field of industrial organization and management. The student has an opportunity to participate in seminar discussions of industrial management problems.

2596 Personnel Administration Problems

A survey of the important literature in the field of human relations. The student has an opportunity to participate in seminar discussions of human relations problems.

2598 Readings in Marketing

A course designed to broaden the perspective of the student in the history, institutions, middlemen, merchandising techniques, legal aspects, and current trends in the distributive process.

Education

DR. JAMES F. DAY, *Chairman*

Professors DAY, FARQUEAR, FOSTER, HENDERSON, MEADOWS;

Associate Professors BURNS, REYNOLDS; Assistant Professor O'MALLEY;

Part-time Instructors ZANKER, WIVEL

See pages 43-48 for Degree Plan Requirements and Certificates.

Pre-Professional *For Undergraduate Credit Only*

3101 Introduction to Education

The relationship of American public schools to social and economic changes, also problems in the development of the curriculum, instructional practices, school organization, and administration.

3102 Introduction to Educational Psychology

A study of the learning process with attention given to growth and development, conditions of effective learning, adjustment, and individual differences and evaluation.

Elementary Education

3201 Psychology of the Elementary School Child*

A study of the phases of the development and behavior of the child in the elementary school. Also provision for observation of the elementary school child as an individual and as a member of a group. *Prerequisite:* Education 3101 and 3102.

3203 Introduction to Elementary School Curriculum*

An introduction to the curriculum in the elementary grades. *Prerequisite:* Education 3101 and 3102.

3205 Children's Literature in the Elementary School*

Children's literature and the administration of the recreational reading program in relation to the content subjects in the elementary school. Special reading may be done at the level in which the student is most interested. *Prerequisite:* Education 3101 and 3102.

3302 Language Arts Materials and Methods in the Elementary School

Materials and methods of teaching language arts in the elementary school. *Prerequisite:* Education 3201.

3303 Social Studies in the Elementary School

Content, materials, and methods of teaching social studies in the elementary school. *Prerequisite:* Education 3201.

3304 Science in the Elementary School

Content, materials, and methods of teaching science in the elementary school. *Prerequisite:* Education 3201.

3496 Professional Laboratory Experience in the Elementary School — Seminar†

A minimum of ten hours a week for one semester of laboratory observation and teaching experience in an elementary school classroom. *Prerequisite:* Eighteen hours of Education, including Education 3201, 3203, 3302, and 3303; senior standing and permission of the department chairman. (In an all-levels program, permission by the departmental chairman concerned.)

* *Prerequisite as indicated or the equivalent as determined by the chairman of the dept.*

† *By staff of department concerned.*

3497 Professional Laboratory Experience in the Elementary School†

A minimum of ten hours a week for one semester of laboratory teaching experience in an elementary school classroom. To be taken concurrently with Education 3496, excepting in an All-levels Program.

Secondary Education

3202 Psychology of the Secondary School Student*

A study of the phases of development and behavior of the adolescent. Also provision for observation of the adolescent as an individual and as a member of a group. *Prerequisite:* Education 3101 and 3102.

3204 Introduction to the Curriculum in the Secondary School*

An introduction to the development of the curriculum in the secondary school. *Prerequisite:* Education 3101 and 3102.

3305 Principles of Teaching and Observation in the Secondary School

Consideration of types of teaching and provision for observation in the secondary school. *Prerequisite:* Education 3202.

3498 Professional Laboratory Experience in the Secondary School – Seminar†

A minimum of ten hours a week for one semester of laboratory observation and teaching experience in a secondary school classroom. *Prerequisite:* Fifteen hours of Education, including Education 3202, 3204, and 3305, senior standing, and permission of the department chairman. (In an all-levels program, permission by the departmental chairman concerned.)

3499 Professional Laboratory Experience in the Secondary School†

A minimum of ten hours a week for one semester of laboratory teaching experience in a secondary school classroom. To be taken concurrently with Education 3498, excepting in an All-levels Program.

For Undergraduates and Graduates

Prerequisites for course listed below: Twelve semester hours of Education.

Elementary Education

3403 Introduction to Educational Tests, Measurements, and Evaluation in the Elementary School

Introduction to educational measurement and testing in the elementary grades. The study and use of educational tests in reference to the improvement of instruction.

3405 Arithmetic in the Elementary School

Content, materials and methods of teaching arithmetic in the elementary school.

Secondary Education

3418 Current Events in Relation to Classroom Use in the Secondary School

Particular attention given to selection, organization, and use of current event materials in the secondary school classroom.

3420 Principles of Guidance and Measurement in the Secondary School

A foundation course concerned with principles of guidance and measurement and evaluation in the secondary school.

* *Prerequisite as indicated or the equivalent as determined by the chairman of the dept.*

† *By staff of department concerned.*

General (Elementary or Secondary Education)

- 3410 **Principles of Speech Correction**
A survey course in the principles of speech correction, involving diagnosis of speech defects and disorders.
- 3412 **Classroom Use of Audio-Visual Equipment and Materials**
Consideration of various kinds of audio-visual equipment and materials in relation to classroom instruction in elementary and secondary education.
- 3413 **Radio Listening and Presentation of Radio Programs**
A survey course in the use of radio at the elementary and secondary level. Educational radio program material is analyzed and evaluated, techniques of utilization are covered, and preliminary work is offered in the preparation and production of public school programs for presentation on both commercial and educational radio stations.
- 3417 **Educational Television**
A survey course in current uses of educational television for public school education. Techniques of teaching by closed circuit television are demonstrated, and the work is divided to permit the student to develop either an elementary or a secondary emphasis.
- 3433 **Advanced Educational Psychology — A Seminar**
Independent study in educational psychology. *Prerequisite:* Fifteen hours of Education and only by permission of the department chairman.
- 3435 **Principles of Psychological Testing***
Study, evaluation, and use of educational and psychological tests used in the study and guidance of students. *Prerequisite:* An introductory course in tests and measurements.
- 1436 to 6436 **Individual Mental Testing — A Seminar***
Study, administration, and interpretation of the Stanford Binet, WISC, WAIS, Vineland Social Maturity Scale, diagnostic reading tests, and special tests for the physically handicapped. *Prerequisite:* Education 3435 or permission of the chairman of the department.

Special Education

- 3409 **The Education of Exceptional Children***
Consideration given to the philosophy, problems, treatment and methods of providing appropriate education and training for exceptional children.
- 2421 **Psychology of Mental Retardation***
Consideration of basic psychological problems and research pertaining to mentally retarded children with emphasis on the study of the social, emotional, physical, and learning characteristics of mentally retarded children.
- 3422 **Curriculum, Materials, and Methods of Teaching the Mentally Retarded***
Basic organization of programs for educating the mentally retarded at the primary, intermediate, and secondary setting. Curriculum development, principles of teaching, and instructional materials, methods, and records pertaining to the education of the mentally retarded.
- 2429 **Observation, Teaching, and Field Work with Mentally Retarded — A Seminar***
Prerequisite: Education 3409, 2421, and 3422 or permission of the chairman of the department.

* *Prerequisite as indicated or the equivalent as determined by the chairman of the dept.*

† *By staff of department concerned.*

For Graduate Students Only

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

- 3502 **Problems in Education – Seminar**
A course emphasizing educational research in both the elementary and secondary school fields. The student is allowed to make a choice of the field in which to carry on educational research.
- 3503 **Problems in Education – Seminar**
Prerequisite: Education 3502.
- 3504 **Educational Statistics – Beginning Course**
- 3505 **The Construction and Use of Achievement Examinations – Seminar**
Covers the theory of testing and provides practical experience in both critical analysis and construction of tests for classroom use. The student will be allowed to devote his attention *exclusively* either to the elementary school level or to the secondary, thereby receiving credit in elementary education or in secondary.
- 3506 **Remedial Reading in the Elementary School**
Examination and appraisal of significant researches in the field of remedial reading. Attention given to the analysis and diagnosis of individual cases of reading retardation, and to corrective and remedial procedures.
- 3508 **Workshop in Instructional Problems**
Study of teaching problems arising in the classroom. Students will choose their own problems and those with allied interests will be grouped together to facilitate individual research. Problems at both elementary and secondary levels may be chosen by students.
- 3509 **Workshop in Instructional Problems**
Extension of Education 3508.
- 3511 **Curriculum Construction and Organization of Subject Matter – Seminar**
The student is permitted to devote his attention *exclusively* to a pertinent curriculum problem either in the elementary or secondary school field.
- 3512 **Curriculum Problems in Science Education – Seminar**
The student is permitted to devote his attention *exclusively* to a pertinent curriculum problem in science education either in the elementary or secondary school field.
- 3513 **The Curriculum in the Elementary School**
Particular attention given to selection and organization of materials in reference to curriculum development of the elementary school.
- 3514 **Child Development in the Elementary School**
Characteristics of the growth period of children in the elementary school. Consideration of the bearing of the needs of children upon the elementary school program.
- 3516 **The Psychology of Individual Differences**
The study of individual differences in intelligence, school achievement, vocational aptitudes, personality, interests and attitudes; study of varieties of group differences; and study of methods used in studying human differences.
- 3517 **Psychology of Personality Development of Secondary School Student**
Study of mental hygiene, the nature and development of personality, and personality theory and assessment.

- 3518 **Counseling and Guidance**
Principles, functions, and methods and techniques of counseling.
- 3520 **Socio-Economic Information in Guidance — A Seminar**
Educational, occupational, and social information and its use in counseling and guidance.
- 3521 **Independent Study in Special Education — A Seminar**
This course offers opportunities for study in any one of the following special education areas: orthopedic handicaps, visual handicaps, auditory handicaps, giftedness.
- 3522 **Supervised Practice in Counseling — A Seminar**
Actual practice under supervision in applying the principles, tools, and techniques used in the guidance program. Students will be assigned to guidance workers in this area and supervised and instructed by an instructor in the Department of Education of Texas Western College. *Prerequisite:* Education 3420, 3435, 3436, 3504; and two of the following: Education 3409, 3516, 3517, 3518, 3520; and only by permission of the department chairman.
- 3523 **Educational Trends — Seminar**
A critical consideration of selected trends in Education.
- 3524 **Public School Supervision**
The purpose is to acquaint school supervisors with the modern philosophy of school supervision along with the techniques which have been found useful in the performance of the supervisory function.
- 3525 **The Administration of Teaching Personnel**
A course in ethics of the various relationships between (1) teachers and other school employees, and (2) the numerous "outside groups, interests, individuals, and officials."
- 3526 **Public School Finance**
Consideration is given to such matters as public school revenue, budget making and administration, accounting procedures and records, and school bonds.
- 3528 **Organization and Administration of the Elementary School**
Problems confronting the elementary school principal will be studied. For example, teacher schedules, classroom schedules, teachers' meetings, organization of the staff, supervision, curriculum, development and related problems will be considered.
- 3531 **Principles of Public School Relations**
Principles, techniques, and methods used in school public relations. Relationships include the school board and the public, the superintendent in the public relations program, school personnel and the public, the public relations of professional organizations.
- 3532 **Organization and Administration of the Secondary School**
The study of problems pertaining to teachers' meetings, organization of the staff, supervision, curriculum development, and related problems.
- 3536 **Classroom Management in the Elementary School**
The use of records and group techniques to improve human relations in the classroom.
- 3598-99 **Thesis Course for Master's Degree**
Prerequisite: Twelve semester hours of advanced courses in Education, and permission of chairman of the department.

Engineering and Drawing

MR. F. A. DECKER, *Chairman*

Professors DECKER, THOMAS, COLEMAN, BRINKER, BARNES;

Associate Professors HASSLER, WHITACRE; *Assistant Professors* CERVENKA, YOUNG, ROZENDAL; *Instructors* DUCOFF, BOURQUIN; *Part-time Instructors* LYON, HINTZE, GRADO

See pages 32-37 for Degree Plans

CIVIL ENGINEERING MR. HASSLER, *in charge of curriculum.*

1101 Elementary Engineering Problems

Study of the slide rule; simple engineering problems are solved using slide-rule techniques. Required of all freshman engineering students. *Prerequisite:* Mathematics 3115 and 2116.

2212 Concrete Mixtures (\$2)

Design, control, and testing of portland cement concrete, sheet asphalt, and asphaltic concrete. One lecture and three laboratory hours per week. *Prerequisite:* Chemistry 4103-04 and Physics 4215.

3213 Plane Surveying

Theory and practice of surveying measurements including mapping, note-keeping and computations, with special emphasis on precision, errors and significant figures. Two lectures and three laboratory hours per week. *Prerequisite:* Mathematics 4111 and Drawing 2101.

3215 Statics

Forces in space, friction, centroids, centers of gravity, moment of inertia, radius of gyration and kinetics of rigid bodies in rectilinear translation. *Prerequisite:* Drawing 2102, Physics 4215, and registration in Mathematics 4317.

2216 Elementary Plane Surveying (\$2)

Theory and practice of surveying measurements with emphasis on precision, errors and significant figures. One lecture and three laboratory hours per week. *Prerequisite:* Mathematics 4111 and Drawing 2101.

2314 Field Surveying (\$2)

Summer work: practical field course extending the topics outlined in Civil Engineering 3213 and 2322. Sixteen hours of field work per week for six weeks. *Prerequisite:* Civil Engineering 3213 and Junion Standing. *Co-requisite:* Civil Engineering 2322 for Civil Engineers only.

2322 Route Surveying

Theory of simple, reverse, compound and vertical curves; spirals; and earthwork. *Prerequisite:* Civil Engineering 3213.

4334 Mechanics of Materials (\$6)

Stresses and strains, in tension, and in shear; riveted and welded joints; torsion of shafts; resilience; and study of beams and columns. Three lectures and three laboratory hours per week. *Prerequisite:* Civil Engineering 3215.

3335 Reinforced Concrete

The theory of reinforced concrete, the design of elementary beams, columns, slabs, footing and retaining walls. A study of the current design specifications. *Prerequisite:* Civil Engineering 4334.

2338 Dynamics

Principles of dynamics and application to engineering problems; motion of a particle, translation, rotation, plane motion, work and energy, impulse, and momentum. *Prerequisite:* Civil Engineering 3215.

3343 Elementary Structural Analysis

Analysis of simple framed structures, roof trusses, girders and bridges. A study of moving loads and influence lines. Two lectures and three laboratory hours per week. *Prerequisite:* Civil Engineering 4334.

3354 Fluid Mechanics

Physical properties of fluids, hydrostatics, elements of fluid dynamics, energy and momentum equations, metering instruments, flow through pipes, orifices, and over weirs, and flow in open channels. *Prerequisite:* Physics 4215, Mathematics 4317, and Civil Engineering 3215.

1355 Fluid Mechanics Laboratory

Flow through weirs, orifices, flumes, pipes, and related appurtenances; meters and gauges; field trips. Three laboratory hours per week. *Prerequisite:* Civil Engineering 3354.

2356 Hydraulic Engineering

Deals with the hydrologic and legal considerations common to hydraulic projects, and with the structures—reservoirs, dams, pipe lines, channels, hydraulic machinery—and their appurtenances which are required for hydraulic projects. *Prerequisite:* Civil Engineering 1355.

3426 Engineering Economics

Application of economics to engineering and industrial problems which require a knowledge of engineering for their solution. *Prerequisite:* Economics 3101 and at least 24 semester hours of engineering courses.

1427 Concrete Design

The design of complete reinforced concrete structures and pre-stressed members, including the study of current design specifications. Three laboratory hours per week. *Prerequisite:* Civil Engineering 3335.

3440 Highway Engineering

Location, design, construction and maintenance of roads and highways; planning surveys; traffic engineering; economics of highway transportation. *Prerequisite:* Civil Engineering 3213, 2314, and 3448.

3441 Public Water Supplies (\$2)

Sources, storage, treatment, and distribution of water for domestic and commercial use, including discussion of the planning, design, financing, construction, and maintenance of water supply system; and laboratory analysis of water as practiced at water works. Two lectures and three laboratory hours per week. *Prerequisite:* Civil Engineering 2356 and Chemistry 4103-04.

3442 Sewerage and Sewage Disposal (\$2)

Sewer systems, their planning, construction, design, and maintenance; and treatment and disposal of sewage, including laboratory analysis of sewage. Two lectures and three laboratory hours per week. *Prerequisite:* Civil Engineering 3441.

3446 Contracts and Specifications

Elements of contracts and specifications, including discussions of the legal problem of contractual relations. *Prerequisite:* Senior standing.

ENGINEERING

3448 Soil Engineering (\$2)

Soil stability, stress distribution, compressibility, lateral earth pressure, settlement of structures and choice of foundation types. Two lectures and three laboratory hours per week. *Prerequisite:* Civil Engineering 3215 and senior standing.

3460 Indeterminate Structures

An introduction to statically indeterminate structures; slope and deflection and moment distribution in continuous beams and rigid frames; a study of the deformation of trussed structures by angle changes, and virtual work. *Prerequisite:* Civil Engineering 3343.

3461 Structural Design

Structural design of concrete, steel and timber structures, including application of plastic design methods in steel. One lecture and six laboratory hours per week. *Prerequisite:* Civil Engineering 3335 and 3460.

3471 Advanced Engineering Problems

Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the chairman of the department. *Prerequisite:* Senior standing and consent of the chairman of the department.

ELECTRICAL ENGINEERING MR. DECKER, in charge of curriculum

3319 Elements of Electrical Engineering

Analysis of the direct-current circuit; resistance, conductance, measuring instruments, ferromagnetic circuits, permanent magnets, generated and induced emfs, inductance, core losses, network theorems, and non-linear circuits. *Prerequisite:* Physics 4216 and Mathematics 4317.

3321 Electromagnetic Field Theory

The electric field, capacitance; the magnetic field, inductance; electromagnetic forces and dynamics; transients. *Prerequisite:* Electrical Engineering 3357 and Mathematics 3435.

4331 Electrical Circuits and Machines

Direct- and alternating-current circuits and machinery; rectifiers; motor starting and controlling devices; distribution systems; protective devices; motor applications; hoisting systems; and power factor correction. For non-electrical engineering students. Three lectures and three laboratory hours per week. *Prerequisite:* Physics 4215-16, and Mathematics 4317.

4339 Electronics (\$2)

Experimental techniques and elementary theory of circuit elements. Includes linear passive elements, linear electronic and transistor circuits. Also includes nonlinear electronic elements such as trigger circuits. Three lecture and three laboratory hours per week. *Prerequisite:* Physics 4216, Mathematics 4317 and Electrical Engineering 3357 concurrently. (May not be counted in addition to Physics 4339.)

4340 Theory and Application of Electron Tubes (\$2)

Theory and applications of a wide variety of electron tubes and circuits. Includes analysis of steady state and transient response in electronic systems by means of equivalent circuits. Also included are power supplies, feedback amplifiers, television and radio circuits, microwaves, and recent electronic developments. Three lectures and three laboratory hours per week. *Prerequisite:* Electrical Engineering 4339 and Electrical Engineering 4358 concurrently. (May not be counted in addition to Physics 4340.)

3357 Alternating-Current Circuits

Instantaneous current and power; effective current and voltage, average power; vector algebra; single-phase circuit analysis; non-sinusoidal waves. *Prerequisite:* Electrical Engineering 3319 with a grade of not less than C.

4358 Alternating-Current Circuits

Coupled circuits; polyphase circuits; measurements; determination of circuit parameters; transmission line calculations; wave filters; symmetrical components; short-circuit calculations; transients. Three lectures and three laboratory hours per week. *Prerequisite:* Electrical Engineering 3357.

4366 Direct-Current Machines

Theory, construction, testing, and application of direct-current motors and generators; starting, control, and regulating devices. Three lectures and three laboratory hours per week. *Prerequisite:* Electrical Engineering 3319.

3444 Measurements and Instrumentation

Experimental procedure, errors, and accuracy; methods of measuring current, electromotive force, resistance, capacitance, inductance, frequency, flux, hysteresis of iron, and calibration of the instruments employed; study of transducers; and instrumentation methods. Two lectures and three laboratory hours per week. *Prerequisite:* Electrical Engineering 4358, and 4339.

3447 Lines and Networks

General transmission line circuit parameters, the exact transmission line equations, characteristic impedance, wave length, and velocity of propagation; the power transmission line and power circuit diagrams; the high frequency transmission line lossy and lossless; circle diagrams and the Smith chart; short lines as circuit elements; impedance matching, networks, and filters. *Prerequisite:* Electrical Engineering 4358 and Mathematics 3435-36.

3464 Servomechanisms

Theory and application of servomechanisms to control problems. *Prerequisite:* Electrical Engineering 4358 and 4340, Civil Engineering 2338 and Mathematics 3435-36.

4467 Alternating-Current Machines

Theory, construction, testing, and application of transformers and alternating-current generators. Three lectures and three laboratory hours per week. *Prerequisite:* Electrical Engineering 3357, 4358, and 4366.

4468 Alternating-Current Machines

Theory, construction, testing, and application of synchronous motors, converters, and induction motors; single-phase motors; starting, control, and regulating devices. Three lectures and three laboratory hours per week. *Prerequisite:* Electrical Engineering 4467.

3469 Switching Circuits

Study of logical properties of circuits based on two-valued devices used in digital computers and control and telephone switching; elements of logical algebras including the propositional calculus and Boolean algebra; logical analysis and synthesis of combinational nets; optimization of series-parallel controlled-contact circuits; and sequential relay circuits. *Prerequisite:* Physics 4216 and Mathematics 4317. May be counted as Physics.

3471 Advanced Engineering Problems

Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the chairman of the department. *Prerequisite:* Senior standing and consent of the chairman of the department.

3472 Digital Computers

An introduction to digital computers including arithmetic procedures, basic programming patterns, input-output systems, storage systems, arithmetic units, methods of control, and basic timing and control sequences; comparative analysis of representative digital computing machines and their associated engineering, arithmetic, and logical design characteristics. *Prerequisite:* Electrical Engineering 3469. May be counted as Physics.

3474 Analog Computers

A study of the theory and practice of modern analog computers using electrical, electronic, and electromechanical elements; analysis of operational components; summers, sign changes, multipliers, dividers, integrators, trigonometric resolvers, and function generators; machine stability, errors, and checking systems. Fields of application: real-time control and simulation studies during design and evaluation of dynamic systems. *Prerequisite:* Physics 4216 and Mathematics 3326 or 3436. May be counted as Physics.

4477-78 Direct and Alternating Currents

Theory of direct — and alternating — current circuits and machinery, including power transmission and distribution, protective and control devices, motor applications, and electronics. Three lectures and three laboratory hours per week. *Prerequisite:* Physics 4215-16, and Mathematics 4317.

MECHANICAL ENGINEERING Mr. WHITACRE, in charge of curriculum.**4323 Mechanisms**

Motion of machine parts; velocities and accelerations; study of linkages, gears, cams, belts, and chains. Three lectures and three laboratory hours per week. *Prerequisite:* Civil Engineering 2338.

2324 Dynamics of Machinery

Forces acting upon machine parts taking into account their masses and inertia. *Prerequisite:* Mechanical Engineering 4323.

3336 Manufacturing Processes (\$4)

The technique of manufacturing articles in metal; pattern-making; foundry practice; machining; welding; quality control. One lecture and six laboratory hours per week. *Prerequisite:* Mathematics 4111 and junior standing in engineering.

3349 Heat Engineering

Thermodynamics, properties of gases, saturated and superheated vapors, calorimeters and mechanical mixtures; fuels, combustion, and flue gas analysis; boilers, engines, and their auxiliaries; air compressors. *Prerequisite:* Mathematics 4317 and Physics 4215.

3350 Heat Engineering

Condensers, pumps, turbines, internal-combustion engines, and the use and calibration of pressure, temperature, and velocity measuring instruments used in mechanical engineering. Two lectures and three laboratory hours per week. *Prerequisite:* Mechanical Engineering 3349.

3362 Industrial Engineering

Application of scientific management to the operation of the factory; principles of organization, job analysis, time studies, production control, inspection, testing, safety studies, and personnel. *Prerequisite:* Junior standing in engineering.

3375-76 Thermodynamics

Energy equations, thermodynamic laws, properties of gases and vapors, combustion processes, heat transmission, gas cycles and thermodynamic processes with mixtures, analyses of gas and vapor cycles. *Prerequisite:* Mathematics 4317, Physics 4215, and junior standing in engineering.

3381 Heat Power Engineering

Pressure, temperature, and power-measuring apparatus; compressors, calorimeters, fuels and fuel-burning equipment, flue gas analyses, and heat transmitting equipment. One lecture and six laboratory hours per week. *Prerequisite:* Mechanical Engineering 3375 in advance or concurrently.

4382 Heat Power Engineering

Continuation of Mechanical Engineering 3381. Steam generators, engines, and turbines; internal-combustion engines and fuel systems; heating, air-conditioning, and refrigeration equipment; cooling towers and spray ponds. Two lectures and six laboratory hours per week. *Prerequisite:* Mechanical Engineering 3381 and 3376 in advance or concurrently.

3471 Advanced Engineering Problems

Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the chairman of the department. *Prerequisite:* Senior standing and consent of the chairman of the Department.

4479 Machine Design

Force analysis, stresses, selection of machine parts for required task; fastenings, shafts, belts, springs, tolerances, and allowances. Three lectures and three laboratory hours per week. *Prerequisite:* Mechanical Engineering 2324, Me. 3305, and Civil Engineering 4334.

4480 Machine Design

Continuation of Mechanical Engineering 4479. Lubrication, bearings, gears, brakes, clutches, and frames. The design of a complete machine will be made in the laboratory. Two lectures and six laboratory hours per week. *Prerequisite:* Mechanical Engineering 4479.

DRAWING MR. COLEMAN, in charge of program.**2100 Mechanical Drawing**

Introductory course for freshman engineering students who do not present mechanical drawing for entrance. Intended to serve as preparation for Drawing 2101. Use of instruments, drafting technique, lettering, orthographic projection, geometrical construction, conventions, and symbols. Two lectures and four hours of supervised drawing per week. Credit may not be used to satisfy requirements for engineering degrees.

2101 Engineering Drawing (\$2)

Freehand lettering, orthographic projection, auxiliary and sectional views, dimensioning, cams, gears, assembly and detail drawing, and pictorial methods. Two lectures and four hours of supervised drawing per week. *Prerequisite:* One year of high-school mechanical drawing or Drawing 2100.

2102 Descriptive Geometry

Principal, auxiliary, and oblique views; straight- and curved-line problems; planes; intersection and development of surfaces; single-curved, warped, and double-curved surfaces; mining problems; perspective drawings. Two lectures and four hours of supervised drawing per week. *Prerequisite:* Drawing 2101.

English

DR. JOSEPH LEACH, *Chairman*

Professors LEACH, SONNICHSEN, BRADY; *Associate Professors* BURLINGAME, JAMES, MOSES, PONSFORD, PAST; *Assistant Professors* COLLINGWOOD, DOUGLAS, EHMANN, FUGATE, SMITH, WADDELL; *Instructors* DEAKIN, HOFFMAN, QUARM, SPIESE, JOHNSON, WALKER; *Part-time Instructors* CAUSEY, CERVENKA, GARNER, HALL, NOLD, RAMSEY, ROBERTSON, STAFFORD.

ENGLISH

For the degree of Bachelor of Arts twelve semester hours in English are required — English 3101-02 and 3211-12, 3213-14, or 3215-16. English 3101-12 and 3369 are required for the degree of Bachelor of Science in Mining Engineering; English 3101-02 and 3211-12, 3213-14, or 3215-16 for the degree of Bachelor of Science in the Sciences. ENGLISH MAJORS ARE REQUIRED TO TAKE ENGLISH 3211-12. English 3211-12, English 3213-14, or English 3215-16 may be presented as prerequisite to any advanced course in English.

Drama 3357 and 3358 may be counted for English credit.

3100 Pre-Freshman English

Required of all freshmen lacking the skill in English necessary for admission to English 3101. Can be counted for three hours elective credit for the Bachelor of Arts degree. Passing grade is C.

3101-02 Freshman English

Practice in improving written expression and reading comprehension. Required of all freshmen.

3211-12 Outline History of English Literature

English literature from the beginning with emphasis on major works and authors. Required of all English majors. *Prerequisite:* English 3101-02.

3213-14 English and American Literature of Today

Contemporary novels, short stories, plays, poetry, and various types of non-fiction. *Prerequisite:* English 3101-02.

3213 English and American Literature of Today

The first semester of English 3213-14 offered for students wishing three hours independent credit in literature. *Prerequisite:* English 3101-02.

3215 World Literature in Ancient, Medieval, and Early Renaissance Times

The works of such writers as Lao Tzu, Homer, Aeschylus, Sophocles, Euripides, Virgil, St. Augustine, Dante, Boccaccio, Chaucer, Montaigne, Cervantes, and Shakespeare. All foreign literatures are read in modern translations. *Prerequisite:* English 3101-02.

3216 World Literature from the Early Renaissance to the Present

The works of such writers as Milton, Racine, Voltaire, Goethe, Byron, Poe, Hawthorne, Melville, Flaubert, Dostoevsky, Turgenev, Tolstoy, Chekov, Ibsen, Baudelaire, Lorca, Joyce, Mann, Kafka, and Proust. All foreign literatures are read in modern translations. *Prerequisite:* English 3101-02.

6290 Study-Tour of Europe

A six-weeks field trip through Europe to major points of literary and cultural interest, conducted by a regular member of the College Faculty. A long paper will be required of each student. May be counted instead of 3211-12 or 3215-16. Consult the head of the English Department for costs, dates, and required reading list. *Prerequisite*: Sophomore standing and approval of head of English Department. *Recommended prerequisite*: History 3106-07.

3309 The Structure of English [Formerly 3220]

An investigation of the nature of modern American English and the relation between it and its written form; a study of levels of usage, American dialects, and recent developments in linguistic science. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3310 American Literature

The principal American writers from the beginning to 1820. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3311 American Literature

The most important poets and prose writers from 1820 to 1870. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3312 American Literature

The most important poets and prose writers from 1870 to the present. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3313 The American Novel

The representative American novels and novelists from 1787 to the present. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3314 The Development of the American Drama

Drama from the Colonial and Revolutionary Periods to modern times. Special attention is given to such playwrights as Bird, Boker, Fitch, Howard, Crothers, Anderson, Hellman, O'Neill, Tennessee Williams, and Arthur Miller. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3320 Shakespeare: The Earlier Plays

Detailed study of the major plays composed before 1601, with a rapid reading of others belonging to the same period. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3321 Shakespeare: The Later Plays

Detailed study of some of the great tragedies, followed by a more rapid examination of other plays written after 1600. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3322 Elizabethan and Jacobean Drama

Development of the comedy, the tragedy, and the chronicle history from earlier types of the drama in England. Plays of Lyly, Marlowe, Greene, Beaumont and Fletcher, Dekker, Jonson, Middleton, Webster, and their contemporaries related to the literary fashions of the times. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

3325 English Poetry and Prose, 1600-1660

Representative metaphysical, classical, Cavalier, and religious poets, including Donne, Jonson, Herrick, Herbert, and others; prose works by Bacon, Browne, Fuller, Walton, Burton, and others. *Prerequisite*: English 3211-12, 3213-14, or 3215-16.

- 3326 **English Poetry and Prose, 1660-1700**
The literature of the Restoration, exclusive of the drama, with emphasis on the work of Pepys, Dryden, Bunyan, Hobbes, Milton, and others. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3329 **Early Eighteenth-Century Prose and Poetry**
The background of the English Classical Period in the writers of the Restoration. The philosophic, religious, social, and literary ideas and ideals of the period. The work of Defoe, Addison and Steele, Swift, Pope, and their contemporaries. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3330 **Later Eighteenth-Century Prose and Poetry**
The decline of Neo-Classicism in the works of Johnson, Boswell, Goldsmith, and Burke and the rise of Romanticism in the works of Thomson, Gray, Collins, Young, Chatterton, Cowper, Blake, and Burns. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3331 **English Romantic Poetry, The Earlier Phase**
The works of Burns, Scott, Wordsworth, Coleridge, and some of their contemporaries. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3332 **English Romantic Poetry, The Later Phase**
The works of Byron, Shelley, Keats, and some of their contemporaries. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3335 **Early Nineteenth-Century Prose**
The prose of Lamb, Coleridge, Hazlett, DeQuincey, Macaulay, and their contemporaries considered in relation to the intellectual and social backgrounds of their time. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3336 **Later Nineteenth-Century Prose**
The prose of Carlyle, Newman, Ruskin, Arnold, and their contemporaries, together with an examination of the religious, critical, and social movements of the later Victorian period. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3339 **Victorian Poetry**
The poetry of Tennyson, primarily, and of such other poets as Arnold Clough and James Thomson. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3340 **Victorian Poetry**
The poetry of Browning, primarily, and of such other poets as Swinburne, Morris, D. Rossetti, Christina Rossetti, and Fitzgerald. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3344 **Contemporary Poetry**
The most important poets of the Twentieth Century. Special emphasis is given to Hopkins, Yeats, Eliot, Frost, D. H. Lawrence, Graves, W. C. Williams, Pound, Hart Crane, Stevens, and Dylan Thomas. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3347 **An Outline History of the English Novel**
Prose fiction in England from the Middle Ages to the nineteenth century, particular attention being given to the novels of Richardson, Fielding, Smollett, Walpole, Burney, Jane Austen, and Scott. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.
- 3348 **An Outline History of the English Novel**
A continuation of English 3347, with study of typical works of Dickens, Thackeray, the Brontës, George Eliot, Hardy, and Meredith. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3350 The English Novel after 1900

The work of the Edwardian and Georgian novelists George Moore, John Galsworthy, Joseph Conrad, Arnold Bennett, Somerset Maugham, D. H. Lawrence, James Joyce, and others. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3351 The English Novel since 1920

The work of the later Joyce, Virginia Woolf, Wyndham Lewis, Aldous Huxley, Evelyn Waugh, Graham Greene, Christopher Isherwood, Joyce Cary, Kingsley Amis, and John Wain. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3353 The Short Story

The development of the Short Story from earliest times; typical specimens from the short-story literature of England, America, Russia, France, and other countries. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3355 The Drama in England since 1660

Representative plays of the Restoration, of the eighteenth and nineteenth centuries, and of such modern playwrights as Jones, Pinero, Barker, St. John Hankin, Shaw, Coward, Galsworthy, Maugham, and Dane. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3361 Advanced Composition

The basic techniques applicable to both fiction and non-fiction writing. For students seriously interested in perfecting their powers of written expression. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3362 Non-Fiction Writing

Study and practice in the techniques of writing contemporary non-fiction for publication. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3367 Fiction Writing

Study and practice in the techniques of contemporary fiction for publication, with particular attention to the short story form and characterization. *Prerequisite:* English 3361.

3368 Advanced Fiction Writing

Study and practice in the techniques of contemporary fiction, with particular attention to long forms and plotting. *Prerequisite:* English 3367.

3369 Technical Writing

Assembling and organizing technical information, outlining, preparing reports, writing business letters, and expressing effectively the student's own ideas. For engineering students and others specializing in technical subjects. *Prerequisite:* English 3101-02 and junior standing.

3371 Life and Literature of the Southwest

The social background of the Southwest and its reflection in literature. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3372 Introduction to Folklore

The types and characteristics of folk literature with particular emphasis on the folklore of the Southwest and Mexico. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3373 Life and Literature of the South

Literature of the Old and New South, especially as it reflects the institutions and traditions of the region. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

3385 Russian Literature in Translation

Prose fiction beginning with Pushkin and extending through the Golden Age of the nineteenth century, with special emphasis on Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy, Chekhov, Andreyev, and Gorky. *Prerequisite:* English 3211-12, 3213-14, or 3215-16.

6390 Study-Tour of Europe for Advanced Students

A six-week field trip through Europe to major points of literary and cultural interest, conducted by a regular member of the College Faculty. A long paper will be required of each student. Consult the head of the English Department for costs, dates, and required reading list. *Prerequisite:* Junior standing and approval of the head of the English Department. May not be counted in addition to English 6290.

3411 Milton

An introduction to the work and times of John Milton. *Prerequisite:* Six hours of advanced courses in English.

3413 Chaucer: The Canterbury Tales

An introduction to the work and times of Geoffrey Chaucer. *Prerequisite:* Six hours of advanced courses in English.

3415 Literary Criticism

The development of literary criticism as seen in the works of leading critics from Plato to the present. *Prerequisite:* Six hours of advanced courses in English.

3416 American Literary Criticism

American critical thought from the colonial period to the present followed by a study of the methods, techniques, and problems of literary criticism. *Prerequisite:* Six hours of advanced courses in English.

3417 The English Language

[Formerly 3317]

The English language in its growth, structure, and relationships from Old English through early Middle English. Attention will be given to the Indo-European family of languages; Latin, Greek, French, and Scandinavian influences on the vocabulary; and historical events that relate to the development of both Old and Middle English. *Prerequisite:* Six hours of advanced courses in English.

3418 The English Language

[Formerly 3318]

A continuation of English 3417. The English language from late Middle English through Modern English. Attention will be directed to the historical changes that culminate in an analytical language. Special emphasis will be placed on the influences of French on English and of Spanish on the American language. *Prerequisite:* English 3417.

3420 Problems in Writing

Individual conferences with the instructor on work in progress by advanced writing students. *Prerequisite:* Six hours of writing courses or the equivalent. May be repeated for credit.

3431 The Folk Ballad

European balladry, particularly British and Spanish ballads and their American offshoots. The role of frontiers in the development of the heroic ballad, with the Texas-Mexican border as a focal point. *Prerequisite:* Six hours of advanced courses in English.

3432 The Folktale

Traditional tales, both oral and written, of Europe, Asia, and American. Theories, type and motif classification, and techniques for studying oral tales. *Prerequisite:* Six hours of advanced courses in English.

For Graduate Students Only

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

3511 Methods of Research and Bibliography

The basic course for graduate work in English, designed to equip the graduate student with effective techniques for research and scholarly writing in the field of English.

3515 English and American Masterpieces

Reading independently, each student will complete a selected list of English and American masterpieces. No regular classes will be held, but discussion groups will be met regularly by members of the English staff. A three-hour written examination will be scheduled during the regular examination period. Students who make a grade of A or B will be exempted from the Master's Oral in the English Major.

3520 Studies in Poe***3525 Studies in Emerson, Thoreau, and Whitman*****3530 Studies in the Life and Literature of the Southwest*****3535 Studies in American Thought***

The origin and significance of the major thought patterns of American literature.

3540 Studies in Melville and Hawthorne***3550 Studies in Chaucer*****3598-99 The Master of Arts Thesis**

Prerequisite: English 3511 and approval of the head of the English Department.

* Seminar.

Geology and Geography

DR. H. E. QUINN, *Chairman*

*Professors QUINN, NELSON; Associate Professor STRAIN; Assistant Professor RUOTSALA;
Instructor VOWELL.*

GEOLOGY

Students intending to major in geology must consult with department before committing themselves to a particular program of study, particularly in choosing the field of their minor. Those wishing preparation in the field of mining geology will find a comprehensive four year program set forth in the degree plans on page 30 of this catalog.

Students who elect to work for the Bachelor of Science Degree in the Sciences with a major in geology are advised to follow the program set forth in the degree plans of this catalog and in addition obtain adequate training in chemistry, at least an elementary course in physics, preferably physics through electricity, mathematics through calculus, a course in ordinary surveying, and drawing through descriptive geometry. The student should also elect the English course in technical writing, and a course in public speaking. Students intending to major in the paleontological field should be adequately grounded in the biological sciences.

For Undergraduates

3101 Physical Geology (\$2)

A critical study of the principles of physiography and dynamic and structural geology. Three lectures and two laboratory hours per week. (For engineering and science major students three laboratory hours will be required each week.)

3102 Historical Geology (\$2)

A critical study of the principles of stratigraphy, paleogeography and organic developments. Three lectures and two laboratory hours per week. (Three laboratory hours will be required each week of students majoring in engineering or science.)

3210 Principles of Geomorphology (\$2)

Analysis of geomorphic processes and land forms with special reference to conditions and surface expression in North America and their interpretation from topographic and geologic maps and aerial photographs. Two lectures and three laboratory hours. *Prerequisite:* Geology 3101 and 3102.

3211 Introduction to Geophysics

A general survey of the fundamentals of geophysics and the application of these techniques in prospecting for mineral deposits, petroleum, natural gas, and ground waters. *Prerequisite:* Mathematics 4111.

3216 Mineralogy (\$4)

Crystallography and blow pipe analysis; a study of the crystallographic, chemical and physical characteristics of minerals and mineral determination by blow pipe methods. Classification of minerals. One lecture and six laboratory hours per week. *Prerequisite:* Chemistry 3102 (Chemistry 4104 for engineering students and science majors; or Chemistry 4103-04 in advance, or concurrently for engineering students and science majors with sophomore standing).

2217 Mineralogy (\$4)

Determinative mineralogy. Largely devoted to the identification of minerals by physical characteristics. Six laboratory hours per week. *Prerequisite:* Geology 3216.

3217 Mineralogy (\$4)

Determinative mineralogy. Same as Geology 2217 with an additional hour of lecture per week. *Prerequisite:* Geology 3216.

4218 Invertebrate Paleontology (\$4)

A study of the structure and classification of invertebrates and their development and geologic significance. Two lectures and six laboratory hours. *Prerequisite:* Geology 3101 and 3102.

4219 Paleontological Stratigraphy (\$4)

A comprehensive study of the stratigraphy of North America and especially of West Texas and the Southwest. The last two hours count as advanced. Two lectures and six laboratory hours per week. *Prerequisite:* Geology 4218.

*For Undergraduates and Graduates***4321 Advanced General Geology (\$4)**

Certain topics of general geology such as petrology, structural geology and stratigraphy are expanded in an advanced and quantitative manner. Three lectures and three laboratory hours per week. *Prerequisite:* Geology 2217 or 3217, and Geology 3101 and 3102.

3322 General Economic Geology

A study of the occurrence of mineral deposits and ore deposits. *Prerequisite:* Geology 2217 or 3217.

4323 Structural Geology (\$2)

A study of the principles and theories of structural geology. Special attention is given to primary and secondary rock structures particularly with reference to those important in mining, petroleum and engineering operations. (Three lectures and three laboratory hours per week.) *Prerequisite:* Geology 4321 and Drawing 2101, or permission of the chairman of the department.

3324 An Introduction to Geochemistry

An introductory course treating of the scope, methods, and literature of geochemistry and specifically of the chemistry of minerals and rocks and rock-weathering. *Prerequisite:* Mathematics 3214, in advance or concurrently, Chemistry 4104, and Geology 2217 or 3217.

3325 Sedimentary Rocks (\$2)

A study of the sedimentary rocks to be carried on both in the field and the laboratory. Students registering for this course must furnish their own transportation. Two lectures and one afternoon in the field or laboratory per week. *Prerequisite:* Twelve hours of Geology.

4327 Petrology and Petrography (\$4)

The determination, origin and subsequent history of minerals and rocks as revealed in mineral grains and thin sections by the petrographic microscope. Three lectures and three laboratory hours per week. *Prerequisite:* Geology 4321 in advance or concurrently.

3461 Advanced Economic Geology (\$2)

Mining Geology, ore guides, methods of examination, preparation of reports, study of ore minerals under the microscope, etc. Two lectures and three laboratory hours per week. *Prerequisite:* Geology 3322 or senior standing.

2462 Geology of the Southwest

A detailed study of the regional, stratigraphic, structural, and economic geology of Texas, New Mexico, Arizona and Northern Mexico. *Prerequisite:* Senior standing.

4463 Geology of Petroleum and Natural Gas (\$2)

A study of the origin, migration and accumulation of petroleum and natural gas. Three lectures and three laboratory hours per week. *Prerequisite:* Geology 4219, 4321 and 4323; or permission of the chairman of the department.

GEOLOGY AND GEOGRAPHY

2464 Field Geology (\$4)

A field study of an area near the college and the application of quantitative standards to the mapping and geologic field studies. A typed report and satisfactory geologic map is required. One lecture and one afternoon in the field per week. *Prerequisite:* Six semester hours of advanced courses in geology.

6465 Field Geology (summer) (\$4)

A six week summer course in field geology. The work will involve the preparation of topographic and geologic maps, cross-sections and columnar sections, and detailed structural studies of a region of sedimentary and igneous rocks. Plane table and other mapping techniques will be used. A report will be required of each student. Five hours of lecture and thirty-two hours of field work per week for one summer session. *Prerequisite:* Senior standing or permission of the chairman of the department.

2421 Geological Trip (Transportation: \$50.00)

A survey trip of about two weeks over regions of geologic interest. Required for graduation in the Bachelor of Science in Mining Engineering. *Prerequisite:* Senior standing.

GEOGRAPHY (See Page 102 for Historical Geography)

3103 Elements of Geography (\$2)

A study of the major geographic realms emphasizing the relation of man to the various natural elements of his environment. Three lectures and two laboratory hours per week.

3104 Elements of Geography (\$2)

A continuation of Geography 3103. Three lecture hours and two laboratory hours per week. *Prerequisite:* Geography 3103.

Health and Physical Education

DR. L. C. SEILS, *Chairman*

Professor SEILS; Associate Professor McCARTY; Assistant Professors COLLINS, CRAIGO, GLARDON, WALKER, DAVIS; Instructors GEORGE, MOORE, LOPER.

The service courses are provided (1) to promote vigorous, mental, emotional, social and physical health; (2) to further the education of the individual through physical activities; (3) to develop motor skills; and (4) to prepare for leisure time activity. Definite instruction is given in class periods and students are graded on skills, knowledge, and achievement.

The service courses for men are designed to provide vigorous, strenuous, and aggressive activities that will be of lasting value. All men students will be given instruction in the following activities: Touch football, tumbling, gymnastics, speedball, volleyball, tennis, basketball, baseball, track, swimming, and minor sports.

The service course for women are designed to provide activities that are mentally and physically stimulating, as well as promoting grace, vigor and poise through group and individual instruction in dancing, swimming, field hockey, archery, volleyball, tennis, tumbling, and other sports.

HEALTH EDUCATION *For Undergraduates*

3101 Personal Hygiene (Men)

Study of personal, home and community health problems. Emphasis and stress on physical fitness, prevention of disease, safety, establishment of proper health habits, and knowledge to use medical science effectively.

3102 Personal Hygiene (Women)

Study of personal, home and community health problems. Emphasis and stress on physical fitness, prevention of disease, safety, establishment of proper health habits, and knowledge to use medical science effectively.

3211 Health Service for Elementary School Children

The scope of health service with emphasis upon the purpose, technique, and adaptation of health examinations of school children. *Prerequisite:* Sophomore standing.

For Undergraduates and Graduates

3301 Community Hygiene

Consideration of health of people as a group and with the social and governmental agencies which are concerned with environmental control and health protection. Three hours of lecture per week and special field trips. *Prerequisite:* Junior standing or permission of the chairman of the department.

3302 School Health Problems

Major problems of the organization and administration of school health programs will be analyzed. Three hours of lecture and special field trips. *Prerequisite:* Junior standing or permission of the chairman of the department.

3303 Modern Problems in Health Education

A study of the normal functioning of every integral part of the human body. Care and prevention of communicable diseases will be discussed and the value of the new drugs in the treatment of such. This course will try to give the individual a concept in the modern method for a healthful life. *Prerequisite:* Junior standing or permission of the chairman of the department.

3304 Principles of Health Education

Individual and community health problems will be discussed. Hygienic effects to be realized from an organized health program and a discussion of the prevention of communicable diseases in schools, communities, and cities will be presented. *Prerequisite:* Junior standing or permission of the chairman of the department.

3305 Safety Education

Emphasizes the problem of safety in the world today. A part of the course deals with general problems of safety education. Strong emphasis is given to the place of safety education in the public schools. Considerable time is devoted to a plan of safety instruction in the elementary, junior, and senior high school. *Prerequisite:* Twelve semester hours of Health and Physical Education or permission of the chairman of the department.

3306 Methods and Materials in Health Education

The field of health education, problems in administering the program, teaching aids for the health teacher, the teacher's part in health protection of children. *Prerequisite:* Junior standing or permission of the chairman of the department.

3307 Methods and Materials in Health Education

The scope of Health Education in the Elementary School. Problems in administering the school health education program. Teaching aids and methods for the teacher responsible for health instruction. The teacher's part in the health protection of children. *Prerequisite:* Junior standing or permission of the chairman of the department.

PHYSICAL EDUCATION *For Undergraduates***1102 Service Course for Freshmen Women (\$2)**

Three hours per week. Golf, \$25.00 additional fee per semester. May be repeated for credit.

1101 Service Course for Freshmen Men (\$2)

Three hours per week. Golf, \$25.00 additional fee per semester. May be repeated for credit.

1201 Service Course for Sophomore Men (\$2)

Three hours per week. Golf, \$25.00 additional fee per semester. May be repeated for credit.

1202 Service Course for Sophomore Women (\$2)

Three hours per week. Golf, \$25.00 additional fee per semester. May be repeated for credit.

**3101 Introduction to the Public Schools
and to Physical Education**

The purposes, objectives, and methods of operation of the public schools are described. The student is provided an overview of health and physical education. Three lectures and two hours of laboratory per week. (Field trips and demonstrations are included in this course.)

3102 Fundamentals of Physical Education Activities for Men

Theory and practice in physical education activities that are applicable to the boy's physical education program in the public schools. Three lectures and two hours of laboratory per week.

3104 Fundamentals of Physical Education Activities for Women

Theory and practice in physical education activities that are applicable to the girl's physical education program in the public schools. Three lectures and two hours of laboratory per week.

3202 Kinesiology

The mechanical and anatomical study of the Physical Education program as a basis for the analysis of activities in coaching, the selection and adaptation of activities in curriculum construction, and in corrective procedures. *Prerequisite:* Zoology 3101, 3102 and Biology 3202.

3203 Curriculum Construction

A study of the principles of curriculum construction, the philosophy of play, content, progression and organization of the play program for all levels of the educational program. A curriculum to meet a specific situation will be outlined. *Prerequisite:* Six semester hours of Physical Education or permission of the chairman of the department.

3205 Methods and Materials for Elementary Schools

Consideration is given to the methods and materials of instruction, the content, progression, organization and philosophy of the play program including rhythms for the Elementary and Junior High levels. *Prerequisite:* Six semester hours of physical education or permission of the chairman of the department.

3302 Techniques, Methods and Materials of Instruction in Rhythms for High School Grades

A class in rhythmical materials in social, country, folk, tap and modern dance. *Prerequisite:* Twelve semester hours of Physical Education or permission of the chairman of the department.

For Undergraduates and Graduates

3303 Tests and Measurements in Health and Physical Education

A study of tests will be made, both in Health and Physical Education as to their purpose and use, scoring and interpretation. *Prerequisite:* Twelve semester hours in Physical Education or permission of the chairman of the department.

3304 Current Methods and Materials in Physical Education

A laboratory and demonstration course presenting Physical Education instruction materials and methods. Students will be used in demonstrations. *Prerequisite:* Twelve semester hours of Physical Education or permission of the chairman of the department.

3311 Organization and Administration of Physical Education

The place of Physical Education in the total educational situation will be presented, along with fundamental aspects of a well-rounded Physical Education program. Particular emphasis on the administrative problems underlying a functional program. *Prerequisite:* Physical Education 3101 and 3102 for men, 3101 and 3104 for women and Junior standing.

3410 Undergraduate Seminar

Directed study in selected areas of Physical Education. This may be substituted for a deficiency in the required advanced physical Education courses in the Physical Education major. *Prerequisite:* Twelve semester hours of Physical Education or permission of the chairman of the department. May be repeated for credit.

3412 Fundamentals and Philosophy of Major Sports

Consideration is given to methods and techniques, conditioning, practice schedules, fundamentals and to the philosophy of major sports. *Prerequisite:* Twelve semester hours of physical education or permission of the chairman of the department.

3413 Growth and Development of the School Child

The correlation between growth and developmental changes and the chronological ages of the school child with emphasis on gross motor development. A study of the physiological changes that are characteristic of the various age levels of the school child and their relationship to the child's emotional, social, and mental development. *Prerequisite:* Twelve semester hours of physical education or permission of the chairman of the department.

3496 Professional Laboratory Experience in the Elementary School

A minimum of ten hours a week for one semester of laboratory observation and teaching experience in an elementary school program of health and physical education. *Prerequisite:* Education 3102, 3201, 3202, 3204; twenty-one hours of Health and Physical Education; senior standing; and permission of the department chairman.

3498 Professional Laboratory Experience in the Secondary School

A minimum of ten hours a week for one semester of laboratory observation and teaching experience in the health and physical education program in the secondary school. *Prerequisite:* Twenty-one hours of health and physical education; senior standing; eighteen hours of education including Education 3202, 3204, and 3305; and permission of the department chairman.

3499 Professional Laboratory Experience in the Secondary School

A minimum of ten hours a week for one semester of laboratory teaching experience in the Health and Physical Education program in the secondary school. *Prerequisite:* the same as for Physical Education 3498. May be taken concurrently with Physical Education 3498.

For Graduate Students Only

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

3501 Seminar in Health and Physical Education

A seminar with emphasis on research in health and physical education in both the elementary and secondary school fields. The course will include methods of research, selecting a problem and preparing a written report on the study of the problem. May be repeated for credit.

3502 Critical Analysis of Professional Literature

Designed for advanced students in the field of health, physical education, recreation and safety. Major emphasis will be placed upon health and physical education. Thorough study and consideration will be given to the literature in the field which is likely to have the greatest influence on programs, procedures and practices in health, physical education, recreation and safety in the school and community.

3503 Supervision of Health and Physical Education

The purpose of this course is to present and discuss the responsibilities of the supervisor of health and physical education in the school and community. Observation, techniques, standards of judging instruction, the supervisory conferences, cooperative supervision, basic foundation of curriculum construction and lesson planning. Emphasis is placed on the common problems met by the supervisors in health and physical education in elementary and secondary schools.

History, Government and Sociology

DR. REX W. STRICKLAND, *Chairman*

Professor Emeritus WALLER; *Professors* STRICKLAND, GREGORY, PORTER, TIMMONS;
Associate Professors QUINN, MCNEELY, MYRES, FULLER, BAILEY;
Assistant Professors HARVEY, GERALD; *Instructors* BROADDUS, VOWELL, DENNY,
HOVEL, HARRIS, GOODMAN; *Part-time Instructors* BRYSON, LOGERMAN.

HISTORY Government 3326 may be counted for History in satisfying the major or minor requirements.

For Undergraduates

3101 History of the United States

Survey of the factors that have affected the growth of American democracy; European background, American environment, development of social and political institutions, conflict with imperial control and separation, constitution making—state and national, Jeffersonian republicanism and Jacksonian democracy, the Civil War.

3102 History of the United States

Reconstruction, the Industrial Revolution and its influence upon American industry, economic imperialism, American participation in world affairs, the First World War and after, economic depression. The New Deal, and the Second World War.

3106 History of Western Civilization (to 1715)

Ancient civilizations, Greece and Rome, Christianity; medieval civilization in the West, eastern Europe; the Renaissance, Protestant Reformation, dynastic and religious wars, the expansion of Europe, divine right monarchy, triumph of parliamentary government in England.

3107 History of Western Civilization (since 1715)

International affairs in the eighteenth century, the Enlightenment, French Revolution and Napoleon, revolution and counter-revolution, the industrial revolution, the western democracies in the nineteenth century, central and eastern Europe, the intellectual revolution, imperialism, World War I, democracies and dictatorships, revolt against colonialism, World War II and after.

3212 The Ancient World

A survey of the ancient civilizations—Babylonian, Chaldean, Assyrian, Persian, and Egyptian; more intense study of the Greek history with its art and culture and its spread over the Mediterranean world; Roman history with its system of law, its early beginnings and expansion over Europe, rise and decline of the Roman Empire. *Prerequisite:* Sophomore standing or six semester hours of History.

3213 Medieval Europe

Decline of the Roman Empire, Germanic kingdoms, Eastern Roman Empire; rise of Islam and the Crusades, the medieval church, rise of cities, feudalism, the origin of the universities, culture of the Middle Ages. *Prerequisite:* Sophomore standing or six hours of History.

3317 A General Survey of Texas History

[Formerly 3217]

Prerequisite: Twelve semester hours of history or six hours of history and six hours of other social science.

For Graduates and Undergraduates

3323 Europe, 1870-1920

A survey of the different countries of Europe and their internal development to 1920. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3324 Europe after 1920

Prerequisite: Twelve semester hours of History, or six hours of History and six hours of other social science.

3325 History of the United States, 1607-1787

Settlement and development of the Colonies, representative principles of government, westward expansion of the Colonies with the resulting economic and political problems, mercantilism and the British Imperial policy, colonial participation in the English and French conflicts in America, the American Revolution, state making and constitutional development during and after the Revolution. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3326 History of the United States, 1787-1829

Confederation and Constitution, formulation of foreign policy, Jeffersonian Democracy and Hamiltonian Federalism, expansion and development of Jacksonian Democracy, rise of nationalism and conflict over states' rights. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3327 Social and Intellectual History of the United States

The American Character and the molding forces of environment and immigration, religion and philosophy, literature and art, science and scholarship, the liberal temper and the conservative defense. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3330 History of the Far East

Modernization of the nations of the Far East with particular attention given to China and Japan. The social, political, economic, and intellectual aspects of this transformation are considered in the light of the impact of Western influences. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3331 Russian History

From the earliest times to 1900 with special attention given to the institutions, Literature, Church and Foreign Policy. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3332 The Near East in Modern Times

A study of the break-up of the Ottoman Empire in Western Asia; the Succession States; Arabic nationalism and the rise of Israeli; Modern Egypt, Iran and Iraq. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3333 History of Russia (since 1900)

Will include the background of the Revolution of 1905, World War I, and revolutions of 1917, with special emphasis on the Soviet State since 1917. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3335 History of the United States, 1829-1850

Jacksonian Democracy, expansion of the United States into the Southwest and Far West, development of the controversy over states' rights, slavery and cotton capitalism. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3336 History of the United States, 1850-1865

Slavery controversy; Rise of the Republican Party, new leaders; Civil War, its causes, economic and social factors, military operations, results. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

- 3340 Renaissance and Reformation, 1300-1648**
Prerequisite: Twelve semester hours of History, or six hours of History and six hours of other social science.
- 3341 The Old Regime, 1648-1789**
 Absolutism in France, Prussia, Austria, Russia, social and economic development, international relations, scientific and intellectual revolution, enlightened despotism. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.
- 3342 The French Revolution and Napoleon**
Prerequisite: Twelve semester hours of History, or six hours of History and six hours of other social science.
- 3343 Liberalism and Nationalism, 1815-1870**
 The Metternichian system and its breakdown, the industrial revolution, the 1830 and 1848 movements, radicalism, the Second French Empire, unification in Italy and Germany, Russian development, international relations. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.
- 3347 Latin America: The Colonial Period**
 A survey of the history and institutional development of Spanish and Portuguese America in the Colonial period. *Prerequisite:* Twelve semester hours of History, or six semester hours of History and six hours of other social science.
- 3348 Latin America: The National Period**
 South America since 1810, with special emphasis upon Argentina, Brazil, Chile, the Monroe Doctrine and Pan-Americanism. *Prerequisite:* Twelve semester hours of History, or six semester hours of History and six hours of other social science.
- 3349 Latin America: The National Period**
 The History of Mexico, Central America, and the Caribbean area since 1810. *Prerequisite:* Twelve semester hours of History, or six semester hours of History and six hours of other social science.
- 3350 Diplomatic History of the United States:
 Growth and Empire**
 International relations of the United States in growing from thirteen colonies to forty-eight states, from an infant confederation to a far-flung empire. Emphasis on basic foreign policies. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.
- 3351 Diplomatic History of the United States:
 World Leadership**
 International relations of the United States as a world leader, in an after two world wars. Emphasis on post-World War II problems. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.
- 3353 A Survey of Political and Social Britain from 1815-1895**
 Tory England, the beginnings of reform, leaders and events in the making of modern Britain. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.
- 3354 Britain and the Empire from 1895 to the Present**
 The Boer War, the Empire and foreign relations, the Liberal party and internal reform, the World War, the Treaty, Britain since 1919. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3355 History of the United States since the Civil War

Reconstruction, industrial development and regulation, sectionalism, grangers, greenbackers, populism, silver crusade, passing of the frontier, civil service reform, rise of imperialism. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3356 Contemporary History of the United States

Rise of the United States as a world power, growth of trusts, imperialism and world trade, progressivism, Roosevelt and Wilson, World War and reconstruction, Republican prosperity, depression and world unrest. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3357 The New South

The social, economic and political development of the South since the Civil War. *Prerequisite:* Twelve semester hours of history or six hours of history and six hours of other social science.

3359 Trans-Mississippi West (to 1860)

American expansion into Texas and the Far Southwest; Santa Fe trade; Texas Revolution and Independence; Texas Republic, English and American Rivalry in Texas and California; Mexican War and acquisition of California. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

3360 Trans-Mississippi West (after 1860)

The mining frontier; railroad expansion; day of the cattlemen; the farmer frontier; populist movement; reclamation and conservation. *Prerequisite:* Twelve semester hours of History, or six hours of History and six hours of other social science.

For Graduate Students Only

Prerequisite for Graduate Courses: Twelve (12) semester hours of advanced courses in History and a bachelor's degree.

3580 Studies in Regional History (Seminar)

3581 Historical Method and Historiography* (Seminar)

3582 Studies in Modern European History (Seminar)

3583 Studies in Latin-America History (Seminar)

3584 International Aspect of Texas History, 1803-1850 (Seminar)

3585 Studies in the Middle Period of American History:
Selected Topics (Seminar)

3598-99 Thesis Course for the Master's Degree

* Required of all History majors in the M.A. Degree.

GEOGRAPHY (See page 94 for Physical Geography)

3210 Cultural Geography

A study of other nations and other peoples, to better appreciate and understand their way of life. Racial and cultural backgrounds, political, social and economic developments and geographic physical factors are considered, initially by world regional patterns, followed by variations within political subdivisions. *Prerequisite:* Six semester hours of History, or sophomore standing. Not counted as laboratory science.

GOVERNMENT*For Undergraduates***3210 American Government†**

The government of the United States—national, state, and local with special emphasis upon the Constitutions of the United States and Texas. This course meets teacher certification requirements for out-of-state graduate students. *Prerequisite:* Sophomore standing.

3211 American Government†

The government of the United States—national, state and local with special emphasis upon the Constitution of the United States. *Prerequisite:* Government 3210.

*For Graduates and Undergraduates***3321 American State and Local Government**

Origin and growth of state constitutions; organization and work of state departments; local governments; relation between state and local governments. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3322 American State and Local Government

Organization, powers, functions, and business methods of state and local administrative agencies; problems of integration, centralization, budget and fiscal control. Plans for reorganization and cooperation with federal and local agencies. Special reference to Texas. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3323 The Governments of Great Britain and the Empire

Rise of English political institutions, a critical analysis of the English and British systems of government; the larger problems of the British Empire. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3324 The Governments of Continental Europe

The governments and politics of France, Italy, Switzerland, Germany, and Russia, with some attention given to lesser European countries. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3325 The Party System in the United States

An historical survey of the political party as a reflection of social and economic thought in the United States. Attention will be given to the role of the party in national politics and its relation to the functions of the Federal Government. Occasional reference will be made to the party systems of other democratic nations. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3326 American Constitutional Development**(Constitutional Law, Constitutional History)**

The impact of changing conditions upon the interpretation of the United States Constitution from 1789 to the present. Major emphasis will be placed upon the process of judicial review and its effect upon the executive and legislative branches of the American Government. Approximately one-third of the course will be concerned with constitutional problems raised since 1933. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

† Government 3210 and 3211 fulfill the legislative requirement of the State of Texas for a course on the Constitutions of the United States and Texas.

3330 International Politics

Principles and political problems involved in foreign policies and international relations of the states of the world with particular emphasis on nationalism and imperialism. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3331 International Organization and Administration

The development of the machinery and procedure of international government for the peaceful settlement of international disputes. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3332 The Government and Politics of Mexico and the Caribbean Area

The constitutional development, governmental organization, and contemporary political problems of representative states, with special attention to Mexico. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3333 The Government and Politics of South America

The governmental structure and politics of the principal South American countries. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3334 American National Government and Administration

The making of the national government, the principles of the Federal system, Citizenship and Constitutional Rights, the organization of Congress, the National Executive and National Court System. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3335 American National Government and Administration

A general view of the powers of Congress; National Executive and National Court System; the organization, personnel work of the Civil Service and of the Budget Bureau. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3336 Elements of Political Theory

An introduction to the study of political theory through a presentation of some major political concepts, both ancient and modern. Emphasis will be placed on the contest in Western political thought between absolutism, modern totalitarianism, and constitutionalism. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3337 American Political Thought

The origins and development of American principles of democracy and representative government. Attention will be given to the shifting intellectual and social context of our political tradition in order to show its influence upon the concepts of formal political theorists. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3343 Foreign Policies of the United States

The historical development and present organization of the Department of State and of the Foreign Service; the nature of the foreign relations power and the conduct and control of American foreign relations. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3344 The Conduct of American Foreign Affairs

Origin and development of fundamental principles of American diplomacy concerning neutrality, recognition, naturalization and expatriation, and promotion of trade and commerce with special attention devoted to post-war problems. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

3350 Introduction to Public Administration

A study of the processes involved in the management of men and materials in the accomplishment of the purposes of government; analysis of the structure and procedures of the administrative or executive branch of government, with particular reference to national, state and local government in the United States. *Prerequisite:* Government 3210-11, or Government 3210 and three semesters of advanced Military Science.

For Graduate Students Only

Prerequisite for Graduate Course: Twelve (12) semester hours of advanced courses in Government and a bachelor's degree.

3580 Selected Problems in Government – Seminar**SOCIOLOGY**

For Undergraduates

3101 Introduction to Sociology

Study of the individual in group action. Includes broad consideration of heredity and environment, and a study of the major social institutions and processes.

3102 Social Problems

Physical and mental defectiveness considered from the sociological viewpoint; defects in social organization; poverty and dependency. Social controls applied to social problems.

3103 The Nature of Man (Anthropology)

Systematic survey of the evolution of man and the development of his culture, as exemplified in the physical remains and associated tools of such fossil and modern men as *Australopithecus*, *Pithecanthropus*, *Homo neanderthalensis*, and *Homo sapiens*. The cause and nature of race and religious prejudices are also discussed. Offered in 1962-63 and alternate years thereafter.

3104 Social Institutions (Anthropology)

A consideration of the various forms of social institutions, such as the family, clan, kin groups, community, sodalities, religion, and government, found over the world and exemplified by such peoples as the Apache and Hopi Indians, Australians, Samoans, and Hottentots. Various schools of Social Anthropology theory will be summarized. Offered in 1962-63 and alternate years thereafter.

3210 Southwestern Archaeology (Anthropology)

The development and characteristics of Indian culture, from the Elephant Hunters to the Pueblos, is considered, with particular attention being given to the later Mogollon, Hohokam, Anasazi, and Casas Grandes cultures. *Prerequisite:* Sociology 3103 and 3104. Offered in 1961-62 and alternate years thereafter.

3211 Southwestern Ethnology (Anthropology)

The economy, social life, religion, mythology, language, and material culture of living Indian groups studied with a detailed examination of the cultures of the Apache, Papago, Acoma, and Zuni. *Prerequisite:* Sociology 3103 and 3104. Offered in 1961-62 and alternate years thereafter.

3214 The Community

Methods of studying the community; social anatomy; a comparative study of communities; analysis of the underlying forces and social processes which make for natural groups and institutions to meet industrial, religious, educational, governmental, and leisure time needs; disorganization and reorganization of modern communities. *Prerequisite:* Sophomore standing or Sociology 3101 and 3102.

3215 Marriage and Family Life

A study of the factors involved in an adequate preparation for marriage, marital adjustment and parenthood. *Prerequisite:* Sophomore standing or Sociology 3101 and 3102.

For Graduates and Undergraduates

3320 Fields of Social Work

A survey of the various fields of social work now operating, both public and private in sponsorship, with particular attention to those organized on regional and national basis; and an examination of the methods used in the various fields considered. *Prerequisite:* Twelve hours in Sociology or junior standing and six hours in social sciences.

3333 Juvenile Delinquency

A study of the causative factors in juvenile delinquency. Attention is given to the methods of social analysis, the clinical approach, the interrelation of physical, mental and social factors in delinquency. *Prerequisite:* Twelve hours of Sociology or junior standing and six hours of social sciences.

3336 Comparative Cultures

A study of the folkways, changing mores, and the growth of democratic ideas in the United States and the Republic of Mexico. Special emphasis upon the fusion of cultures along the border. *Prerequisite:* Twelve hours of Sociology or junior standing and six hours in the social sciences.

3347 Population Problems and Immigration

Population movements and their social control; problems of population, distribution, and assimilation, consideration of Americanization programs and immigration laws. *Prerequisite:* Twelve hours of Sociology or six semester hours of social science and junior standing.

3348 Criminology

Causes, characteristics, and relief of crime, with consideration of mental, physical, economic and social factors in crime. A sociological analysis and evaluation of penal methods. *Prerequisite:* Twelve hours of Sociology or six semester hours of social science and junior standing.

3349 The Family

A study of the development of the family as a social institution. Emphasis is placed upon the American family and the problems which confront it today. *Prerequisite:* Twelve hours of Sociology or six semester hours of social science and junior standing.

3350 Child Welfare Problems

The development of the rights of the child in relation to parental rights, as evidenced in the child labor laws, juvenile court, adoption, mother's aid legislation, the changing status of the illegitimate child, and public organization for more effective administration of other laws relating to child dependency, delinquency and neglect. *Prerequisite:* Twelve hours of Sociology or six semester hours of social science and junior standing.

Journalism, Radio - Television, and Publications

VIRGIL HICKS, JOHN MIDDAGH, *Co-Chairmen*

Associate Professors HICKS, MIDDAGH; *Assistant Professor* RALPH LOWENSTEIN;

Consultant in Typography and Publications, CARL HERTZOG;

Consultant in Publicity and Public Relations STEELE JONES.

Realizing the need for professionally trained young men and women in the field of communications, Texas Western College offers a complete major in the field of journalism and radio-television. The department is organized on a professional basis. Its programs aim to provide students with a broad background in English and history, economics, political science, business and related fields, plus realistic training under professional newsmen and radio-television men as instructors.

B. A. Degree — Specific courses required for the JOURNALISM MAJOR are Journalism 4207, 3201-02, 3305 and 3312, and six additional advanced hours. Specific courses required for the RADIO-TELEVISION MAJOR are Radio 3102, 3214-15, 3330-31 and six advanced hours.

(Upon approval of the Chairman of the Department, Business Administration 3350, 3351, and 3352 will be accepted for credit as part of a major or minor in Journalism.)

JOURNALISM

For Undergraduates

3101 Introduction to Journalism

Orientation course into the background of newspaper work and other journalistic fields. Brief history of American newspapers. Designed to acquaint students with general newspaper practices.

3102 Introduction to News Writing

A beginning course covering basic principles of news writing and editing, making use of exercises and assignment materials necessary to practice and apply the principles.

3106 Introductory Course in Public Relations

Orientation course to acquaint the student with the various public relations media and how to use them. Set up on an elementary basis primarily for the non-journalism and radio major, this course presents the role of public relations in modern business, education, government, civic affairs, etc. Instruction and practice in writing news releases for newspapers, radio and television.

3201 News Gathering and Reporting

Instruction and practice in interviewing and writing; Discussion of news sources, news values, and various types of news stories; study of the organization of the newspaper staffs and the news gathering associations. Required of all students majoring in Journalism. Two lectures and four practice hours per week. *Prerequisite*: Sophomore standing including English 3101-02.

3202 News and Copy Reading

Theory of writing newspaper copy and writing headlines. Special instruction by leading newspaper men and women. Required of all students majoring in Journalism. Two lectures and four practice hours per week. *Prerequisite*: Sophomore standing including English 3101-02.

3203 Current Events

A study of current events in the daily newspaper and interpretation of these current events in regard to the social welfare, future and progress of the world. *Prerequisite*: Sophomore standing.

3204 The American Newspaper

Critical examination of the newspaper as a social agency; the influence shaping its content and attitudes; the effect of the newspaper on public opinion, morality, popular taste, style, and standards of living. *Prerequisite*: Sophomore standing or consent of the chairman of the department.

4207 Elementary Photography (\$5)

Instruction and practice in the processes of News Photography. Discussion of lenses and cameras, along with the actual photographic process. Capabilities of the press camera; exposure and development of film; printing and finishing news pictures. Three lectures and three laboratory hours per week. *Prerequisite:* Sophomore standing or permission of instructor based on applicant's previous experience in photography.

3303 The Special Article

Methods of gathering material for newspapers and magazine feature stories through interviews, research, and observation; study of feature story form and style; discussion of markets for literary material; practice in writing feature stories. *Prerequisite:* Journalism 3201 or 3202, or English 3211-12.

3305 News Editing

Study of newspaper style books; instruction in headline writing; study of newspaper make-up; practice in reading newspaper copy for errors in fact, English, and style; also practice in writing headlines and rewriting news stories. Required of all students majoring in Journalism. Two lectures and four practice hours per week. *Prerequisite:* Journalism 3201 or 3202.

3306 Teaching High-School Journalism, Supervision of School Publications

Instruction in the teaching of high-school journalism and supervision of publications, both classroom and extracurricular. Lectures include selection of material, editing, production, and school public relations. *Prerequisite:* Junior standing or consent of the chairman of the department.

3307 The Small Daily and Weekly Newspaper

Study of news methods, make-up, advertising problems, and business management of the small-town newspaper. *Prerequisite:* Junior standing or consent of the chairman of the department.

3308 Fields of Photography (\$5)

A continuation of Elementary News Photography with special emphasis on press photography. A survey of the various fields of photography including a practical working knowledge of cameras and their most effective uses. Two lectures and three laboratory hours per week. *Prerequisite:* Journalism 4207 or permission of the instructor, based on applicant's previous experience with camera and dark-room.

3312 Editorial Writing and Page Direction

Instruction and practice in writing newspaper editorials and page columns. Early emphasis on structure and style, make-up, and policies. Practice in writing the signed column. Required of all students majoring in Journalism. *Prerequisite:* Junior standing or consent of the chairman of the department.

3350 Fundamentals of Advertising

Survey of advertising principles used in all media of communications. Practice in writing advertisement headlines and copy. Discussion of advertising's role in small and large business enterprises. *Prerequisite:* Junior standing or consent of the chairman of the department.

3351 Advertising, Copywriting and Special Layouts

Instruction and practice in the technique of preparing various types of advertising copy and layouts. Study of marketing media, direct mail advertising, circulars, and store layouts. Two class and two practice hours per week. *Prerequisite:* Journalism 3350.

3352 Public Relations

Principles, techniques, and methods used in public relations; necessity and significance in the free enterprise system. Relationships include national, state and local governments; employees; customers; suppliers; social and religious institutions. *Prerequisite:* Junior standing or consent of chairman of the department.

3401 Public Affairs in the News

Panel discussions, lectures and field visits comprise this course, which is primarily designed for the senior student needing advanced elective credit having a direct relationship to his major area of study. How the operations of government, politics, the courts, labor and business are reported and interpreted in the news will be studied. *Prerequisite:* Junior standing or consent of the chairman of the department.

3418 Current Events in Relation to Classroom Teachers Use in Secondary School

A study of current events in the daily newspapers, national news magazines, and radio, and interpretation of these current events in regard to the social development of the secondary school pupil. *Prerequisite:* Junior standing or consent of the chairman of the department.

COLLEGE PUBLICATIONS*For Undergraduates***1104-05 Publications**

Work on the staff of one of the college publications. Members are required to be on the staff of at least one of the official college publications and to work at prescribed periods under supervision. Three hours per week for two semesters. May not be taken for credit at the same time a student is enrolled in Journalism 3201 or 3202.

1204-05 Publications (second year)

Further work on the college publications with increased responsibility. Three hours per week for two semesters. *Prerequisite:* Journalism 1104-05.

1304-05 Publications (third year)

Further work on the college publications with increased responsibility. Three hours per week for two semesters. *Prerequisite:* Journalism 1204-05.

1404-05 Publications (fourth year)

Further work on the college publications with increased responsibility. Three hours per week for two semesters. *Prerequisite:* Journalism 1304-05.

RADIO — TELEVISION

Television and radio courses are designed to accomplish a two-fold purpose: To give the student training and background in every phase of non-technical television and radio; and, to provide the skills and experience necessary for a position in the industry. Facilities are modern and complete. Texas Western College owns and operates its own Frequency Modulation radio station KVOF-FM, which provides a daily broadcast service to the El Paso city and county schools. KVOF-FM is staffed entirely by students working in modern control rooms and studios, using standard commercial equipment. The department also maintains campus carrier-current station KVOF, providing ten hours daily of programs slanted at dormitory residents. Remote broadcast lines are maintained to El Paso's commercial stations for the purpose of relaying college programs. Texas Western television facilities are new, modern, and complete, offering the prospective television student unsurpassed opportunities for learning every phase of this fascinating medium. Using a complete RCA two-camera television chain, students write, produce and direct their own programs which are released by closed-circuit to TV receivers on the campus. Campus television facilities are also employed in the teaching of college courses by closed-circuit. An investment of more than \$150,000 is represented in the studios, lighting facilities, cameras, video controls and associated equipment to make Texas Western's TELEVISION CENTER one of the most complete educational television plants in the country. Upon approval by the Chairman of the Department, Education 3412, 3413, and 3417 will be accepted for credit as part of a major or minor in Radio-Television.

*For Undergraduates***3101 Survey of Radio and Television**

A survey of the American System of Broadcasting including personnel, equipment, terms, station and network organization in television and radio. Practice given in station operational procedures.

3102 Introduction to Radio

An introductory course to acquaint the beginning student with basic studio and control room equipment and practices. Microphone types and techniques, control board operation, tape recordings. Introduction to educational broadcasting. *Prerequisite:* Radio 3101, or consent of the chairman of the department.

3105 Radio-Television News Processing

A study of the leading world news telegraph services, news writing styles pertinent to radio broadcasting, and the techniques of processing news material for radio broadcast. Laboratory practice under actual radio newsroom conditions is made possible by use of 24-hour daily leased wire Associated Press facilities in the KVOF-FM newsroom.

3214 Introduction to Television

An introductory course to acquaint the student with the equipment terms and personnel of television. Radio and television announcing. The development of an effective, friendly radio and television personality. (Three lectures per week.) *Prerequisite:* Radio 3102 or consent of the chairman of the department.

3215 Telecommunications

Writing for television and radio, program planning and building, audience surveys, audience promotion. Introduction to film techniques in television. Three lectures per week. *Prerequisite:* Radio 3214 or consent of the chairman of the department.

3218 Dramatic Script Writing

Beginning principles of dramatic script writing for stage, radio and television. Drama majors will be required to write an original one-act play. Radio and television majors will be required to write an original half-hour script for either radio or television. *Prerequisite:* Completion of English 3101-02 and sophomore standing. Not to be counted in addition to Drama 3218.

3320 Television Production I

A practical approach to the presentation of commercials, news films and live programs as encountered in the daily operation of the average commercial television station. Beginning instruction in camera work, video and audio control. Survey of educational television. Two lectures and three laboratory hours per week. *Prerequisite:* Six hours of television-radio courses or junior standing.

3321 Television Production II

Advanced television production. Lighting and staging of television forums, quiz shows and dramatic materials. Skills of the technical director. Further camera training. Actual student participation in every phase of television studio and control activity. Two lectures and three laboratory hours per week. *Prerequisite:* Six hours of television-radio courses or junior standing.

3323 Production in Educational Television

Television production problems peculiar to educational television. A companion course to Education 3417, providing opportunity for participation in the production and direction of programs planned for in-school viewing. Content of the course will include basic instructions in staging, lighting, and camera work in the field of educational television. Class members will participate with the staff and crew for daily demonstration programs to be broadcast on the closed-circuit facilities of TWC-TV. *Prerequisite:* Junior standing.

3330 Television-Radio Station Management

Complete survey of management problems in the television-radio industry. Information relating to network affiliation, staff training, public service policies, systems of records, legal restrictions. Survey of job opportunities. Counselling with industry personnel. Required of all television-radio majors. Two lectures and four laboratory hours per week. *Prerequisite:* Six hours of television-radio courses or junior standing.

3331 Seminar in Telecommunications

Studies in the literature of television and radio; current bibliography and publications; evaluation of philosophies; research problems in mass communications. Required of all television-radio majors. Recommended for students majoring or minoring in education. Two lectures and four laboratory hours per week. *Prerequisite:* Six hours of television-radio courses or junior standing.

3412 Classroom Use of Audio-Visual Equipment and Materials

Consideration of various kinds of audio-visual equipment and materials in relation to classroom instruction in elementary and secondary education. *Prerequisite:* Junior standing.

3413 Radio Listening and Presentation of Radio Programs

A survey course in the use of radio at the elementary and secondary level. Educational radio program material is analyzed and evaluated, techniques of utilization are covered, and preliminary work is offered in the preparation and production of public school programs for presentation on both commercial and educational radio stations. *Prerequisite:* Junior standing.

3417 Educational Television

A survey course in current uses of educational television for public school education. Techniques of teaching by closed circuit television are demonstrated, and the work is divided to permit the student to develop either an elementary or a secondary emphasis. *Prerequisite:* Twelve hours of education or radio-television.

Radio Station KVOF-FM

For Undergraduates

1104-05 Radio Station KVOF-FM

Work on the staff of Radio Station KVOF-FM. Three hours per week for two semesters. *Prerequisite:* Consent of the chairman of the department.

1204-05 Radio Station KVOF-FM (second year)

Work on Radio Station KVOF-FM with increased responsibility. Three hours per week for two semesters. *Prerequisite:* Radio 1104-05 and consent of the instructor.

1304-05 Radio Station KVOF-FM (third year)

Work on Radio Station KVOF-FM with increased responsibility. Three hours per week for two semesters. *Prerequisite:* Radio 1204-05 and consent of the instructor.

1404-05 Radio Station KVOF-FM (fourth year)

Work on Radio Station KVOF-FM with increased responsibility. Three hours per week for two semesters. *Prerequisite:* Radio 1304-05 and consent of the instructor.

Mathematics and Physics

DR. E. J. KNAPP, *Chairman*

Professors KNAPP, BARNES; *Associate Professors* McMAHAN, BENTZ, GLADMAN;

Assistant Professors SCHUMAKER, MICULKA, BALLARD, PATTERSON;

Instructors THREADGILL, KRUSCHWITZ, SLUSHER, OMUNDSON, COOPER, BURGETT, MITER, MILLER, HERNANDEZ; *Part-time Instructors* NEPRUD, DEAN, McDONALD, MONTGOMERY.

MATHEMATICS

B. A. Degree — Six semester hours of mathematics are required for all Bachelor of Arts degrees. Mathematics 3101 and 3102 are recommended for those students whose mathematics requirements are not explicitly stated in degree plans. Specific courses required for Mathematics majors are Mathematics 3115, 2116, 4111, 4212, and twelve advanced hours.

Some of the advanced courses are given in alternate years.

Physics 3451 and 3452 may be counted as Mathematics credit.

For Undergraduates

3100 Advanced Arithmetic

For students who are required by their major departments to take supplementary training in arithmetic. Credit may not be counted toward a degree or serve as a prerequisite for any course in mathematics. Given second semester only.

3101 Introductory Mathematics

An introductory course designed to fit the needs of liberal arts students who do not plan to study mathematics beyond a one-year course. The objectives are to give the student an appreciation of mathematics as a language for expressing ideas and an understanding of the simple important problems of algebra, trigonometry, and business mathematics.

3102 Introductory Mathematics

A continuation of the study of elementary mathematics as introduced in Mathematics 3101 with emphasis on applications. Topics studied include algebra, trigonometry, elementary statistics, and business mathematics. *Prerequisite:* Mathematics 3101.

3103 Intermediate Algebra

A review of those topics usually taught in high school algebra. Completion of this course with a grade of C or better may be used to satisfy an algebra deficiency in the prerequisite for Mathematics 3115 and/or Mathematics 2116.

3104 Mathematics of Investment

Elementary course in the theory and application of the mathematics of finance. Topics covered include logarithms, progressions, simple and compound interest, annuities, amortization, perpetuities. May be applied toward the mathematics requirement or elective hours for the Bachelor of Arts Degree. *Prerequisite:* Mathematics 3103, or 3102, or 3115.

3106 Trigonometry

Prerequisite: Three semester hours of mathematics.

2110 Solid Geometry

Prerequisite: One year of high school geometry.

3115 College Algebra

Further study of those topics of algebra which are especially useful to students in mathematics, the natural sciences and engineering. It includes a study of the quadratic, exponential and logarithmic functions, determinants, systems of linear and quadratic equations, mathematical induction, and the binomial theorem. *Prerequisite:* Two units of high school algebra and one unit of high school geometry. Students who lack one-half unit of the algebra requirement and whose high school mathematics grades are all B or better, may gain conditional admittance to this course by passing a placement test in algebra. Students who have three and one-half years of high school mathematics, with no grades less than B, may apply for a proficiency examination, for credit, for this course and/or Mathematics 2116.

2116 Trigonometry

A study of plane trigonometry with major emphasis on its analytical aspects. *Prerequisite:* Same as for Mathematics 3115.

4111 Analytical Geometry and Calculus

The study of plane analytical geometry and the calculus of one independent variable carried on together. *Prerequisite:* Mathematics 3115 and 2116.

4212 Analytical Geometry and Calculus

Continuation of Mathematics 4111. *Prerequisite:* Mathematics 4111.

4317 Analytical Geometry and Calculus

The study of solid analytical geometry and the calculus of more than one independent variable. Surfaces and curves in space, cylindrical and spherical coordinates, multiple integrals, partial derivatives, and infinite series. *Prerequisite:* Eight semester hours of combined Analytical geometry and calculus or six semester hours of calculus.

4115 Engineering Mathematics

Algebra, trigonometry, and analytical geometry combined to give the student a foundation for the study of calculus, the natural sciences, and engineering. The first three or four hours of classes are devoted to a review of high school algebra. Students not possessing a satisfactory working knowledge of algebra at the end of this period are transferred to Mathematics 3101. *Prerequisite:* One year of high school geometry and one and one-half years of high school algebra.

4116 Engineering Mathematics

Continuation of Mathematics 4115. *Prerequisite:* Mathematics 4115.

3213-14 Calculus

In this course differential calculus and integral calculus are carried on together. In differential calculus, special attention is given to the derivation of formulas and to the application of derivatives to the solution of problems in maxima, rates, velocity, acceleration, and geometrical applications. The work in integral calculus drills the student in the integration of forms occurring in mathematics and physics; in evaluating areas and volumes, and in the derivation and application of the fundamental formulas of hydrostatics. The last two hours counted as advanced. *Prerequisite:* Mathematics 4116.

For Undergraduates and Graduates

3325 Calculus

The topics of Mathematics 3214 are extended to include the differentiation and integration of a wider class of functions and the applications of these processes to the solution of a wider range of problems: Moments of inertia, series, partial differentiation, and multiple integrals. *Prerequisite:* Mathematics 3214, or 4212.

MATHEMATICS AND PHYSICS

3326 Differential Equations

Study of the common types of ordinary differential equations of geometry, mathematics, mechanics, and electricity. *Prerequisite:* Mathematics 3214, or 4212.

3421 Theory of Equations

Theory of polynomials, cubic and quartic equations, approximate methods, determinants, symmetric functions, and other topics. *Prerequisite:* Mathematics 3214, or 4212.

3422 Modern College Geometry

A course in modern plane geometry involving an extension of some of the material of elementary geometry, together with an introduction to projective geometry. Properties of the triangle, properties of the circle, similitude, inversion, cross ratio, and principle of quality. *Prerequisite:* Mathematics 3214, or 4212.

3423 Vector Spaces and Matrix Algebra

An introduction to the algebra of vector and matrices, and to linear transformations on vector spaces. *Prerequisite:* Mathematics 3214, or 4212. Given 1958-59 and subsequently when demand is sufficient.

3435 Higher Mathematics for Engineers and Physicists

Designed to help the student in senior and graduate work in engineering, mathematics, physics and certain fields of chemistry. Line integrals and Green's Lemma. Surface integrals. Introduction to complex variables, analytic functions, Cauchy's theorem, Cauchy's integral formula, infinite series, residues and elementary mappings. Introductory vector analysis, gradient, directional derivative, Stoke's theorem, the divergence theorem. *Prerequisite:* Math. 3325, or 4317.

3436 Higher Mathematics for Engineers and Physicists

Continuation of Mathematics 3435. Additional work with partial derivatives and infinite series, Fourier series, series solutions of differential equations, Bessel functions, Laplace transforms, the Gamma function. *Prerequisite:* Mathematics 3325, or 4317.

PHYSICS

For Undergraduates

3100 Introduction to Physics

A lecture course for engineering students who do not present one unit of high school physics for entrance.

4103-04 General Physics (\$2, \$2)

Mechanics, heat, electricity, magnetism, sound, and light. Physics 4103-04 and 3101-02 may not be counted for credit by the same student. Three lectures and two laboratory hours per week. May not be counted in addition to Physics 4215 or 4216.

3106 Elementary Theory of Sound

A study of sound as related to speaking, singing, and to musical instruments. It includes physical principles of sound production, transmission, interference, hearing, resonance, pitch, quality, musical intervals, stringed instruments, wind instruments, acoustics of rooms, and associated electronic equipment.

4213-14 Second-Year Physics (\$2, \$2)

First semester: Light, electricity, and magnetism. Second semester: Mechanics, heat, and sound. For students majoring in physics. Calculus is used throughout the course. Three lectures and three laboratory hours per week. *Prerequisite:* Mathematics 3213 or 4212 concurrently and six hours of physics. May not be counted in addition to 4215-16 or any other sophomore course in physics.

4215 Mechanics and Heat (\$2)

Three lectures and three laboratory hours per week. *Prerequisite:* Mathematics 3213 or 4212 concurrently and one unit of high school physics or three credit hours of college physics. Not counted in addition to Physics 4103 or 4104.

4216 Electricity, Magnetism, and Wave Motion (\$2)

Three lectures and three laboratory hours per week. *Prerequisite:* Mathematics 3214 or 4212 concurrently and Physics 4215. Not counted in addition to Physics 4103 or 4104.

For Undergraduates and Graduates

4317 Light, Sound, and Modern Physics (\$2)

Three lectures and three laboratory hours per week. *Prerequisite:* Physics 4216 and Mathematics 3214 or 4212.

3322 Heat

Advanced topics. *Prerequisite:* Mathematics 3214 or 4212 and six semester hours of physics.

3323 Light

Advanced topics. *Prerequisite:* Mathematics 3214 or 4212 and six semester hours of physics.

3325 The Particles of Modern Physics

A study of gaseous ions, electrons, cathode rays, isotopes, alpha, beta, and gamma rays, positrons, neutrons, atomic nuclei, atomic fission, and the various accelerators of charged particles. The most recent developments and applications will be emphasized. *Prerequisite:* Mathematics 3214 or 4212 and six semester hours of physics which includes electricity and light.

3326 The Particles of Modern Physics

Continuation of Physics 3325. Further study of positrons, neutrons, cosmic rays, mesons, artificial radioactivity, and atomic fission. A short introduction to wave mechanics is given. *Prerequisite:* Mathematics 3214 or 4212 and six semester hours of physics which includes electricity and light.

4339 Electronics (\$2)

Experimental techniques and elementary theory of circuit elements. Includes linear passive elements, linear electronic and transistor circuits. Also includes nonlinear electronic elements such as trigger circuits. Three lectures and three laboratory hours per week. *Prerequisite:* Physics 4214 or Physics 4216. May not be counted in addition to Engineering 4339.

4340 Theory and Applications of Electron Tubes (\$2)

Theory and applications of a wide variety of electron tubes and circuits. Includes analysis of steady state and transient response in electronic systems by means of equivalent circuits. Also included are power supplies, feedback amplifiers, television and radio circuits, microwaves, and recent electronic developments. Three lectures and three laboratory hours per week. *Prerequisite:* Mathematics 3214 or 4212 and Physics 4339. May not be counted in addition to Engineering 4340.

3341 Electricity and Magnetism

Maxwell's field equations are postulated and conventional laws of electricity and magnetism are derived from electromagnetic theory. Vector theory is developed in the course as needed. Three lectures per week. *Prerequisite:* Physics 4214 or 4216 and Mathematics 3214 or 4214.

3342 Electricity and Magnetism

Continuation of Physics 3341. Includes electromagnetic waves and radiation systems and Lorentz transformation of field vectors. Some elementary circuit theory is derived from electromagnetic theory. Three lectures per week. *Prerequisite:* Physics 3341.

2343 Advanced Laboratory Practice in Electricity (\$2)

A course covering theory and practice in the measurement of electrical and magnetic quantities. Certain phases of modern physics are discussed and dealt with in the laboratory. The sensitive galvanometer is studied in detail. Attention is given to various types of bridges. Measurements are made of such quantities as the charge on the electron, the ratio of charge to mass, and other quantities related to modern physics. Electrical discharge through gases and attendant phenomena are also studied. One lecture and three laboratory hours per week. *Prerequisite:* Physics 4214 or 4216.

2344 Advanced Laboratory Practice in Electricity (\$2)

A continuation of Physics 2343. *Prerequisite:* Physics 4214 or 4216.

4445 Electromagnetic Waves and Radiating Systems (\$2)

Application of Maxwell's equations to electromagnetic wave transmission, reflection, and refraction, including the study of guided waves, transmission lines, and antennas. Three lectures and three laboratory hours per week. *Prerequisite:* Physics 4340 or Engineering 4340 or Physics 3342.

3347 Fundamentals of Acoustics

The principles underlying the generation, transmission, and reception of acoustic waves. Mathematical analyses of the various types of vibration of solid bodies. Propagation of plane and spherical sound waves through fluids, transmission and absorption phenomena, resonators and filters. *Prerequisite:* Six hours of physics and six hours of calculus. (Offered 1957-58 and subsequently when demand is sufficient.)

3451 Analytical Mechanics

Equilibrium and motion of a particle and a rigid body in two and three dimensions. May be counted as three advanced hours in Mathematics. *Prerequisite:* Mathematics 3214 and ten credit hours in physics or six credit hours in physics and Mathematics 3436. (Omitted 1960-61.)

3452 Analytical Mechanics

Continuation of Physics 3451. May be counted as three advanced hours in mathematics. *Prerequisite:* Physics 3451. Omitted 1960-61.

Military Science

COL. JOSEPH H. BUYS, *Commandant*

Professor BUYS; Assistant Professors CAPT. BOND, CAPT. BOYERS

Courses offered by this department are designed to produce junior commissioned officers who by their education, training, and inherent qualities are suitable for continued development as officers in the United States Army. Training in military leadership is emphasized. Instruction is provided in subjects common to all branches of the Army.

Students who qualify as "Distinguished Military Graduates" are eligible for appointment as commissioned officers in the Regular Army.

Military Science Courses are offered during the long session only, except that appropriate courses may be offered during the summer session for those students in the Co-operative Engineering Program.

The first two years (Military Science 2101-02 and 2201-02) form the *Basic Course*. The second two years (Military Science 3301-02 and 3401-02) form the *Advanced Course*. All Military Science courses are elective, but enrollment in either the Basic or Advanced Course constitutes an agreement by the student to complete the two years of the course in which he enrolls as long as he remains eligible.

ELIGIBILITY: Normally a student may enroll only in the Military Science Course that corresponds to his academic year in College, and he may be permitted to begin Military Science only if sufficient time remains in College to complete all Military Science Courses by the time he obtains a baccalaureate degree. Enrollment is limited to students who can qualify for a degree prior to becoming 28 years of age. Credit for as much as one semester of the Basic Course may be granted for high school ROTC and credit for as much as all of the Basic Course may be granted for previous active military service. In exceptional cases students may be authorized to complete the Military Science Courses in less than four years. Inquiries pertaining thereto should be directed to the PMS. Subject to the above requirements a student may enroll in the Basic Course providing he is a regularly enrolled student at Texas Western College, is a citizen of the United States, and is physically qualified. Upon completion of the Basic Course he may, subject to the above requirements, enroll in the Advanced Course providing he is selected by the President of the College and the Professor of Military Science.

If accepted for the Advanced Course, the student will be required to execute a written agreement with the Government to continue the course as long as he remains in good standing in the College, and, upon graduation, to accept a commission in the United States Army Reserve if such a commission is tendered. Once enrolled, completion of the Advanced Course, including summer camp, is a prerequisite to graduation, unless the student is relieved of his contractual obligations.

SUMMER CAMP: Advanced Course students are required to attend a 6 weeks' summer camp between their junior and senior academic years. A student may be authorized to postpone attendance at camp until the summer following his graduation if cogent reasons therefor exist. Such postponement will not preclude a student's obtaining his degree at graduation time.

All regularly enrolled students are furnished necessary uniforms, texts, and equipment on a loan basis. A twenty-dollar deposit is required at the time of registration to cover loss or damage of the property. The Government pays all Advanced Course students a subsistence allowance of \$.90 per day for not more than 595 days and \$78.00 per month for the six weeks summer camp. Veterans' payments are not affected by the payment of the above allowances.

Students not meeting the requirements for formal enrollment may, with the permission of the President of the College and the Professor of Military Science, enroll informally for academic credit only. They will not receive monetary allowances nor be issued Government uniforms.

Upon successful completion of the four-year ROTC program and graduation a student is tendered a commission in the United States Army Reserve and will be required to serve a tour of active duty. The length of this tour will depend upon the requirements of the Army and will consist either of six months or two years. It will include a course of instruction at an officers' basic school.

MILITARY SCIENCE

Basic Course

2101-02 Military Science I

Organization of the Army and ROTC; Individual Weapons and Marksmanship; United States Army and National Security; and Leadership Laboratory. Two classroom hours and one drill hour per week. Academic credit: four hours.

2201-02 Military Science II

Map and Aerial Photograph Reading; Introduction to Operations and Basic Tactics; U. S. Army and National Security; and Leadership Laboratory. Two classroom hours and one drill hour per week. Academic credit: four hours.

Advanced Course*

3301-02 Military Science III

Leadership; Military Teaching Principles; Organization, Functions, and Missions of the Branches of the Army; Small Unit Tactics and Communications; and Leadership Laboratory. Three classroom hours and one drill hour per week. *Prerequisite:* Junior standing, basic course or equivalent military training, and selection by Professor of Military Science and President of College. Academic credit: six hours.

3401-02 Military Science IV

Operations; Logistics; Army Administration and Military Justice; Service Orientation; and Leadership Laboratory. Three classroom hours and one drill hour per week. *Prerequisite:* Military Science 3301-02. Academic credit: six hours.

* In addition to the above schedule, advanced course students are required to take one 3 semester hour class per year in an elective academic subject from one of the following general academic areas: Effective Communication, Science Comprehension, General Psychology, Political Institutions. This elective may be used to meet both graduation and military science requirements.

Mining and Metallurgy

DR. J. C. RINTELEN, JR., *Chairman*

Professors RINTELEN, THOMAS, GRAHAM (Professor Emeritus);

Associate Professors SPROULE, EHRLINGER; Assistant Professor McDONALD

(See pages 32-34 for Degree Plans)

MINING

3101 History of Mining

Historical highlights of various mining eras including the Egyptian, Phoenician, Greek, Roman, Early Asian, Early European and Colonial eras, Appalachian Coal, Coeur 'd Alene, Comstock Lode, Michigan Copper, Mesabi Iron Range, Butte, Bingham Canyon, Leadville, Black Hills, Grass Valley, Tri-State and Tennessee Copper Districts. Three lectures per week with outside reading assignments and reading research assignments into various historical mining operations by the individual students. *Prerequisite:* Open to all students.

1102 The Mineral Industry

An introductory course into mining and metallurgical plant operations in the immediate area to El Paso. Three laboratory hours per week with field trips to various plants and operations. Written Reports required on each plant trip. *Prerequisite:* Open to all students.

3201 Elements of Mining

An introduction to mining with the study of prospecting, development, explosives, drilling, shaft sinking, timbering, underground transportation and hoisting. *Prerequisite:* Physics 4215.

2301 Mining Methods

A comprehensive study of mining methods. Analysis is made of influencing factors on various methods as to their applicability, safety, production, and comparative costs. *Prerequisite:* Mining 3201 and Geology 2217.

3302 Mine Surveying (\$2)

Theory and practice of problems encountered in shaft plumbing, surveys for patenting mining claims, stope surveying with transit or Brunton compass, determination and transferring the meridian underground and other conditions peculiar to mine surveying. *Prerequisite:* Mining 2301 and Engineering 4314.

2304 Mine Surveying; Summer Field Work (\$2)

A practical field course in mine surveying. A complete survey and map of one of the mines in the vicinity of the College are required. Students are required to pay all expenses for their transportation and board while on this trip. *Prerequisite:* Mining 3302. Eight hours daily for two weeks, starting Monday two weeks prior to registration.

2401 Tunneling and Blasting

Methods of excavation and material handling in tunneling and hard-rock foundation. Handling of explosives, placement of charges, safety precautions, ventilation. *Prerequisite:* Junior standing.

3402 Mine Examination and Valuation

A study of sampling, ore estimation and mining reports. In the laboratory the student is required, from a sampled mine or exploration, to determine the value of the property, select a mining method, suggest suitable equipment and write a detailed report. Two hour lectures and three laboratory hours per week. *Prerequisite:* Mining 2301.

2403 Mine Management

Study of administrative and economic problems of mining companies including organization, industrial and labor relations, mining law, economics of mining operations, net smelter returns on products, depletion and depreciation problems, development and research programs, analyses of industrial plant operations for recoveries, cost data and total economical return. Two lectures per week. *Prerequisite:* Mining 2301.

4404 Mine Plant (\$4)

A study of loading and transporting of mine materials, hoisting plant, compressed air plant, rock drills, pumping, ventilation, and design of mine structures. Three lectures and three laboratory hours per week. *Prerequisite:* Mining 2301.

3406 Rock Mechanics (\$3)

A study of the properties of rocks and their effect on the design and behavior of mine structures. The laboratory work will consist of the determination of the physical properties of rocks; the evaluation of the stress and strain distributions in models of underground structures using strain gage and photoelastic methods; and the use of the petrographic microscope to study mineral content and structure of rocks in order to correlate structure with the observed physical properties. Two lectures and three laboratory hours per week. *Prerequisite:* Mining 2301 and Engineering 4334.

2421 Mining Trip (Transportation fee: \$50.00)

At the end of the senior year, graduating seniors spend the last two weeks of the semester on a trip of inspection which will include visits to the mining and metallurgical departments of companies within the scope of the planned itinerary. Required for graduation. *Prerequisite:* Completion of the requirements for the Bachelor of Science degree by the end of the following fall semester.

METALLURGY

3101 Introduction to Metallurgy

An elementary course in the extraction of metals from ores, and the industrial application of metals and alloys. Two lectures and three laboratory hours per week. Open to all students.

3301 Principles of Process Metallurgy

A study of the fundamental engineering principles applied to metallurgical processes. *Prerequisite:* Chemistry 4103-04. Two semesters of physics.

4302 Mineral Dressing I (\$2)

The principles governing the process employed in the liberation and separation of the minerals and coal dressing. In the laboratory the student experiments with milling equipment and methods of concentration. Three lectures and three laboratory hours per week. *Prerequisite:* Geology 2217 and two semesters of physics.

3305 Engineering Physical Metallurgy (\$3)

A course in the physical metallurgy and metallography of commercial metals and alloys for engineering students. Two lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4103-04, and two semesters of physics.

4308 Physical Metallurgy I (\$3)

A theoretical study of the metallic state concerned with the physical and mechanical characteristics of metals and alloys. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4460.

3309 Physics of Metals

A study of solid state physics applied to metals and alloys. *Prerequisite:* Math 3214 and Physics 4216.

- 3402 Ferrous Process Metallurgy**
A course in the metallurgy and fabrications of iron, steel and related alloys. One-third of the course is devoted to calculations pertaining to the subject. *Prerequisite:* Chemistry 4103-04, two semesters of physics, and Math 4115.
- 3403 Non-Ferrous Process Metallurgy**
The smelting and refining of non-ferrous metals. One-third of the course is devoted to calculations pertaining to the above subjects. *Prerequisite:* Chemistry 4103-04, two semesters of physics, and Math 4115.
- 3404 Electro-Metallurgy (\$3)**
The fundamental principles of electro-winning and the electro-plating of non-ferrous metals. Two lectures and three laboratory hours per week. *Prerequisite:* Metallurgy 3301.
- 3405 Metallurgical Research (\$4)**
Fundamental and applied research problems are investigated. Nine laboratory hours per week. *Prerequisite:* Metallurgy 4308 or 4302.
- 3406 Metallurgical Research (\$4)**
Continuation of Metallurgy 3405.
- 2405 Metallurgical Research (\$3)**
This course handles part of the work covered by Metallurgy 3405 and is intended for those students who wish to do some research work but cannot devote the time necessary for full credit toward graduation. Six laboratory hours per week. *Prerequisite:* Metallurgy 3305 or 4302.
- 4407 Physical Metallurgy II (\$3)**
A study of the structure and properties of metals and alloys. The laboratory is the application of metallography and heat treatment to phase diagrams. Three lectures and three laboratory hours per week. *Prerequisite:* Metallurgy 4308.
- 4408 Mineral Dressing II (\$2)**
Advanced principles of ore dressing, ore testing, flowsheets, and mill design. Three lecture and three laboratory hours per week. *Prerequisite:* Metallurgy 4302.
- 3409 Corrosion**
A study of corrosion, passivity, and protection of metals and alloys. *Prerequisite:* Chemistry 4103-04 and two semesters of physics.
- 4411 Physical Metallurgy III (\$3)**
A theoretical study of methods of measuring and controlling variables pertaining to metallurgy; microscopy applying transmitted and reflected polarized light to the study of ores, slags, and metals; and spectroscopy. Three lectures and three laboratory hours per week. *Prerequisite:* Metallurgy 4308.
- 4412 Physical Metallurgy IV (\$3)**
Introduction to x-ray diffraction, the study of metallic structure, alloy constitution, deformation processes and solid phase reactions. Three lecture and three laboratory hours per week. *Prerequisite:* Metallurgy 4411.
- 3413-14 Thermodynamics of Metals**
The thermodynamics of metals and metallurgical processes. *Prerequisite:* Metallurgy 4308.
- 2421 Metallurgical Trip (Transportation fee: \$50.00)**
At the present time this trip will be taken with Mining 2421. When it is to the best interests of the metallurgical students to deviate from the route of the Mining 2421 trip, such changes will be made, but in the main, the two trips will be taken together. Required for graduation. *Prerequisite:* Completion of the requirements for the Bachelor of Science degree by the end of the following fall semester.

Modern Languages

DR. EDGAR T. RUFF, *Chairman*

Professors RUFF, BACHMANN, SHARP; Associate Professor BEVANS;

Assistant Professors WEBB, GABRIEL, TAPPAN, RUSSELL; Instructor BREWER.

Registration Instructions:

- a) Native speakers — register for 4102, subject to placement
- b) No previous courses in the language — register for 4101
- c) Two units in high school — register for 4102 (review)
- d) One, three, or four units — confer with Department for placement.

Courses 4101-02 and 3201-02 should be taken without interruption and supplemented with Courses 3108, 3110, 3111, and 3114 as needed for fluency.

B. A. Degree — Special requirements for the degree of Bachelor of Arts in a foreign language: foreign language 4101-02, 3201-02 (or placement) and twelve advanced hours. Completion of course 3201-02 in a second foreign language. For Spanish majors, History 3347 or 3348 or 3349; for French majors, History 3342 or equivalent. Major examination required. Teaching majors who wish departmental recommendation must meet the same requirements.

*Undergraduate courses indicated by an asterisk are given regularly on a three-year cycle and do not come up in the two years covered by this catalog.

FRENCH

4101-02 Fundamentals of Reading, Writing and Speaking

Oral drill, dictation, grammar, reading of elementary and intermediate texts, conversation, written exercises. Three recitation and two workshop hours.

3110 Civilisation française

Illustrated lectures in intermediate French. Extensive use of travelogs, slides and films of everyday life to teach conversational French. Intended as a supplement to required courses for students who do not already speak French. *Prerequisite:* French 4101.

3111 La France contemporaine

A conversational course in intermediate French based on a study of the provinces of France. Extensive use of slides, films, and travelogs to teach vocabulary and conversational usage. A supplementary course for students who do not already speak French. *Prerequisite:* French 4101.

3201-02 Intermediate Readings in the Modern Period

Readings from the nineteenth and twentieth centuries. Oral and written summaries, some grammar review. *Prerequisite:* French 4102.

For Undergraduates and Graduates

3321 The Literary History of France*

3332 The French Classical Period*

3333 Masterpieces of French Literature*

3335 Modern Novel: Early Period*

3337 Modern Novel: Later Period*

3341 Modern French Drama*

3357 Advanced Composition and Grammar Review

Oral and written composition on topics of current interest; commercial letters and correspondence with students abroad. *Prerequisite:* French 3202.

- 3358 Contemporary French Literature
Emphasis on the novel with some attention to the contemporary drama. Study of such authors as Proust, Romain, Saint-Exupéry, Gide, Camus, Cocteau, Giraudoux, Anouilh, etc. *Prerequisite:* French 3202.
- 3377 The History of French Poetry: A Survey
Prerequisite: French 3202.

For Graduate Students Only

Prerequisite: Twelve hours of advanced courses in French and a Bachelor's degree.

- 3590 Seminar
- 3591 Graduate Reading Course: Seminar

GERMAN

- 4101-02 Fundamentals of Reading, Writing and Speaking
Oral drill, dictation, grammar, reading of elementary and intermediate texts, conversation, written exercises. Three recitation and two workshop hours.
- 3108 Conversational German
Intended to broaden the vocabulary of German 4101 for conversational use. *Prerequisite:* With or after German 4101.
- 3110 German Civilization
An intermediate course in conversational German. Extensive use of slides and films of everyday life to teach spoken German. A supplementary course for students who do not already speak German. *Prerequisite:* German 4101.
- 3201-02 Intermediate Readings in the Modern Period
Readings from the nineteenth and twentieth centuries. Oral and written summaries, some grammar review. *Prerequisite:* German 4102.

SPANISH

- 4101-02 Fundamentals of Reading, Writing and Speaking
Oral drill, dictation, grammar, reading of elementary and intermediate texts, conversation, written exercises. Three recitation and two workshop hours.
- 3201-02 Intermediate Readings in the Modern Period
Readings from the nineteenth and twentieth centuries. Oral and written summaries, some grammar review. *Prerequisite:* Spanish 4102.
- 6290 Study-Tour of Latin America
A six-weeks field trip through Latin America to major points of literary and cultural interest, conducted by a regular member of the College Faculty. A long paper will be required of each student. This course may be counted instead of Spanish 3201-02. Consult Head of the Modern Language Department for costs, dates, and required reading list. *Prerequisite:* Sophomore standing and approval of College.
- 3108 Conversational Spanish
Intended to broaden the vocabulary of Spanish 4101 for everyday use. A supplementary course for students who do not already speak Spanish. Extensive use of audio-visual aids. *Prerequisite:* With or after Spanish 4101.
- 3110 Cultura hispánica
Illustrated lectures in intermediate Spanish. Extensive use of slides and films of everyday life in Latin America to teach conversational Spanish. A supplementary course for students who do not speak Spanish. *Prerequisite:* Spanish 4101.

3111 **España contemporánea**

A conversational course in intermediate Spanish based on a study of the provinces of Spain. Extensive use of slides, films and travelogs to teach vocabulary and conversational usage. A supplementary course for students who do not already speak Spanish. *Prerequisite:* Spanish 4101.

3114 **México contemporáneo**

A conversational course in intermediate Spanish based on a study of city and rural life in the various regions of Mexico. Extensive use of slides, films and travelogs to teach vocabulary and conversational usage. A supplementary course for students who do not already speak Spanish. *Prerequisite:* Spanish 4101.

For Undergraduates and Graduates

3321 **The Literary History of Spain***

3324 **The Literary History of Mexico***

3328 **Golden Age Drama***

3332 **Classical Spanish Prose**

A study of the Spanish picaresque, chivalresque and pastoral novels and shorter forms. Some consideration of mystic and satirical masterpieces. Outside reading reports. *Prerequisite:* Spanish 3202.

3333 **Masterpieces of Spanish Literature**

Extensive readings from masterpieces of Spanish literature. At least four complete works including the *Poema del Cid*, *Libro de Buen Amor*, *la Celestina*, etc. *Prerequisite:* Spanish 3202.

3335 **Modern Novel: Early Period**

The Spanish novel of the first half of the nineteenth century: Fernán Caballero, Valera, Alarcon, Pereda, Pérez Galdós, Pardo Bazán, etc. *Prerequisite:* Spanish 3202.

3337 **Modern Novel: Later Period**

The Spanish novel of the second half of the nineteenth century: Palacio Valdés, Blasco Ibáñez, Pio Baroja, Pérez de Ayala, Valle Inclán, Concha Espina, etc. *Prerequisite:* Spanish 3202.

3339 **The CUENTO and the Short Story**

Shorter fictional forms in Spain and Spanish America from the time of Juan Manuel to the present. *Prerequisite:* Spanish 3202.

3341 **Modern Spanish Drama***

3357 **Advanced Composition and Grammar Review**

Examination of the best modern Spanish business, epistolary, journalistic and polemic styles. Original composition on topics of current interest. *Prerequisite:* Spanish 3202.

3358 **Contemporary Spanish Literature**

Spanish literature in the first half of the twentieth century; the "Generation of '98," etc. *Prerequisite:* Spanish 3202.

3360 **The Regional and Historical Novel in South America***

3361 **Don Quixote***

3362 **The New World in Spanish Literature (Northern Hemisphere)**

A literary study of the diaries, accounts and biographies of the Spanish explorers in the New World: Columbus' *Diario de Navegación*; Cortés' *Cartas de Relación*; Cabeza de Vaca's *Naufragios*; Castañeda's *Jornada de Cibola*, etc. Special attention to the American Southwest. *Prerequisite:* Spanish 3202.

- 3363 **The Literary History of Argentina**
The principal movements and writers in Argentine literature. At least four representative works will be read in class. Conducted in Spanish. *Prerequisite:* Spanish 3202.
- 3364 **Contemporary Poets of Latin America***
- 3365 **Contemporary Urban Novel of Latin America***
- 3366 **The New World in Spanish Literature (Southern Hemisphere)**
A literary study of the diaries, accounts and biographies of the Spanish explorers and *conquistadores* in the New World: Cabeza de Vaca's *Comentarios*. El Inca Garcilaso de la Vega's *Comentarios reales*; Ercilla's *La Araucana*, etc. *Prerequisite:* Spanish 3202.
- 3377 **History of Spanish Poetry**
A survey of Spanish poetry to the middle of the twentieth century. *Prerequisite:* Spanish 3202.
- 6390 **Study-Tour of Latin America for Advanced Students**
A six-weeks field trip through Latin America to major points of literary and cultural interest, conducted by a regular member of the College Faculty. A long paper will be required of each student. Consult head of the Modern Language department for costs, dates, and required reading list. *Prerequisite:* Junior standing and approval of the College. May not be counted in addition to Spanish 6290.

For Graduate Students Only

Prerequisite: Twelve hours of advanced courses in Spanish and a Bachelor's degree.

- 3590 **Seminar**
Spanish and Spanish-American literary or linguistic problems to be announced by the instructor at the beginning of each semester.
- 3591 **Graduate Reading Course: Seminar**
- 3592 **Seminar on the History of the Spanish Language (Phonology)**
- 3593 **Seminar on the History of the Spanish Language (Morphology)**
- 3594 **Cervantine Studies: Seminar**
- 3595 **Seminar on the Latin American Novel**
- 3598-99 **Thesis Course for the Master's Degree**
Confer with the head of the department immediately upon registration.

RUSSIAN

- 4101 **Written and Spoken Russian**
An intensive course designed to enable the more mature student to master the fundamentals of written and spoken Russian. *Prerequisite:* Completion of Course 4102, or equivalent, in a foreign language with a grade of at least B, or permission of the head of the department. Two double recitation hours per week.
- 4102 **Written and Spoken Russian**
A continuation of Russian 4101. Intermediate graded readings. *Prerequisite:* Russian 4101.
- 3108 **Conversational Russian**
Intended to broaden the vocabulary of Russian 4101 for oral use. Attention also will be given to basic military terminology. *Prerequisite:* With or after Russian 4101.

Music

DR. E. A. THORMODSGAARD, *Chairman*

Professors EIDBO, THORMODSGAARD; *Associate Professor* BRIGGS;

Assistant Professors CARNOVALE, HENDERSON; *Instructors* CHAVEZ, MERRILL;

Part-time Instructor HEUSER, THAYER.

The various curricula in the Department of Music have been designed to satisfy several objectives: Teacher training, professional training, and avocational interest.

The Bachelor of Arts degree curriculum without teaching credential is primarily for those with an avocational interest in music or as a basis for advanced study in the field of Fine Arts. The Bachelor of Music degree offers several possibilities for students with an avocational interest as well as those preparing for teaching or advanced study.

Students completing the course of study as outlined for teacher training will fulfill all requirements of the State Board of Education for full-time all-level teaching in Texas Public Schools in the fields of instrumental or choral direction and public school music.

Proficiency tests in conducting and applied music must be passed satisfactorily by transfer students who have completed these courses elsewhere.

Information on scholarships is available through the Head of the Music Department. Students receiving scholarships are required to participate in all performances by ensembles of which they are members in order to continue their eligibility for scholarships.

The following courses of instruction may be adjusted to the particular needs of the individual through permission of the Head of the Music Department.

THEORY

For Undergraduates

2111-2112 Music Fundamentals, Sight Singing and Dictation

Functional experiences in the basic fundamentals of music with simple melodic, harmonic and rhythmic instruments; one through four-part sight singing and dictation. Two lectures and one workshop hour per week.

3113-14 Essentials of Acoustics and Music Theory

The combination, transmission and effects of musical sounds, utilizing symbols. The logic of order in music as exemplified in acoustics, overtone series, scales, diatonic harmony, rhythm, melody writing, non-harmonic devices, simple modulation. Supplementary ear training in four-part dictation and keyboard practice. Open to all students. Three lectures per week.

1211-12 Sight Singing and Dictation

Continuation of Music Theory 2112. Concurrent registration with 3113-14 recommended. One lecture and one workshop hour per week. *Prerequisite:* Music Theory 2112, or equivalent background.

3213-14 Harmony

Continuation of melodic and harmonic dictation and part writing; harmonic analysis and simple forms; seventh chords; altered chords; keyboard practice. Three lectures and two workshop hours per week. *Prerequisite:* Music 3113-14

For Undergraduates and Graduates

2311, 2312 Counterpoint (2312 Seminar)

Continuation of melodic and harmonic dictation; mixed chords; foreign modulation. Survey of sixteenth and eighteenth century contrapuntal techniques as exemplified in Palestrina and Bach. Introduction to Composition. Two lectures per week. *Prerequisite:* Music 3213-14.

2313-14 Seminar: Composition

Modern styles of composition, including techniques from the Schillinger System, are integrated with traditional theory and composition in a practical course covering the smaller forms in vocal and instrumental music. *Prerequisite:* Theory 3213-14 or equivalent.

2315, 2316 Form and Analysis (2316 Seminar)

Detailed study of the logic of musical structure as exemplified in representative works beginning with song forms and including the larger forms. *Prerequisite:* Music 3213-14.

3411 Choral Arranging

A study of basic principles of writing, arranging, and editing choral music from two to eight parts. Emphasis upon music suitable for public school choral groups. *Prerequisite:* Music 3213-14.

3412 Instrumentation and Orchestration

A study of orchestral and band instruments by classification. The range capabilities and limitations, timbre, transposition, etc. Practical experience in scoring for various combinations of instruments from trios to full orchestra and band. *Prerequisite:* Music 3213-14 and four semester hours, or equivalent, of class instruments.

2413-14 Seminar: Advanced Composition

A continuation of Music 2313-14 with emphasis upon modern music and larger forms. *Prerequisite:* Music 2313-14.

2415 Dance Band Arranging

A study of melodic, harmonic, and rhythmic devices and styles used in modern music; practical experience in scoring for various combinations of dance groups. *Prerequisite:* Music 3213-14 and 4 semester hours or equivalent, of class instruments.

LITERATURE*For Undergraduates***1141 Band Literature***

A study of selected works in the field of band literature. Concurrent registration with band is required. *Prerequisite:* placement.

1151 Choral Literature*

A study of selected works in the field of choral literature. Concurrent registration with choir or chorus is required. *Prerequisite:* placement.

1165 Chamber Music and Ensembles*

A Brass Ensemble, Reed Ensemble, the All-Girl Instrumental Ensemble, the Girls' Drum Corps, and Stringed Ensembles are available to instrumentalists. The Madrigal Club, Men's Choral Ensemble, Ladies' Choral Ensemble and the Symphonic Choir are available to vocalists, the latter primarily intended for the Evening School. Emphasis is upon the reading of music and the study of selected works characteristic to the performing group. *Prerequisite:* Preceding course or placement.

3110 Introduction to Fine Arts

Survey of the Arts. Enjoyment through understanding their interrelationship and the expressive elements common to Music, Art and Drama. Differences in media of expression and in the tools of each art. Not counted in addition to Art 3110 and Drama 3110.

3121 Introduction to Musical Literature

A non-technical course for all students which, through directed listening, aims to increase the enjoyment and appreciation of potential music lovers. A brief survey of musical literature from the beginning of music through Modern Music, hearing recordings of representative works of each period, with major emphasis on the development of music up to the Classical Period.

3122 Trends in Musical Literature

A survey, through directed listening, of the trends found in the great musical literature of the world, from the beginning of music through Modern Music; major emphasis on understanding the literature and styles of the Classical through Modern Periods.

3123 Twentieth Century Music

The history and development of jazz, its representative music and performers, and its influence on serious music. *Prerequisites:* Music Literature 3121, or 3122, or concurrent registration. Alternated with 3121 and 3122.

* May be repeated for credit.

MUSIC

For Undergraduates and Graduates

3321 Music History

Chronological survey of the composers and their works through directed listening beginning with Greek Music and continuing through the Baroque period, with emphasis on the growth of our culture. *Prerequisite:* For music majors, Theory 3214 and junior standing; for others, 6 hours of music and junior standing.

3322 Music History

Chronological survey of the composers and their works through directed listening beginning with the Classic Period and continuing through contemporary music, with emphasis on the growth of our culture. *Prerequisite:* For music majors, Theory 3214 and junior standing; for others, 6 hours of music and junior standing.

3323, 3324, 3423, 3424 Opera Workshop

Opera scores are studied to develop familiarity with operatic literature. Public performances are presented. This course is designed for voice majors and students interested in the opera field. *Prerequisite:* Junior standing and permission of the instructor, and preceding course in each case.

MUSIC EDUCATION

For Undergraduates

1101 Professional Laboratory Experiences

Observation of instrumental and vocal performances by individuals, groups, and classes of all age levels (elementary school, secondary school and college) under the guidance of public school and college instructors. Participation required in one or more performance media. Required of all music majors each semester in residence. May be repeated for credit.

2131 Church Music Leadership

Basic functions and techniques of conducting and accompanying. Recruiting for volunteer choirs. Selected problems in church choirs. Selection and preparation of suitable materials. Techniques for the conductor-accompanist. Two lectures and one laboratory per week.

3136 Church Music Materials, Organization and Direction

Basic problems in the administration and direction of a church music program; the multiple choir system, including adolescent and boy voices; organization of the rehearsal; the church year calendar and program building. *Prerequisite:* permission of the chairman of the department.

For Undergraduates and Graduates

3331, 3332 Choral Methods, Techniques and Conducting

A study of unique problems in choir organization including the selection of voices. Special attention is given to rehearsal techniques, phonetics, literature, interpretation, and baton techniques. *Prerequisite:* For music majors, 20 hours in music and junior standing; for others, Music Theory 3114 and junior standing.

3333 Conducting Methods and Materials

Selected problems in conducting, including instrumental experiences. Methods of developing good posture, baton techniques; fundamental principles in obtaining balance, color, shading, interpretation, score reading, etc. Program building and practical application of the conducting of smaller concert numbers. *Prerequisite:* For music majors, 20 hours in music and junior standing; for others, Music Theory 3114 and junior standing.

3334 Teaching of Music in the Elementary Schools

Consideration of music in relation to the child voice and song repertory, rhythm bands, dramatic play, discriminating listening, as determined by the child's stage of growth. Discussion and presentation of curricular plans and materials. Required for Elementary Education Majors. (Approved by Texas Education Agency toward legal requirements for teaching in elementary schools.) *Prerequisite:* Junior standing in Education.

3335 Teaching of Music in the Elementary Schools

Continuation of Music Education 3334, with emphasis on activities suitable for the classroom teacher. For Elementary Education Majors. *Prerequisite:* Music Education 3334, or equivalent musical training.

3336 Teaching of Music in the Elementary Schools

Pre-adolescent growth and development as the basis of procedures in the teaching of music in the Elementary grades. Designed to meet the needs of the special music teacher. The child voice, its development and classification. Introduction of notation, song materials, rhythm bands, appreciation methods and creative music for children. For Elementary School Music Majors. *Prerequisite:* Junior standing in music education, and Theory 3214.

3431 Advanced Conducting

Practical advanced training in choral and instrumental problems in conducting for students who have had considerable training or experience. *Prerequisite:* Music Education 3331, 3333 or advanced conducting experience.

3433 Teaching of Music in the Junior and Senior High Schools

The study of adolescent growth and development, and related procedures in the teaching of music in the upper level grades and in high school. Choral and instrumental music materials, organization of ensembles, teaching of music appreciation and theory, and integration with the entire school program; public school music as it is related to the life and needs of a community. *Prerequisite:* Junior standing in music education, and Theory 3214.

3435 Seminar: Selected Problems in Music Education

The student may receive individual instruction and guidance in the area in which a specific need is demonstrated. Credit may be received in the elementary or secondary school field. *Prerequisite:* 6 hours of Education, 6 hours of Music, senior standing, or equivalent background as determined by the instructor and Head of the department.

3436 Church Music Materials, Organization and Direction

Continuation of 3136. Required of students planning to be "Ministers of Music." *Prerequisite:* Music Education 3136, or equivalent training and experience, and senior standing. Offered Summer Sessions only.

3496 Professional Laboratory Experience in the Elementary Grades

A minimum of 10 hours per week for one semester of laboratory observation and teaching experience in the elementary school music classes. For all-level teacher certification. *Prerequisite:* 6 hours of Education, 6 hours of upper level Music Education, senior standing and approval of Music Faculty Teacher Education Committee.

3498 Professional Laboratory Experience in the Elementary Schools and Junior and Senior High Schools

A minimum of ten hours per week for one semester of laboratory observation and teaching experience in the light of the over-all elementary, junior, and senior high school music program. For all-level teacher certification, particularly for elementary music teachers. *Prerequisite:* Music Education 4401, or concurrent registration, and approval of the Music Faculty Teacher Education Committee.

*For Graduate Students Only***3531, 3532 Seminar: Problems in Music Education**

Educational research in the elementary and secondary school fields. Each student may conduct research on a problem of his own selection in his field of major interest. May be taken for credit in supervision, if desired. *Prerequisite:* 12 semester hours of advanced courses in Music and a bachelor's degree.

3535. 3536 Seminar: Field Work in Music Education

The student works individually on a selected topic with an assigned specialist in that area under supervision of department head. *Prerequisite:* 12 semester hours of advanced courses in Music and a bachelor's degree.

APPLIED MUSIC

For Undergraduates

Placement auditions are required on the major and secondary instruments. Students who demonstrate adequate proficiency on any required instrument (or voice) will be encouraged to substitute other courses outside of the music area. Students will perform before the Music Faculty at the close of each semester. The audition at the close of the second year also determines admission to upper division courses.

A grade of "B" is required on the major instrument for permission to continue with the succeeding course.

For full description of the course of study for any Applied Music course consult the chairman of the department.

Only Secondary Level courses numbered 2300 and above may be taken for graduate credit.

Ensembles — Band, Choir, Orchestra, Chorus, Lab Dance Band, a fully equipped symphony orchestra, a concert and marching band, a laboratory band, small chamber groups and two large choirs are maintained. These organizations are open to all students who wish to enjoy the performance of a great variety of music. On special occasions each year, several organizations are combined in large productions including operas and oratorios. Home concerts and concert tours are a part of the program. Consent of instructor is required for admission.

1143 Band, Choir, Orchestra, Lab Dance Band*

Three hours per week. *Prerequisite:* permission of instructor.

1155 Chorus*

A mixed singing organization open to all students interested in any kind of choral work. Audition is not required. Oratorios and operas are presented with orchestral accompaniment, occasionally in combination with the Texas Western Choir. Three hours per week. *Prerequisite:* permission of instructor.

1102 Goldiggers (Accepted in lieu of P.E. 1102 during fall term)

A course for girls in dancing, twirling, pom pom and marching activities; participation in football shows, including an all-expense-paid trip, and other public appearances. After one season of Goldigger participation, advanced students are eligible for positions in "The Rockettes," a very select group within the Goldigger organization. *Prerequisite:* admission by try-out only.

Group Instruction

Class Voice, Piano, High Strings, Low Strings, Reeds, Brass, Percussion

Credit granted only when taken as a minor or elective. Open to all students interested in playing instruments or in singing. Group study of instruments listed, teaching methods and fundamentals.

These courses will be designated as Voice 2171, Piano 2171, etc.

2171, 2172, 2271, 2272, 2371, 2372 (\$4)

Two classes and six practice hours per week. *Prerequisite:* Preceding course or placement. (Exception: only \$2.00 for Class Voice.)

3190 Diction

A survey course in Italian, German and French pronunciation; free translation. Open to all.

* May be repeated for credit.

Ballet**2141, 2142 Ballet**

Basic Ballet techniques combining the methods of the Russian, Cecchetti and French Schools. Public performance opportunities with the Texas Western-Civic Ballet and the College-Community Opera. Three hours per week.

1241 Character and Contemporary Dance

Balletic interpretation of folk dance and modern dance. Two hours per week. *Prerequisite:* Ballet, modern dance, or athletic (football, basketball, etc.) background, and permission of chairman of department.

2241, 2242 Intermediate Ballet

Continuation of 2142, with more advanced work in the creative aspects of dance movements. Three hours per week. *Prerequisite:* Ballet 2142 or permission of chairman of department.

*For Undergraduates and Graduates***2373, 2374 Piano Sight Reading Class (\$2)**

Emphasis on actual playing experience and sight reading at the piano. Two classes per week. *Prerequisite:* Junior standing and permission of instructor.

2493 Pedagogy of Voice

Psychological and physiological problems in voice-building; study of the boy voice, the "monotone," of registers in all voice classifications. Methods of voice development through song literature. Repertoire and effective interpretation. *Prerequisite:* Senior standing in music, or equivalent in vocal study and experience, Voice 2292, and permission of instructor.

Individual Instruction

Junior and Senior courses on the secondary level may be used for undergraduate and graduate credit, may be repeated for credit on the undergraduate level.

Individual lessons are intended for students who wish to specialize in voice, piano and orchestral instruments as well as for those who wish to play or sing for pleasure only. Students are expected to study on the campus with members of the College music faculty.

SECONDARY LEVEL**3491 Selected Problems in Applied Music (\$50)**

Designed to meet the needs of students in specific areas omitted in previous studies. Required of students who have not taken courses on their major instruments at Texas Western College within three years of graduation. Two thirty-minute lessons and twelve practice hours per week. *Prerequisite:* Applied Music 2292, senior standing in Music, or equivalent in music, and experience, and permission of instructor.

3492 Selected Problems in Applied Music (\$50)

Two 30-minute lessons and 12 practice hours per week. *Prereq.:* Music 3491.

Piano, Organ

Courses designated as Piano 2181-82, Piano 2281-82, Organ 2181-82, etc.

PRIMARY: For non-majors and students needing preparatory study; Undergraduate credit only.

2181-82, 2281-82, 2381-82, 2481-82 (\$25)

One thirty-minute lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3181-82, 3281-82 (\$45)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

3381-82, 3481-82 (\$50)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

SECONDARY: For majors in Theory, Music Education, and qualified students.

2191-92, 2291-92, 2391-92, 2491-92 (\$25)

One thirty-minute lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3191-92, 3291-92 (\$45)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

3391-92, 3491-92 (\$50)

Two thirty-minute lessons and nine practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

For Majors in Applied Music

4191-92, 4291-92 (\$45)

Two thirty-minute lessons and fifteen practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

4391-92, 4491-92 (\$50)

Two thirty-minute lessons and fifteen practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

Orchestral and Band Instruments

(Flute, Oboe, Clarinet, Bassoon, Saxophone, Violin, Viola, Violoncello, String Bass, Cornet or Trumpet, French Horn, Trombone or Baritone, Tuba, Percussion, Harp)

PRIMARY: For non-majors and for students needing preparatory study; Undergraduate credit only.

2181-82, 2281-82, 2381-82, 2481-82 (\$25)

One thirty-minute lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3181-82, 3281-82 (\$45)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

3381-82, 3481-82 (\$50)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

SECONDARY: For majors in Theory, Music Education, and qualified students.

2191-92, 2291-92, 2391-92, 2491-92 (\$25)

One thirty-minute lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3191-92, 3291-92 (\$45)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

3391-92, 3491-92 (\$50)

Two thirty-minute lessons and nine practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

For Majors in Applied Music

4191-92, 4291-92 (\$45)

Two thirty-minute lessons and fifteen practice hours per week. *Prerequisite:* Preceding course or placement.

4391-92, 4491-92 (\$50)

Two thirty-minute lessons and fifteen practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.**Voice**

During the first two years of vocal study there is considerable emphasis on voice building, using methods of the old Italian school. Varying amounts of song literature are studied depending upon the progress of the individual. Voice building is continued throughout the junior and senior years, although increasing emphasis is placed upon coaching.

At the end of the senior year the student should be able to sing in three foreign languages, including in his repertoire four operatic arias, four oratorio arias, twenty classics and twenty standard modern songs.

PRIMARY: For non-majors and for students needing preparatory study; Undergraduate credit only.

These courses are designed for all students interested in singing and for those who require preparation for the college level course in voice. Students with vocal and hearing difficulties, including "monotones," are urged to take these courses. All students studying primary or secondary voice are expected to participate in one of the two college choirs.

2181-82, 2281-82, 2381-82, 2481-82 (\$25)

One thirty-minute lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3181-82, 3281-82, (\$45)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

3381-82, 3481-82, (\$50)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

SECONDARY: For music majors and all qualified students.

2191-92, 2291-92, 2391-92, 2491-92 (\$25)

One thirty-minute lesson and six practice hours per week. *Prerequisite:* Preceding course or placement.

3191-92, 3291-92 (\$45)

Two thirty-minute lessons and nine practice hours per week. *Prerequisite:* Preceding course or placement.

3391-92, 3491-92 (\$50)

Two thirty-minute lessons and nine practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

Philosophy and Psychology

DR. C. C. CRAWFORD, *Chairman*

Professor CRAWFORD; Associate Professor KELSEY; Assistant Professors BOSWORTH,

HADDOX, WHITWORTH; Part-time Special Lecturer FIERMAN;

Part-time Instructors HACKETT, RENNICK

B. A. Degree — Specific courses required for the degree of Bachelor of Arts in Psychology are Psychology 3101, 3312, 3317, 3421, and Zoology 3101-02. Specific courses required for the degree of Bachelor of Arts in Philosophy are Philosophy 3101, 3201, 3202, 3301; also History 3212, 3213; also English 3211 and 3212, or English 3215 and 3216. The undergraduate major in Philosophy is especially recommended for pre-law and pre-ministerial students.

PHILOSOPHY

3101 Introductory Logic

The validities and fallacies of both deductive and inductive thinking.

3102 Introduction to Philosophy

The problems of matter, life, mind, truth and value.

3201 Ancient and Medieval Philosophy

Philosophic thought from Thales to Bacon and Hobbes. *Prerequisite:* Sophomore standing.

3202 Modern Philosophy

Philosophic thought from Descartes and Spinoza to the present. *Prerequisite:* Sophomore standing.

3211 Philosophies of Life

The historic philosophies of life and their moral, esthetic and religious values. *Prerequisite:* Sophomore standing.

3212 Latin-American Philosophy

Latin-American thought viewed against the background of continental, and especially Spanish, influences. Some philosophers to be considered: Ortega y Gasset, Unamuno, Vasconcelos, Caso and Reyes. *Prerequisite:* Sophomore standing or the equivalent as determined by the chairman of the department.

(The *prerequisite* for each of the courses listed below is Junior standing.)

3301 Ethics

Man's internal and external relationships, in the individual, social, and universal orders respectively.

3311 Philosophy of Science

A study of the inter-relationships of the physical, biological, and psychological sciences.

3321 Philosophy of Civilization

The philosophies of the various phases of human culture, such as language, myth, ritual, art, politics, and history.

3322 Philosophy of Religion

A study of the origin, nature and validity of the concepts of religious thought.

3401 Symbolic Logic

A study of contemporary mathematical logic.

3402 Metaphysics

A study of being as such, and hence of the validity of the postulates of the sciences.

3411 Epistemology

A study of the ways of knowing and of the criteria of truth.

3412 Aesthetics

The philosophy of art.

3451 History of Philosophy — Seminar

The life and work of one or more of the great philosophers will be the subject of study. *May be repeated when the course content varies. Prerequisite:* Philosophy 3101, 3201, 3202; or the equivalent as determined by the chairman of the department.

3452 Problems of Philosophy — Seminar

The problem of knowledge, the mind-body problem, the problem of values, and such problems as those of matter, life, consciousness, personality, etc. *May be repeated when the course content varies. Prerequisite:* Philosophy 3101, 3201, 3202; or the equivalent as determined by the chairman of the department.

PSYCHOLOGY *For Undergraduate Students Only*

3101 Introduction to Psychology

A survey of basic principles in general psychology. *Prerequisite:* College entrance.

3102 Advanced General Psychology

Special emphasis on contemporary problems in psychology. *Prerequisite:* Psychology 3101.

3201 Child Psychology

Principles of growth and development from infancy to adolescence. *Prerequisite:* Psychology 3101.

3202 Social Psychology

A study of the influence of social control of human behavior. *Prerequisite:* Psychology 3101.

3210 Theory of Personality

Personality development of the individual from adolescence to maturity. *Prerequisite:* Psychology 3101.

3211 Personnel Psychology

A survey of principles and methods used for selection and placement in personnel management and industry. *Prerequisite:* Psychology 3101, or junior standing in Business Administration or in Engineering.

For Graduates and Undergraduates

Prerequisite for all courses listed below: Twelve semester hours in Psychology, including Psychology 3101.

- 3308 **Principles of Counseling**
A survey of the basic principles underlying counseling techniques, with an introduction to the major systems of counseling. Three lectures per week.
- 3311 **Clinical Psychology**
A study of clinical problems, case study methods and discussion of psychological tests used in common clinical situations. Three lectures per week.
- 3312 **Abnormal Psychology**
A study of abnormal personality processes in terms of their origins, manifestations, and treatment. Three lectures per week.
- 3317 **Psychological Statistics**
A survey of the basic statistical concepts and techniques used in Psychology and the Social Sciences. Two lectures and two laboratory hours per week.
- 3401 **Psychological Testing (\$3)**
Introduction to and training in the administration, scoring, and interpretation of psychological tests. Two lectures and two laboratory hours per week.
- 3402 **Practicum in Intelligence Testing (\$3)**
Instruction and practice in the administration, scoring, and interpretation of intelligence tests. Emphasis on the Wechsler-Bellevue and Stanford-Binet tests. Two lectures and two laboratory hours per week. *Prerequisite:* Psychology 3401 or the equivalent as determined by the chairman of the department.
- 3411 **Physiological Psychology**
Basic psychological processes in relation to structure and function. Three lectures per week.
- 3421 **Experimental Psychology (\$3)**
A survey of theories and techniques of experimentation on infrahuman and human behavior. Two lectures and two laboratory hours per week.
- 3441 **Motivation and Learning**
Consideration of the basic problems involved in motivation and in learning with special emphasis on the relation to personality. Three lectures per week.
- 3452 **Independent Research**
Independent student work under the supervision of the staff. *Prerequisite:* Twelve hours of psychology including Psychology 3101 and permission of the departmental chairman.
- 3453 **Independent Research**
Continuation of Psychology 3452. *Prerequisite:* Psychology 3452, and permission of the departmental chairman.
- 3454 **Independent Research**
Continuation of Psychology 3453. *Prerequisite:* Psychology 3453, and permission of the departmental chairman.

Official Regulations

Student Expense

[TUITION]

Financial Aid to Students

[SCHOLARSHIPS AND LOANS]

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Student Expenses

Average registration cost for **RESIDENT** liberal arts students runs from \$87.00 to \$94.00 per semester. Average registration cost for **RESIDENT** engineering students runs from \$87.00 to \$103.00 per semester. Registration and laboratory fees are payable on a semester basis at the beginning of each semester and must be paid in full before the student will be permitted to enter class or laboratory. The Business Office does not cash checks. However, checks are accepted in settlement of obligations to the College.

Tuition and Registration Fees

Under the authority of House Bill No. 265 enacted into law by the Fifty-fifth Legislature, The Board of Regents has fixed rates of tuition or registration fees as follows:

Long Session (each semester)

| <i>Semester Hours</i> | <i>Resident</i> | <i>Non- resident</i> |
|---------------------------|-----------------|--------------------------|
| 12 or more) | \$50.00 | \$200.00 |
| 11 | 47.00 | 183.50 |
| 10 | 43.00 | 167.00 |
| 9 | 39.00 | 150.50 |
| 8 | 35.00 | 134.00 |
| 7 | 31.00 | 117.50 |
| 6 | 27.00 | 101.00 |
| 5 | 23.00 | 84.50 |
| 4 | 19.00 | 68.00 |
| 3 or less) | 15.00 | 51.50 |

Summer Session (each term)

| <i>Semester Hours</i> | <i>Resident</i> | <i>Non- resident</i> |
|---------------------------|-----------------|--------------------------|
| 6 (or more) | \$25.00 | \$101.00 |
| 5 | 23.00 | 84.50 |
| 4 | 19.00 | 68.00 |
| 3 (or less) | 15.00 | 51.50 |

Resident and Non-Resident Students

(The definitions of RESIDENT and NON-RESIDENT as used herein are not necessarily the same as those in ordinary usage.)

1. A student under 21 years of age is classified as a **RESIDENT** student if his parents are living in the State of Texas at the time of his registration and have lived within the state for a period of at least 12 continuous months immediately prior to the date of registration.
2. A student over 21 years of age is classified as a **RESIDENT** student if he has lived within the State of Texas for a period of 12 months, not enrolled in an educational institution, subsequent to his twenty-first birthday and immediately prior to his registration and if he lives in the State on the date of said registration.
3. The 12 months requirement of the preceding paragraph may be satisfied

wholly or in part under the provisions of paragraph 1 above providing residence in the State is continuous up to and including the date of registration.

4. Officers, enlisted men and women, selectees or draftees of the Army, Navy, Air Force, or the Marine Corps of the United States, who are stationed in Texas by assignment to duty within the borders of this State, shall be permitted to enroll themselves, their husbands or wives as the case may be, and their children in State institutions of higher learning by paying the tuition fees and other fees or charges provided for regular residents of the State of Texas, without regard to the length of time such officers, enlisted men, selectees or draftees have been stationed on active duty within the State.

Wives and children of military personnel are required to have on file in the Registrar's Office, during their period of enrollment, a letter from their husband's or father's Commanding Officer certifying to their status as a military dependent, and to the fact that the husband or father is stationed in Texas.

5. A student under 21 years of age is classified as **NON-RESIDENT** if his parents do not reside in the State of Texas or have not lived within the State during the full 12 months prior to his registration.

6. A student over 21 years of age who comes from out of the State of Texas is classified as a **NON-RESIDENT** student unless he has resided within the State for 12 full months, not enrolled in an educational institution, prior to the date of registration.

7. An alien is classified as a **NON-RESIDENT**, except as provided in paragraph 9 of next section.

Legal Residence

The following statements are intended to clarify certain points and answer some of the questions that may arise. For additional information see the Registrar's Office.

1. The legal residence of one who is under 21 years of age is that of the father. Upon death of the father, the

legal residence of a minor is that of the mother.

2. If the parents are divorced, the residence of a minor is the same as that of the parent with whom he has lived during the 12 months preceding registration. If he has not lived with either parent, the residence of the father shall control. If custody is granted to some person other than a parent, the residence of that person shall control for so long as the minor actually makes his home with such person.

3. The residence of a wife is that of her husband.*

4. Individuals who have come from without the State of Texas and who are within the State primarily for educational purposes are classified **NON-RESIDENT**. Registration in an educational institution within 12 months after having arrived in the State is considered as evidence that the individual is in the State for educational purposes.

5. The fact that an individual or family has bought property, established a business, paid taxes, voted, has become the legal ward of or has been adopted by a Texas resident does not affect the 12 months residence requirement.

6. The fact that a student is self-supporting or is supported wholly or in part by a Texas resident does not affect his classification as **RESIDENT** or **NON-RESIDENT**.

7. Appointment as member of the teaching or research staff or the holding of a scholarship, or assistantship does not affect the residence status of a student.

8. If the parents of a **RESIDENT** student under 21 years of age move out of the State, that student is classified as **NON-RESIDENT** for all subsequent semesters.

9. In the case of an alien who has applied for naturalization in the United States, the 12 months period required to establish residence begins with the date of acceptance of his petition for citizenship.

10. It is the responsibility of the student to pay the correct fee at the beginning of each semester or term for which he may register.

Penalties for Payment of Wrong Fee

The responsibility of registering under the proper residence is placed upon the student, and it is his duty, at or before

registration, if there is any possible question of his right to legal residence in Texas under the State law and College rules, to raise the question with the Registrar and have such question settled prior to registration. There can be no change of residence except upon express authorization by the Registrar. Attempt on the part of a non-resident to evade the non-resident fee will be taken seriously and may lead to expulsion.

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

REFUND of Tuition Fees

A refund of the registration and tuition fee is made only to students withdrawing from school. If the withdrawal is official and falls within the following time limit, a student will, upon presentation of his receipt at the Business Office showing payment of fees, receive a percentage refund as follows:

| | |
|--|-----------|
| Before or during first week | |
| of class work | 70% |
| During second week of class work | 60% |
| During third week of class work | 40% |
| During fourth week of class work | 20% |
| During 5th week & thereafter | No Refund |

In no case shall the total refund exceed 70% of the registration and tuition fee. In no case shall a refund of the tuition fee be made for dropped courses or for transfers to courses carrying a lesser number of credit hours, i.e., there shall be no refund of the tuition and registration fee if the student remains enrolled in school.

There will be no refund made of course and/or laboratory fees after the student has met the course or laboratory session.

An immediate refund will not be made to a student who withdraws within fifteen days after the payment of his fees, but, upon request, a check covering all refunds due will be mailed to the address left with the Business Manager. The registration receipt must be presented when making a claim for a cash refund.

A student who enters the second semester, not knowing his first semester grades, and is required to withdraw because of failure in the work of the first semester will have all of his registration and tuition fee for the second semester refunded.

*Exception: A woman student of the College who is classified as a resident student and, while so classified, marries a non-resident student of the College will be permitted to continue to pay the resident fee for the two long sessions immediately following such marriage.

No refund provided for above will be granted unless applied for within one year after official withdrawal.

Exemption of Ex-Service Men

Men and women who are classified as residents of Texas for educational purposes and who were so classifiable at time of entry into military service, and who served in the Armed Forces in World War I, World War II, the Korean conflict, or in certain of the auxiliary services, and were honorably discharged therefrom (except those who were discharged because of being over the age of 38 or because of a personal request), and who are not eligible for educational benefits provided for veterans by the United States Government, are exempted from the payment of tuition and certain required fees but not from the payment of deposits. To obtain this exemption, the student must make application on the form prescribed by and obtained from the Business Manager. Certified or photostatic copies of the discharge certificate and service record must be attached to the application. Exemption from fees described above also extends to children of members of the Armed Forces who were killed in action or died while in the service during World War II or the Korean conflict.

Laboratory Fees *per semester*

| | |
|---|------|
| Art 2211, 2311, 2313, 2413, 2411, 2412, 2131, 2231, 2232, 2233, 2331, 2332, 2365, 3392 . . . \$2.00 | |
| 2141, 2181, 2341, 2342, 2381, 2382 | 5.00 |
| Bacteriology 3301, 3302 | 2.00 |
| Biology 3101, 3102, 3105, 3106, 3201, 3202, 3203, 3301, 3401 . . . | 2.00 |
| Botany 3101, 3102, 3201 | 2.00 |
| Business Administration 4111, 4112 . . . | 2.00 |
| Chemistry 2211, 3101, 3102, 3106, 3107, 3211, 3462, 3463, 4450 . . . | 2.00 |
| 2496, 3221, 3222, 3496, 4103, 4104, 4461, 4496, 5496, 6496 . . . | 4.00 |
| 4322, 4460 | 5.00 |
| 4213, 4214, 4321 | 6.00 |
| 4324, 4451 | 8.00 |
| Drawing 2101 | 2.00 |
| Engineering 2212, 2216, 2314, 3441, 3442, 3448, 4339, 4340 . . . | 2.00 |
| 3336 | 4.00 |
| 4334 | 6.00 |
| Geography 3103, 3104 | 2.00 |

| | |
|---|-------|
| Geology 3101, 3102, 3210, 3325, 3461, 4323, 4463 | 2.00 |
| 2217, 2464, 3216, 3217, 4218, 4219, 4321, 4327, 6465 | 4.00 |
| Journalism 3308, 4207 | 5.00 |
| Metallurgy 4302, 4408 | 2.00 |
| 2405, 3404, 3305, 4308, 4407, 4411 | 3.00 |
| 3405, 3406 | 4.00 |
| 2303 | 8.00 |
| Mining 2304, 3302 | 2.00 |
| 3406 | 3.00 |
| 4404 | 4.00 |
| Physical Education 1101, 1102, 1201, 1202 | 2.00 |
| Physics 2343, 2344, 4103, 4104, 4213, 4214, 4215, 4216, 4317, 4339, 4340, 4445 | 2.00 |
| Psychology 3401, 3402, 3421 . . . | 3.00 |
| Zoology 3101, 3102, 3201, 3202, 3301, 3302 | 2.00 |
| Music: | |
| Piano Sight Reading 2373, 2374 . . | 2.00 |
| Class Voice 2171, 2172, 2271, 2272, 2371, 2372 | 2.00 |
| Class Piano, high strings, low strings, reeds, brass, percussion 2171, 2172, 2271, 2272, 2371, 2372 | 4.00 |
| Applied 2181, 2182, 2191, 2192, 2281, 2282, 2291, 2292, 2381, 2382, 2391, 2392, 2481, 2482, 2491, 2492 | 25.00 |
| Applied 3181, 3182, 3191, 3192, 3281, 3282, 3291, 3292, 4191, 4192, 4291, 4292 | 45.00 |
| Applied 3381, 3382, 3391, 3392, 3481, 3482, 3491, 3492, 4391, 4392, 4491, 4492 | 50.00 |
| Transportation Fees: | |
| Geology 2421 | 50.00 |
| Metallurgy 2421 | 50.00 |
| Mining 2421 | 50.00 |

Miscellaneous Required Fees

Student Union Fee — Under the authority of Senate Bill No. 359, recently enacted into law by the 54th Legislature, the Board of Regents have authorized a Student Union Fee in the amount of \$4.00 for each semester of the Long Session and \$2.00 for each term of the Summer Session for the purpose of constructing,

EXPENSES

equipping and maintaining the Student Union Building. This fee is required of all students registering for course work on campus including full time and part time students enrolled for day and/or evening classes.

Refund of the fee will be made only under the same conditions as the Tuition and Registration fee.

Special Examination — A fee of \$1.00 is required of persons who wish to take an advanced standing examination, an examination to remove a condition, or an examination to be given at a time other than that for which it is regularly scheduled. Permission of the Dean must be secured in advance.

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

Student Services Fee — Under the authority of legislation enacted by the 55th Legislature, the Board of Regents have authorized a Student Services Fee in the amount of \$22.50 for each semester of the Long Session and \$7.50 for each term of the Summer Session. This fee is required of every undergraduate student registering for twelve (12) or more semester hours during a long session semester or four (4) or more semester hours during a term of the Summer Session.

This fee is optional for graduate and part-time students. Activities to be supported from this source of income include: Health Service, Student Association, Intramurals, Intercollegiate Athletics, Swimming Pool, Student Publications, Band, Choir, Orchestra, Co-ed Association and Forensics.

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

Parking Fee — Action of the 55th Legislature prohibits the use of appropriated monies for the construction, maintenance or operation of any parking facilities and directs that such facilities are to be provided for from fees charged to those using such facilities. The Board of Re-

gents has, therefore, approved a parking fee as follows for those students desiring to park cars on campus:

| | |
|-----------------|----------|
| Fall Semester | — \$3.00 |
| Spring Semester | — 2.00 |
| Summer Session | — 1.00 |

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

DEPOSITS

| | |
|---------------------------|---------------|
| General Property Deposit | . . . \$10.00 |
| Military Property Deposit | . . . 20.00 |
| Dormitory Deposit | . . . 10.00 |

General Property Deposit — Every student other than an extension student must make a general property deposit of \$10.00. This deposit is subject to changes for property loss or damages or breakage or violation of rules in any College library or laboratory, failure to return keys, furnished by the College, or for damage to or loss of any other College property. If the charges incurred in any term or semester exceed fifty per cent of the deposit, the student, upon notice from the Business Manager, will be required to restore the deposit to the original amount by paying such charges immediately. Students having charges in excess of the deposit must pay the excess immediately; pending payment, no credit will be allowed on the work of that semester or term, and the student will be ineligible to re-enter the College.

Deposits will be refunded only when a student ends his career at the College. No refund will be made to a student who plans to continue his education here, either at the close of the Long Session or Summer Term.

A general property deposit which remains without call for refund for a period of four years from the date of last attendance at the College shall be forfeited and shall become operative to the permanent use and purpose of the Student Property Deposit account. Such funds will be invested and the income therefrom will be used for scholarship purposes and for the support of a general Student Union program. This policy applies to deposits heretofore paid as well as to those paid in the future.

Military Property Deposit — Students enrolling in Military Science courses are required to make a deposit of \$20.00. This deposit is subject to charges for military

property lost, damaged, or destroyed, and is required to be restored to \$20.00 at the end of each year. If at the end of any semester the deposit is reduced because of charges to \$10.00 or less, it must be restored at that time to \$20.00. This deposit will be refunded in the same manner as the student general property deposit.

Warning: Property issued to students enrolled in Military Science courses belongs to the United States Government. Every precaution must be taken to prevent loss or damage. All items must be accounted for at time of withdrawal or end of course.

DORMITORIES

The College considers it a distinct advantage for all boarding students to live in the dormitories on the campus. Every attention will be given for the improvement of the social and educational life of boarding students.

All single undergraduate students not living with their parents are required to live in the dormitories on the campus to the full capacity of the facilities.

There are four very modern and conveniently located residence halls, and a central cafeteria for all students. The buildings are fireproof in construction, well-furnished, fully equipped with modern facilities for furnishing meals, and include proper recreational rooms for the social life of resident students.

As soon as a decision to attend Texas Western College has been made, room reservations should be made by sending a deposit of \$10.00 to the Business Office of the College. Also, it is required that a student desiring his name on the room reservation list must file a personal data form with the Business Manager. The blank form may be secured in advance from the Business Office and forwarded along with the deposit. If a deposit is received without the data form, the deposit will be held in suspense and a data form mailed to the student for completion. Upon return receipt of the form, a receipt will be issued for the deposit and the student's name entered on the reservation list. The deposit is refunded at the close of the semester, provided the student does not withdraw from the dormitory before that

time, and provided there is no deduction for breakage. The deposit will be refunded to those students who cannot be accommodated or to those who cancel their reservations prior to September 1st. A room reservation is cancelled and the room deposit is forfeited if the room is not claimed by 11:00 P.M. the last day of registration before classes begin. Male students are advised of their room assignment by the Dean of Men and female students are advised by the Dean of Women after August 1st.

The charges for room and board per person will be \$325.00 per semester. The entire amount may be paid on registration, or the student may pay \$81.25 during registration and the balance in three payments of \$81.25 each which shall be due on or before such dates as will be announced. The College reserves the right to change the charges for room or board or both by giving written notice of such increases thirty days before the change.

Room Rent and Board

Per semester, per person . . . \$325.00

Extra Dormitory Charges, per semester:

Corner room, per person . . . \$10.50

Single room (if available) . . . 21.25

Single corner room (if available) 42.50

Rooming and Boarding Houses

Texas Western College maintains annually official lists of rooming houses for men and for women. Any rooming house is eligible to a place upon one of these official lists and to receive the publicity through the College accruing therefrom, provided it complies with the College regulations.

In order to be placed upon this official list, the proprietor must be of good moral character and must be willing to co-operate with the College in carrying out its regulations. All houses on the official list are subject to inspection by representatives of the College Health Service or by the Dean of Men. The College reserves the right to remove at any time any house from the official list for cause deemed sufficient by the Committee on Student Living Accommodations.

Financial Aid to Students

Texas Western College students can obtain financial assistance through the College in several ways: Employment by the College, placement in part-time off-campus jobs through the Bureau of Placement Services, scholarships, and loan funds.

Employment by the College

More than a hundred students are employed by the College in jobs ranging from semiskilled laborers to student readers, research assistants, and laboratory and teaching assistants. Payment is normally on an hourly basis, the rate depending upon the individual's knowledge and prowess. Students work varying hours, in accordance with their academic loads and the requirements of their jobs.

Many husbands and wives of students have full-time jobs with the College, enabling their spouses to devote full attention to academic work during the period of college attendance. The El Paso area, of course, provides many additional opportunities for such employment.

Placement Bureau

For the student who wishes to contribute to his income while attending college, the Bureau of Placement Services acts as an employment agency. The bureau makes every effort to assist students in securing employment, but the College assumes no responsibility for guaranteeing employment.

As an additional service, seniors and graduates may file records of their training and experience for submission by the bureau to both national and local employers and interviewers. Many graduates receive career jobs through the bureau.

Address applications and correspondence: *Director of Placement Services, Texas Western College, El Paso, Texas.*

Scholarships

While seeking to develop its students in culture, in character, and in citizenship, Texas Western College has available rewards for scholarship. To encourage this devotion to learning, there have been established, through the donation of friends of the College, a number of scholarships to be awarded principally to students with high academic accomplishment. Besides high academic accomplishment, some of these scholarships stipulate that the financial requirements of the student be given consideration.

To be eligible for scholarship, college students must have completed a minimum of 14 hours in the preceding semester with an average of 3.0 and must enroll for a minimum of 14 hours.

High school students must have completed high school with a B average in the Basic Courses and must enroll for a minimum of 14 hours.

Texas Western College has a printed brochure listing all scholarships, donors, restrictions and other pertinent information. These are available to any interested person in numerous high school administration offices or upon request.

Interested students should write the Dean of Men, Texas Western College, for information and a brochure on available scholarships, as well as scholarship application forms.

Grants-in-Aid

Grants-in-Aid shall be awarded on a basis of need, as determined by the Scholarship Committee.

Loan Funds

All loan funds listed below are administered by the Faculty's Committee on Loans. For information, application blanks and eligibility, write to, or see, Dr. Jack H. Meadows, Chairman, Committee on Loans.

Various funds are available to students who need financial assistance to be able to continue their college education. All loans are made at a low rate of interest and under such other terms that borrowers will be able to meet their obligations without undue difficulties.

Applicants for loans will be expected to show need for assistance and must be able to supply satisfactory references. Applications should be made as early as possible before date of registration.

Ex-Students' Memorial—Under the will of the late William Clifford Hogg, \$25,000 was granted to the Ex-Students' Association and the College for the establishment of this fund. Only the income from the fund may be loaned.

Women's Auxiliary—This loan fund was established by the Women's Auxiliary for Texas Western College. Emergency loans are made to needy students of high scholastic standing.

National Defense Student Loans—Texas Western College is a participant in this Federal loan program.

Regulations Affecting Student Life

Student Services

The Dean of Men, and Dean of Women are student personnel officers, and are concerned primarily with student welfare. These officers are available to talk over personal or organizational problems, and to answer questions that concern members of the student body. These officers supervise student housing, the student scholarship program, and student activities. Through these officers a student may apply for emergency loans, part-time employment, and counseling service.

The Bureau of Testing and Guidance is another student welfare service. This office administers the Freshman testing program and makes its services available to all those who wish counseling or vocational selection help.

In addition, there is a college health service, and a placement service which aids students in finding jobs. Various student organizations, led by the student government, render such services as activities orientation and providing tutoring service.

CONDUCT

Discipline of the College will be so administered by the faculty as to maintain a high standard of integrity and a scrupulous regard for truth. The attempt of any student to present as his own the work of another, or any work which he has not honestly performed, or to pass any examination by improper means, is regarded by the faculty as a most serious offense, and renders the offender liable to immediate suspension. The aiding and abetting of a student in any dishonesty is held to be an equally serious offense.

The possession of any material not allowed by the instructor during an examination is considered *prima-facie* evidence of intention to use such material illegally.

Discipline

1. Through matriculation at the College, a student neither loses the rights nor escapes the responsibility of citizenship.
2. Obedience to the law being a primary duty of the citizen, the conviction of the student for violation of law renders him subject also to disciplinary action on the part of the College.
3. A jury indictment for a felony or other offense of serious character suspends the student, without prejudice, until acquitted.
4. All students are expected to show re-

spect for properly constituted authority and to observe correct standards of conduct. Illegal conduct, improper use of alcoholic beverages, gambling, dishonesty, conduct inconsistent with general good order, and failure to respond promptly to official notices may subject the student to disciplinary action.

5. Persons not registered in the College when guilty of misconduct that affects college life and work, if former or prospective students, will have the known circumstances inscribed in their records as presumptions against their moral characters. They will not be later admitted to the College unless they can prove moral desirability.

Penalties

The following penalties may be imposed: admonition; probation; suspension of social rights and privileges; suspension of eligibility for official athletic and non-athletic extracurricular activities; suspension of eligibility for any student office or honor; publication of the name of the offender, his offense, and the penalty imposed; increase in the number of courses required for a degree; cancellation of credits for scholastic work done; suspension from the College; expulsion; or such other penalty as the Faculty Committee on Discipline deems proper.

Probation

Disciplinary probation will be for a definite period and carries with it the following condition during the period of such probation: any further violation of College regulations during the time of probation will cause such student to be suspended for a period to be determined by the Faculty Committee on Discipline.

A student on probation may not hold office in any organization connected with the College, nor represent the College in any of its activities.

A student on probation who absents himself from any class exercise or neglects any class work, except for reasons considered imperative by his Dean, will be dropped from the College rolls for the remainder of the session.

Absences and neglect on the part of such student, not explained to his Dean within one day—beforehand if possible—will be presumed to be without excuse and will effect the dropping mentioned above.

A student on probation may not be initiated into any social or honorary organization.

Suspension from the College

A student suspended from the College shall remain off the campus of the College during the entire period of his suspension, excepting when summoned by an administrative official of the College, or when an appointment with an official has been previously arranged. A student while under suspension may not room or board in a dormitory or rooming house where other students are living, nor frequent a fraternity or sorority lodge. He may not be initiated into an honorary or social organization. A student under suspension may not receive credit at Texas Western College for college work done, by correspondence or in residence, at either this or any other institution during the period of suspension, except when allowed by the Faculty Committee on Discipline. This privilege shall not be allowed in cases involving cheating.

Expulsion from the College

A sentence of expulsion means permanent severance from the College. A sentence of expulsion shall be reviewed by the administrative officers, who, when in doubt about its propriety, shall return the case to the trial committee with the reason for so doing.

These penalties may be imposed singly or in any combination upon individuals, or groups, or organizations.

In every case in which a student is found guilty of any offense by the Faculty Committee on Discipline and in any other matter in which an emergency arises, parent or guardians will be informed and asked to co-operate with the authorities.

Debts

The following policy was adopted by the Board of Regents of The University of Texas on October 25, 1958.

The College is not responsible for debts contracted by individual students or by student organizations. On the other hand, the College expects all students and student organizations to conduct themselves honorably in all commercial transactions. The College will not assume the role of a collection agency for organizations, firms and individuals to whom students may owe

bills, nor will the College adjudicate disputes between students and creditors over the existence or the amounts of debts. A student, however, is expected to perform his contractual obligations and in the event of conduct on the part of a student clearly demonstrating a flagrant disregard of his commercial obligations (refusal to pay or meet admitted debts or obligations will be thus construed), action will be taken appropriate to the age of the student and other circumstances:

(1) In the event of such conduct, the parents of minors will be notified and requested to intervene.

(2) In the case of a married student or a student over 21 years of age, the student will be requested to make prompt payment or to negotiate a reasonable plan for payment with his creditor or creditors.

(3) In the event that the actions prescribed in (1) and (2) above do not result in the payment or agreement to pay admitted obligations, one or more of the following actions, as determined appropriate in the particular case, may be taken:

(a) A bar against readmission of the student.

(b) Withholding of the student's grades and official transcription.

(c) Withholding of a degree to which the student otherwise would be entitled.

Bad Checks

A student who gives the College a bad check, the fault not being that of the bank, and who does not make it good within five days will be dropped from the College. A student or a College organization who gives a bad check in a commercial transaction, and does not make it good within five days will be subject to disciplinary action by the Faculty Committee on Discipline. The College will not accept a check from a student who has once given a bad check.

Hazing

A student who violates his pledge of hazing, or who engages in, instigates, or encourages any type of class rush not specifically approved by the College will be liable to suspension or expulsion.

EXTRACURRICULAR ACTIVITIES

Any college exists for one reason and one reason only—academic or professional training. However, once a student has made the difficult academic adjustment to college, extracurricular activities can play an important recreational and educational part in his college life.

Athletics

Texas Western College is in the Border Intercollegiate Conference and participates in a variety of intercollegiate sports. This allows not only for student participation but also gives students, staff, and community residents a great deal of spectator enjoyment. There is also a large intramural athletic program, and all students are invited to engage in sports and recreation of their choosing. The Physical and Health Education Department, Student Association, and Dean of Students sponsor these activities.

Organizations

Other major participation areas include student publications, governmental organizations, four national sororities, one local and seven national fraternities, music and drama groups, and departmental organizations. There are close to seventy different groups from which a student may choose his activities. They are:

Accounting Club—organization of Business Administration students specializing in accounting.

Activities Bureau—helps new students to find the activities to which they wish to belong.

Alpha Chi—scholastic honorary for Juniors and Seniors.

Alpha Lambda Delta—national honorary society for freshmen women.

Alpha Phi Gamma—honorary journalism society.

Alpha Epsilon Rho—honorary radio society.

Alpha Phi Omega—local fraternity for Engineers.

Alpha Psi Omega—honorary drama society.

Alpha Sigma—national social sorority.

Alpha Sigma Mu—American chemical society—collegiate branch of professional society.

American Chemical Society—collegiate branch of professional society.

American Institute of Electrical Engineers—collegiate branch of professional society.

American Institute of Mining, Metallurgical, and Petroleum Engineers—collegiate branch of professional society.

American Society of Civil Engineers—collegiate branch of professional society.

Association for Childhood Education—organization of future teachers of elementary schools.

Baptist Student Union—campus organization of Baptist Students.

Chenrizig—scholastic and service honorary for senior women.

Chi Omega—national social sorority.

Christian Science—a campus organization of Christian Science students and faculty members.

Co-Ed Council—co-ordinating group for all women's organizations.

College Band—sponsored by the Music Department.

College Choir—sponsored by the Music Department.

College Players—drama group which puts on plays.

Cosmopolitan Club—to assist foreign students in adjusting to college life at Texas Western College.

Delta Chi—national social fraternity.

Delta Delta Delta—national social sorority.

Delta Psi Kappa—honorary Physical Education society.

Delta Sigma Pi—Professional society for men Business majors.

Engineering Council—co-ordinating group for all Engineering activities.

Episcopal Community—campus organization of Episcopal students.

Gold Diggers—girls pep squad that marches with the band.

Inter-Dormitory Council—representatives from men's and women's dorms who coordinate the athletic, social, cultural and scholarly activities among dormitory students.

Inter-Faith Council—co-ordinating group for all religious clubs on campus.

Interfraternity Council—co-ordinating group for fraternities.

Intramural Athletic Board—co-ordinating group for intramural athletics.

Kappa Delta Pi—national honorary teacher's society.

Kappa Pi—honorary art society.

Kappa Sigma—national social fraternity.

Lambda Chi Alpha—national social fraternity.

LDS Deseret — campus organization of Mormon students.

Literary Society — this group encourages interest in and knowledge of literature through meetings, group discussions, and lectures. It is open to all students.

Music Educators National Conference — student chapter for those going into Music professionally.

Newman Club — campus organization of Catholic students.

Orange Key—scholastic and service honorary for Freshmen and Sophomore men.

Panhellenic Council—co-ordinating group for sororities.

Phi Alpha Theta — honorary history society.

Phi Gamma Nu — professional society for women Business majors.

Phi Kappa Tau—national social fraternity.

Phrateres International—national non-Greek social group for women.

Physical Education Majors Club — sponsored by PE department.

Pi Delta Phi—honorary French society.

Pre-Med Club—students interested in the profession of medicine.

Psychology Club — students interested in psychology.

Roth Society—social organization for Jewish men and women.

Sardonyx—scholastic and service honorary for Junior and Senior men.

Scabbard and Blade—ROTC honorary society.

Sigma Alpha Epsilon—national social fraternity.

Sigma Alpha Mu—nat'l. social fraternity.

Sigma Delta Pi—this is an honorary Spanish society.

Sigma Gamma Epsilon—honorary society for earth sciences.

Society of Exploration Geophysicists—professional society for Geologists.

Spurs — national service organization for sophomore women.

Student Union — co-ordinating group for the Union building and its activities.

Tau Kappa Epsilon—nat'l. social fraternity.

United Campus Christian Fellowship — (UCCF) — this group is an inter-denominational religious organization consisting of the following groups: Presbyterian of the U. S., Presbyterian of the United U. S., Churches of Christ, United Lutherans of America, Episcopalians of the U. S. A., African Methodist Episco-

pal, Congregational Christian, Christian Churches, and the Churches of the Nazarene.

Wesley Foundation—campus organization for Methodist students.

Women's Athletic Association — organization sponsoring intramurals for women.

Zeta Tau Alpha—national social sorority.

Annual Events

And of course there are a number of all-campus activities every year in which a student may participate. Some of these are:

Snow Fiesta

Texas Western students journey to Ruidoso or Cloudcroft each year for the Snow Fiesta, an event which usually takes place between the Fall and Spring semesters. Students meet at the ski run during the day to enjoy sledding, tobogganing, skiing, skating, and snowball fights. To climax the day's activities, a dance is held in the evening and the queen is crowned.

Homecoming

Homecoming activities, usually held in November of each year, center around a Border Conference home football game. Ex-students return to town for a series of parties and meetings and are guests of honor at open houses given in each sorority and fraternity lodge. A prize is awarded for the best decorated float entered in a downtown parade, and prizes are also awarded to the winners in the four divisions set up by the Ex-Students Association. The sororities also decorate their lodges. After the football game, a dance is given in the Student Union ballroom. The football queen is crowned at intermission.

Co-Ed Ball

This is the traditional all-college Christmas dance, when the girls make the dates, pay expenses, send flowers, use their own cars, call for their boy friends, and do the tagging. The Co-Ed Association makes this affair one of the most popular and original throughout the year.

Variety Show

The Variety Show held each December is an important activity in which different organizations participate. Each group puts on a ten minute skit in competition for a trophy and a percent of the proceeds from the event. Each group plans and produces its own skit.

Campus Chest

Each fall a drive is held on campus to raise money for charitable distribution.

Beard Growing Contest

January 1st is more than New Year's Day at Texas Western College. It is also the day when men on the campus start growing beards to compete in the annual beard contest which is judged at the Hard Luck dance held on or near St. Pat's Day. Originally an engineering tradition, beard growing has spread to the East Side.

St. Pat's Day

On March 17th, St. Patrick's Day, Texas Western engineers journey to Orogrande for an all-day picnic during which freshman engineers are initiated into the order of St. Pat, patron saint of engineers. The initiation is traditionally held in one of the many mines around the area.

Hard Luck Dance

The Hard Luck Dance, sponsored by the engineers, is held on the closest Saturday to March 17th, St. Pat's Day. The beard growing contest is judged during the intermission—with prizes awarded to the longest and the prettiest beards and the one showing the most effort with the least results. A prize is also awarded the man and woman wearing the best hard luck costumes.

Western Day

The Southwestern Championship Rodeo, held in El Paso each year, heralds Western Day at Texas Western College. On that day the "no slacks on campus" rule is relaxed and co-eds and campus men all dress in Western clothes, complete with boots and cowboy hats.

Sing Song

The annual fraternity-sorority sing-song, held late in the Spring semester, is a concert in which the various choruses compete for a cup. This event has grown in size to the point where many organizations other than the Greeks compete.

Beauty Contest

The Flowsheet annually sponsors this contest to select a beauty queen and several runners-up for the yearbook's feature section. In a preliminary contest about 12 finalists are selected from entries made by the social organizations on the campus. At the final contest, the beauty is crowned and presented with a bouquet of roses.

Senior Luncheon

Each Spring the Co-Ed Association honors graduating senior women with a luncheon in the women's dormitory. This is the final social gathering for the senior women before graduation.

Religion in Life Week

In the life of every wholly developed individual a spiritual foundation is essential. Speeches by religious leaders, informal discussions, and personal conferences are presented as a means of acquainting—or reminding—the student of religion's vital place in his world. Catholic, Jewish, and Protestant authorities are given the opportunity to encourage the student in his spiritual quest.

All TWC Day

A day of social and sports events is set aside each year as All-Texas Western College Day. Held usually in May, the day's activities open with a baseball game between the faculty and the seniors. Social organizations compete in a swimming meet. Highlight of the day is the annual beauty revue at which "Miss TWC" is selected from entries made by campus organizations.

Spring Festival

The Spring Festival is held each year in connection with All-TWC Day. Every organization on campus sets up a booth of games or refreshments for the festival. A dance closes the day's events.

Flowsheet Queen

Each year a nationally known celebrity is asked to act as judge in the Flowsheet Queen Contest. The identity of the queen, who is selected from photographic entries, is not revealed until the yearbook is distributed in May. Any girl who is a student is eligible to compete.

Honors Day

Sardonyx, junior and senior men's honorary organization at Texas Western College, sponsors, each spring, the annual Honors Day ceremony. At this traditional Honors Day, Texas Western College gives public recognition to those students who excel in scholarship and citizenship. The students being honored are in one or more of the following groups: (1) Members of Texas Western College honor societies; (2) Members of national honor societies; (3) Students who merit recognition for distinction in citizenship and scholarship; and (4) Student Council representatives.

Scholastic Regulations

Credit Measurement

The unit of measurement for credit purposes is the semester hour. A semester hour entails one hour of recitation and/or lecture (or the equivalent in shop or laboratory work) per week for one semester of eighteen weeks, unless otherwise specified in the course description. For each classroom hour two hours of preparation are expected. Three hours of shop or laboratory work are counted as equivalent to one classroom hour and the preparation for it. Unless otherwise stated in the course description, it can be assumed that a course will meet for one hour of recitation-lecture per week for each semester hour of credit.

Selecting Courses

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

Course Fees

Laboratory fees and other special fees required for individual courses are indicated in course descriptions. Per semester cost follows course title, for example:

GEOLOGY

3210 Principles of Geomorphology (\$2)
(one semester)

BIOLOGY

3101-02 Anatomy and Physiology (\$2-\$2)
(two semesters)

Adding Courses

A course may be added within the stipulated time limit by (a) authorization of the Dean, (b) validation by the Business Office, and (c) filing with the Registrar.

Changing Courses

A course may be changed within the stipulated time limit by (a) authorization of the Dean, (b) validation by the Business Office, and (c) filing with the Registrar.

Changing Sections

Once a student has registered for a given section of a course, the section may not be changed at the request of the student until after the fourth day of classes after the close of the regular registration period. Instructors may change students from one section to another at any time for the purpose of balancing enrollments in sections, correcting scheduling errors, and for any other necessary purpose. Changing the section of a course requires (a) authorization by the head of the department concerned, (b) validation by the Business Office, and (c) filing the change with the Registrar.

Dropping Courses

A course may be dropped by (a) authorization of the Dean and (b) filing with the Registrar. The grade to be given by the instructor will be WP or WF depending upon the student's standing in the course at the time.

On the recommendation of the instructor concerned, approved by his Dean, a student may at any time be required to drop a course because of neglect, excessive absence, or lack of effort. In such case the grade is entered on the student's record as WF.

Late Registration

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

Absences from Classes

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

(b) A student has no right to be absent from any exercise in a course in which he is registered, except (1) for serious illness, or (2) by action of College rule, or (3) for other unavoidable circumstances. Ab-

sences caused by serious sickness or other unavoidable circumstances, in case the work missed has been done to the satisfaction of the instructor, shall not count toward dropping a student from a course.

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

(d) Absences incurred by a student prior to his registration are not to be charged against said student, provided the work missed because of late registration is made up satisfactorily by the mid-semester report date.

Absence from Tests

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

Tardiness

Repeated tardiness will be considered as equivalent to absence from class, and reported as such.

Amount of Work

Engineering Students—Beginning freshmen may not register for more than nineteen semester hours except with permission of the Dean. Sophomores, juniors, and seniors may not register for hours in excess of those prescribed in the course of study except in accordance with the grade point rule (39 grade points during their preceding semester), and in no case may they register for more than twenty-one semester hours.

Arts and Science Students—Beginning freshmen may not register for more than nineteen semester hours except with permission of the Dean.

Other students, with permission of the Dean, may register for more than nineteen semester hours if the grade score has been 39 points for the preceding semester. A full summer session may be counted as a semester.

In no case may a student register for more than twenty-one semester hours.

A student may not register for more than seven semester hours in classes scheduled during the evening hours without the written permission of his Dean.

Official Notices

Official notices are posted on bulletin boards, read to classes and sent to students individually. Students are held responsible for knowledge of and compliance with such notices.

Classification

Regular Students—Those who are registered for twelve or more credit hours.

Irregular Students—Those who are registered for less than twelve credit hours.

Freshmen Students—Engineering students having less than thirty hours of credit; Arts and Science students having less than thirty hours of credit.

Sophomore Students—Engineering students: thirty or more, but less than sixty-six semester hours; Arts and Science students: thirty or more, but less than sixty semester hours.

Junior Students—Engineering students: sixty-six or more, but less than one hundred and four semester hours; Arts and Science students: sixty or more, but less than ninety semester hours.

Senior Students—Engineering students: one hundred and four or more semester hours and until graduation; Arts and Science students: ninety or more semester hours and until graduation.

Examinations

General Regulations—All of the written work handed in by students is considered to be their own product, prepared without unauthorized assistance. Students are invited to co-operate with their instructors in maintaining the integrity of examinations and are strongly urged to inform them, without specifying the offenders, if cheating goes on in their classes.

Students are expected (a) to remain in the examination room during the examination or quiz period; (b) to refrain from talking or smoking; and (c) to leave all notes and books where they will not be accessible during the examination or quiz, unless otherwise directed by the instructor.

Final Examinations

The Faculty has ruled that exemption from examinations may not be given. To encourage preparation for examinations, the Faculty has further ruled that during the last seven days of each semester before examinations no written examination or review shall be given; and all essays,

theses, synopses, and the like must be handed in before this period begins.

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

Examinations are three hours in length and at the end of three hours all papers are taken up.

A student absent from a final examination without an excuse from the Dean is graded *F* and required to repeat the semester's work if credit is desired for the course. However, if compelled to be absent from the final examination on account of illness or other imperative cause, the student is entitled to take a postponed examination. (See Postponed Final Examinations.)

Postponed Final Examinations

Postponement of the final examination is subject to the following conditions:

1. Only in case of absence due to illness or other imperative and unavoidable cause.
2. Permission to be obtained from the Dean, validated by the Business Office for a fee of one dollar, and filed with the Registrar at least four days before the date of the examination.
3. Must be taken within a year from the date from which the examination was postponed.
4. Must be taken at a date fixed by the Calendar or at a regular final examination in the course, such time to be determined by the Dean.
5. The grade during the period of postponement to be *Px*.
6. Absence from a postponed examination, after a permit has been granted, gives a grade of *F* in the course.
7. The Registrar supervises the examination.

Proficiency Examinations

These are examinations for credit and are subject to the following conditions:

1. Permission to be obtained from the head of the department and validated by the Business Office for a fee of one dollar, and filed with the Registrar at least four days before the date of the examination.
2. Must be taken at a date fixed by the Calendar.
3. Will be searching in character, strictly graded, and four hours in length.
4. The passing grade is *B*.

5. Absence from the examination, after a permit has been granted, gives a grade of *F*.

6. No student is eligible who has registered for or has been given a grade in the course.

7. The Registrar supervises the examination.

8. Student must currently or previously be registered in the College.

9. Credit thus earned is applicable toward a degree from this College only.

Scholarship

Grades are given by semester; however, in a course extending through two semesters no credit is given toward degrees until both semesters of the course have been completed.

Grades and Grade Points

The grades used are: *A* (excellent), *B* (good), *C* (average), *D* (inferior but passing), *F* (failure), *WP* (withdrawal from the course with a passing grade), *WF* (withdrawal from the course with a failing grade), *Pr* (in Progress), *Inc.* (incomplete), and *Px* (postponed final examination).

In the case of students who drop courses or who withdraw from school the following grades apply:

1. A student who drops a course before mid-semester reports are filed in the Registrar's Office will receive a grade of *WP* if passing and *WF* if failing. The student will receive a grade of *WF* in any course dropped after the mid-semester unless the drop is initiated by the student's Dean.
2. Students who officially withdraw from college during the semester will receive, grades of *WP* in courses which they are passing and *WF* in courses which they are failing.

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

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

Higher Work after Failure

If a student makes an *F* in a course, he may not take up a more advanced course in the same subject until the course is taken again and satisfactorily completed.

Incomplete Work

Grades for work not completed may be obtained by two distinct and separate methods:

1. At the end of any semester a student may be given a grade of *Px* if he unavoidably is absent from the final examination in a course, and such absence is approved by the respective Dean. This procedure obligates the student to take a Postponed Examination in the course as a part of the removal-of-*Px* grade.
2. At the end of the semester a grade of *Incomplete* may be given in exceptional circumstances and with the permission of the instructor and the proper Dean. When the grade of *Incomplete* is given at the end of the first semester, the work missed must be completed before grades are reported at the end of the second semester. If the *Incomplete* is given at the end of the second semester or at the end of either term of the Summer Session, it must be removed before grades are recorded for the fall semester following.

When the student is given the grade of *Incomplete*, or *Px*, the grade points for the course will be considered as if the grade were *F* in calculating the standing of the student.

If *Px* or *Inc* grades are removed within the first two weeks of the semester immediately following the one in which they were received, the scholastic standing of the student will be adjusted according to his earned grades. *Px* examinations will be given within two weeks after the close of each semester.

Repetition of Course

If a student repeats a course, the official grade is the last one made.

Honor List

At the close of each semester the Registrar's Office will issue an honor list which will include the names of all students who, during the semester, have been registered for not less than fifteen hours of work and who have a grade point average of at least 3.2 without any grades of *Px*, *Inc.*, *WF*, or *F*. (If a *Px*, or *Inc.* is removed within two weeks after the end of the semester the last grade earned will be considered.)

One-hour courses in such subjects as Physical Education, Band, Gold Diggers, Choir, Orchestra, College Players, Radio and Journalism will be counted neither in the student's load nor his grade average.

In publishing the honor list the En-

gineering and the Arts and Sciences Schools will be listed separately.

Students whose grades are all *A* will be given special mention.

Semester Reports

Grade reports are mailed to parents and guardians at the end of each semester. Grade reports are also made on freshmen and all students on scholastic probation in November and March. The latter do not become an official part of the student's record, but merely serve to inform the student and the parents of student's progress during the course of the semester. Students may receive copies of all grade reports at the Office of the Registrar.

Self-supporting students over 21 years of age, if they request it of the Registrar in writing, may have their grade reports sent to them instead of their parents.

Standard of Work Required

The grades *Px*, *Inc.*, and *F* will not be considered passing. (If *Px*, or *Inc.* are removed within two weeks after the end of the semester, the student's status will be adjusted.)

REQUIRED MINIMUM

Academic Performance

Regular Students (12 or more hours)

1. If a student is in his first semester, he must make a minimum of 15 grade points.
2. If a student is in his 2nd, 3rd, or 4th semester, he must make a minimum of 18 grade points.
3. If a student is in his 5th or any succeeding semester, he must make a minimum of 24 grade points.

Irregular Students (Less than 12 hours)

The number of semesters for which a student may have been enrolled in another College will be counted in determining the proper semester as listed above.

A student taking less than twelve semester hours must make a minimum average of 1.5 grade points in all work taken during the semester. However, a student will not be removed from good standing if he is registered for only one course and is in his first semester of attendance at the College, or has not been in attendance at the College during the preceding academic year.

A student in good standing does not incur any scholastic penalty by attending a Summer Session, except that a student who fails all his work must have the per-

mission of his Dean before he may re-enter the College.

Except for those offered in the School of Mines and Engineering, no one-hour course nor grade points earned on any one-hour course may be counted in determining the above minimum standard of performance.

Scholastic Probation

A student who fails to attain the required minimum at the end of a semester will be placed on Scholastic Probation.

The student will be warned by his Dean and his parents will be notified by the Registrar.

A student who withdraws while on Scholastic Probation will be continued in that status for the next semester or summer session of attendance.

Scholastic probation shall mean that a student may not:

1. Register for more than sixteen hours except by written permission of his Dean.
2. Represent the College in any intercollegiate contest, hold any collegiate office or elective collegiate position, or officially represent the College in student activities taking place off campus.
3. Be absent from classes, except under extenuating circumstances, without being dropped from the rolls of the College by the Registrar at the request of his Dean.

Removal of Scholastic Probation

A student taking twelve or more semester hours may return to good standing by meeting the requirements outlined under Minimum Academic Performance.

A student taking less than twelve semester hours may return to good standing:

1. By making a minimum average of 1.70 grade points in all work taken. However, this section may not be used to remove Scholastic Probation incurred while a regular student.
2. By attending a Summer Session and passing a minimum of nine semester hours with a C average in all courses taken.

A student attending the Summer Session while on Scholastic Probation and taking less than nine semester hours will be continued on that status for the next period of attendance.

Enforced Academic Withdrawal

A student shall be dropped:

1. When he fails to remove Scholastic Probation in his next period of attendance.
2. When he does not pass any of his work in a semester.

A student ineligible for registration because of academic failure may submit a petition to his Dean for re-instatement. Each such application will be considered on its merits. A student so re-instated will be on such terms of Scholastic Probation as the Dean may require.

Readmission of Students Dropped for Scholastic Reasons

A student who has been dropped for reasons stated under Enforced Academic Withdrawal is eligible for readmission on Scholastic Probation after the following time intervals have elapsed:

1. Dropped for the 1st time: (a) Failure at end of the first semester—the succeeding second semester and the summer session. (b) Failure at the end of the second semester—the succeeding summer session and the first semester. (c) Failure at the end of the Summer Session—the succeeding first semester.
2. Dropped for the 2nd time: One calendar year.
3. Dropped for the 3rd time: Two calendar years, and approval of the Academic Council by written petition through the Registrar.

Official Withdrawal

A student may withdraw from the College with the consent of his Dean and clearance of all financial obligations with the Business Office. If he is a minor he must present a written statement from his parent, guardian, or sponsor indicating that the responsible party has knowledge of the student's intent to withdraw.

Unofficial Withdrawal

Withdrawal from the College without consent of the student's Dean constitutes an unofficial withdrawal. In such cases the student will receive a grade of WF in each course for which he was registered. Students who withdraw unofficially must comply with the regulations listed under Readmission.

DEGREES CONFERRED

| | CONFERRED IN 1959 | | | CONFERRED IN 1960 | | | TOTAL CONFERRED 1916-1960 |
|--|-------------------|-------|------|-------------------|-------|------|---------------------------------|
| | Men | Women | Both | Men | Women | Both | |
| ENGINEERING: | | | | | | | |
| Engineer of Mines | --- | --- | --- | --- | --- | --- | 49 |
| Bachelor of Science in Mining Engineering | 3 | --- | 3 | 5 | --- | 5 | 375 |
| Bachelor of Science in Engineering: | | | | | | | |
| Civil | --- | --- | --- | --- | --- | --- | 120 |
| Electrical | --- | --- | --- | --- | --- | --- | 147 |
| Bachelor of Science in Civil Engineering | 8 | --- | 8 | 10 | --- | 10 | 29 |
| Bachelor of Science in Electrical Engineering | 24 | --- | 24 | 29 | --- | 29 | 81 |
| Bachelor of Science in Metallurgical Engineering | 12 | 1 | 13 | 14 | --- | 14 | 36 |
| | 47 | 1 | 48 | 58 | --- | 58 | 837 |
| ARTS and SCIENCES: | | | | | | | |
| Bachelor of Arts | 68 | 78 | 146 | 72 | 69 | 141 | 3278 |
| Bachelor of Science in the Sciences | 61 | 5 | 66 | 51 | 4 | 55 | 600 |
| Bachelor of Business Administration | 74 | 7 | 81 | 54 | 10 | 64 | 761 |
| Bachelor of Music | 3 | 8 | 11 | 4 | 8 | 12 | 111 |
| Bachelor of Science in Education | 12 | 6 | 18 | 7 | 48 | 55 | 74 |
| | 218 | 104 | 322 | 188 | 139 | 327 | 4824 |
| GRADUATE: | | | | | | | |
| Master of Arts | 8 | 7 | 15 | 9 | 11 | 20 | 740 |
| Master of Education | 12 | 10 | 22 | 17 | 5 | 22 | 44 |
| | 20 | 17 | 37 | 26 | 16 | 42 | 784 |
| TOTAL DEGREES CONFERRED | | | | | | | 6445 |

Statistical Summaries

STUDENTS

| ENGINEERING: | LONG SESSION, 1959-60 | | |
|-------------------------|-----------------------|-------|-------|
| | Men | Women | Total |
| Postgraduates | 18 | — | 18 |
| Seniors | 119 | — | 119 |
| Juniors | 119 | — | 119 |
| Sophomores | 220 | 1 | 220 |
| Freshmen | 365 | 2 | 367 |
| TOTAL | 841 | 3 | 844 |

| ARTS AND SCIENCES: | | | |
|-------------------------|------|------|------|
| Postgraduates | 352 | 188 | 540 |
| Seniors | 400 | 235 | 635 |
| Juniors | 339 | 195 | 533 |
| Sophomores | 467 | 287 | 754 |
| Freshmen | 847 | 561 | 1408 |
| TOTAL | 2404 | 1466 | 3870 |

| | | | |
|--|------|------|------|
| <i>Total Individual Students</i> | 3245 | 1469 | 4714 |
|--|------|------|------|

| | SUMMER SESSION, 1960 | | |
|--|----------------------|-------|-------|
| | Men | Women | Total |
| Students registered in the first term | 975 | 817 | 1792 |
| Students registered in the second term | 836 | 568 | 1404 |
| TOTAL | 1811 | 1385 | 3196 |
| <i>Total Individual Students in Summer Session</i> | 1237 | 983 | 2220 |

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Identification of Minerals, Ores and Rocks

ONE OBJECTIVE of Texas Western College is to be of assistance in the economic development and exploitation of the natural resources of the State. In pursuance of this objective the College will examine and identify minerals, rocks and ores sent for determination. It will also advise as to the possible economic value represented by such specimens.

At times inquiries may be made of the College which should properly be handled by some other State or Federal agency. The College will direct such inquiries into the proper channels.

The College does no commercial assaying, but it will be glad to refer the inquirer to a commercial assayer who can do the work requested. The College assumes no responsibility for the safe arrival of packages sent to it.



BULLETIN

Texas Western College

OF THE UNIVERSITY OF TEXAS

El Paso, Texas

GRADUATE DIVISION

1961-1962

Texas Western College

OF THE UNIVERSITY OF TEXAS

El Paso, Texas

MEMBER

SOUTHERN ASSOCIATION OF COLLEGES

TEXAS ASSOCIATION OF COLLEGES

TEXAS ASSOCIATION OF GRADUATE SCHOOLS

DIVISION OF GRADUATE STUDY

Published bimonthly by TEXAS WESTERN COLLEGE at El Paso

Volume XLVI

MAY - JUNE, 1961

Number 6103

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El Paso, Texas, under the Act of August 24, 1912

CALENDAR FOR FALL SEMESTER - 1961

| SEPTEMBER | | | | | | | OCTOBER | | | | | | | NOVEMBER | | | | | | | DECEMBER | | | | | | |
|-----------|----|----|----|----|----|----|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|----------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| | | | | | 1 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | 1 | 2 | 3 | 4 | | | | | 1 | 2 | |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | 29 | 30 | 31 | | | | | 26 | 27 | 28 | 29 | 30 | | | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| | | | | | | | | | | | | | | | | | | | | | 31 | | | | | | |

SEPTEMBER

8—*Friday*. Condition, proficiency and postponed examinations.

Approved petition forms must be in the Registrar's Office 4 days in advance.

11—*Monday*. General faculty meeting, 3:30 p.m. Magoffin Auditorium.

11, 12—*Monday, Tuesday*, 7-9:30 p.m. Registration for night classes.

Students must register for classes which meet 4:30 p.m. or later at this registration.

13, 14, 15—*Wednesday, Thursday, Friday*. Registration for day students.

16—*Saturday*, 8:30-11:30 a.m. Late registration.

Registration closes for the fall semester. After this date a student must have permission of his Academic Dean to register.

18—*Monday*. All classes begin.

21—*Thursday*. Last day for adding courses and transferring sections.

NOVEMBER

11—*Saturday*. Home Coming, classes dismissed.

13—*Monday*. Mid-semester reports.

Last day courses can be dropped without grade of WF unless drop is initiated by student's Academic Dean.

23-25—*Thursday through Saturday, inclusive*. Thanksgiving Holidays.

DECEMBER

21 - January 2—*Wednesday thru Tuesday, inclusive*. Christmas Vacation.

JANUARY

- 1962 -

3—*Wednesday*. Classes resume.

6—*Saturday*, 2:00 p.m. Arithmetic Test for Elementary Education
Majors, Geology Building 209.

19-26—*Friday through Friday*. Final examinations for first semester.

CALENDAR FOR SPRING SEMESTER – 1962

JANUARY (continued)

- 29-30—*Monday, Tuesday*, 7-9:30 p.m. Registration for night classes.
Students must register for classes which meet 4:30 p.m. or later at this registration.
- 30—*Tuesday*. Condition, postponed, and proficiency examinations.
Approved petition forms must be in the Registrar's Office 4 days in advance.
- 31 - February 1, 2—*Wednesday, Thursday, Friday*. Registration for day students.

FEBRUARY

- 3—*Saturday*, 8:30-11:30 a.m. Late registration.
Registration closes for the spring semester. After this date a student must have permission of his Academic Dean to register.
- 5—*Monday*. All classes begin.
- 8—*Thursday*. Last day for adding courses and transferring sections.

MARCH 26—Monday. Mid-semester reports.

Last day courses can be dropped without grade of WF unless drop is initiated by student's Academic Dean.

APRIL 19-23—Thursday through Monday, inclusive. Easter Holidays.

MAY 23-30—Wednesday through Wednesday. Final examinations.

JUNE 2—Saturday. Commencement.

5—Registration, First Six Weeks Summer School.

| JANUARY | | | | | | | FEBRUARY | | | | | | | MARCH | | | | | | | APRIL | | | | | | |
|---------|----|----|----|----|----|----|----------|----|----|----|----|----|----|-------|----|----|----|----|----|----|-------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| | 1 | 2 | 3 | 4 | 5 | 6 | | | | | 1 | 2 | 3 | | | | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 28 | 29 | 30 | 31 | | | | 25 | 26 | 27 | 28 | | | | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 29 | 30 | | | | | |

| MAY | | | | | | | JUNE | | | | | | | JULY | | | | | | | AUGUST | | | | | | |
|-----|----|----|----|----|----|----|------|----|----|----|----|----|----|------|----|----|----|----|----|----|--------|----|----|----|----|----|----|
| S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S |
| | | | 1 | 2 | 3 | 4 | | | | | | 1 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | 1 | 2 | 3 | 4 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 27 | 28 | 29 | 30 | 31 | | | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 29 | 30 | 31 | | | | | 26 | 27 | 28 | 29 | 30 | 31 | |

Board of Regents of The University of Texas

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W. W. HEATH, *Vice Chairman*
BETTY ANNE THEDFORD, *Secretary*

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Terms Expire January 1965

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A. G. MCNEESE, JR., Houston

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JOHN S. REDDITT, Lufkin

Chancellor of The University of Texas

HARRY H. RANSOM, PH.D.

TEXAS WESTERN COLLEGE

Officers of Administration

JOSEPH MALCHUS RAY

President, 1960

B.A., M.A., Ph.D., The University of Texas

ANTON HELMER BERKMAN, *Dean of Arts and Sciences, 1927*

B.A., M.A., The University of Texas; Ph.D., University of Chicago

EUGENE MCRAE THOMAS, *Dean of Mines and Engineering, 1930*

B.S., Texas College of Mines & Metallurgy; M.S., Massachusetts

Institute of Technology; E.M., Texas College of Mines & Metallurgy

CHARLES LELAND SONNICHSEN, *Dean of Graduate Division, 1931*

B.A., University of Minnesota; M.A., Ph.D., Harvard University

GEORGE COURTNEY MCCARTY, *Dean of Men, 1953*

B.S., M.A., New Mexico State University

MRS. LOUISE FLETCHER RESLEY, *Dean of Women, 1940*

B.A., Texas Western College; M.A., The University of Texas

HALBERT GARVICE ST. CLAIRE, *Business Manager, 1960*

B.B.A., The University of Texas; Certified Public Accountant

JOSEPH MCSWAIN WHITAKER, *Registrar and Director of Admissions, 1954*

B.A., Agricultural and Mechanical College of Texas;

M.A., Texas Western College

BAXTER POLK, *Librarian, 1936*

B.A., Hardin-Simmons University; B.S. (Library Science), University of Oklahoma; M.S. in L.S., Columbia University

REX ERVIN GERALD, *Curator of Museum, 1958*

B.A., University of Arizona; M.A., University of Pennsylvania

Date indicates year of original appointment.

TEXAS WESTERN COLLEGE

The Graduate Council

The Graduate Council determines the requirements for the graduate degree and establishes the policies of the Graduate Division.

The Dean is the administrator.

CHARLES LELAND SONNICHSEN, *Professor of English*
Dean of the Graduate Division

B.A., University of Minnesota; M.A., Ph.D., Harvard University
Chairman

ANTON HELMER BERKMAN, *Professor of Biological Sciences*
B.A., M.A., University of Texas; Ph.D., University of Chicago

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B.S., M.S., Utah State College; Ed.D., Stanford University

FLOYD ARCHIE DECKER, *Professor of Electrical Engineering*
B.S. in E.E., Kansas State College; M.S.E., University of Michigan;
Registered Engineer

JESSE APLEY HANCOCK, *Professor of Chemistry*
B.S., M.S., Gonzaga University; Ph.D., University of Colorado

JOSEPH LEE LEACH, *Professor of English*
B.A., Southern Methodist University; Ph.D., Yale University

EDGAR THOMAS RUFF, *Professor of Modern Languages*
B.A., M.A., Northwestern University; Ph.D., University of Texas

REX WALLACE STRICKLAND, *Professor of History*
B.A., Austin College; M.A., Southern Methodist University;
Ph.D., University of Texas

OFFICE OF THE DEAN OF THE GRADUATE DIVISION

Room 310, Administration Building

C. L. SONNICHSEN, *Dean*

TEXAS WESTERN COLLEGE

Location

TEXAS WESTERN COLLEGE is located in El Paso at the intersection of several of the oldest highways in the nation – where white men walked almost a full century before the landing of the Pilgrims at Plymouth Rock.

Here on this historic ground at ancient *El Paso del Norte* (The Pass of the North) students find themselves virtually in the middle of many of their studies. El Paso is the largest city on the Mexican border, a bilingual city of Spanish and English, with colorful Juarez just across the Rio Grande in Old Mexico.

A few miles away at Old Mesilla one can stand upon the spot where the Gadsden Treaty was consummated, and dine at a former stage stop on the Butterfield Trail.

El Paso's unique location, at the far western corner of Texas, provides a picturesque mountainous setting. The city forms a great crescent around the base of Mount Franklin, the southern tip of the Rockies. Alongside is the fertile Rio Grande Valley, with its rich farms and green trees. Beyond the green valleys in every direction stretch millions of acres of cattle range, studded with desert growth. Within a short drive are a variety of lakes and rivers, and high mountains with dense pine forests.

The almost perpetual sunshine, lack of humidity and medium latitude combine with a moderately high altitude (3,800 feet above sea level) to give El Paso a *delightful and healthful climate all the year round* and make the city a tourist Mecca.

Being the fifth largest city in Texas, El Paso has the cultural advantages of a metropolitan area. There is a local symphony orchestra, under the direction of an internationally-known conductor. El Paso has a regular program of musical and dramatic productions, and the residents of the city support many other intellectual and aesthetic activities.

Historical Development

TEXAS WESTERN COLLEGE of the University of Texas, a coeducational institution with an enrollment of over 4,000 students, was created in 1913 as the School of Mines and Metallurgy by an act of the Thirty-third Legislature. The act provided for teaching and research in mining, metallurgy and allied subjects, and placed the institution under the control of the Board of Regents of the University of Texas.

In 1927 junior-college courses in the liberal arts were added, and in 1931 the Board of Regents authorized the College to confer the degree of Bachelor of Arts. In 1940 the Board approved the Master of Arts Degree. At that time majors were offered in the fields of English, History, and Education. In 1946 Spanish was included as a graduate major.

The name of the school was changed to Texas Western College on

June 1, 1949. This was done in order to recognize the expansion of the curriculum into various new fields, thus enabling the College to present a broad program, attractive to a variety of students from many different places.

The Graduate Council was in charge of graduate work and the chairman, Dr. J. L. Waller, was the administrative officer. In 1955 the position of Dean of the Graduate Division was created. The degree of Master of Education was approved in 1956.

The Library

THE OPEN-STACK collection of over 100,000 volumes is amplified by periodicals, microfilm files and a circulating collection of phonograph records, both musical and literary selections. Several special collections particularly appropriate for our part of the country are maintained.

The library regularly receives over 1,000 periodicals—technical, general, literary and popular—and about 12 newspapers. Microfilm files of valuable local documents are available for research. Active inter-library loan relations are maintained with other university and state libraries. The College is a sponsoring member of the Bibliographical Center for Research, Denver, Colorado.

Buildings and Grounds

THE PHYSICAL PLANT of the College is attractive, functional, and adequate for an extensive educational program. The campus proper, approximately sixty acres, is decidedly picturesque. The unique architectural style of the major buildings is Bhutanese, sometimes referred to as Tibetan, and the rugged mountainous setting is a fitting background.

Living Accommodations

THERE ARE FIVE modern and conveniently located residence halls on the campus, three for men and two for women. These five dormitories have a capacity of 350 students. Meals are served during the long session in a dining hall located between the two women's dormitories. All students residing in the dormitories are required to take their meals in the dining hall. Seventy-two housing units are available for married students. For further information communicate with the Business Office.

Financial Assistance

SCHOLARSHIPS, assistantships, fellowships, and loan funds are available. The Placement Bureau may be utilized to secure part-time employment. For further information communicate with the Dean of the Graduate Division.

Expenses

THERE ARE NO special fees in the Graduate Division. Consult the general catalogue for tuition, registration fees, and other expenses. For further information communicate with the Business Office.

ADMISSION TO THE GRADUATE DIVISION

Qualifications of Applicants

An applicant for admission to the Graduate Division must hold a bachelor's degree from an accredited college or university. Twenty-four (24) semester hours of undergraduate work in the major subject, and twelve (12) semester hours in the minor subject are required. Removal of any undergraduate deficiencies will be subject to action of the Dean, except that deficiencies in the study of the Constitutions of the United States and of Texas must be removed in accordance with the state law.

Method of Application

Applications for admission are made in the office of the Dean of the Graduate Division, where forms may be secured. Two complete transcripts must be provided—one for the office of the Registrar, and one for the office of the Dean. The application for admission to the Graduate Division cannot be acted upon until these transcripts have been received and the applicant has been admitted to the College.

Transfer of Credits

Acceptance of graduate credits from another institution may not exceed six (6) semester hours, and is subject to approval by the Graduate Council. There is no automatic transfer of credit. Graduate credit is never granted for courses taken by correspondence or extension.

Unclassified Graduate Students

All students holding bachelor's degrees are classified by the College as graduates, but a student is not admitted to the Graduate Division until he has complied with the regulations listed under Methods of Application.

Special Tests

The Chairman of the major department may require a special examination (aptitude and/or subject) of any student petitioning for candidacy. These provisions became effective as of December 17, 1959.

ADMISSION TO CANDIDACY

After a graduate student has successfully completed twelve (12) semester hours of effective work toward the master's degree, a Petition for Candidacy is sent from the office of the Graduate Division which is to be signed by the student and returned to that office at the earliest possible date. The major department will then act upon the petition. If it is denied, a new petition may be made at a later date. *A student is not a candidate for the master's degree until this petition has been approved by the major department, and the student has taken satisfactorily such special tests as may be required by the major department.*

GENERAL INFORMATION

Undergraduate Students Taking Work for Graduate Credit

An undergraduate student who has completed 108 semester hours of the requirements for a bachelor's degree may, upon petition to the Graduate Council, take courses for graduate credit.

Graduate Courses

Courses numbered 3500 and above with prerequisites of twelve (12) semester hours of advanced courses in the particular field are open only to students holding the bachelor's degree. To complete the requirements for the master's degree, a student must take at least half of his credits in these courses. All other credit on the master's degree must be in courses numbered 3300 and above.

Catalogue Requirements

A student may obtain a master's degree according to the requirements of the catalogue in force at the time of his admission to the Graduate Division or of a later catalogue, subject to the restriction that all requirements must be completed within six years of the date of the catalogue chosen.

Residence

The minimum residence requirement for the master's degree is one long session or three summer sessions, or one semester of the long session and two summer sessions. In the case of students doing part-time graduate work during the long session, residence will be computed in terms of semester hours completed.

Graduate Load for Teachers

Students who are employed in full-time teaching positions should be limited to three semester hours of work each semester. With the written consent of the school superintendent, as much as six semester hours of graduate credit for one semester may be approved.

Graduate Load for Veterans

Twelve semester hours of course work constitute a full load for the regular semester; six semester hours for each term of the summer session.

State Requirement for Government

No student in a state supported college or university may be certified for graduation without the completion of "at least six (6) semester hours for credit in the governments of the State of Texas or of the United States of America, or the equivalent of both." All graduate students are required to satisfy this regulation.

Graduate Degrees and Teachers' Certificates

A student wishing to work toward a graduate degree and at the same time meet the requirements for a teacher's certificate should consult with the Chairman of the Department of Education.

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

Elementary Education

Secondary Education

Elementary School Principal

Secondary School Principal

Educational Supervisor in Elementary School

Educational Supervisor in Secondary School

Counseling and Guidance

Change of Address

All graduate students are expected to notify the Graduate Division of any change of address in order to facilitate communication.

Withdrawals and Changes

All drops, withdrawals, or changes of any nature are handled in the office of the Graduate Dean. Requests for such changes are made in the office of the Graduate Division.

Departmental Requirements

Subject to the approval of the Dean of the Graduate Division, a department may require certain courses for the major or minor.

Writing Courses

A maximum of six (6) semester hours of writing courses may be counted for credit toward the Master of Arts Degree in the English major.

Application for Diploma

A graduation fee of \$5.00 is required. Students planning to graduate should make application for the degree in the office of the Graduate Division by the first day of March for Spring Commencement, and by the first week of the second term of the Summer Session if the student plans to graduate at the end of the Summer Session. Before making application, the student should first go to the Business office and pay the graduation fee, then take the receipt to the office of the Graduate Division where he will fill out an application for diploma. There can be no refund of this fee if the candidate does not graduate.

Commencement

All degrees are to be conferred publicly at Commencement. Each candidate is expected to attend in person the Commencement at which his degree is to be conferred, unless absent for a good cause, in which case he must petition the Dean of the Graduate Division in writing at least three weeks before the date of Commencement.

Reservations for cap, gown, and hood are to be made in the Bookstore in the Student Union Building.

PROGRAM REGULATIONS**Degrees Offered**

Texas Western College offers work leading to the degrees of Master of Arts and Master of Education.

General Supervision

Graduate study is under the general supervision of the Graduate Council.

General Administration

The general program carried by any student who has been admitted to the Graduate Division is under the administration of the Dean of the Graduate Division.

Course Programs and Theses

Work of the individual student after admission is directed by a professor in the major field.

Grade Requirements

Continuing through June, 1961, graduation, a grade of at least B will be required in any course counted for graduate credit.

Graduate credit will be given for grades of A, B, and C at Texas Western College after the June, 1961, graduation, under the following conditions:

1. All the advanced work that has been or could be counted for the student's graduate major must have a B (3.0) average (not including the thesis, for which only an A or B will be credited).
- 2. All the advanced work that has been or could be counted for the student's minor or minors must have a B (3.0) average.
3. A student must maintain a B (3.0) average on all advanced courses including deficiency work for his major or minor.

Undergraduate Preparation

Twenty-four (24) semester hours of undergraduate work in the major subject and twelve (12) semester hours in the minor subject are required. Deficiencies in the major or minor must be made up before registration for graduate credit in the field concerned.

MASTER OF ARTS DEGREE**General Requirements**

1. A thesis (six semester hours) and twenty-four (24) semester hours of course work.
2. A major with a minimum of eighteen (18) semester hours, including the thesis, or a maximum of twenty-four (24) semester hours including the thesis.
3. A minor of not less than six (6) semester hours. There may be two minors of six (6) semester hours each, or one minor with a maximum of twelve (12) semester hours.* A transfer student must complete at least three (3) semester hours of the minor in residence.
4. There must be a minimum of fifteen (15) semester hours, including the thesis, of graduate courses (those numbered 3500 and above).
5. See page 10 for American Government requirement.

Major Fields for the Master of Arts degree are:

Education, English, History, Spanish.

Minor Fields for the Master of Arts degree are:

Art, Biological Sciences, Business Administration, Chemistry, Drama & Speech, Economics, Education, English, French, Geology, Government, Health & Physical Education, History, Mathematics, Music, Philosophy, Physics, Psychology, Sociology, Spanish.

Thesis Requirements for the Master of Arts Degree

The thesis must be approved by a committee of not less than two. The head of the department of the major, or a member of that department, will be the chairman. Two completed copies of the thesis, neatly typed on quality bond paper in uniform large type, double-spaced, must be presented to the Dean of the Graduate Division not less than ten days before commencement day in the long session, and not less than five days in the summer session. In order to obtain the six (6) semester hours credit for the thesis, the student must register for course 3598 when he begins work on his thesis. Thereafter he must register for course 3599 each semester or term during which he is working on his thesis. He must be registered in the semester or term in which he completes all requirements.

If a student has not completed his thesis work at the end of two years after the subject has been approved and recorded, the supervisor may require him to choose another subject. Credit in the thesis course will not be granted until the thesis is completed and approved.

Comprehensive Examination

A comprehensive examination, oral and/or written, may be given at the discretion of the major department. The oral examination is required in the Spanish major.

* When the major is in education, there must be twelve semester hours in the minor.

MASTER OF EDUCATION DEGREE

General Requirements

1. Thirty-six (36) semester hours of course work.
2. Not less than twenty-one (21) semester hours, nor more than thirty (30) semester hours of education.
3. A minor of not less than six (6) semester hours nor more than fifteen (15) semester hours. There are two possibilities for a split minor; nine (9) semester hours in one subject and six (6) semester hours in another; or six (6) semester hours in each of two fields. A transfer student must complete at least three (3) semester hours of the minor in residence.
4. There must be a minimum of eighteen (18) semester hours of graduate courses (those numbered 3500 and above).
5. See page 10 for American Government requirement.

Minor Fields

A student who plans to work toward a Master of Education degree will choose a minor (or a split minor as outlined above) from one of the following:

Art, Biological Sciences, Business Administration, Chemistry, Drama and Speech, Economics, English, French, Geology, Government, Health & Physical Education, History, Mathematics, Music, Physics, Psychology, Sociology, and Spanish.

COURSES

offered for

GRADUATE STUDY

ART

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Art.

- 3301-02 Art History and Appreciation
- 2331-32 Graphics
- 2341-42 Metals
- 2381-82 Ceramics
- 2411-12 Painting
- 4101-6401 Introduction to Research in Art Fields

BIOLOGICAL SCIENCE

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Biological Science.

Biology

3301 Physiology of Exercise

3401 Technique in Histology and Cytology

Bacteriology

3301 General Bacteriology

3302 Pathogenic Bacteria and Immunology

Zoology

3301 Vertebrate Embryology

3302 Animal Cytology and Histology

BUSINESS ADMINISTRATION

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Business Administration.

Accounting

3311 Cost Accounting, First Course

3312 Cost Accounting, Second Course

3313 Auditing, First Course

3314 Auditing, Second Course

3315 Federal Tax Accounting for Individuals

3316 Federal Tax Accounting for Partnerships and Corporations

3317 Governmental and Institutional Accounting

3411 Advanced Accounting, First Course

3412 Advanced Accounting, Second Course

3413 CPA Problems

3414 CPA Law Review

3420 Fundamentals of Accounting Systems

BUSINESS ADMINISTRATION — continued

Labor and Management

- 3322 Office Organization and Management
- 3331 Corporation Finance
- 3345 Personnel Management
- 3346 Industrial Management
- 3347 Foremanship and Supervision
- 3349 Purchasing
- 3378 Investments
- 3448 Methods Improvement
- 3449 Production Control

Marketing and Statistics

- 3350 Fundamentals of Advertising
- 3351 Advertising, Copywriting and Special Layouts
- 3352 Public Relations
- 3353 Business Salesmanship
- 4361 Principles of Statistics
- 3362 Intermediate Statistics
- 3379 Credits and Collections
- 3450 Principles of Retailing
- 3451 Market Research and Analysis
- 3479 Credit Management Problems

Special Studies

- 2495 to 6495 Seminar in Economics and/or Business Administration

For Graduate Students Only

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

- 2594 Statement Analysis
- 2595 Managerial Organization
- 2596 Personnel Administration Problems
- 2598 Readings in Marketing

CHEMISTRY

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Chemistry.

- 4321-22 Organic Chemistry
- 4324 Quantitative Analysis
- 4450 Instrumental Methods of Analytical Chemistry
- 4451 Chemical Spectroscopy
- 4460 Physical Chemistry
- 4461 Physical Chemistry
- 3462 Biochemistry
- 3463 Biochemistry
- 2496 to 6496 Introduction to Research

DRAMA and SPEECH

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Drama and/or Speech.

- Drama 3340 History of Costume
- Drama 3350 Creative Dramatics in the Elementary School
- Drama 3357 Development of the Early Theatre
- Drama 3358 Development of the Modern Theatre
- Drama 3425 Directing
- Speech 3315 Advanced Argumentation and Debate
- Speech 3319 Advanced Public Speaking
- Speech 3333 Direction of Speech Curriculum and Activities
- Speech 3410 Principles of Speech Correction
- Speech 3420 History of Public Address
- Drama or English 3314 The Development of the American Drama
- Drama or English 3355 The Drama in England since 1660
- Drama 3440 Independent Research (Seminar)
- Speech 3430 Independent Research (Seminar)

ECONOMICS

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Economics.

- 3321 History of Economic Thought
- 3325 Comparative Economic Systems
- 3326 Business and Government
- 3330 Public Finance and Taxation
- 3340 Labor Problems
- 3355 Economics of Transportation
- 3363 Business Cycles and Forecasting
- 3365 Introduction to International Economics
- 3366 Economic Survey of Latin America
- 3367 Economic Development
- 3375 Money and Banking
- 3441 Wage Determination
- 3470 Monetary and Fiscal Policy

Special Studies

- 2495 to 6495 Seminar in Economics and/or Business Administration

For Graduate Students Only

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

- 2597 Economic Theory

EDUCATION

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Education.

Elementary Education

- 3403 Introduction to Educational Tests, Measurements, and Evaluation in the Elementary School
- 3405 Arithmetic in the Elementary School
- 3407 (formerly 3536) Classroom Management in the Elementary School

Secondary Education

- 3418 Current Events in Relation to Classroom Use in the Secondary School
- 3420 Principles of Guidance and Measurement in the Secondary School

General (Elementary or Secondary Education)

- 3410 Principles of Speech Correction
- 3412 Classroom Use of Audio-Visual Equipment and Materials
- 3413 Educational Television and Radio: Preparation and Presentation of In-School Programs
- 3433 Advanced Educational Psychology – A Seminar
- 3435 Principles of Psychological Testing
- 1436 to 6436 Individual Mental Testing – A Seminar
- 3437 History and Philosophy of Education (New course)

Special Education

- 3409 The Education of Exceptional Children
- 2421 Psychology of Mental Retardation
- 3422 Curriculum, Materials, and Methods of Teaching the Mentally Retarded
- 2429 Observation, Teaching, and Field Work with Mentally Retarded – A Seminar
- 3532 Organization and Administration of the Secondary School
- 3598-99 Thesis Course for Master's Degree

EDUCATION — continued

For Graduate Students Only

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

- 3502 Problems in Education — Seminar*
- 3503 Problems in Education — Seminar
- 3504 Educational Statistics — Beginning Course*
- 3505 The Construction and Use of Achievement Examinations — Seminar
- 3506 Remedial Reading in the Elementary School
- 3507 Educational Sociology (New course)
- 3508 Workshop in Instructional Problems
- 3509 Workshop in Instructional Problems
- 3511 Curriculum Construction and Organization of Subject Matter — Seminar
- 3512 Curriculum Problems in Science Education — Seminar
- 3513 The Curriculum in the Elementary School
- 3514 Child Development in the Elementary School
- 3516 The Psychology of Individual Differences
- 3517 Psychology of Personality Development of Secondary School Student
- 3518 Counseling and Guidance
- 3520 Socio-Economic Information in Guidance — Seminar
- 3521 Independent Study in Special Education — Seminar
- 3522 Supervised Practice in Counseling — Seminar
- 3523 Educational Trends — Seminar
- 3524 Public School Supervision
- 3525 The Administration of Teaching Personnel
- 3526 Public School Finance
- 3528 Organization and Administration of the Elementary School
- 3531 Principles of Public School Relations

*Required of all Education Majors in the M.A. or M.Ed. Degrees except Counseling and Guidance.

ENGLISH

Consult general catalogue for course descriptions and course prerequisites.

Not more than six hours of writing courses may be counted. Specially qualified students may be approved for a thesis in the field of professional writing.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in English including English 3211-12 or 3213-14 or 3215-16.

- 3310 American Literature
- 3311 American Literature
- 3312 American Literature
- 3314 The Development of the American Drama
- 3317 The English Language
- 3318 The English Language
- 3320 Shakespeare: The Earlier Plays
- 3321 Shakespeare: The Later Plays
- 3322 Elizabethan and Jacobean Drama
- 3325 English Poetry and Prose, 1600-1660
- 3326 English Poetry and Prose, 1660-1700
- 3329 Early Eighteenth-Century Prose and Poetry
- 3330 Later Eighteenth-Century Prose and Poetry
- 3331 English Romantic Poetry, The Earlier Phase
- 3332 English Romantic Poetry, The Later Phase
- 3335 Early Nineteenth-Century Prose
- 3336 Later Nineteenth-Century Prose
- 3339 Victorian Poetry
- 3340 Victorian Poetry
- 3344 Contemporary Poetry
- 3347 An Outline History of the English Novel
- 3348 An Outline History of the English Novel
- 3350 The English Novel since 1900
- 3351 The English Novel Since 1920
- 3353 The Short Story
- 3355 The Drama in England since 1660
- 3371 Life and Literature of the Southwest
- 3372 Introduction to Folklore
- 3373 Life and Literature of the South
- 3385 Russian Literature in Translation

ENGLISH – continued

6390 Study-Tour of Europe for Advanced Students

3411 Milton

3413 Chaucer: The Canterbury Tales

3415 Literary Criticism

3416 American Literary Criticism

3431 The Folk Ballad

3432 The Folktale

3450 The European Short Novel

Writing Courses

3361 Writing

Prerequisite: English 3211-12, 3213-14, or 3215-16 and consent of the instructor.

3362 Non-Fiction Writing

Prerequisite: English 3211-12, 3213-14, or 3215-16 and consent of the instructor.

3367 Fictional Techniques

Prerequisite: English 3361 or consent of the instructor.

3368 Short Story Writing

Prerequisite: English 3367 or consent of the instructor.

3420 Problems in Writing

Prerequisite: Six hours of writing courses or the equivalent, and consent of the instructor. May be repeated for credit.*For Graduate Students Only**Prerequisite:* Twelve semester hours of advanced courses in English and a bachelor's degree.

3511 Methods of Research and Bibliography

The basic course for graduate work in English.

3515 Graduate Reading Course

Reading of a selected list of English and American masterpieces. No regular classes will be held, but discussion groups will meet regularly. Students who make a grade of B or better will be excused from taking the Master's Oral in the English Major.

3520 Studies in Poe*

3525 Studies in Emerson, Thoreau, and Whitman*

3530 Studies in the Life and Literature of the Southwest*

3535 Studies in American Thought*

3540 Studies in Melville, Hawthorne and Dickinson*

3598-99 Thesis Course

Prerequisite: English 3511.

Confer with the department head immediately after registration.

* Seminar.

FRENCH

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in French.

- 3321 The Literary History of France
- 3332 The French Classical Period
- 3333 Masterpieces of French Literature
- 3335 Modern Novel: Early Period
- 3337 Modern Novel: Later Period
- 3341 Modern French Drama
- 3357 Advanced Composition and Grammar Review
- 3358 Contemporary French Literature
- 3377 The History of French Poetry: A Survey
- 3490 Seminar
- 3491 Advanced Reading Course (Seminar)

For Graduate Students Only

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

- 3590 Seminar
 - 3591 Graduate Reading Course (Seminar)
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GEOLOGY

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Geology.

- 4321 Advanced General Geology
- 3322 General Economic Geology
- 4323 Structural Geology
- 3324 An Introduction to Geochemistry
- 3325 Sedimentary Rocks
- 4327 Petrology and Petrography
- 3461 Advanced Economic Geology
- 2462 Geology of the Southwest
- 4463 Geology of Petroleum and Natural Gas
- 2464 Field Geology
- 6465 Field Geology (summer)

GOVERNMENT

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Government.

- 3321 American State and Local Government
- 3322 American State and Local Government
- 3323 The Governments of Great Britain and the Empire
- 3324 The Governments of Continental Europe
- 3325 The Party System in The United States
- 3326 American Constitutional Development
(Constitutional Law, Constitutional History)*
- 3330 International Politics
- 3331 International Organization and Administration
- 3332 The Government and Politics of Mexico and the Caribbean Area
- 3333 The Government and Politics of South America
- 3334 American National Government and Administration
- 3335 American National Government and Administration
- 3336 Elements of Political Theory
- 3337 American Political Thought
- 3343 Foreign Policies of the United States
- 3344 The Conduct of American Foreign Affairs

For Graduate Students Only

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

- 3580 Selected Problems in Government (Seminar)

* Government 3326 may be substituted for History in satisfying major or minor requirements.

HEALTH AND PHYSICAL EDUCATION

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Health and/or Physical Education.

Health Education

- 3301 Community Hygiene
- 3302 School Health Problems
- 3303 Modern Problems in Health Education

HEALTH AND PHYSICAL EDUCATION — continued

- 3304 Principles of Health Education
- 3305 Safety Education
- 3306 Methods and Materials in Health Education
- 3307 Methods and Materials in Health Education

Physical Education

- 3303 Tests and Measurements in Health and Physical Education
- 3304 Current Practices in Physical Education
- 3404 Organization of Community Recreation
- 3405 Recreational Leadership
- 3406 Methods and Materials in Teaching Physical Education for Women
- 3407 Corrective Physical Education
- 3411 Administration of Athletics in Schools and Colleges
- 3410 Undergraduate Seminar

For Graduate Students Only

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

- 3501 Seminar in Health and Physical Education
- 3502 Critical Analysis of Professional Literature
- 3503 Supervision of Health and Physical Education

HISTORY

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in History.

- 3317 History of Texas
- 3323 Europe, 1870-1920
- 3324 Europe after 1920
- 3325 History of the United States, 1607-1787
- 3326 History of the United States, 1787-1829

HISTORY – continued

- 3327 A Social and Intellectual History of the United States
- 3329 African History – A Survey
- 3330 History of the Far East
- 3331 Russian History
- 3332 The Near East in Modern Times
- 3333 History of Russia (since 1900)
- 3335 History of the United States, 1829-1850
- 3336 History of the United States, 1850-1865
- 3340 Renaissance and Reformation, 1300-1648
- 3341 The Old Regime, 1648-1789
- 3342 The French Revolution and Napoleon
- 3343 Liberalism and Nationalism, 1815-1870
- 3347 Latin America: The Colonial Period
- 3348 Latin America: The National Period
- 3349 Latin America: The National Period
- 3350 Diplomatic History of the United States, 1776 to the Present
- 3353 A Survey of Political and Social Britain from 1815-1895
- 3354 Britain and the Empire from 1895 to the Present
- 3355 History of the United States since the Civil War
- 3356 Contemporary History of the United States
- 3357 The New South
- 3359 Trans-Mississippi West (to 1860)
- 3360 Trans-Mississippi West (after 1860)

For Graduate Students Only

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

- 3580 Studies in Regional History (Seminar)
- 3581 Historical Method and Historiography (Seminar)*
- 3582 Studies in Modern European History (Seminar)
- 3583 Studies in Latin-American History (Seminar)
- 3584 International Aspect of Texas History, 1803-1850 (Seminar)
- 3585 Studies in the Middle Period of American History:
Selected Topics (Seminar)
- 3598-99 Thesis Course for the Master's Degree

* Required of all History Majors in the M.A. Degree.

MATHEMATICS

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Mathematics.

- 3325 Calculus
 - 3326 Differential Equations
 - 3421 Theory of Equations
 - 3422 Modern College Geometry
 - 3423 Vector Spaces and Matrix Algebra
 - 3435 Higher Mathematics for Engineers and Physicists
 - 3436 Higher Mathematics for Engineers and Physicists
-

MUSIC

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Music.

Six semester hours of applied work in Music may be counted toward the master's degree.

- 2311 Counterpoint
- 2312 Counterpoint (Seminar)
- 2313 Composition (Seminar)
- 2314 Composition (Seminar)
- 2315 Form and Analysis
- 2316 Form and Analysis (Seminar)
- 3321 Music History
- 3322 Music History
- 3331 Choral Methods, Techniques and Conducting
- 3332 Choral Methods, Techniques and Conducting
- 3333 Conducting Methods and Materials
- 3334 Teaching of Music in the Elementary Schools
- 3335 Teaching of Music in the Elementary Schools
- 3336 Teaching of Music in the Elementary Schools
- 3411 Choral Arranging
- 3412 Instrumentation and Orchestration
- 2413 Advanced Composition (Seminar)

MUSIC — continued

- 2414 Advanced Composition (Seminar)
- 3431 Advanced Conducting
- 3433 Teaching of Music in the Junior and Senior High Schools
- 3435 Selected Problems in Music Education (Seminar)
- 3436 Church Music Materials, Organization and Direction

For Graduate Students Only

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

- 3531 Problems in Music Education (Seminar)*
- 3532 Problems in Music Education (Seminar)
Prerequisite: Music 3531.
- 3535 Field Work in Music Education (Seminar)
- 3536 Field Work in Music Education (Seminar)
Prerequisite: Music Education 3535.

* Required of all Music Education minors.

PHILOSOPHY

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Philosophy.

- 3301 Ethics
- 3311 Philosophy of Science
- 3321 Philosophy of Civilization
- 3322 Philosophy of Religion
- 3401 Symbolic Logic
- 3402 Metaphysics
- 3411 Epistemology
- 3412 Aesthetics
- 3451 History of Philosophy (Seminar)
May be repeated for credit.
- 3452 Problems of Philosophy (Seminar)
May be repeated for credit.

PHYSICS

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Physics.

- 4317 Light, Sound, and Modern Physics
 - 3322 Heat
 - 3323 Light
 - 3325 The Particles of Modern Physics
 - 3326 The Particles of Modern Physics
 - 4339 Electronics
 - 4340 Theory and Applications of Electron Tubes
 - 3341 Electricity and Magnetism
 - 3342 Electricity and Magnetism
 - 2343 Advanced Laboratory Practice in Electricity
 - 2344 Advanced Laboratory Practice in Electricity
 - 3347 Fundamentals of Acoustics
 - 4445 Electron Tube Circuits
 - 3451 Analytical Mechanics
 - 3452 Analytical Mechanics
-

PSYCHOLOGY

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Psychology.

- 3308 Principles of Counseling
- 3311 Clinical Psychology
- 3312 Abnormal Psychology
- 3317 Psychological Statistics
- 3401 Psychological Testing
- 3402 Practicum in Intelligence Testing
- 3411 Physiological Psychology
- 3421 Experimental Psychology
- 3441 Motivation and Learning
- 3452 Independent Research
- 3453 Independent Research
- 3454 Independent Research

SOCIOLOGY

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Sociology.

- 3320 Fields of Social Work
- 3333 Juvenile Delinquency
- 3336 Comparative Cultures
- 3347 Population Problems and Immigration
- 3348 Criminology
- 3349 The Family
- 3350 Child Welfare Problems

SPANISH

Consult general catalogue for course descriptions and course prerequisites.

For Undergraduates and Graduates

Prerequisite for graduate credit: At least twelve semester hours of undergraduate credit in Spanish including Spanish 3202.

- 3321 The Literary History of Spain
- 3324 The Literary History of Mexico
- 3328 Golden Age Drama
- 3332 Classical Spanish Prose
- 3333 Masterpieces of Spanish Literature
- 3335 Modern Novel: Early Period
- 3337 Modern Novel: Later Period
- 3339 The *Cuento* and Short Story
- 3341 Modern Spanish Drama
- 3357 Advanced Composition and Grammar Review
- 3358 Contemporary Spanish Literature
- 3360 The Regional and Historical Novel in South America
- 3361 Don Quixote

(Continued on next page)

SPANISH — continued

- 3362 The New World in Spanish Literature:
(Northern Hemisphere)
- 3363 The Literary History of Argentina
- 3364 Contemporary Poets of Latin America
- 3365 Contemporary Urban Novel of Latin America
- 3366 The New World in Spanish Literature
(Southern Hemisphere)
- 3377 History of Spanish Poetry

For Graduate Students Only

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

- 3590 Seminar
Spanish and Spanish-American literary or linguistic problems to be announced by the instructor at the beginning of each semester.
- 3591 Graduate Reading Course (Seminar)
- 3592 History of the Spanish Language (Seminar)
(Phonology)
- 3593 History of the Spanish Language (Seminar)
(Morphology)
- 3594 Cervantine Studies (Seminar)
- 3595 Latin American Novel (Seminar)
- 3598-99 Thesis Course for the Master's Degree
Confer with the head of the department immediately upon registration.

