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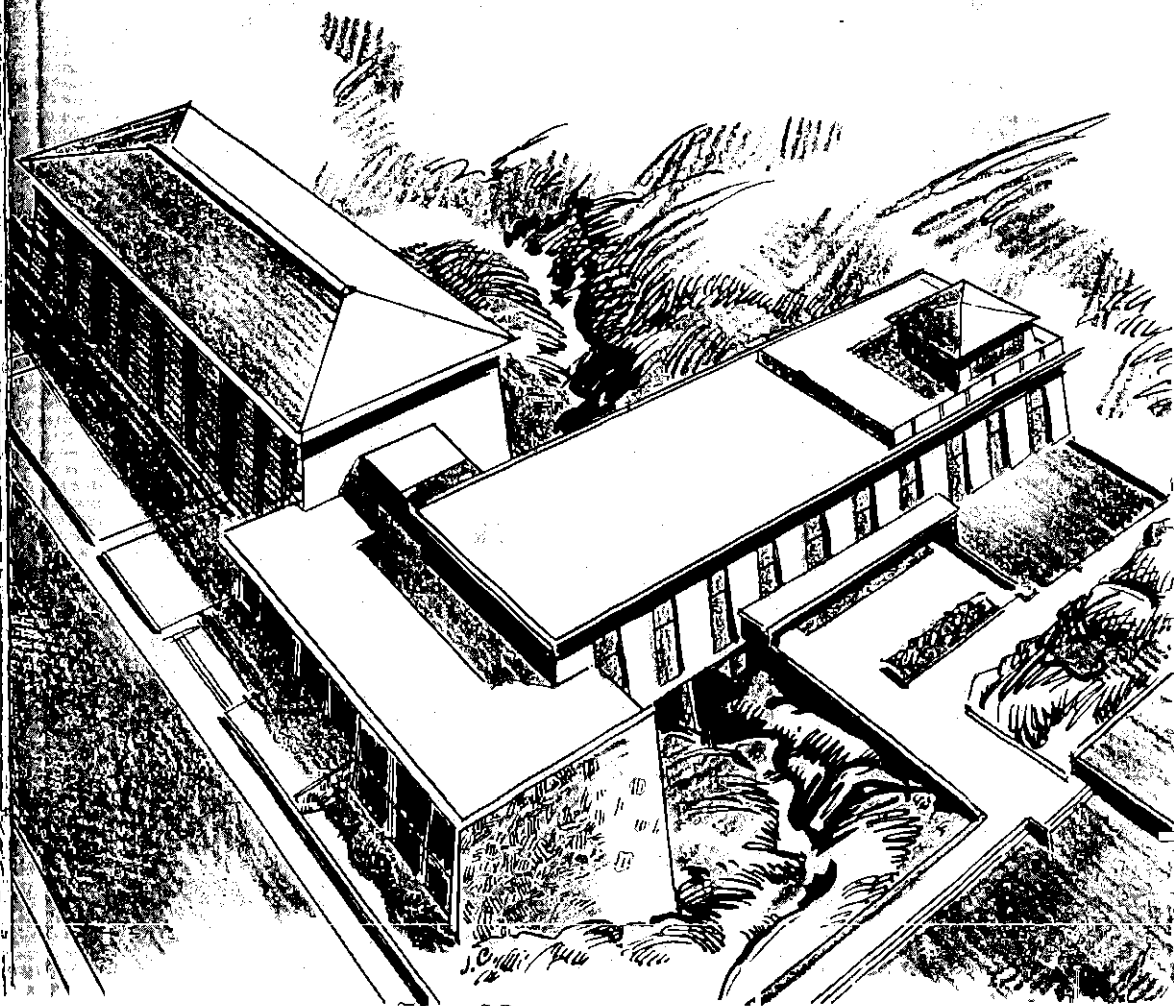
BULLETIN

CATALOG 1966-1967 SESSION

TEXAS WESTERN COLLEGE

OF THE UNIVERSITY OF TEXAS

EL PASO



1966
1967

CONTENTS

Calendar — [2 - 3]

Officers of Administration — [5 - 6]

Faculty — [7 - 19]

Description of the College and Pictures — [20 - 37]

Admission Requirements — [38 - 40]

Curriculum and Degree Requirements — [41 - 44]

School of Engineering — [45 - 49]

School of Arts and Sciences — [51 - 58]

Teaching and Degree Plans — [59 - 68]

Graduate Division — [69 - 72]

Description of Courses Offered — [75 - 178]

Student Expenses and Fees — [181 - 186]

Scholarship and Loan Funds — [187 - 188]

Student Life Regulations — [189 - 190]

Student Activities and Organizations — [191 - 194]

Scholastic Regulations — [195 - 199]

Statistics — [200 - 201]

Index — [202 - 203]

Campus Map — [204]

CATALOG

Texas Western College

OF THE UNIVERSITY OF TEXAS

El Paso, Texas

M E M B E R

SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS

TEXAS ASSOCIATION OF COLLEGES

TEXAS ASSOCIATION OF GRADUATE SCHOOLS

ARTS *and* SCIENCES

ENGINEERING

GRADUATE STUDY

Published quarterly by TEXAS WESTERN COLLEGE at El Paso

Volume LII

OCTOBER - DECEMBER, 1966

Number 6604

Second Class Postage Paid at El Paso, Texas

CALENDAR FOR FALL SEMESTER — 1966

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 3	1	1 2 3 4 5	1 2 3
4 5 6 7 8 9 10	2 3 4 5 6 7 8	6 7 8 9 10 11 12	4 5 6 7 8 9 10
11 12 13 14 15 16 17	9 10 11 12 13 14 15	13 14 15 16 17 18 19	11 12 13 14 15 16 17
18 19 20 21 22 23 24	16 17 18 19 20 21 22	20 21 22 23 24 25 26	18 19 20 21 22 23 24
25 26 27 28 29 30	23 24 25 26 27 28 29	27 28 29 30	25 26 27 28 29 30 31
	30 31		

AUGUST

8—*Monday*. Last day for new students to submit applications for admission without penalty* to Fall Semester.

SEPTEMBER

9—*Friday*. Achievement Examinations in Chemistry for incoming Freshmen.

12—*Monday*. General Faculty Meeting—Magoffin Auditorium, 3:30 p.m.

12—*Monday*. Freshman Orientation and Guidance Activities.

12-17—*Monday through Saturday*. Registration Activities.

13—*Tuesday*. Proficiency, placement, & advanced standing examinations.

17—*Saturday*. 8:30 to 11:30 a.m. Late Registration.

19—*Monday*. Classes begin.

23—*Friday*. Last day for adding courses.

NOVEMBER

12—*Saturday*. Homecoming—Classes dismissed.

16—*Wednesday*. Mid-semester reports.

24-26—*Thursday through Saturday*. Thanksgiving Holidays.

DECEMBER

14—*Wednesday*. Last day for new students to submit applications for admission without penalty* to Spring Semester.

21-January 2—*Wednesday through Monday*. Christmas vacation.

JANUARY

— 1967 —

3—*Tuesday*. Classes resume.

13-21—*Friday through Saturday*. Final examinations for first semester.

23—*Monday*. Freshman Orientation and Guidance Activities.

23-28—*Monday through Saturday*. Registration Activities.

24—*Tuesday*. Proficiency, placement, & advanced standing examinations.

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

30—*Monday*. Classes begin.

CALENDAR FOR SPRING SEMESTER — 1967

FEBRUARY

3—Friday. Last day for adding classes.

MARCH

21—Tuesday. Mid-semester reports.

22-27—Wednesday through Monday inclusive. Spring vacation.

MAY

1—Monday. Last day for new students to submit applications for admission without penalty* to first term of Summer Session.

17-25—Wednesday through Thursday. Final examinations.

27—Saturday. Commencement.



SUMMER SESSION

MAY 29 — Monday. Achievement Examinations in Chemistry for incoming Freshmen.

JUNE 1 - JULY 12 — First Term.

2 — Proficiency, Placement, and advanced standing examinations.

JULY 11-12 — Final Examinations.

13 - AUGUST 23 — Second Term.

14 — Proficiency, Placement, and advanced standing examinations.

AUGUST 22-23 — Final Examinations.

*Students who miss the last day deadline must report in person to the Registrar's office on the Friday before registration activities begin.

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	7				1	2	3	4				1	2	3	4				2	3	4	5	6	7	8
8	9	10	11	12	13	14	5	6	7	8	9	10	11	5	6	7	8	9	10	11	2	3	4	5	6	7	8			
15	16	17	18	19	20	21	12	13	14	15	16	17	18	12	13	14	15	16	17	18	9	10	11	12	13	14	15			
22	23	24	25	26	27	28	19	20	21	22	23	24	25	19	20	21	22	23	24	25	16	17	18	19	20	21	22			
29	30	31					26	27	28					26	27	28	29	30	31		23	24	25	26	27	28	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	6					1	2	3						1				1	2	3	4	5
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
28	29	30	31				25	26	27	28	29	30		23	24	25	26	27	28	29	27	28	29	30	31		
														30	31												

Board of Regents of The University of Texas

W. W. HEATH, *Chairman*

FRANK C. ERWIN, JR., *Vice-Chairman*

BETTY ANNE THEDFORD, *Secretary*

M E M B E R S

Terms Expire 1967

WALTER P. BRENNAN, San Antonio

DR. H. FRANK CONNALLY, JR., Waco

FRANK N. IKARD, Wichita Falls

Terms Expire 1969

FRANK C. ERWIN, JR., Austin

MRS. J. LEE JOHNSON, III, Fort Worth

RABBI LEVI A. OLAN, Dallas

Terms Expire 1971

W. H. BAUER, Port Lavaca

W. W. HEATH, Austin

JACK S. JOSEY, Houston

Chancellor of The University of Texas

HARRY H. RANSOM, PH.D.

TEXAS WESTERN COLLEGE

OFFICERS OF ADMINISTRATION

GENERAL

JOSEPH MALCHUS RAY, *President*, 1960

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

ROBERT MILTON LEECH, *Vice President*, 1949

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

CLYDE EASTMAN KELSEY, JR., *Dean of Students*, 1947

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

Ph.D., University of Denver

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

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

CLARENCE JOE CERVENKA, *Registrar and Director of Admissions*, 1952

B.S., M.Ed., Agricultural and Mechanical University of Texas

BAXTER POLK, *Librarian*, 1936

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

GEORGE COURTNEY MCCARTY, *Director of Athletics*, 1953

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

BRYAN STEELE JONES, *Assistant to the President*, 1956

B.A., University of Arkansas

KENNETH L. CARPENTER, *Assistant to the President*, 1964

SCHOOL AND DIVISION

LONNIE LEE ABEHNETHY, *Dean of the School of Engineering and Director of the Schellenger Research Laboratories*, 1963

B. Cer. E., North Carolina State College;

M.Sc., Ph.D., The Ohio State University. Registered Professional Engineer

RAY SMALL, *Dean of the School of Arts and Sciences*, 1961

B.A., West Texas State College; M.A., Ph.D., The University of Texas

CHARLES LELAND SONNICHSEN, *Dean of the Graduate Division*, 1931

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

Date indicates year of original appointment.

OTHER ADMINISTRATIVE OFFICERS

- MRS. LOUISE FLETCHER RESLEY, *Dean of Women*, 1940
B.A., Texas Western College; M.A., The University of Texas
- CARLOS A. GARCIA, *Dean of Men*, 1964
B.A., Texas Western College; M.A., Fordham University
- RICHARD WEBSTER BURNS, *Director of Office of Institutional Studies*, 1952
B.A., Iowa State Teachers College; M.S., Ph.D., State University of Iowa
- WADE JAMES HARTRICK, *Assistant to the Dean of the School of Arts and Sciences*, VTDD. B.A., Texas Technological College;
M.B.A., Ph.D., The University of Texas
- LAWRENCE PHILLIPS BLANCHARD, *Student Financial Aid Officer*, 1959
B.A., L.L.B., The University of Texas
- EUGENE WENDELL GREEN, *Director of Personnel*, 1965
B.S., University of Maryland; M.Litt., University of Pittsburgh
- REX ERVIN GERALD, *Curator of Museum*, 1958 (on leave)
B.A., University of Arizona; M.A., University of Pennsylvania
- CARL HERTZOG, *Director of the Press*, 1948
- MARVIN R. HOLLENSHEAD, *Director of Physical Plant*, 1960
B.A., Trinity University; M.A., The University of Texas
- EDDIE L. MULLENS, *Sports Information Director*, 1962
- JOHN MARVIN RICHARDS, *Director of Bureau of Business and Economic Research*, 1962
B.A., University of Kansas; M.S., Emporia State College;
Ph.D., Louisiana State University
- JOE C. STEWART, *Student Activities Director and Director of Intramurals*, 1962
B.S., New Mexico State University
- RANDOLPH HOWARD WHITWORTH, *Director of Counseling Service*, 1960
B.S., Ph.D., The University of Texas
- LUVENIA EVERETT ARNOLD, *Assistant Registrar*, 1940
B.A., Texas Western College
- WILLIAM N. TIDWELL, *Auditor*, 1964
B.B.A., Texas Western College
- J. ED DAVIS, JR., *Manager, Printing Department*, 1955
- GEORGE R. DAVIS, *College Physician*, 1965
B.A., M.B., M.D., The University of Minnesota
- HARRY E. CERECKE, JR., *Assistant Business Manager*, 1961
Ph.B., St Edwards University
- JUNE MARQUEZ, *Assistant to the Business Manager*, 1949
- LEONARD K. HAMILTON, *Purchasing Agent*, 1960
B.S., Stephen F. Austin College
- JOHN D. JONES, *Manager, Bookstore*, 1961
- JAMES T. LINDOP, *Assistant Director of Admissions*, 1963
B.A., Texas Western College
- JOY M. RILEY, *Administrative Assistant to the President*, 1964
- MARSHALL DOUGLAS EARLY, *Director of News and Information*, 1964
B.A., Texas Western College

RESIDENCE HALLS

- MRS. OLIVE CARPENTER, *Director, Burges Hall*
MRS. THELMA KARN, *Director, Hudspeth Hall*
MRS. AVIS M. HILL, *Director, Benedict Hall*
MRS. DEAN O. SLAYTON, *Director, Miners Hall*
MRS. MAY STUART, *Director, Worrell Hall*
MRS. CECILE WALLER, *Director, Bell Hall*
MRS. MARIAN WILLEY, *Assistant Director, Bell Hall*

THE FACULTY

- LONNIE LEE ABERNETHY**, *Professor of Engineering*, 1963
 B. Cer. E. North Carolina State College; M.Sc., Ph.D., The Ohio State University.
 Registered Professional Engineer
- MRS. PATRICIA ADKINS**, *Instructor in Drama and Speech*, 1965
 B.A., Texas Western College; M.A., Texas Woman's University
- MRS. MARY LOUISE ZANDER AHO**, *Assistant Professor of Education*, 1963
 B.S.E., University of Florida; M.A., Texas Western College
- JOHN CRAWFORD AKARD**, *Assistant Professor of Business Administration*, 1961
 B.B.A., Texas A. & M. University; L.L.B., The University of Texas
- HAROLD EDWIN ALEXANDER**, *Professor of Chemistry*, 1955
 B.S., Texas Western College; M.A., Ph.D., The University of Texas
- EUGENE LEO ALLGOWER**, *Associate Professor of Mathematics*, 1965
 B.S., M.S., Ph.D., Illinois Institute of Technology
- JOHN CLEVELAND ARNOLD**, *Instructor in Art*, 1965
 B.A., University of Minnesota; M.F.A., Arizona State University
- MRS. ANN MARIE PARSONS AUSTIN**, *Instructor in Geology*, 1965
 B.S., The University of Texas
- MICHAEL EVAN AUSTIN**, *Associate Professor of Electrical Engineering*, 1963
 B.S.E.E., M.S.E.E., Ph.D., The University of Texas
- FREDERICK HOMER BAILEY**, *Instructor in Mathematics*, 1963
 B.S., New Mexico State University; M.A., University of Colorado
- JACK SEARCY BAILEY**, *Instructor in Spanish*, 1963
 B.A., Texas Western College; M.A., University of Arizona
- KENNETH KYLE BAILEY**, *Professor of History*, 1960
 B.A., M.A., Ph.D., Vanderbilt University
- STANLEY EUGENE BALL**, *Instructor in Mathematics*, 1964
 B.S., University of Wyoming; M.S., University of Oregon
- THOMAS GROGARD BARNES**, *Professor of Physics*, 1938
 B.A., ScD. (Hon.), Hardin-Simmons University; M.S., Brown University
- GUIDO ALAN BARRIENTOS**, *Assistant Professor of Psychology*, 1963
 B.A., Universidad de San Carlos (Guatemala); M.A., Ph.D., University of Kansas
- GORDON C. BASSETT**, *Assistant Professor of Military Science*, 1965
 B.S., M.E., The University of Minnesota
- A. A. BAYLOR**, *Professor of Business Administration*, 1965
 B.A., License en Droit mention Economique, American College, Teheran;
 Ph.D., Lausanne University, Switzerland; Ph.D., University of Southern California
- MRS. LENA GALATZAN BEHRMAN**, *Instructor in Business Administration*, 1961
 B.B.A., The 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., The University of Texas; Ph.D., University of Chicago
- CALEB ARUNDEL BEVANS**, *Professor of Modern Languages*, 1950
 B.S., Northwestern University; M.A., Ph.D., University of Chicago
- SACHINDRANARAYAN BHADURI**, *Associate Professor of Mechanical Engineering*, 1963
 B.M.E., Jadavpur University (India); B.A., Calcutta University (India);
 M.S. in M.E., State University of Iowa; M.E.S., Johns Hopkins University;
 Ph.D., Colorado State University

FACULTY

- PHILIP CLIVE BIRKINSHAW, *Associate Professor of English*, 1965
B.A., M.A., St. Edmund Hall (England)
- LELAH BLACK, *Associate Professor of Business Administration*, 1946
B.Ed., Western Illinois State Teachers College; M.A., University of Iowa
- LAWRENCE PHILLIPS BLANCHARD, *Associate Professor of Business Administration*, 1959
B.A., LL.B., The University of Texas
- MICHAEL HENRY BLUE, *Associate Professor of Physics*, 1964
B.S., Colorado State University; Ph.D., University of Washington
- MAX CARLTON BOLEN, *Professor of Physics*, 1965
B.A., Wabash College; M.S., Purdue University; Ph.D., Texas A. & M. University
- LANIS LOY BOSWORTH, *Associate Professor of Psychology*, 1950
B.B.A., M.A., Ph.D., The University of Texas
- JACK JULES BOURQUIN, * *Assistant Professor of Electrical Engineering*, 1958
B.S., Texas Western College; M.S. in E.E., New Mexico State University
- GERALD R. BOVARD, *Assistant Professor of Business Administration*, 1964
B.S., Grove City College; M.L.Ind., University of Pittsburgh
- JACK LELOYE BOWLES, *Instructor in Psychology and Asst. Director of Counseling*, 1965
B.A., Texas Western College; M.A., Texas Technological College
- DELMAR L. BOYER, *Professor of Mathematics*, 1965
B.A., Kansas Wesleyan University; M.A., Ph.D., The University of Kansas
- HALDEEN BRADY, *Professor of English*, 1946
B.A., East Texas State Teachers College; M.A., The 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, *Assistant Professor of Spanish*, 1955
B.A., University of New Mexico; M.A., Texas Western College
- SAMUEL JOHN BRIENT, JR., *Associate Professor of Physics*, 1962
B.S., Ph.D., The University of Texas
- RALPH CLEMENS BRIGGS, *Associate Professor of Music*, 1950
B.Mus., M.M., Cincinnati Conservatory of Music
- JOHN MORGAN BROADDUS, JR., *Instructor in History*, 1954
B.A., M.A., Texas Western College
- MRS. FLORENCE BUCKNER, *Assistant Professor of Business Administration*, 1947
B.A., Sul Ross State College; Certified Public Accountant
- WILLIAM ANO BURGITT, *Instructor in Mathematics*, 1958
B.S., U. S. Naval Academy; M.S., Purdue University
- ROBERT NORTHCUTT BURLINGAME, *Professor of English*, 1954
B.A., M.A., University of New Mexico; Ph.D., Brown University
- RICHARD WEBSTER BURNS, *Professor of Education*, 1952
B.A., Iowa State Teachers College; M.S., Ph.D., State University of Iowa
- WILLIAM RALPH CABANESS, JR., *Assistant Professor of Chemistry*, 1965
B.A., M.A., Ph.D., The University of Texas
- WILLIAM MCENTYRE CALHOUN, *Instructor in English*, 1961
A.B., B.S., Jacksonville State College; M.A., George Peabody College
- LEONARD CARDENAS, JR., *Assistant Professor of Government*, 1962
B.S., M.A., St. Louis University; Ph.D., The University of Texas
- HUGH FREDERICK CARDON, *Instructor in Music*, 1963
B.M., M.A., Texas Western College
- CLARENCE JOE CERVENKA, *Associate Professor of Engineering Graphics*, 1952
B.S., M.Ed., Agricultural and Mechanical University of Texas
- ABRAHAM CHAVEZ, JR., *Associate Professor of Music*, 1955
B.M., Texas Western College

*Leave of Absence.

- PETER STANLEY CHRAPLIWY, *Associate Professor of Biological Sciences*, 1960
A.B., M.A., University of Kansas; Ph.D., University of Illinois
- CHESTER C. CHRISTIAN, JR., * *Instructor in Spanish*, 1963
B.A., M.A., The University of Texas; M.A., Texas Western College
- MARION CLINE, JR., *Associate Professor of Education*, 1962
B.S., University of New Mexico; M.A., New Mexico Highlands University;
Ed.D., University of Southern California
- EDMUND BENEDICT COLEMAN, *Professor of Psychology*, 1965
B.S., University of South Carolina; M.A., Ph.D., Johns Hopkins University
- RALPH MONROE COLEMAN, *Professor of Engineering Graphics*, 1946
B.S., M.S., North Texas State College
- MRS. MARY LILLIAN COLLINGWOOD, *Assistant Professor of English*, 1947
B.A., Texas Western College; M.A., University of Michigan
- BENNY WESLEY COLLINS, *Associate Professor of Health and Physical Education*, 1950
B.A., Texas Western College; M.S., University of Utah
- J. ROBERT COLTHARP, *Associate Professor of Civil Engineering*, 1961
B.S., M.S., The University of Texas; Registered Professional Engineer
- MRS. LURLINE HUGHES COLTHARP, *Associate Professor of English*, 1954
B.A., M.A., Ph.D., The University of Texas
- ELLEN WINIFRED COOGLER, *Assistant Professor of Art*, 1944
B.S., Sul Ross State College; M.A., Teachers College, Columbia University
- CLARENCE HENRY COOPER, *Assistant Professor of Physics*, 1959
B.S., Texas Western College; M.S., Vanderbilt University
- LLOYD GAYLE COOPER, *Associate Professor of Education*, 1962
B.S., M.A., New Mexico State University; Ed.D., University of Oregon
- 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
- RALPH BORDEN CULP, *Associate Professor of Drama and Speech*, 1965
B.A., M.A., Southern Methodist University; Ph.D., Cornell University
- KENNETH OSCAR DANZ, *Instructor in English*, 1963
B.S., Southeast Missouri State College; M.A., University of Missouri
- JOSE FABIO BARBOSA DASILVA, *Assistant Professor of Sociology*, 1964
B.A., M.A., University of Sao Paulo, Brazil; Ph.D., University of Florida
- EVERETT EDWARD DAVIS, *Assistant Professor of Education*, 1965
B.A., The University of Colorado; M.A., Colorado State Teachers College;
Ed.D., Arizona State University
- VELMA LOU DAVIS, *Assistant Professor of Education*, 1963
B.S., New Mexico State University; M.Ed., University of the Philippines
- MRS. LOLA B. DAWKINS, *Associate Professor of Business Administration*, 1965
B.B.A., Texas Western College; M.B.A., Ph.D., The University of Texas
- JAMES FRANCIS DAY, *Professor of Education; Coordinator of Teacher Education*, 1955
B.S., M.S., Utah State University; Ed.D., Stanford University
- JOHN WILLIAM DENNY, *Instructor in History*, 1956
B.A., M.A., Texas Western College
- CHARLES G. DEVRIES, *Assistant Professor of Chemistry*, 1964
B.A., University of West Virginia; M.S., Ph.D., Louisiana State University
- ROBERT L. DOBBS, *Head Football Coach*, 1964
B.S., United States Military Academy
- JACK ALLEN DOWDY, *Associate Professor of Mechanical Engineering*, 1964
A.A., Wharton Jr. College; B.S.M.E., Southern Methodist University;
M.S.M.E., Oklahoma State University; Ph.D., The University of Texas

FACULTY

- ROBERT R. DOZIER, *Instructor in History*, 1965
B.A., M.A., The University of California
- MRS. MARY ELEANOR DUKE, *Associate Professor of Biological Sciences*, 1947
B.A., Texas Western College; M.A., The University of Texas
- PHILIP DURIEZ, *Associate Professor of Economics*, 1962
B.A., New Mexico Western College; M.A., Baylor University;
Ph.D., Louisiana State University
- MRS. HELEN FAITH DURIO, *Instructor in Education*, 1963
B.A., Arizona State University; M.Ed., Texas Western College
- KENNETH SCOTT EDWARDS, *Professor of Mechanical Engineering*, 1965
B.M.E., Cornell University; M.A.E., Yale University;
Fulbright Scholar, The University of Paris; Ph.D., Cornell University
- FRANCIS ALAN EHMANN, *Assistant Professor of English*, 1950
B.A., Texas Western College; M.A., Harvard University
- HENRY PHILIP EHLINGER, *Associate Professor of Metallurgical Engineering*, 1959
B.S., E.M., University of Wisconsin; Registered Professional Engineer
- OLAV ELLING EIDBO, *Professor of Music*, 1950
B.A., Concordia College; M.A., Texas Western College;
Ph.D., University of North Dakota
- ROBERT MORLEY ESCH, *Instructor in English*, 1965
B.A., Southern Methodist University; M.A., The University of Wisconsin
- CHARLES LARIMORE ETHERIDGE, SR., *Assistant Professor of Drama and Speech*, 1963
B.S., M.A., Sul Ross State College
- FLOYD EMMETT FARQUEAR, *Professor Emeritus of Education*, 1942
B.S., Miami University; M.A., University of Chicago; Ed.D., The University of Texas
- JOHN T. FARRARO, *Instructor in Chemistry*, 1964
B.S., Texas Western College
- WILLIAM HENRY FISHER, *Associate Professor of Education*, 1961
B.A., M.Ed., University of Washington; D.Ed., Columbia University
- DAVID F. FLOWERS, *Instructor in Military Science*, 1964
- 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.
- JON MARQUIS FOULDS, *Instructor in Chemistry*, 1963
B.S., M.A., Southwest Texas State College
- REX ELWYN FOX,* *Instructor in Mathematics*, 1961
B.S., Texas Agricultural and Mechanical University; M.Ed., Southwest Texas State;
M.A., Louisiana State University
- NELLE FRANCIS, *Assistant Professor of English*, 1965
B.A., Hardin-Simmons University; M.A., Ph.D., The University of Texas
- DONALD KEITH FREELAND, *Assistant Professor of Business Administration*, 1949
B.S., Austin College; M.B.A., North Texas State College
- ROSEMARIE FRIEDMAN, *Instructor in Drama and Speech*, 1960
B.A., Texas Western College; M.A., Denver University
- FRANCIS LYLE FUGATE, *Assistant Professor of English*, 1949
B.A., B.J., University of Missouri
- WAYNE EDISON FULLER, *Professor of History*, 1955
B.A., University of Colorado; M.A., University of Denver;
Ph.D., University of California
- IRMA NELDA GALINDO, *Instructor in Spanish*, 1965
B.A., M.A., Texas Technological College
- CARLOS GARCIA, *Instructor in Psychology*, 1964
B.A., Texas Western College; M.A., Fordham University

*Leave of Absence.

- PHILIP BRODIE GARRISON, *Instructor in English*, 1965
B.A., M.A., The University of Missouri
- REX ERVIN GERALD, *Assistant Professor of Sociology*, 1958
B.A., University of Arizona; M.A., University of Pennsylvania
- CARLO B. GIANNONI, *Assistant Professor of Philosophy*, 1964
B.A., University of Chicago; M.A., University of Pittsburgh
- CHARLES HERMAN GLADMAN, *Associate Professor of Mathematics*, 1948
B.S., M.A., Ohio State University
- MRS. LYNETTE GLARDON, *Assistant Professor of Health and Physical Education*, 1951
B.A., M.A., Texas Western College
- PAUL WERSHUB GOODMAN, *Instructor in Sociology*, 1957
B.A., M.S., Syracuse University
- E. WILLIAM GOURD, JR., *Instructor in Drama and Speech*, 1964
B.A., University of Connecticut; M.F.A., Ohio University
- JANICE CAMERON GRAHAM, *Instructor in Drama and Speech*, 1964
B.A., University of North Carolina; M.A., Bowling Green State University
- MARVIN EUGENE GRANDSTAFF, *Assistant Professor of Education*, 1964
B.M., Wichita University; M.S., Kansas State Teachers College;
Ed.D., Indiana University
- JOSEPH B. GRAVES, *Assistant Professor of Government*, 1964
B.A., LL.B., Vanderbilt University; M.P.A., Harvard University
- HARVEY LEE GRIFFIN, *Assistant Football Coach*, 1965
B.S., Oklahoma State University
- MRS. EMILY HAMILTON GUNNING, *Instructor in English*, 1965
B.A., The University of Texas; M.A., Texas Western College
- JOHN HERBERT HADDOX, *Professor of Philosophy*, 1957
B.A., M.A., Ph.D., University of Notre Dame
- ELEANOR GREET HALL, *Instructor in English*, 1960
B.A., M.A., Texas Western College
- JESSE APLEY HANCOCK, *Professor of Chemistry*, 1941
B.S., M.S., Gonzaga University; Ph.D., University of Colorado
- JULE ANN HANSEN, *Instructor in Mathematics*, 1961
B.S., University of Wisconsin
- DONALD HOWARD HARDIN, *Associate Professor of Health and Physical Education*, 1962
B.A., M.A., Iowa State Teachers College; Ph.D., The University of Iowa
- ARTHUR HORNE HARRIS, *Assistant Professor of Biological Sciences*, 1965
B.A., M.A., Ph.D., The University of New Mexico
- WILLIAM HAROLD HARRIS, *Associate Professor of Health and Physical Education*, 1963
B.S., M.E., University of Missouri; M.A., Columbia University;
Ed.D., University of Kentucky
- WILTZ HARRISON, *Professor of Art*, 1948
B.A., Texas Western College; M.A., University of Denver
- WADE JAMES HARTRICK, *Professor of Business Administration*, 1944
B.A., Texas Technological College; M.B.A., Ph.D., The University of Texas
- DONALD LEE HASKINS, *Instructor in Health and P. E., and Head Basketball Coach*, 1961
B.S., West Texas State College
- PAUL CLIFFORD HASSLER, JR., *Professor of Civil Engineering*, 1948
B.S., Grove City College; M.S., University of New Mexico.
Registered Professional Engineer
- LINDA ELIZABETH HAUGHTON,* *Instructor in Modern Languages*, 1962
B.A., Texas Western College; M.A., University of Arizona
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B.S., Lamar State College of Technology; M.A., George Peabody College;
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- WILLIAM GOODWYN NIXON HEER, *Professor of Metallurgical Engineering*, 1961
Met.E., University of Alabama; M.S., Ph.D., Ohio State University.
Registered Professional Engineer
- ARTHUR D. HELTON, JR., *Instructor in Military Science*, 1965
- WILLIAM GARTH HENDERSON, *Professor of Civil Engineering*, 1965
B.S.C.E., M.S.C.E., University of Oklahoma; Ph.D., Oklahoma State University
- MRS. LOZIER CONDON HENDERSON, * *Professor of Education*, 1949
B.A., University of Alabama; M.S., University of Southern California;
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- RICHARD EUGENE HENDERSON, *Associate Professor of Music*, 1952
B.A., College of Puget Sound; M.M., Florida State University
- CARL HEITZOG, *Special Lecturer and Director of Press*, 1948
- VIRGIL HICKS, *Professor of Radio and Television*, 1945
B.A., Texas Western College; M.A., University of Southern California
- HAROLD L. HILLYER, *Associate Professor of Music*, 1962
B.M.E., University of Wichita; M.M., University of Southern California
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B.S., University of Utah; M.S., Brigham Young University; C.P.A.
- HALVARD B. JOHNSON, *Instructor in English*, 1964
B.A., Ohio Wesleyan University; M.A., University of Chicago
- RAYMOND ROY JOHNSON, *Assistant Professor of Biological Sciences*, 1965
B.A., Arizona State University; M.A., University of Arizona;
Ph.D., University of Kansas
- MRS. CLARICE MATTHEWS JONES, *Assistant Professor of Speech*, 1946
B.S., West Texas State College; M.A., Texas State College for Women
- JAMES DALTON JONES, *Instructor in Spanish*, 1963
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Ph.B., Ph.D., University of Wisconsin
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- ORVILLE CLEON KRUSCHWITZ, *Assistant Professor of Mathematics*, 1956
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- CAESAR RAYMOND LAFONTAINE, *Instructor in English*, 1963
B.A., University of Florida; M.A., Purdue University
- WILLIAM WALTER LAKE, *Professor Emeritus of Chemistry*, 1927
B.S., M.S., Ohio State University; Ph.D., University of Chicago
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A.B., Austin College; M.A., The University of Texas
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B.A., Southern Methodist University; Ph.D., Yale University
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- EDWARD ALMAND LEONARD, *Assistant Professor of Government*, 1965
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B.S., U. S. Military Academy; M.A., University of Missouri
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B.S., Kansas State University; M.A., Ph.D., University of Kansas
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B.S.E., University of Arkansas
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B.A., Texas Western College; M.A., Northwestern University
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B.S., Southwest Texas State Teachers College; M.S., Texas Technological College
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B.J., University of Missouri; M.A., Texas Western College
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B.A., Texas Western College
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B.A., M.A., The University of Texas
- SAMUEL DALE MYRES, *Professor of Government*, 1955
B.A., M.A., Southern Methodist University;
Ph.D., The University of Texas; LL.D., Trinity University
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- MRS. ANA MARIA V. DE NAVAR, *Instructor in Modern Languages*, 1965
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B.S.E.E., M.S.E.E., Texas Agricultural and Mechanical University.
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B.A., Texas Western College
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B.S., University of Maryland
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B.S., The Citadel; M.S., Tulane University;
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B.A., M.A., Texas Western College
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B.A., The University of Texas; M.A., University of Chicago
- THORNTON BANCROFT PENFIELD, III, *Instructor in English*, 1963
B.A., Colgate University; M.A., Duke University
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B.A., The University of Wisconsin; M.A., Sorbonne College (Paris);
Ph.D., The American University
- KAY HOLM PETERSEN, *Professor of Health and Physical Education*, 1964
B.S., University of Wyoming; M.S., Ph.D., University of Oregon
- EUGENE OLIVER PORTER, *Professor of History*, 1940
B.A., Ohio Wesleyan College; M.A., Ph.D., Ohio State University
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B.S., Michigan State University; M.S., Johns Hopkins University
- MRS. JOAN PHELAN QUARM, *Instructor in English*, 1957
B.A., Reading University (England); M.A., San Francisco State College
- HOWARD EDMUND QUINN, *Professor Emeritus of Geology*, 1924
E.M., M.S., University of Minnesota; Ph.D., Harvard University
- CADWELL LEWIS RAY, *Assistant Professor of Economics*, 1964
B.A., M.S., Texas A. & M. University
- JOSEPH MALCHUS RAY, *Professor of Government*, 1960
B.A., M.A., Ph.D., The University of Texas
- JAMES BLANCHETTE REEVES, *Professor of Biological Sciences*, 1955
B.S., M.S., Louisiana State University; Ph.D., The University of Texas
- MRS. LOUISE FLETCHER RESLEY, *Assistant Professor of Mathematics*, 1940
B.A., Texas Western College; M.A., The University of Texas
- EUGENE CHARLES REYNOLDS, *Associate Professor of Speech*, 1958
B.A., Otterbein College; M.A., Bowling Green State University
- JACOB GEORGE REYNOLDS, *Assistant Professor of Business Administration*, 1962
B.S., United States Military Academy; M.B.A., University of North Carolina
- JOHN MARVIN RICHARDS, *Professor of Economics*, 1962
B.A., University of Kansas; M.S., Emporia State College;
Ph.D., Louisiana State University
- ROBERT EDWARD RICHESON, JR., *Associate Professor of English*, 1962
B.A., M.A., University of Virginia; Ph.D., Boston University

FACULTY

- ROBERT EDGAR RIEGEL, *H. Y. Benedict Professor of History*, 1964
B.A., Carroll College; M.A., Ph.D., University of Wisconsin
- JOSEPH CHARLES RINTELEN, JR., *Professor of Metallurgical Engineering*, 1949
B.S., Brooklyn Polytechnic Institute; M.S., Cornell University;
Ph.D., Duke University
- WILLIAM HENRY RIVERA, *Associate Professor of Chemistry*, 1962
B.S., Ph.D., University of Louisville
- LAWRENCE HOWARD ROBERTS, *Instructor in Education*, 1964
B.S.E., Henderson S.T.C.; M.Ed., West Texas State College
- FERMIN RODRIGUEZ, *Instructor in Modern Languages*, 1965
B.A., Colorado State College; M.A., Texas Western College
- JULIAN BAKER ROEBUCK, *Professor of Sociology*, 1965
B.A., Atlantic Christian College; M.A., Duke University;
Ph.D., University of Maryland
- PATRICK ROMANELL, *H. Y. Benedict Professor of Philosophy*, 1965
B.A., Brooklyn College; M.A., Ph.D., Columbia University
- DAVID BERNARD ROZENDAL, * *Assistant Professor of Civil 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., The University of Texas
- RICHARD MATTHEW RUSSELL, *Instructor in English*, 1964
B.A., St. Ambrose College; M.A., Northwestern University
- WILLIAM MAURICE RUSSELL, *Associate Professor of Modern Languages*, 1964
A.B., Birmingham-Southern College; M.A., Ph.D., University of North Carolina
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B.A., St. Francis Xavier's (Pakistan); M.A., University of Peshawar (Pakistan);
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- EDWARD JOHN SANDERS, *Assistant Professor of Business Administration*, 1963
B.C.S., Drake University; M.S., Texas College of Arts and Industries
- JOHN PAUL SCARBROUGH, *Assistant Professor of Education*, 1964
B.A., New Mexico Highlands University; Ed.D., University of New Mexico
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B.S., Texas Western College; M.S., University of Arizona
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Ph.D., Ed.D., University of Havana (Cuba)
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B.S., Texas Agricultural and Mechanical University; M.A., Texas Western College
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B.A., M.S.W., The University of Michigan
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B.S., L.L.B., Bombay University (India); L.L.M., Georgetown University
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B.A., M.A., University of Michigan
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B.A., University of Tennessee; M.S., University of Oklahoma
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- CHARLES LELAND SONNICHSEN, *H. Y. Benedict Professor of English*, 1931
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B.A., M.A., Pennsylvania State University
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B.A., McMurray College; M.A., Texas Western College
- TONY JASON STAFFORD, *Assistant Professor of English*, 1964
B.A., Wake Forrest College; M.A., Texas Western College;
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B.M., University of Michigan; M.Ed. University of Pittsburgh
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B.A., Concordia College; M.A., Ed.D., Teachers College, Columbia University
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B.A., M.A., Texas Western College
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B.S., M.S., East Texas State; Ph.D., Syracuse University
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B.S., United States Military Academy; Captain, United States Army
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- LARRY C. ALDERETTE, *Department of Music*, 1963
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B.S., Texas Western College
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B.A., Texas Western College
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Ph.B., John Carroll University; B.H.L., M.H.L., Hebrew Union College;
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- PAUL RODRIGUEZ, *Department of Electrical Engineering*, 1963
B.S., Texas Western College
- PALMA LYNN ROSS, *Department of Mathematics*, 1965
B.S., Texas Western College
- MRS. LOUISE SPRINGER, *Department of Chemistry*, 1963
B.A., Northwestern University; M.Ed., Texas Western College
- WILLIS L. WEBB, *Lecturer in Department of Physics*, 1963
B.S., Southern Methodist University
- KLAUS WIEMER, *Department of Physics*, 1963
B.S., M.S., Texas Western College
- CLAUDE BURNS WIVEL, *Lecturer in Department of Education*, 1960
A.B., University of Denver; A.M., Ph.D., University of Arizona
- BERTRAM C. WRIGHT, *Department of English*, 1962
B.S., University of Connecticut; M.A., Texas Western College
- MRS. EDITH S. ZANKER, *Department of Education*, 1964
B.A., M.A., Texas Western College





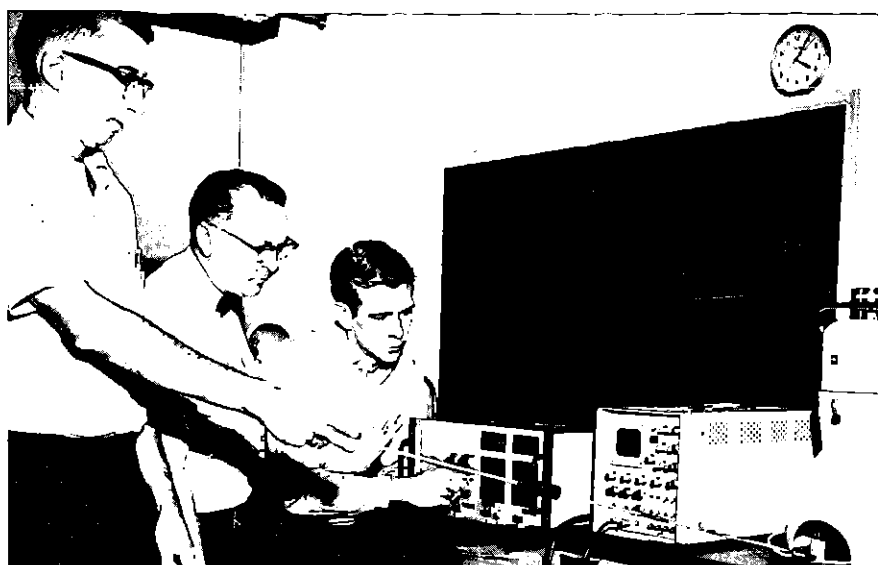
WHY CHOOSE TEXAS WESTERN?

AS YOU TURN THE PAGES of this college bulletin, you are more than likely wondering what Texas Western has to offer — what makes it a specially interesting place to live and learn; what has brought 7,500 students and 300 faculty members to its classrooms and laboratories to share in the great experience of American education.

They have come because Texas Western is a good college in an interesting location with some very special advantages. It is big enough to provide excellent buildings, courses, degrees, faculty; it is small enough to give the student a chance to find himself as an individual and to enjoy friendly personal contacts with his teachers. Anyone who is serious about his education but does not want to lose his identity in the swirling anonymity of a big university will be at home on our campus.

He will find El Paso a fascinating town to live in. Once a wide-open frontier village, it has become the largest city on the Mexican Border and a gateway to the Latin-American countries. El Paso is truly a bi-cultural community, and the courtesy and charm of Spanish-America combine with the informality and friendliness of the American West to make a distinctive community atmosphere. El Paso and Juárez number together over half a million people who live and work in a truly international setting. More and more the college looks southward, and its influence extends not merely into Mexico, but into South America as well. No other college in the United States has a greater opportunity to play a part in inter-American affairs.





EXPERIMENT IN NUCLEAR CHEMISTRY

The administration, the faculty, and the community are fully aware of this opportunity and are doing their best to meet the challenge. They realize that the purpose of this unique educational institution is not merely to equip its students for service to society and to build a respect for scholarship, but to develop the breadth and tolerance which can come only from close contact between men of different races, creeds, and ways of life.

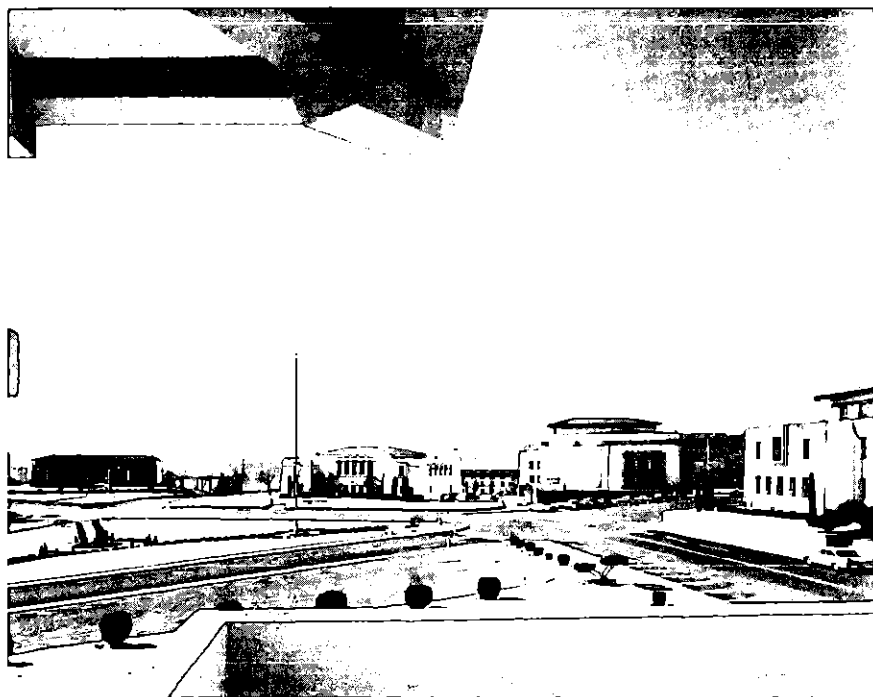
Year-round living is pleasant in the green and fertile Rio Grande valley. The sun shines almost every day; temperatures seldom go too high or too low; people play golf and tennis all year round.

Culturally there are many advantages also. There is rich material for the historian, the anthropologist and the folklorist in the Indian and Spanish cultures which have flourished through the centuries in the region. Juárez attracts important Mexican talent in the performing arts. El Paso supports a symphony orchestra directed by an internationally known conductor. A beautiful art museum has been opened with a nucleus of great paintings from the Kress Collection. There are theatre groups, musical societies, and frequent performances by visiting artists, both American and foreign.

The College itself sponsors three organizations: a College-Community Opera group which presents two or more productions annually of light or grand opera; the Texas Western Civic Ballet organization which offers two major productions each year in addition to its work with the operas; and the College-Community Chamber Music society, organized in 1963, which presents several major recitals annually.

Industrially and technically El Paso has much to offer. Fort Bliss is now the world's largest guided-missile school, and the vast complex of training facilities and integrated ranges stretching for 200 miles northward brings some of the world's finest scientific minds to the region and to the college. A cooperative Student Trainee Program is actually in operation at White Sands Missile Range. Students in Engineering, Physics and Mathematics spend six-month periods alternately on the campus and at the Range. The Schellenger Research Laboratories handle important government research contracts involving many millions of dollars.

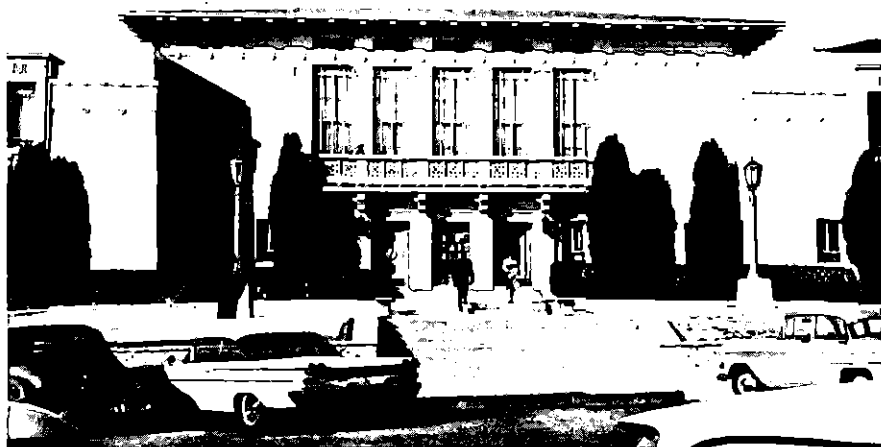
The College offers unusual opportunities for training in business and industry. No school in the country is more fortunately located for geological study. A large custom smelter, a modern electrolytic copper refinery, a cement plant, three oil refineries, and several brick plants are in operation near the college, along with manufactories of lime, tile, and other non-metallics, and plants for cotton processing, textile manufacturing, and the packing of meat and vegetables.



CAMPUS PANORAMA – *This view of the Campus West Side from the Student Union Building looks on the El Paso Centennial Museum, the Library, Magoffin Auditorium, and a wing of the Science Building.*

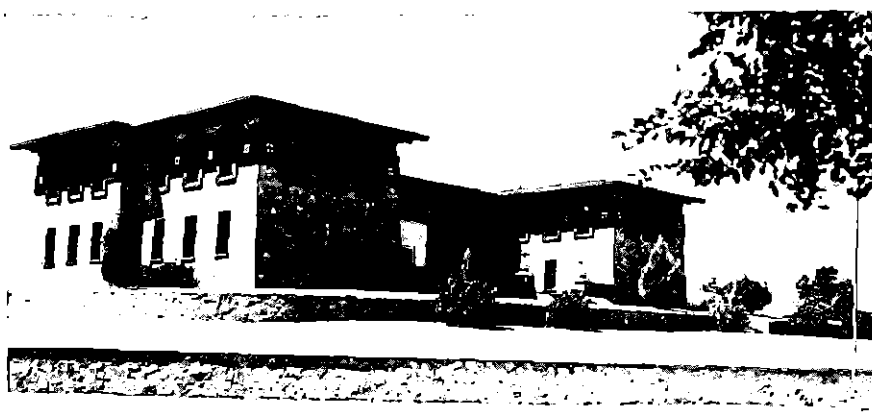
WHAT IS TEXAS WESTERN?

These extraordinary opportunities for technically minded students were responsible for the founding of Texas Western. The Texas Legislature created it in 1913 as the Texas School of Mines and Metallurgy and placed it under control of the Board of Regents of the University of Texas. The City of El Paso furnished a campus and classrooms — formerly the home of the El Paso Military Institute — and the school functioned there from September, 1914, until the buildings were destroyed by fire in 1916. A new campus, with buildings designed in the style of Bhutanese architecture, was laid out in the present picturesque location on the western slope of Mount Franklin when the Legislature appropriated \$100,000.00 for buildings. In 1919 the school became a branch of the University of Texas. In 1927 it added Liberal Arts courses. In 1931 it became a four-year Liberal Arts college operating under its own president. In 1940 the Master of Arts degree was approved. And in 1949 Texas College of Mines and Metallurgy became Texas Western College in recognition of the steady broadening and deepening of its offerings and interests.



THE LIBRARY — *The Open-stack collection of over 200,000 volumes is amplified by periodical and microfilm files. Among the several special collections the historical, geological, and Spanish Literature fields are especially notable.*





EL PASO CENTENNIAL MUSEUM

It now offers thirteen degrees, a range of courses from Art to Zoology, a full program of intramural and intercollegiate athletics, a wide assortment of student activities, plus library, laboratory, classroom, and recreational facilities to go with them.

Texas Western College looks backward with pride to its small beginnings, reviews its phenomenal growth with satisfaction, and anticipates increasing usefulness as students from many foreign countries, as well as from all parts of the United States, bring the enrichment of their special experience and take away the competence and comradeship which the college has to give.

HOW TO COME TO TEXAS WESTERN

You may enter Texas Western College if you are a person of good moral character with sixteen acceptable units from an accredited high-school and with minimum test scores as outlined in the section on admission requirements. If you are twenty-one years old, or older, you may be admitted without a *high-school* diploma under the Individual Approval program. You may also enter as a transfer from another college. Admission requirements are explained in greater detail later in this bulletin, including procedures for foreign students.

If you are a freshman, write the Registrar, Texas Western College, for an application form and ask your high-school principal to mail the Registrar a complete transcript of your high-school work. If you are a transfer student, be sure a complete transcript is sent from the college you attended last.

Beginning students must submit scores for the College Entrance Examination Board Scholastic Aptitude Test. You can learn from your high-school principal when the examinations will be given. Every student who



competes in intercollegiate athletics, who takes courses in physical education or R.O.T.C. or resides in a dormitory must have a physical examination. The Registrar will provide physical-examination blanks for you to take to your doctor.

When you receive your application form, fill it out and mail it to the Registrar. If you meet the entrance requirements, he will send you a notice of acceptance.

All students whose homes are not in El Paso are required to live in dormitories on the campus as long as rooms are available. To reserve a place, send a ten-dollar deposit to the Housing Office at the college.

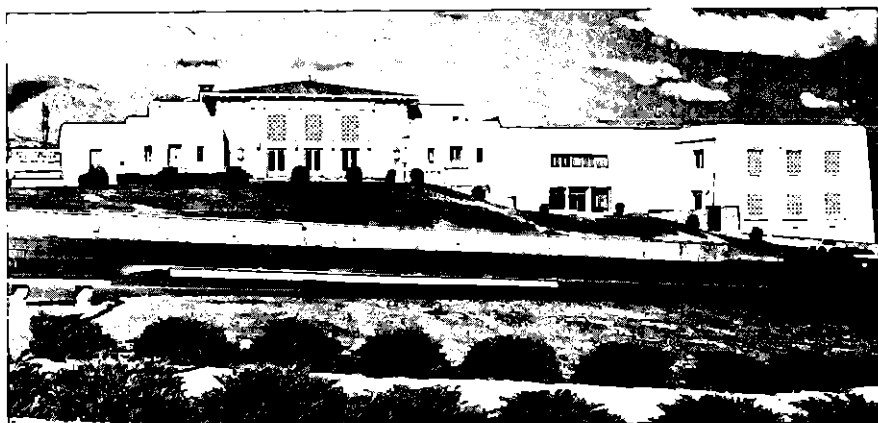
Your teachers and the staff of the College will make every effort to help you plan your work and get you off to a good start, beginning with the Freshman Guidance and Orientation Activities, which you are required to attend if you are a beginning freshman or a transfer student with less than 30 semester hours. Assemblies and personal conferences will be arranged to acquaint you with the campus and its activities. Whoever you are, and whatever your background, you can be sure of finding good friends and competent advisers at Texas Western College.



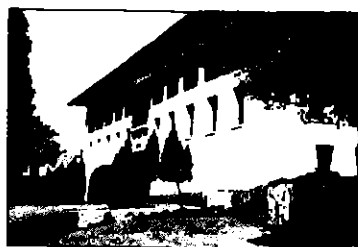
Endowments, Services, Activities



THE LIBRARY is the heart of the College. It contains a rapidly expanding collection of books, periodicals, microfilms, records, and documents. Nearly 200,000 volumes are housed in its stacks. It regularly receives over 1,750 periodicals and about eighteen newspapers. Microfilm files include a complete run of the *El Paso Times*, the Juárez and Parral Archives, and other valuable local and regional documents.



STUDENT UNION BUILDING



The nucleus of the rare-book collection has been provided by Dr. John H. McNeely, a member of the History faculty whose special interest is in Mexico and the Southwest. The collection named for him has been augmented by gifts from other friends of the College. Commonwealth Foundation has made contributions for the purchase of research materials in the Liberal Arts, and further acquisitions have come from the College Excellence Fund.

Inter-library loan arrangements are in effect with other university and state libraries, the Library of Congress and the Bibliographical Center for Research in Denver.

Plans for extensive remodeling and expansion have been approved, completion of which will increase the effectiveness of the Library many fold.

THE SCHELLENGER RESEARCH LABORATORIES were created in 1953 under the will of Mrs. Emma L. Schellenger as a memorial to her husband, Newton C. Schellenger, for promoting and encouraging research. The Schellenger Research Laboratories consist of eight installations on the campus: The Electronic Research Center, the Data Analysis Center, the Environmental Chambers, the Acoustic Research Chambers, the Optical and Mechanical Test Center, the Electronics Development Laboratory, and the Thin Films Laboratory.

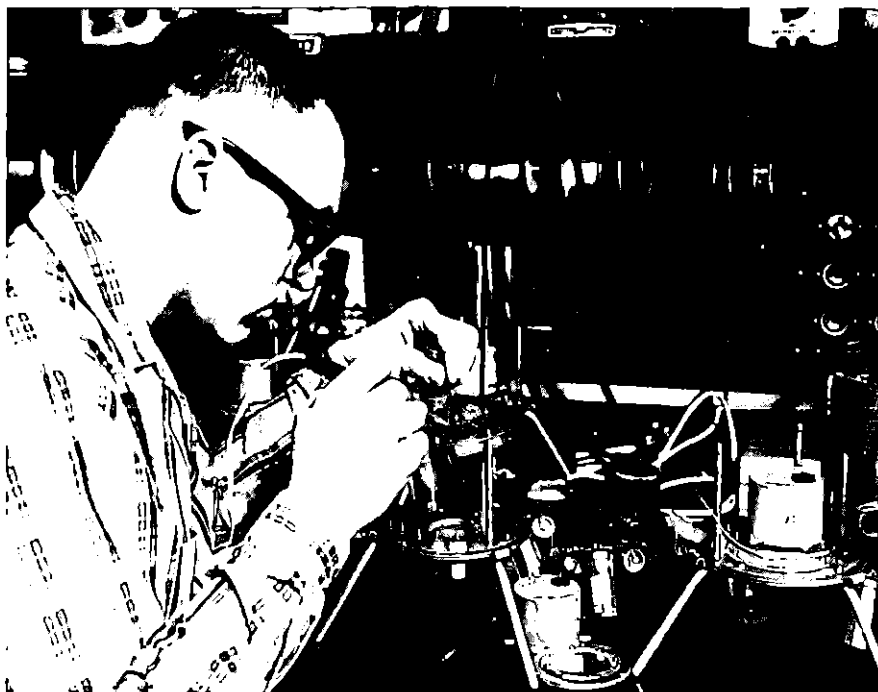
More than 135 faculty members and students work part or full time in these laboratories on contracts which up to now have totaled over \$7,000,000.00. A number of students have completed their Masters' theses while working in the Schellenger Laboratories. Members of the staff, under a grant from the National Science Foundation, have carried on upper-air research for two years on the Antarctic Continent, and another team under Government auspices established a meteorological rocket station in Alaska in 1964.

The latest and finest scientific equipment is available for recording, testing and measuring physical phenomena.

The Laboratories are open to proposals for contracts and grants for basic and applied research in various fields of the physical sciences, Engineering, Mathematics, the life sciences, and allied areas.

THE EL PASO CENTENNIAL MUSEUM was erected in 1936 with funds allocated by the Commission of Control for the Texas Centennial Celebration. It houses Indian artifacts from sites in Mexico and the Southwest, notably a collection of Casas Grandes pottery, along with relics of pioneer times, a good cross-section of Southwestern minerals, and the Peak collection of animal pelts and heads.

In 1959 the first Mexican Archaeological Research Project was initiated by the College, and since that time the Museum staff, under the supervision



SCHELLENGER RESEARCH

of Curator Rex Gerald, has been active in investigating the pre-Conquest and early Spanish remains in the region.

A small planetarium is available to student groups, and lectures and tours of the exhibits are arranged by the director.

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

THE COUNSELING SERVICE, directed by Dr. Randolph Whitworth and located in the Liberal Arts Building, offers a complete program in aptitude testing and vocational counseling. It is available to students who wish to understand their personal problems and plan for their life work. Special tests such as the Graduate Record Examination are administered by the Counseling Service.

THE EXTENSION SERVICE OF TEXAS WESTERN COLLEGE presents short courses or programs to answer community needs for training outside the regular channels of instruction. Although college credit is not granted for extension work, certificates from the College are presented to those who complete the courses.

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

THE TEXAS WESTERN COLLEGE PRESS, with Dr. S. D. Myres as editor and Carl Hertzog as designer and typographer, publishes books and monographs of regional and general interest. A series of Southwestern Studies, issued quarterly, is under way, and manuscripts dealing with the Border region and Mexico, written by faculty members and others, are considered for publication by the Publications Board.

THE VETERANS ADMINISTRATION has approved Texas Western College as a training center for those eligible for veterans' benefits. Questions about admission, credit, and programs of study should be addressed to the Registrar.



FOREIGN STUDENTS should contact the Registrar for information about their special problems. The Foreign Student Advisor will be available for counseling on all phases of college life after the student's arrival on the campus.

STUDENT SERVICES in the Student Union Building, include a book store, snack bar, meeting rooms, and recreational facilities.

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

Housing for out-of-town students is provided by six modern and conveniently located dormitories with a capacity of 450 students. Hawthorne House, a private residence hall for women, is adjacent to the campus and under College supervision. Meals are served in the dining hall between the two women's dormitories.

Sixty apartments for married students were completed and occupied in the summer of 1963.

Athletic events are held in the Memorial Gymnasium and in the 30,000-seat Sun Bowl.

STATION KVOF-FM (frequency-modulation radio) and KVOF (closed-circuit television) are owned by the College and staffed entirely by students. KVOF-FM provides daily broadcasting service to city and county schools and to listeners resident on the campus. Remote broadcasting lines for relaying College programs are maintained to El Paso's commercial stations.



TELEVISION CENTER

The *Television Center* is one of the most complete educational plants in the country. Using two RCA I. O. studio cameras, a vidicon film chain and videotape, students write, direct and produce their own programs as part of their course work.



Endowments & Memorial Funds



Texas Western College is indebted to the generosity of private citizens for many fine endowments. These permanent funds, invested under trusteeship of The University of Texas Board of Regents, provide scholarships, purchase library books, underwrite important research, and in many ways enrich the educational experience. The College makes grateful acknowledgement for the following permanent funds.

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

C. D. BELDING PERMANANT MEMORIAL FUND – Founded by Mrs. C. D. Belding in memory of her late husband, this fund's income provides scholarships for students majoring in physical education.

FRANK B. COTTON ESTATE FUND – Founded by trustees of the estate of Frank B. Cotton, a Massachusetts manufacturer and West Texas real estate investor, the estate's income has provided the College with the Cotton Memorial Building, has afforded scholarship aid to students, and continues to contribute vitally to the College's excellence program.

DELTA KAPPA GAMMA – YVETTE C. ROSENTHAL PERMANENT ENDOWMENT – This endowment, established by the Delta Kappa Gamma Society in honor of a past president, provides scholarship assistance to teachers who are pursuing advanced degrees in education.

FESSINGER MEMORIAL LECTURE FUND – Created by Mr. and Mrs. Moses D. Springer in memory of Mrs. Springer's parents, Reuben and Leona Fessinger, this fund will be used to bring nationally-recognized lecturers in Chemistry to Texas Western College.

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

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

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

GORDON PONDER PERMANENT MEMORIAL FUND — This fund was established by Mr. and Mrs. Jack Ponder in memory of their son, who died while a student at Texas Western College. Its income will be used to purchase books for the College Library.

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

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

LUCILLE T. STEVENS ESTATE FUND — Established by the bequest of Mrs. Lucille T. Stevens, this estate provides income for scholarships to male students with outstanding academic records.



Regulations Concerning Registration



Admission to the College is controlled by the Faculty and administered by the Registrar and Director of Admissions. 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.

Student Responsibility: It is the responsibility of each student to know if he is eligible to enroll. If it is later determined that an ineligible student has enrolled, he will be dropped immediately.

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 who is enrolled in a Physical Education Activities Program, a Military Science course, or who resides in a College Dormitory shall furnish a physical examination certificate before his registration can be completed. The form 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 date listed in 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.

PROCEDURE FOR FOREIGN STUDENTS

In addition to the requirements for admission on the following page, all foreign student applicants are required to take the TOEFL (Test of English as a Foreign Language) examination which is given throughout the world. Exceptions to this requirement may be made by the Director of Admissions. For foreign students this test in English proficiency is in lieu of the Scholastic Aptitude Test and should be taken in time to allow the results to be sent to the Director of Admissions by June 15 prior to the following September registration. For information concerning the time and place where the examination will be given, the applicant should write to:

TEST OF ENGLISH AS A FOREIGN LANGUAGE
Educational Testing Service
Princeton, New Jersey, U. S. A. 08540

Texas Western College requires all entering foreign students to have adequate hospitalization coverage upon enrolling or to subscribe to the available insurance program during registration.



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 sixteen acceptable units as outlined in the following patterns, who has shown an aptitude for college studies through the College Entrance Examination Board Scholastic Aptitude Test, will be granted clear admission. For persons graduated from high school in May 1963 or thereafter, the minimum score on the Scholastic Aptitude Test is a combined score of 700 if the student is in the upper half of his graduating class, and a combined score of 800 if the student is in the lower half of his graduating class.

A student who fails to qualify for admission due to test scores may be enrolled as a provisional student. Provisional status entitles the student to one summer session or one spring semester of trial, at the end of which provisional status must be removed. To be removed from provisional status, the student must either:

- (a) earn not less than six semester credit hours in a summer session with an average grade of "C" in all courses taken; courses selected to satisfy this requirement must have the approval of the student's academic dean.

or

- (b) earn not less than nine semester credit hours in a spring semester with an average grade of "C" in all courses taken; courses selected to satisfy this requirement must have the approval of the student's academic dean.

School of Arts and Sciences

a. English	3
b. Mathematics	2
c. Natural Science	2
d. Social Studies	2
e. Foreign Language or additional Natural Science or Social Studies .	2
f. Electives	5
Total	16

School of Engineering

a. English	3
b. Algebra	2
Geometry	1
Trigonometry	$\frac{1}{2}$
c. Natural Science	2
d. Social Studies	2
e. Foreign Language or additional Natural Science or Social Studies .	2
f. Electives	$3\frac{1}{2}$
Total	16

CONDITIONAL ADMISSION

A student may not enter the School of Engineering with a condition in any subject or group.

Special consideration will be given an applicant in the School of Arts and Sciences who has a strong high school record.

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. 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.

2. INDIVIDUAL APPROVAL METHOD

An applicant over twenty-one years of age may, at the discretion of the Registrar and with concurrence of the appropriate academic dean, 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.

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 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. All transfer students with less than thirty semester hours must present scores from the College Entrance Examination Board Scholastic Aptitude Test.

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. Admission cannot be cleared until this transcript is received. Transcripts become the property of Texas Western College and may not be returned.

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 all previous College records. 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. 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.

CO-OPERATIVE STUDENT TRAINEE PROGRAM

White Sands Missile Range, New Mexico

Texas Western College participates in the Co-operative Student Trainee Program at White Sands Missile Range, New Mexico, in the fields of Engineering, Physics, and Mathematics. This is a work-study program wherein the student spends six months attending Texas Western and six months working on the job in training phase at White Sands Missile Range. The pay grades vary according to the student's educational level and training in the program. Many students have earned their way through college by participating in this program. For further information, write to the Registrar, Texas Western College, El Paso, Texas.

HOW TO PLAN YOUR COLLEGE CURRICULUM

If you are a beginning student, you may be undecided about a career or final goal in college. There are certain subjects, however, generally required of ALL students — thus, you can begin by acquiring credits usable in all majors (in case you have difficulty in choosing a major and minor, or later wish to change your 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 45-49. Heads of the separate departments will give advice and explain special requirements for specific majors.

DEGREES OFFERED AT TEXAS WESTERN COLLEGE

School of Engineering

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

BACHELOR OF SCIENCE IN METALLURGICAL ENGINEERING

School of Arts and Sciences

BACHELOR OF ARTS

(*Major and Minor Subjects listed on page 51*)

BACHELOR OF SCIENCE (IN SCIENCES)

BACHELOR OF BUSINESS ADMINISTRATION

BACHELOR OF MUSIC

BACHELOR OF SCIENCE IN EDUCATION

Graduate Division

MASTER OF ARTS

MASTER OF SCIENCE

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 52-58, and by the Departments at beginning of Course Descriptions.

FRESHMAN YEAR

(16 hours are recommended for each semester)

	Semester Hours
English 3101-02	6
American History 3101-02 or Government 3110-11	6
Foreign Language (completion of 4102)	4
Mathematics	6
Laboratory Science	6
Economics 3101	3
Health Education or other Elective Course	3
Physical Education Service Course (or Military Science)	2

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.

SOPHOMORE YEAR

English 3211-12 (or 3213-14 or 3215 and 3216)	6
American History 3101-02 or Government 3110-11	6
Foreign Language (completion of 3201-02)	6
Laboratory Science	6
Physical Education or Military Science	1
Courses in Major or Minor subjects	6

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 in Arts and Sciences must be completed by the time the student reaches senior classification; otherwise, no credit hours 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 credit (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 the Bachelor of Science Degree*

Exceptions and variations specified in requirements for Majors and Minors on p. 54.

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

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

This plan does not apply to Bachelor of Science in Education, see pages 63-65.

*See pages 45-49 for Engineering Degree Plans.

FRESHMAN YEAR		Semester Hours
English 3101-02		6
American History 3101-02 or Government 3110-11		6
Mathematics 3115, 2116, and 4111		9
Laboratory Science		8
Economics 3101		3
Health Education or other Elective Course		3
Physical Education Service Course (or Military Science)		2
(16 hours are recommended for each semester)		

SOPHOMORE YEAR		
English 3211-12 (or 3213-14 or 3215 and 3216)		6
American History 3101-02 or Government 3110-11		6
German 4101-02		8
Laboratory Science		6
Physical Education or Military Science		1 (4)
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
(a total of 30 hours required in the Major subject)		
"Minor" subjects — advanced courses		6
(a total of 18 hours required in the Minor subject)		
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 in Arts and Sciences must be completed by the time the student reaches senior classification; otherwise, no credit hours 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 credit (minimum total)
- 36 hours must be taken in advanced courses
- 30 hours in Major (15 advanced)
- 18 hours in Minor (6 advanced)
- not less than 6 semester hours in a third science

General Requirements for Undergraduate Degrees

Degree Plan — Students in Arts and Sciences should secure from their Dean by the beginning of their third year a plan for the completion of requirements for the degree.

No honorary degree will be conferred.

Catalog Requirements — A student may obtain a degree according to 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. A minimum of six advanced hours in the major field must have been completed not more than six years previous to the date of graduation.

Students entering Texas Western College for the first time during a summer session will be subject to the requirements of the catalog for the next long session.

Graduation — Degrees will be conferred at the end of each semester and the summer session. Formal commencement exercises will be held at the end of the spring semester only.

The Office of the Registrar will distribute diplomas to students who graduate January 31 and August 31. However, any student desiring to participate in the formal commencement at the end of the spring semester may do so by entering the appropriate date on the application for a diploma. A diploma will be dated and granted only as of the graduation date requested and indicated by the candidate on the official application.

Application for Diploma — A student who intends to graduate at the end of one of the semesters of the regular session, or the summer session, must file an application for a diploma with the student's Dean *not later* than the date here indicated for the appropriate semester or session: for the fall semester, November 15; for the spring semester, April 15; and for the summer session, July 10. Application for the bachelor's degree will not be accepted from a student on scholastic probation.

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.

Advanced Placement — College credit and advanced placement are given for college-level work completed in secondary schools on the basis of CEEB Advanced Placement Examinations.

Advanced Standing Examinations — Credit earned by means of Advanced Standing Examinations may not be used to replace any part of the last 30 semester credit hours required for graduation.

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

Government and History Required — Six semester hours of Government 3110, 3111 and six semester hours of History 3101, 3102 are required by Texas State law for completion of any Degree. Twelve semester hours of Military Science 3301, 3302, 3401, 3402 may be substituted for Government 3111.

Minimum Grade-Point Average — A minimum grade-point average of 2.0 on all college work attempted is required for the bachelor's degree. In calculating this average, all college work, whether transferred or taken at this College, must be included. A minimum grade-point average of 2.0 on all work attempted at Texas Western College is required; transferred work may not be used to raise the grade average of work done at the College.

Second Degree — No second bachelor's 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. These additional hours must include at least six advanced hours in the major subject of the second degree, and at least six hours must have been earned after completion of requirements for the first bachelor's degree. Two bachelor's degrees may not be awarded to any candidate at the same commencement. Students working toward a second bachelor's degree will register as undergraduate students.

Military Service Associated Credit — All such transfer credit is subject to evaluation by the Registrar. Credit may be given for Comprehensive College Tests developed by the Education Testing Service and administered by the United States Armed Forces Institute. Credit may also be given for college-level USAFI correspondence courses. In general, no credit is given for a military service course unless it was completed as a part of a college program and credit was given for it by an accredited college. Most credit granted may be used to absolve elective requirements only.



SCHOOL of ENGINEERING



BACHELOR OF SCIENCE DEGREES OFFERED

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 Civil Engineering.
- PLAN 2, leading to the degree of Bachelor of Science in Electrical Engineering.
- PLAN 3, leading to the degree of Bachelor of Science in Mechanical Engineering.
- PLAN 4, leading to the degree of Bachelor of Science in Metallurgical Engineering.

WORK PREPARATORY TO OTHER ENGINEERING DEGREES

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

HONORS PROGRAM

Students who complete a minimum of sixty semester credit hours of the "Common Core" courses of their respective engineering degree plans, with an overall grade-point average of 3.20, are eligible to enter the engineering honors program. This program is tailored to the special needs or interests of each student; the selection and arrangement of courses are planned by the student in consultation with an honors committee and the dean of engineering.

The Common Core courses (common to all engineering degree plans) are: C.E. 3115, 3238, 3326; Ch. 4103-04; E. 3101-02; E.E. 4251; Go. 3110, 3111; Hi. 3101, 3102; M.E. 2103, 3201; Ma. 4111, 4212, 4217, 3326; Me. 4203; and Ph. 4216, 4217.

FRESHMAN YEAR*

(Common to Civil, Electrical, and Mechanical Engineering)

1st Semester	Semester Hours	2nd Semester	Semester Hours
C.E. 3102 Introduction to Engineering	3	C.E. 3115 Engineering Mechanics I	3
Ch. 4103 General Chemistry	4	Ch. 4104 General Chemistry	4
E. 3101 Freshman English	3	E. 3102 Freshman English	3
M.E. 2103 Engineering Graphics	2	M.E. 2104 Descriptive Geometry	2
Ma. 4111 Analytical Geometry & Calculus	4	Ma. 4212 Analytical Geometry & Calculus	4
Total	16	Total	16

*Mathematics 3115 and 2116 are no longer counted for credit toward any engineering degree. Students needing these courses are urged to complete them in a Summer Session before entering the regular freshman program.

Abbreviations Used in Degree Plans

C.E. Civil Engineering	Hi. History
Ch. Chemistry	M.E. Mechanical Engineering
E. English	Ma. Mathematics
E.E. Electrical Engineering	Me. Metallurgical Engineering
Ce. Geology	Ph. Physics
Go. Government	

DEGREE PLANS

PLAN 1 — Leading to the Degree of Bachelor of Science in Civil Engineering

	Semester Hours
Civil Engineering 3102, 3115, 3213, 3214, 3234, 3238, 3326, 3343, 3346, 4356, 4360, 3435, 3440, 3441, 3442, 4448, 3449, 3461 . . .	57
Chemistry 4103-04	8
English 3101-02	6
Electrical Engineering 4251	4
Geology 3321	3
Government 3110, 3111	6
History 3101, 3102	6
Mechanical Engineering 2103, 2104, 3201, 3354, 3375	13
Mathematics 4111, 4212, 4217, 3326	15
Metallurgical Engineering 4203	4
Physics 4216, 4217	8
Approved Electives*	12
Total	142

ARRANGEMENT OF COURSES

Uniform Freshman Year (see page 45)

Summer — Following Freshman Year

C.E. 3213 Engineering Measurements . . .	3
C.E. 3214 Field Surveying	3
Total	6

Sophomore Year — 1st Semester	Semester Hours
C.E. 3238 Engineering Mechanics II . . .	3
Hi. 3101 History of the United States, to 1865	3
M.E. 3201 Engineering Communications . .	3
Ma. 4217 Analytical Geometry & Calculus .	4
Ph. 4216 Electricity & Magnetism	4
Total	17

Sophomore Year — 2nd Semester	Semester Hours
C.E. 3234 Mechanics of Materials I . . .	3
E.E. 4251 Networks I	4
Hi. 3102 History of the United States, since 1865	3
Ma. 3326 Differential Equations	3
Ph. 4217 Optics, Sound & Heat	4
Total	17

Junior Year — 1st Semester	Semester Hours
C.E. 3326 Engineering Economy	3
C.E. 3343 Structural Analysis I	3
Ge. 3321 Geology for Engineers	3
Go. 3110 American Government	3
M.E. 3375 Thermodynamics I	3
M.E. 3354 Fluid Mechanics	3
Total	18

Junior Year — 2nd Semester	Semester Hours
C.E. 3346 Engineering Law	3
C.E. 4356 Hydraulic Engineering	4
C.E. 4360 Structural Analysis II	4
Go. 3111 American Government	3
Me. 4203 Materials Science	4
Total	18

Senior Year — 1st Semester	Semester Hours
C.E. 3435 Structural Design I	3
C.E. 3441 Water Treatment & Analysis . .	3
C.E. 4448 Soil Mechanics	4
Approved Electives*	6
Total	16

Senior Year — 2nd Semester	Semester Hours
C.E. 3440 Transportation Engineering . .	3
C.E. 3442 Waste Treatment & Analysis . .	3
C.E. 3449 Foundation Engineering . . .	3
C.E. 3461 Structural Design II	3
Approved Electives*	6
Total	18

*Six hours of electives must be selected from the Humanities and Social Sciences; six hours from Engineering, Mathematics, and the Biological or Physical Sciences.

**PLAN 2 — Leading to the Degree of
Bachelor of Science in Electrical Engineering**

	<i>Semester Hours</i>
Civil Engineering 3102, 3115, 3238, 3326	12
Chemistry 4103-04	8
English 3101-02	6
Electrical Engineering 4251, 3321, 4339, 4340, 4352, 3353, 3441, 1445, 3447, 4464, 3467, 4468	40
Government 3110, 3111	6
History 3101, 3102	6
Mechanical Engineering 2103, 2104, 3201, 3375	10
Mathematics 4111, 4212, 4217, 3326, 3435	18
Metallurgical Engineering 4203	4
Physics 4216, 4217, and 3325 or 3326	11
Approved Electives*	15
Total	136

ARRANGEMENT OF COURSES

Uniform Freshman Year (see page 45)

Sophomore Year — 1st Semester	<i>Semester Hours</i>	Sophomore Year — 2nd Semester	<i>Semester Hours</i>
C.E. 3238 Engineering Mechanics II	3	E.E. 4251 Networks I	4
Hi. 3101 History of the United States, to 1865	3	Hi. 3102 History of the United States, since 1865	3
Ma. 4217 Analytical Geometry & Calculus	4	M.E. 3201 Engineering Communications	3
Me. 4203 Materials Science	4	Ma. 3326 Differential Equations	3
Ph. 4216 Electricity & Magnetism	4	Ph. 4217 Optics, Sound & Heat	4
Total	18	Total	17

Junior Year — 1st Semester		Junior Year — 2nd Semester	
C.E. 3326 Engineering Economy	3	E.E. 3321 Electromagnetic Field Theory	3
E.E. 4339 Electronics I	4	E.E. 4340 Electronics II	4
E.E. 4352 Networks II	4	E.E. 3353 Networks III	3
Ma. 3435 Higher Mathematics for Engineers & Physicists	3	Co. 3110 American Government	3
Ph. 3325 or 3326 The Fundamentals of Modern Physics	3	M.E. 3375 Thermodynamics I	3
Total	17	Approved Elective	3
		Total	19

Senior Year — 1st Semester		Senior Year — 2nd Semester	
E.E. 3441 Electronics III	3	E.E. 4464 Feedback Control	4
E.E. 1445 Communications Laboratory	1	E.E. 4468 Energy Conversion II	4
E.E. 3447 Electromagnetic Energy Transmission & Radiation	3	Approved Electives	9
E.E. 3467 Energy Conversion I	3	Total	17
Co. 3111 American Government	3		
Ph. Approved Elective	3		
Total	16		

*Six hours of electives must be selected from the Humanities and Social Sciences; nine hours from Engineering, Mathematics, and the Biological or Physical Sciences.

DEGREE PLANS

PLAN 3 — Leading to the Degree of Bachelor of Science in Mechanical Engineering

	Semester Hours
Civil Engineering 3102, 3115, 3234, 3238, 3326	15
Chemistry 4103-04	8
English 3101-02	6
Electrical Engineering 4251, 4339	8
Government 3110, 3111	6
History 3101, 3102	6
Mechanical Engineering 2103, 2104, 3201, 3236, 3351, 3354, 4363, 3364, 3375, 3376, 3455, 3465, 4466, 3481, 3482	45
Mathematics 4111, 4212, 4217, 3326	15
Metallurgical Engineering 4203	4
Physics 4216, 4217	8
Approved Electives*	15
Total	136

ARRANGEMENT OF COURSES

Uniform Freshman Year (see page 45)

Sophomore Year — 1st Semester	Semester Hours	Sophomore Year — 2nd Semester	Semester Hours
C.E. 3238 Engineering Mechanics II	3	C.E. 3234 Mechanics of Materials I	3
Hi. 3101 History of the United States, to 1865	3	E.E. 4251 Networks I	4
Ma. 4217 Analytical Geometry & Calculus	4	M.E. 3201 Engineering Communications	3
Me. 4203 Materials Science	4	Ma. 3326 Differential Equations	3
Ph. 4216 Electricity & Magnetism	4	Ph. 4217 Optics, Sound & Heat	4
Total	18	Total	17

Junior Year — 1st Semester	Junior Year — 2nd Semester
E.E. 4339 Electronics I	Go. 3110 American Government
Hi. 3102 History of the United States, since 1865	M.E. 3236 Manufacturing Processes & Quality Control
M.E. 3354 Fluid Mechanics	M.E. 3351 Heat Transfer
M.E. 4363 Kinematics & Dynamics of Mechanisms	M.E. 3364 Design of Machine Members
M.E. 3375 Thermodynamics I	M.E. 3376 Thermodynamics II
Total	Approved Elective*
17	18

Senior Year — 1st Semester	Senior Year — 2nd Semester
Go. 3111 American Government	C.E. 3326 Engineering Economy
M.E. 3455 Gas Dynamics	M.E. 4466 Machine Design
M.E. 3465 Dynamic Response	M.E. 3482 Mechanical Engineering Laboratory II
M.E. 3481 Mechanical Engineering Laboratory I	Approved Electives*
Approved Electives*	Total
Total	16
18	

*Six hours of electives must be selected from the Humanities and Social Sciences; nine hours from Engineering, Mathematics, and the Biological or Physical Sciences.

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

	<i>Semester Hours</i>
Civil Engineering 3115, 3238, 3326	9
Chemistry 4103-04, 2221, 4260, 4261	18
English 3101-02	6
Electrical Engineering 4251	4
Government 3110, 3111	6
History 3101, 3102	6
Mechanical Engineering 2103, 3201	5
Mathematics 4111, 4212, 4217, 3326	15
Metallurgical Engineering 3201, 4203, 4302, 3309, 3315, 3402, 3404, 4407, 4411, 4412, 3413, 4415	42
Physics 4216, 4217, 3326	11
Approved Electives*	14
Total	136

ARRANGEMENT OF COURSES

Freshman Year — 1st Semester	<i>Semester Hours</i>	Freshman Year — 2nd Semester	<i>Semester Hours</i>
Ch. 4103 General Chemistry	4	C.E. 3115 Engineering Mechanics I	3
E. 3101 Freshman English	3	Ch. 4104 General Chemistry	4
Hi. 3101 History of the United States, to 1865	3	E. 3102 Freshman English	3
M.E. 2103 Engineering Graphics	2	Hi. 3102 History of the United States, since 1865	3
Ma. 4111 Analytical Geometry & Calculus	4	Ma. 4212 Analytical Geometry & Calculus	4
Total	16	Total	17
 Sophomore Year — 1st Semester		 Sophomore Year — 2nd Semester	
C.E. 3238 Engineering Mechanics II	3	Co. 3111 American Government	3
Ch. 2221 Organic Chemistry	2	M.E. 3201 Engineering Communications	3
Go. 3110 American Government	3	Ma. 3326 Differential Equations	3
Ma. 4217 Analytical Geometry & Calculus	4	Me. 4203 Materials Science	4
Me. 3201 Principles of Process Metallurgy	3	Ph. 4217 Optics, Sound & Heat	4
Ph. 4216 Electricity & Magnetism	4	Total	17
Total	19		
 Junior Year — 1st Semester		 Junior Year — 2nd Semester	
C.E. 3326 Engineering Economy	3	Ch. 4261 Physical Chemistry	4
Ch. 4260 Physical Chemistry	4	E.E. 4251 Networks I	4
Me. 4302 Mineral Dressing	4	Me. 3315 Non-ferrous Process Metallurgy	3
Me. 3309 Physics of Metals	3	Approved Electives*	6
Ph. 3326 The Fundamentals of Modern Physics	3	Total	17
Total	17		
 Senior Year — 1st Semester		 Senior Year — 2nd Semester	
Me. 3404 Electro-Metallurgy	3	Me. 3402 Ferrous Process Metallurgy	3
Me. 4407 Physical Metallurgy I	4	Me. 4412 Physical Metallurgy III	4
Me. 4411 Physical Metallurgy II	4	Me. 4415 Mechanical Metallurgy	4
Me. 3413 Thermodynamics of Metals	3	Approved Electives*	5
Approved Elective*	3	Total	16
Total	17		

*Six hours of electives must be selected from the Humanities and Social Sciences; eight hours from Engineering, Mathematics, and the Biological or Physical Sciences.

Required Performance

To remain enrolled in the college students must maintain minimum standards, determined by grade point average.

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.

Students who have registered for a total of 30 hours or less must earn a minimum grade point average of 1.5 in each Semester or Summer Session. After the total number of hours for which a student has registered is more than thirty hours and less than sixty the minimum grade point average is 1.75 for work attempted in each semester or summer session. After the total number of hours for which a student has registered is sixty hours or more, the minimum grade point requirement for each Semester or Summer Session is 2.0. The total number of hours for which a student has registered includes all hours attempted in any college.

Academic Honors at Graduation

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

1. *Highest Honors* — Highest Honors will be awarded to students who attain a minimum grade average of 3.90.

No transfer student shall be eligible for Highest Honors.

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

2. *High Honors* — High Honors will be awarded to students who attain a minimum grade average of 3.80, but who do not qualify for Highest Honors.

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

3. *Honors* — Honors will be awarded to students who attain a minimum grade average of 3.50, but who do not qualify for High or Highest Honors.

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

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

PRE - LAW

Students who plan to satisfy requirements for admission to a school of law, or who have questions concerning any other matter relating to pre-legal studies, are urged to consult the Pre-Law Advisor, Mr. L. Phil Blanchard.

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 Pre-Medical Advisor, Mr. James B. Reeves.

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

MINOR SUBJECTS

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

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

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 75 of this catalog).

Bachelor of Arts *All Levels Teaching Programs* in Art, Music, Physical Education, and Drama and Speech are outlined on pages 60, 61, and 62.

Min. Sem. Hrs.

- 24 — MAJOR SUBJECT: including 12 advanced hours. (A minimum of 45 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.
 - 6 — MATHEMATICS: (Mathematics 3115, 2116, 4111 for majors in Mathematics, Chemistry, Physics, and for a minor in Physics.)
 - 3 — ECONOMICS 3103.
 - 6 — HISTORY 3101-02.
 - 6 — GOVERNMENT 3110-11.
 - 3 — PHILOSOPHY 3301 or 3311.*
 - § — 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

W. H. TIMMONS, *Faculty Adviser*

The Inter-American Studies program is an inter-disciplinary major with a Latin American orientation designed to prepare students for a career in Latin America in government, business, or education, or for advanced study in a Latin American field at the graduate level. The program is administered by the Executive Committee of the Inter-American Institute, which coordinates its activities whenever possible with those of the Inter-American Studies program, thereby providing lecturers, seminars, and other Latin American resource opportunities. Fluency in Spanish, rather than a given number of credit hours, is the desired language objective; and a written and oral comprehensive examination conducted in Spanish on Latin American politics, resources, geography, and literature, as well as Spanish composition, must be satisfactorily completed prior to graduation.

In addition to the general requirements for the B.A. degree, the following specific requirements are prescribed, plus one of the following four options: Economics-Business, Government, History, and Spanish. Completion of one of these options fulfills the major and minor requirements for the degree.

Specific requirements are: Economics 3104, English 3308, Government 3332, History 3205-06, Philosophy 3212, Psychology 3101 and 3202, Sociology 3101-02.

ECONOMICS - BUSINESS OPTION

ACCOUNTING	3101, 3102.
BUSINESS LAW	3303.
ECONOMICS	3365, 3366, 3367
SOCIAL SCIENCES	Three of the following: History 3346, 3347, 3348, 3349; Government 3333; Sociology 3336, 3360.
SPANISH	3357; and one of the following: 3324, 3360, 3362, 3363, 3364, 3365, 3467.
ADVANCED ELECTIVES	3 hours.

GOVERNMENT OPTION

GOVERNMENT	3439; and four of the following: 3333, 3343, 3344, 3347, 3424, 3433.
SPANISH	3357; and one of the following: 3324, 3360, 3362, 3363, 3364, 3365, 3467.
SOCIAL SCIENCES	Three of the following: History 3346, 3347, 3348, 3349; Economics 3366, 3367; Sociology 3336, 3360.
ADVANCED ELECTIVES	6 hours.

HISTORY OPTION

HISTORY	Four of the following: 3346, 3347, 3348, 3349, 3311, 3312.
SPANISH	3357; and one of the following: 3324, 3360, 3362, 3363, 3364, 3365, 3467.
SOCIAL SCIENCES	Three of the following: Economics 3366, 3367; Government 3333; Sociology 3336, 3360.
ADVANCED ELECTIVES	9 hours.

SPANISH OPTION

SPANISH	3357; and three of the following: 3324, 3360, 3362, 3364, 3365, 3467.
HISTORY	Two of the following: 3346, 3347, 3348, 3349.
SOCIAL SCIENCES	Three of the following: Economics 3366, 3367; Government 3333; Sociology 3336, 3360.
ADVANCED ELECTIVES	9 hours.

Bachelor of Science (SCIENCES)

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

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

Min. Sem. Hrs.

- § — MAJOR: at least 30 semester hours including 15 semester hours of advanced courses.
- § — MINOR: at least 18 semester hours including 6 semester hours of advanced courses.
- 6 — SCIENCE: another laboratory science as listed above.
- 6 — GOVERNMENT 3110-11.
- 6 — HISTORY 3101 and 3102.
- 3 — ECONOMICS 3103.
- 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.)
- § — 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.

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 74 of this catalog).

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

§ *Varies according to student's capabilities.*

Bachelor of Business Administration

GENERAL EDUCATION CORE REQUIREMENTS

- 6 — ECONOMICS 3103-3104.
- 12 — ENGLISH 3101-3102 and 3211-3212 or 3213-3214 or 3215 and 3216.
- 6 — GOVERNMENT 3110-3111.
- 6 — HISTORY 3101-3102.
- 6 — MATHEMATICS 3101-3102.
- 6 — NATURAL SCIENCE: Biology, Chemistry, Geology, Physics.
- 3 — PHILOSOPHY, PSYCHOLOGY, or SOCIOLOGY.
- 3 — SPEECH.

BUSINESS CORE REQUIREMENTS

- 9 — ACCOUNTING 3101, 3102, 3402.
- 6 — FINANCE 3301, 3302.
- 6 — MARKETING 3201, 3301.
- 3 — OFFICE MANAGEMENT 3203.
- 9 — PERSONNEL MANAGEMENT 3201, 3301.
- 3 — PRODUCTION MANAGEMENT 3301.
- 6 — STATISTICS 3201, 3301.
- 3 — BUSINESS LAW 3301.
- 3 — BUSINESS ADMINISTRATION 3400.

BUSINESS MAJOR OPTIONS

In addition to the General Education and Business Core requirements, the student, with the aid of his Business Administration counselor, will select one of the following optional concentrations of study (only one non-business elective may be lower division).

Min. Sem. Hrs.

ACCOUNTING OPTION

- 6 — ACCOUNTING 3201, 3202.
- 6 — ACCOUNTING CONCENTRATION ELECTIVES.
- 12 — NON-BUSINESS ELECTIVES.
- 6 — FREE ELECTIVES.

GENERAL BUSINESS OPTION

- 12 — BUSINESS CONCENTRATION ELECTIVES.
- 12 — NON-BUSINESS ELECTIVES.
- 6 — FREE ELECTIVES.

ECONOMICS OPTION

- 12 — BUSINESS CONCENTRATION ELECTIVES.
- 18 — ECONOMICS CONCENTRATION ELECTIVES.

PRE-PUBLIC SERVICE OPTION

- 12 — BUSINESS CONCENTRATION ELECTIVES.
- 18 — GOVERNMENT CONCENTRATION ELECTIVES.

MARKETING OPTION

- 12 — MARKETING 3202 or 3305, 3304, 3306, and 3401.
- 12 — NON BUSINESS ELECTIVES.
- 6 — FREE ELECTIVES.

**PERSONNEL MANAGEMENT AND
INDUSTRIAL RELATIONS OPTION**

- 12 — PERSONNEL MANAGEMENT 3302, 3303, 3304, 3401.
- 12 — NON BUSINESS ELECTIVES.
- 6 — FREE ELECTIVES.

STATISTICS AND QUANTITATIVE ANALYSIS OPTION

- 6 — STATISTICS 3302, 3401.
- 3 — MARKETING 3307.
- 3 — PRODUCTION MANAGEMENT 3304.
- 12 — NON BUSINESS ELECTIVES.
- 6 — FREE ELECTIVES.

OFFICE MANAGEMENT OPTION

- 24 — OFFICE MANAGEMENT 3101, 3102, 3201, 3202, 3301, 3302, 3302, 3304.
- 6 — NON-BUSINESS ELECTIVES.

PRODUCTION MANAGEMENT OPTION

- 12 — PRODUCTION MANAGEMENT 3302, 3303, 3304, 3305.
- 12 — NON-BUSINESS ELECTIVES.
- 6 — FREE ELECTIVES.

NOTE: A minimum of 123 semester hours of credit is required for the degree of Bachelor of Business Administration to be completed with a 2.0 grade point average on all business administration courses required under the student's chosen approved degree concentration program.

A "C" average in freshman English is prerequisite to enrollment in all business administration courses but enrollment may be concurrent.

A typewriting skill of thirty-five words a minute is prerequisite to enrollment in all business administration courses but enrollment in Office Typist Training may be concurrent.

DEGREE PLANS

TEACHER CERTIFICATION OPTION

This program enables the student to earn the Bachelor of Business Administration degree and to qualify for the secondary teaching certificate at the same time.

Min. Sem. Hrs.

SECRETARIAL TRAINING FIELD

- 24 - OFFICE MANAGEMENT 3101 or 3498, 3102, 3201 or 3499, 3202, 3301, 3302, 3303; PERSONNEL MANAGEMENT 3301°.

GENERAL BUSINESS FIELD

- 24 - ACCOUNTING 3101°-3102°; ECONOMICS 3103°, 3104°; MARKETING 3201°, 3303°; STATISTICS 3201°, 3301°.

ADDITIONAL REQUIREMENTS

- 3 - GENERAL PSYCHOLOGY 3101°.
18 - EDUCATION 3310, 3311, 3312, 3420, 3498, 3499.

°Courses included in the general education and business core requirements.

NOTE: A grade point average of not less than 2.0 is required in both English 3101-02 and Speech 3101. Any student declared deficient in English or Speech by the certifying committee or Department of Business Administration may be required to complete or repeat additional English and Speech courses regardless of his grade point average. A grade point average of not less than 2.5 is required in the teaching fields and education concentration.

ENGINEERING - SCIENCE ROUTE TO B.B.A.

ARRANGEMENT OF COURSES

Freshman	Min. Sem. Hrs.	Junior	Min. Sem. Hrs.
English 3101-3102	6	Statistics 3301	3
History 3101-3102	6	Marketing 3201	3
Chemistry 4103-4104	8	Personnel Management 3301	3
Mathematics 4111-4212	8	Production Management 3301	3
Mechanical Engineering 2103	2	Accounting 3301	3
Civil Engineering 3115	3	Mechanical Engineering 3375	3
Total	33	Electrical Engineering 4251	4
		Office Management 3203	3
		Physics 4216-4217	8
		Total	33
Sophomore		Senior	
Accounting 3101-3102	6	Accounting 3403	3
Economics 3103-3104	6	Business Law 3301	3
Statistics 3201	3	Business Administration 3400	3
Personnel Management 3201	3	Production Management 3302	3
Government 3110-3111	6	Production Management 3303	3
Mathematics 4317	4	Production Management 3304	3
Civil Engineering 3234	3	Production Management 3305	3
Civil Engineering 3238	3	Civil Engineering 3326	3
Total	34	English 3213 or 3215 or 3216	3
		Metallurgy 4203	4
		Finance 3301	3
		Total	34

Bachelor of Science in Medical Technology

Medical Technology is one of the important new careers in science today. Medical technologists are trained specialists working in clinical or medical laboratories where they perform scientific tests on which pathologists and doctors rely for help in the diagnosis and treatment of disease.

The work of the medical technologist is both important and challenging. It involves great responsibility and it requires thorough scientific and technical training.

DEGREE REQUIREMENTS:

The Bachelor of Science Degree program is sponsored by the Department of Biological Sciences.

The curriculum consists of a minimum of three years and one term of summer school work (109 semester hours) taken in the School of Arts and Sciences and twelve months training in a school of Medical Technology approved by the American Society of Clinical Pathologists. The specific courses and general requirements for the degree program are as follows:

Min. Sem. Hrs.

- 15 — ENGLISH 3101-02, 3211-12, 3269.
- 9 — MATHEMATICS 3115, 2116, 4111.
- 6 — GOVERNMENT 3110-11.
- 6 — HISTORY 3101-02.
- 8 — PHYSICS 4103-04.
- 9 — BIOLOGY CVVO, 3202-03, 3401.
- 10 — MICROBIOLOGY 3202, 3302, 4360.
- 25 — CHEMISTRY 4103-04, 5213, 3321-22, 3330, 3331.
- 12 — ZOOLOGY 3302, 3305, 4103.
- 9 — ELECTIVES.
- 109 — TOTAL.

An overall "C" average must be maintained.

A year (12 months) of professional training must be satisfactorily completed in an approved school of Medical Technology.

The above program is designed to provide the necessary scientific and professional training for a substantially high level of competence, and should thus provide the background required to achieve the professional excellence necessary for the ultimate responsibility of supervisory positions.

Library Services

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

Bachelor of Music

Major Subjects: Music Theory and Composition; Music Education: 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 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

- 12 — ENGLISH (exception: for Music Education, see page 62).
- 12 — MUSIC LITERATURE.
- 3 — SPEECH (not required in: 1. Music Theory and Composition and 2. Organ-Piano).
- 6 — HISTORY 3101-02.
- 6 — GOVERNMENT 3110-11.
- 16 to 20 — MUSIC THEORY 3114, 2111,* 2112,* 3213, 3214, 1211, 1212, 2315, 3411, or 3412.
(Music Theory and Composition Majors: 19 additional hours; Piano and Organ Majors: 5 additional hours; Orchestral Instruments and Voice Majors: 2 additional hours.)
- 7 — MUSIC EDUCATION 1101, 3331 and 3333 or 3435 (*exception:* Music Theory and Composition requires only 1101 and 3331 or 3333. Piano and voice pedagogy required of piano and voice majors respectively).
- 3 — MUSIC 3113 (essentials of acoustics and music theory).
- 8 — FOREIGN LANGUAGE courses 4101-02. (Required of Voice Majors only.)

APPLIED MUSIC:

- A. 32 — for Majors in Music Theory and Composition: 18 semester hours, secondary level, of major instrument; 8 semester hours or equivalent, of piano; 6 semester hours of secondary instrument.
- B. 34 — for Applied Majors in Piano and Organ: 32 semester hours of piano or organ, secondary level; 2 semester hours, or minimum standards audition, of piano sight-reading.
- C. 40 — for Applied Majors in Orchestral Instruments: 32 semester hours of the major instrument, secondary level; 4 semester hours of piano, or equivalent; 4 semester hours of Chamber Music, or equivalent.
- D. 34 — for Applied Majors in Voice: 24 semester hours of Voice, secondary level; 8 semester hours, or equivalent, of piano; 2 semester hours of secondary instrument.
 - Participation in the ensemble of the major instrument (band for winds, orchestra for strings, choir for voice, piano and organ majors) each semester in residence. For exceptions, petition the Music Faculty.
 - Qualified bandmen, interested in directing orchestras, must meet minimum participation requirements in Orchestra. For details, consult with department head.
 - Recital participation and/or attendance considered as laboratory for other music courses.

* May be omitted by passing satisfactorily a proficiency examination.

Teacher Education and Certification

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

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

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 college 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. The student who wishes to earn the Bachelor of Arts degree with a major in some other field and who also wishes to qualify for a provisional certificate to teach at the secondary level should confer with the Dean of Arts and Sciences. In the field of special education the College is approved for the provisional mentally retarded certificate.

Texas Western College has approved provisional certificate programs as follows:

1. Elementary Education — there are two programs for this certificate, Programs A and B as outlined on page 64.
2. Secondary Education — there are two programs for this certificate, Programs A and B as outlined on page 65.
3. All-Levels Programs — these programs are described on pages 60, 61, and 62 of this catalog.
4. Mental Retardation — this program is described on page 65 of this catalog.

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

1. Elementary Teaching.
2. Secondary Teaching.
3. School Administration.
4. Educational Supervisor in Elementary School.
5. Educational Supervisor in Secondary School.
6. 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.

All-Levels Teacher Programs

ART (Bachelor of Arts), DRAMA AND SPEECH (Bachelor of Arts),
HEALTH & PHYSICAL EDUCATION (Bachelor of Arts), and Music (Bachelor of Music).

An all-levels teaching field may be selected from the four programs listed below.
(For additional information consult with the head of the department concerned.)

Semester
Hours

ART

ACADEMIC FOUNDATIONS (60 semester hours)

ARTS & SCIENCES (36 semester hours)

- 12 - ENGLISH 3101-02* and 3211-12 or 3213-14 or 3215-16.
- 6 - HISTORY 3101, 3102.
- 6 - GOVERNMENT 3110, 3111.
- 12 - Twelve semester hours from two of the following:
SCIENCE - MATHEMATICS - FOREIGN LANGUAGES.

DEGREE REQUIREMENTS AND ELECTIVES (24 semester hours)

- 3 - SPEECH.*
- 3 - PHILOSOPHY 3301 or 3311.
- 3 - ECONOMICS 3103 or SOCIOLOGY 3101.
- 3 - DRAMA OR MUSIC.
- 12 - ELECTIVES.

PROFESSIONAL DEVELOPMENT

- 18 - EDUCATION 3301, 3302, 3310, 3311, 3496, 3498.

ACADEMIC SPECIALIZATION

- 48 - ART 3101, 3102, 3103, 3104, 3201, 3202, 3203, 3204, 3205, 3206, 3208, 3306, 3311, 3312, plus six advanced hours.
- A minimum total of 126 semester hours including 30 advanced hours.

DRAMA AND SPEECH

ACADEMIC FOUNDATIONS (60 semester hours)

ARTS & SCIENCES (36 semester hours)

- 12 - ENGLISH 3101-02* and 3211-12 or 3213-14 or 3215-16.
- 6 - HISTORY 3101, 3102.
- 6 - GOVERNMENT 3110, 3111.
- 12 - Twelve semester hours from two of the following:
SCIENCE - MATHEMATICS - FOREIGN LANGUAGES.

*A grade point average of not less than a 2.0 is required in both English 3101-02 and any three hours of speech. Any student declared deficient in English or Speech by the certifying committee or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average.

DRAMA AND SPEECH (continued)**Semester
Hours****DEGREE REQUIREMENTS AND ELECTIVES (24 semester hours)**

- 3 — PHILOSOPHY 3301 or 3311.
- 3 — ART or MUSIC.
- 18 — ELECTIVES.

PROFESSIONAL DEVELOPMENT

- 18 — EDUCATION 3301, 3302, 3310, 3311, 3496, 3498.

ACADEMIC SPECIALIZATION

- 49 — Nine hours of foundation courses in *DRAMA and SPEECH*; *SPEECH* 3210, 3333; *DRAMA* 3325, 3350; and 28 hours of *DRAMA and SPEECH*.

A minimum total of 127 semester hours including 30 advanced hours.

HEALTH AND PHYSICAL EDUCATION**ACADEMIC FOUNDATIONS (62 semester hours)****ARTS & SCIENCES (37 semester hours)**

- 12 — ENGLISH 3101-02* and 3211-12 or 3213-14 or 3215-16.
- 6 — HISTORY 3101, 3102.
- 6 — GOVERNMENT 3110, 3111.
- 13 — BIOLOGY 3110, 3202; ZOOLOGY 4103; and 3 hours of MATHEMATICS.

DEGREE REQUIREMENTS AND ELECTIVES (25 semester hours)

- 7 — HEALTH EDUCATION 3101, and four semesters of physical education skill courses as prescribed in freshman and sophomore years.
- 3 — SPEECH.*
- 3 — PHILOSOPHY 3301 or 3311.
- 6 — BIOLOGY 3203, 3301.
- 6 — ELECTIVES

PROFESSIONAL DEVELOPMENT

- 12 — EDUCATION 3301, 3310, 3311, and 3302 or 3306 or 3403.
- 6 — PHYSICAL EDUCATION 3496, 3498.

ACADEMIC SPECIALIZATION

- 36 — PHYSICAL EDUCATION 3103, 3202, 3205, 3206 (Men), 3207 (Men), 3215 (Women), 3316 (Women), 3303, 3304, 3305, 3311, 3409, 3414; HEALTH EDUCATION 3302.

- 24 — SECOND TEACHING FIELD, 12 hours of which must be advanced.

A minimum total of 127 semester hours including 30 advanced hours.

*A grade point average of not less than a 2.0 is required in both English 3101-02 and any three hours of speech. Any student declared deficient in English or Speech by the certifying committee or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average.

MUSIC**ACADEMIC FOUNDATIONS (60 semester hours)****Semester
Hours****ARTS AND SCIENCES (36 semester hours)**

- 12 — ENGLISH 3101-02* and 3211-12 or 3213-14 or 3215-16.
- 6 — HISTORY 3101, 3102.
- 6 — GOVERNMENT 3110, 3111.
- 12 — Twelve semester hours from two of the following:
SCIENCE — MATHEMATICS — FOREIGN LANGUAGES.

DEGREE REQUIREMENTS AND ELECTIVES (24 semester hours)

- 3 — SPEECH.*
- 6 — MUSIC LITERATURE 3121 or 3122 and 3321 or 3322.
- 3 — MUSIC THEORY 3113 or 3114 (acoustics).
- 12 — ELECTIVES.

PROFESSIONAL DEVELOPMENT

- 12 — EDUCATION 3301, 3302 or 3306; and 3310, 3311 or 3420.
- 6 — MUSIC EDUCATION 3496, 3498.
- — MUSIC EDUCATION 1101, 1201 (Required each semester but not counted in the minimum hours).

ACADEMIC SPECIALIZATION

(Choral Plan 51 hours, Instrumental Plan 53 hours)

C PLAN	I PLAN	(C — Choral Plan; I — Instrumental Plan)
13	—	MUSIC THEORY 1211, 1212, 3213, 3214, 2315, and 3411.
—	13	MUSIC THEORY 1211, 1212, 3213, 3214, 2315, and 3412.
12	12	MUSIC EDUCATION 3331, 3333, 3336, and 3433.
—	12	MAJOR INSTRUMENT.
—	6	PIANO.
—	2	VOICE.
—	8	Choice of 8 hours from: Reeds 2171, Brasses 2171, Percussion 2171, Low Strings 2171, High Strings 2171.
12	—	MAJOR INSTRUMENT (Voice, Piano, or Organ).
8	—	SECONDARY INSTRUMENT (Voice or Piano).
6	—	Additional applied music.
—	—	Participation in the ensemble of the major instrument (band, orchestra, or choir) each semester in residence.

A minimum total of 129 (Choral Plan) or 131 (Instrumental Plan) semester hours.

* A grade point average of not less than 2.0 is required in both English 3101-02 and Speech 3101. Any student declared deficient in English or Speech by the certifying committee or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average.

Bachelor of Science in Education

(Program A or B must be selected and completed)

REQUIREMENTS IN ACADEMIC FOUNDATIONS FOR ELEMENTARY EDUCATION, SECONDARY EDUCATION, AND MENTAL RETARDATION

<i>Minimum Semester Hours</i>		
PROGRAM A	PROGRAM B	ACADEMIC FOUNDATIONS:
		ARTS AND SCIENCES (36 semester hours)
12	12	ENGLISH 3101-02* and 3211-12 or 3213-14 or 3215-16.
6	6	HISTORY 3101, 3102.
6	6	GOVERNMENT 3110, 3111.
12	—	Twelve semester hours from two of the following: SCIENCE — MATHEMATICS — FOREIGN LANGUAGES.
—	6	FOREIGN LANGUAGE: Completion of 3201-02.
—	6	MATHEMATICS.
		DEGREE REQUIREMENTS AND ELECTIVES (30 semester hours)
6	—	EDUCATION 3101 or 3437, 3201.
3	3	SPEECH 3101.*
6	—	Six semester hours from Philosophy 3301, Economics 3103, Sociology 3101 or 3104 or 3215.
6	12	LABORATORY SCIENCES.
—	3	ECONOMICS.
—	3	PHILOSOPHY 3301 or 3311.
—	3	PSYCHOLOGY 3101.
3	—	MATHEMATICS.
6	6	ELECTIVES.

* A grade point average of not less than 2.0 is required in both English 3101-02 and Speech 3101. Any student declared deficient in English or Speech by the certifying committee or major department may be required to complete or repeat additional English and Speech courses regardless of his grade point average.

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

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

Bachelor of Science in Education**ELEMENTARY EDUCATION**

<i>Minimum Semester Hours</i>		
PROGRAM A	PROGRAM B	
66	66	ACADEMIC FOUNDATIONS (see page 63)
		ACADEMIC SPECIALIZATION , complete Plan I or II.
		PLAN I:
18	18	Teaching Subjects,* complete one teaching subject listed on page 66 under Teaching Subjects, Elementary Education, Plan I.
18	18	Combination Subjects,† complete 18 semester hours from the following: Art Education 3311, English 3308, Mathematics 3302, Music Education 3334, Geography 3210, Physical Education 3205 or Health Education 3302, not more than 6 hours of mathematics and/or physical science.
		PLAN II:
24	24	Teaching Subject,* complete one teaching subject listed on pages 66 and 67 under Teaching Subjects, Elementary Education, Plan II.
12	12	Combination Subjects,† complete 12 semester hours from the following: Art Education 3311, English 3308, Mathematics 3302, Music Education 3334, Geography 3210, Physical Education 3205 or Health Education 3302, not more than 6 hours of mathematics and/or physical science.
		PROFESSIONAL DEVELOPMENT
18	18	EDUCATION 3301, 3302, 3306, 3403, 3496-97.
		ELEMENTARY CONTENT.
12	12	EDUCATION 3303, 3304, 3305, 3405.
§	§	ELECTIVES to make a minimum of 132 semester hours.

* Teaching subjects include courses in Academic Foundations.

† Combination Subjects may not include courses in Academic Foundations.

§ Varies according to student's needs and capabilities.

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

Bachelor of Science in Education**SECONDARY EDUCATION**

<i>Minimum Semester Hours</i>	
PROGRAM A	PROGRAM B

66	66	ACADEMIC FOUNDATIONS (see page 63)
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48	48	ACADEMIC SPECIALIZATION , complete Plan I or II.
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PLAN I:

Secondary Teaching Fields,* complete two teaching fields listed on pages 67 and 68 under Teaching Fields, Secondary Education, Plan I. (A grade average of not less than 2.5 is required in each teaching field.)

PLAN II:

Secondary Composite Teaching Field,* complete one composite teaching field on page 68 under Composite Teaching Fields, Secondary Education, Plan II. (A grade average of not less than 2.5 is required in the composite teaching field.)

PROFESSIONAL DEVELOPMENT

18	18	EDUCATION 3310, 3311, 3312, 3420, 3498-99.
§	§	ELECTIVES to make a minimum of 132 semester hours.

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

§ Varies according to student's needs and capabilities.

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

*Minimum
Semester
Hours*

MENTAL RETARDATION

- Complete all requirements in Program A or B in Elementary Education (see page 64) except for Electives in Academic Foundations (see page 63).
- 3 — EDUCATION 3409.
- 9 — Complete at least nine hours from Education 3421, 3422, 3429, 3435.
- § — ELECTIVES to make a minimum of 132 semester hours.

§ Varies according to student's needs and capabilities.

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

Teaching Subjects: Elementary Education

PLAN I (18 semester hours in a subject, 9 hours of which must be advanced)

ART – Art 3101, 3102, 3204, 3314, plus 6 advanced hours	Total: 18 hours
SPEECH – Six hours of foundation courses in Drama and Speech; Speech 3333; Drama 3350; plus 6 hours in Speech of which 3 are advanced	Total: 18 hours
ECONOMICS – Economics 3103, 3104, 3303 or 3304, plus 9 advanced hours	Total: 18 hours
GOVERNMENT – Government 3110, 3111, plus 12 hours of which 9 are advanced	Total: 18 hours
HEALTH AND PHYSICAL EDUCATION – P.E. 3103, 3203, 3205, 3303, 3414; H.E. 3302	Total: 18 hours
HISTORY – History 3101, 3102, 3201 or 3202, plus 9 advanced hours	Total: 18 hours
MATHEMATICS – Mathematics 3101, 3102, 3201, plus 9 advanced hours	Total: 18 hours
PHYSICS – Physics 4115, 4216, 4216, plus 9 advanced hours	Total: 18 hours
SOCIOLOGY – Sociology 3101, 3102, 3104 or 3214, plus 9 advanced hours	Total: 18 hours

PLAN II (24 semester hours in one subject, 12 hours of which must be advanced)

ART – Art 3101, 3102, 3201, 3202, 3314, choice of 3 hours from 3203, 3204, 3205, plus 9 advanced hours	Total: 27 hours
BIOLOGICAL SCIENCES – Biology 3110, 3304; Zoology 4103, 3303; Botany 4103, 3301; plus 6 hours from Zoology 3304, 3430, Botany 3304	Total: 26 hours
CHEMISTRY – Chemistry 4103-04, 5213, 4221, 4322; plus 4 advanced hours	Total: 25 hours
SPEECH – Twelve hours of foundation courses; Speech 3333; Drama 3350; plus 6 advanced hours	Total: 24 hours
ECONOMICS – Economics 3103, 3104, 3303 or 3304; plus 15 advanced hours	Total: 24 hours
ENGLISH – English 3101-02, 3211-12, 3309, 3311-12, plus three additional hours of advanced English. (If the student was exempted from English 3101 by examination, he would be required to take three hours of advanced English in addition to the above to complete the total 24 hours required)	Total: 24 hours
FRENCH – French 4101-02, 3201-02, 3357, plus nine advanced hours. Non-native speakers are advised to complete three hours of either French 3110 or 3111. Senior French examina- tions by Modern Languages Department required	Total: 26 hours
GEOLOGY – Geology 3101, 3102, 3216, 3217, plus 12 advanced hours	Total: 24 hours
GERMAN – German 4101-02, 3201-02, 3357, plus nine advanced hours. Senior German examinations by Modern Languages De- partment required	Total: 26 hours
GOVERNMENT – Government 3110, 3111, plus 18 hours of which 12 are advanced	Total: 24 hours
HEALTH AND PHYSICAL EDUCATION – P.E. 3103, 3202, 3205, 3303, 3304, 3414; H.E. 3101, 3302	Total: 24 hours

TEACHING SUBJECTS: ELEMENTARY EDUCATION – PLAN II (continued)

HISTORY – History 3101, 3102, 3201, 3202, plus 12 advanced hours	Total: 24 hours
MATHEMATICS – Mathematics 3115, 2116, 4111, 4212, plus 12 advanced hours	Total: 25 hours
PHYSICS – Physics 4115, 4216, 4217, 1216, plus 12 advanced hours	Total: 25 hours
SOCIOLOGY – Sociology 3101, 3102, 3212, 3214, 3327, 3352, plus 6 hours from 3333, 3336, 3345, 3358	Total: 24 hours
SPANISH – Spanish 4101-02, 3201-02, 3357, 3400, plus three hours from Spanish Literature; plus three hours from Spanish Amer- ican Literature. Non-native speakers are advised to complete three hours from Spanish 3110, 3111, 3114. Senior Spanish examination by Modern Languages Department required	Total: 26 hours

Teaching Fields: Secondary Education**PLAN I** (24 semester hours in a field, 12 hours of which must be advanced)

BIOLOGICAL SCIENCES – Botany 4103, 3301; Zoology 3303; Biology 3304; Microbiology 3302; plus (Biology 3302 and 6 hours) or (Zoology 5201 and 3 hours) from: Zoology 3304, 3305, 3306, 3327; Microbiology 3302, 3333, 3423; Biology 3314; Botany 3320. Completion of Biology 3110 and Zoology 4103 under Academic Foundations	Total: 24 or 25 hours
GENERAL BUSINESS – Accounting 3101, 3102, 3402; Marketing 3201, 3301; Statistics 3201, 3301; Finance 3302	Total: 24 hours
CHEMISTRY – Chemistry 4103-04; 5213, 4221, 4322; plus 4 advanced hours	Total: 25 hours
DRAMA – Nine hours of foundation courses, plus 15 hours of which 12 are advanced	Total: 24 hours
ENGLISH – English 3101-02, 3211-12, 3309, 3311-12, 3419. (If the student was exempted from English 3101 by examination, he would be required to take three hours of advanced English in addition to the above to complete the total 24 hours required)	Total: 24 hours
FRENCH – French 4101-02, 3201-02, 3357, plus nine advanced hours. Completion of 4101-02 in a second language under Academic Foundations. Senior French examination by Mod- ern Languages Department required	Total: 26 hours
GERMAN – German 4101-02, 3201-02, 3357, plus nine advanced hours. Completion of 4101-02 in a second language under Academic Foundations. Senior German examination by Mod- ern Language Department required	Total: 26 hours
HEALTH AND PHYSICAL EDUCATION – Physical Education 3103, 3202, 3304, 3305, 3414, 3303, 3311, 3409, 3206 (Men), 3207 (Men), 3215 (Women), 3316 (Women)	Total: 30 hours
HISTORY – History 3101, 3102, 3201, 3202, plus 12 advanced hours	Total: 24 hours
JOURNALISM – Journalism 4207, 3201, 3202, 3305, 3312, 3350; Publications 1104, 1105; 1304, 1305; 1404	Total: 24 hours
MATHEMATICS – Mathematics 3115, 2116, 4111, 4212, plus 12 advanced hours	Total: 25 hours
PHYSICS – Physics 4115, 4216, 4217, 1216, plus 12 advanced hours	Total: 25 hours
SECRETARIAL SCIENCE – Office Management 3101 or 3498, 3102, 3201 or 3499, 3202, 3301, 3303, 3304; Personnel Management 3301	Total: 24 hours

EDUCATION MAJORS

TEACHING FIELDS: SECONDARY EDUCATION — PLAN I (continued)

- SPANISH — Spanish 4101-02, 3201-02, 3357, 3400; plus three hours from Spanish Literature; plus three hours from Spanish American Literature. Completion of 4101-02 in a second language under Academic Foundations. Senior Spanish examination by Modern Languages Department required Total: 26 hours
- SPEECH — Nine hours of foundation courses; plus 15 hours of which 12 are advanced Total: 24 hours
-

Composite Teaching Fields: Secondary Education

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

SCIENCE — Thirty hours from Zoology 4103, 5201; Botany 3210; Microbiology 3202; Chemistry 4104, 5213; Geology 3102, 4216, 4217; Physics 4216, 1216, 4217.

Completion of one of the following:

- (1) Botany 3301; Microbiology 3302; Zoology 3301; plus 9 hours from Zoology 3303, 3304; Microbiology 4360; Biology 3401.
- (2) Geology 3323, plus 15 advanced hours.
- (3) Physics 3325, plus 15 advanced hours.
- (4) Chemistry 4221, 4322, 3330, 3331, plus 4 advanced hours Total: 48 hours

SOCIAL STUDIES — History 3101, 3102, 3201, 3202, plus twelve advanced hours; Government 3111, plus three advanced hours; Sociology 3101, 3102, plus three advanced hours; Economics 3104, plus three advanced hours; Geography 3210 Total: 48 hours



THE GRADUATE SCHOOL



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

Since September, 1964, the Graduate Division has been a unit in The University of Texas Graduate School. Courses taken for graduate credit on any campus in the University system are valid on any other, and degrees are conferred by The University of Texas.

The conduct of graduate affairs is in the hands of the Dean and the departmental Committees on Graduate Studies, composed of full and associate members of The University of Texas Graduate Faculty. Two full members, elected by their colleagues, represent the Graduate Division of Texas Western College at meetings of The University of Texas Graduate Assembly.

The work of the individual graduate student is supervised by the Graduate Studies Committee in his area, which assists him in planning his work and in selecting a thesis supervisor.

An average grade of at least "B" is required in all courses counted for graduate credit and in all work taken to make up a deficiency. Half of the course work applied toward an advanced degree 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 field and a bachelor's degree. Only courses listed in the Graduate Bulletin will be counted for graduate credit.

Majors are offered in Education, English, Government, History, Physics, and Spanish. A minor of from six to twelve hours may be approved in a related field.

Qualifications of Applicants:

An applicant for admission to the Graduate School must hold a bachelor's degree from an accredited college or university, must satisfy the minimum grade-point requirement (3.0 average in upper division courses in the major and a 2.5 overall average in upper division courses) and make a satisfactory grade on the Graduate Record Examination Aptitude Test.

Twenty-four semester hours of undergraduate work are required in the major subject, twelve advanced. When there is a minor, a background of twelve undergraduate hours is required. Majors in Elementary Teaching must show eighteen undergraduate hours in the specialization area; majors in Secondary Teaching must show twenty-four.

With the Dean's approval, deficiency work and degree work may be carried on simultaneously in the semester during which the deficiency is removed.

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

Graduates of accredited colleges who

are not candidates for degrees may register for courses in the College to satisfy certification requirements, acquire special training, or pursue their personal interests. They will be registered as unclassified students.

In exceptional circumstances the Dean, with the advice of the appropriate Committee on Graduate Studies, may approve the admission of a student who fails to meet the requirements outlined above.

Methods of Application

Applications for admission to a graduate degree program are made in the office of the Dean. Two complete transcripts must be provided by graduates of other institutions — one for the office of the Registrar and one for the office of the Dean. These transcripts, plus the record of the Graduate Record Examination, provide the basis for evaluation.

Transfer of Credit:

Acceptance of graduate credits from another institution outside the University System may not exceed six semester hours, and is subject to approval by the Committee on Graduate Studies.

Undergraduate Students Taking Work for Graduate Credit:

An undergraduate student who lacks no more than twelve semester hours of the requirements for the bachelor's degree may, upon application to the Dean, take courses for graduate credit.

Special Examinations:

A comprehensive examination, oral or written or both, may be given at the discretion of the Dean and the Graduate Studies Committee in a major department.

Graduate Load for Employed People:

Students who are employed in full-time positions should be limited to three semester hours of work each semester. With the written approval of the Dean, 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 Regular Students:

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 completed half of his graduate work, he receives from

the Graduate Office a Petition for Candidacy which is to be signed by himself and the chairman of his Committee on Graduate Studies and returned promptly to the Dean. If the petition is denied, he may petition again at a later date.

Withdrawals and Changes:

Drops, withdrawals, and changes of program are handled in the office of the Graduate Dean.

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 the catalog chosen. After ten years credits may no longer be counted toward an advanced degree.

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 hours of course work.
2. Thirty semester hours (including the thesis) in the major subject, except when a minor is required or approved by the graduate adviser.
3. At the discretion of the graduate adviser, a minor of six, nine or twelve hours in a related subject may be approved. A transfer student must complete at least three semester hours of the minor in residence.
4. At least fifteen semester hours, including the thesis, must be on the graduate level (courses numbered 3500 and above).
5. See page 44 for American Government requirement.

Requirements for the Master of Education Degree

A. General Requirements for All Programs.

1. Thirty-six semester hours of course work.
2. There must be a minimum of eighteen semester hours of graduate courses (those numbered 3500 and above).
3. See page 44 for American Government requirement.
4. A transfer student must complete at least three semester hours of the minor in residence.

B. Requirements for the program for the Professional School Administration Certificate.

1. Completion of the M.Ed. and professional teaching certificate as indicated under "D" or "E" below. The professional teacher program must be planned to provide the foundation work for the program in school administration.
2. General and Specialized Professional Administration Areas: Education 3533, plus twenty-one semester hours from Education 3502, 3524, 3525, 3526, 3528, 3529, 3530, 3531, 3532.

C. Requirements for the programs of Elementary Supervision, Secondary Supervision, and Counseling.

Elementary Supervision:

1. Education 3502, 3503 or 3523, 3504, 3508, 3513, 3524, 3528, plus six hours of electives in Education.
2. Six hours credit from one of the following minors: Art, Biological Sciences, Business Administration, Chemistry, Drama, Speech, Economics, English, French, Geology, Government, Health and Physical Education, History, Mathematics, Music, Philosophy, Physics, Psychology, Sociology, Spanish.

Secondary Supervision:

1. Education 3502, 3503 or 3523, 3504, 3509, 3511, 3517 or 3518, 3524, 3532, plus six hours of electives in Education.
2. Six hours credit from one of the minors listed above under Elementary Supervision.

Counseling:

1. Education 3435, 3436, 3504, 3516, 3517, 3518, 3520, 3522, plus six hours of electives in Education (Education 3420 must be taken if not completed as part of the undergraduate program).
2. Six hours credit from one of the minors listed above under Elementary Supervision.

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

1. Specialization Area: Twelve semester hours of credit in courses numbered 3500 and above in one of the following elementary subjects: Biological Sciences, Chemistry, English, French, Government, Health and Physical Education, History, Music, Physics, Sociology, and Spanish. At least eighteen semester hours of undergraduate credit is required in the selected elementary subject.
2. Professional Development Area: Six semester hours from Education 3504 and either 3513 or 3514.
3. Resource Area: Six semester hours.
4. Electives: Twelve semester hours approved by the head of the Department of Education, of which at least six must be in Education.

E. Requirements for the program in Secondary Teaching for students who wish to qualify for the Professional Certificate.*

1. Specialization Area: Twelve semester hours of credit in courses numbered 3500 and above in one of the following secondary subjects: Biological Sciences, Business Administration, Chemistry, English, French, Government, Health and Physical Education, History, Music, Physics, and Spanish. At least twenty-four semester hours of undergraduate credit is required in the selected secondary teaching field.
2. Professional Development Area: Six semester hours from Education 3504 and either 3511 or 3517.
3. Resource Area: Six semester hours.
4. Electives: Twelve semester hours approved by the head of the Department of Education, of which at least six must be in Education.

F. Requirements for the program in Elementary Teaching for students who do not wish to qualify for the Professional Certificate.*

1. Specialization Area: Twelve semester hours of advanced or graduate credit in one of the following subjects: Art, Biological Sciences, Chemistry, Economics, English, French, Geology, Government, Health and Physical Education, His-

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

tory, Mathematics, Music, Physics, Spanish, Speech, and Sociology. At least eighteen semester hours of undergraduate credit is required in the selected elementary subject.

2. Professional Development Area: Six semester hours from Education 3504, 3513, or 3514. The Graduate Dean may in individual cases approve substitutions.
3. Resource Area: Six semester hours.
4. Electives: Twelve semester hours approved by the Dean of the Graduate Division, of which at least six must be in Education.

G. Requirements for the program in Secondary Teaching for students who do not wish to qualify for the Professional Certificate.*

1. Specialization Area: Twelve semester hours of advanced or graduate credit in one of the following fields: Art, Biological Sciences, Business Administration, Chemistry, Drama, English, French, Government, Health and Physical Education, History, Mathematics, Music, Physics, Spanish, Speech. At least twenty-four semester hours of undergraduate credit is required in the selected secondary teaching field.
2. Professional Development Area: Six semester hours from Education 3504, 3511, or 3517. The Graduate Dean may in individual cases approve substitutions.
3. Resource Area: Six semester hours.
4. Electives: Twelve semester hours approved by the Dean of the Graduate Division, of which at least six must be in Education.

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

Master of Science Degree in Physics

General Requirements:

1. A thesis (six semester hours) and twenty-four semester hours of course work.
2. A six-hour minor in Mathematics may be included in the twenty-four hours of course work on recommendation of the Committee on Graduate Studies. A transfer student must complete at least three semester hours of the minor in residence.
3. There must be a minimum of twenty-one semester hours, including the thesis, of graduate courses (those numbered 3500 and above). The following courses are required of all M.S. Candidates: Physics 3521, Mechanics 3541, Electricity and Magnetism 3561, and Quantum Mechanics.
4. See page 44 for the American Government requirement.

Thesis Requirements for the Master of Science Degree:

The thesis must be approved by a committee of not less than two members of the department. Five completed copies of the thesis, neatly typed on quality bond paper in uniform large type, double-spaced (lithographed copies are acceptable), must be presented to the Dean of the Graduate Division not less than ten days before the end of a semester in the long session, and not less than five days before the end of the summer session. In order to obtain the six semester hours credit for the thesis, the student must register for course 3598 when he begins work on his thesis. Thereafter he must register for course 3499 each semester or term during which he is working on his thesis.

If a student has not completed his thesis work at the end of two years after the subject has been approved and recorded, the supervisor may require him to choose another subject. Credit in the thesis course will not be granted until the thesis is completed and approved.

Comprehensive Examination:

A comprehensive examination, oral and/or written, may be given at the discretion of the Dean and the Committee on Graduate Studies.

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

(See the Graduate Bulletin for complete details)

Courses Offered . . .

Anthropology	178	Government	127
Art	75	Health Education	131
Bible	78	History	135
Biological Sciences	79	Journalism	140
Botany	80	Library Services	108
Business Administration	84	Mathematics	144
Chemistry	92	Microbiology	81
Drama	95	Military Science	148
Economics	99	Music	156
Education	102	Music Education	158
Engineering:		Philosophy	164
Civil	109	Physical Education	131
Electrical	111	Physics	166
Mechanical	113	Psychology	172
Metallurgical	115	Radio and Television	142
English	117	Russian	155
French	151	Sociology	175
Geography	126, 178	Spanish	153
Geology	123	Speech	97
German	152	Zoology	82

☞ 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 of a specific degree requirement are designated in the course description by a hyphen, for example, Biology 3101-02. Elective credit only 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)

CHEMISTRY

3221-3222 Organic Chemistry (\$2 + \$2)

(Two Semesters – Two Fees)



ART



WILTZ HARRISON, *Head*

Professors HARRISON, MASSEY; *Assistant Professor* COOGLER;

Instructors ARNOLD, PAIGE.

B.A. Degree – Art courses required for a Major in Art are: Art 3101, 3102, 3103, 3104, 3206, 3306, plus three (3) 3200 number courses in one area and two (2) 3200 number courses in the other area plus additional hours to make a total of twelve (12) advanced hours in Art.

B.A. Degree with Teacher Certification (see page 60) – Art Majors are required to meet with the Department Head upon accumulating 60 semester hours credit to outline their remaining major program.

See Graduate Bulletin for courses that are approved for credit in the Master's degree programs.

The Art Department reserves the right to retain student work for temporary or permanent exhibition.

For Undergraduates

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

BASIC COURSES (Required for all Art degrees)

3101 Design

An introduction to art through design experience with various media. Includes discussion and laboratory activity in introducing the student to the visual phenomena that form the basis for understanding and creating various art forms.

3103 Design

Continuation of Art 3101. *Prerequisite:* Art 3101.

3102 Drawing

Introduction to various types and uses of drawing in a variety of media and subject matter.

3104 Drawing

Continuation of Art 3102. *Prerequisite:* Art 3102.

3206 Art History of the Western World

A critical and analytical study of the great historical and contemporary works of art in the western world in architecture, sculpture, painting and the minor arts from the prehistoric period through the Italian Renaissance. *Prerequisite:* Sophomore standing.

3306 Art History of the Western World

A critical and analytical study of the great historical and contemporary works of art in the western world in architecture, sculpture, painting and the minor arts from Flemish and German schools to the present. *Prerequisite:* Art 3206.

AREA I, *Two-dimensional*

3201 Painting

3301 Painting

3205 Graphics

3305 Graphics

3207 Commercial Design

3307 Commercial Design

3208 Life Drawing

3308 Life Drawing

AREA II, *Three-dimensional*

3202 Sculpture

3302 Sculpture

3203 Metals

3303 Metals

3204 Ceramics

3304 Ceramics

3215 Enamels

3315 Enamels



ROY L. RUCKMAN, *Acting Head*

Instructors RUCKMAN, ATKINSON and KNICKERBOCKER.

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 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.

Bible courses for which college credit is given are conducted by the Baptist Student Union, the Wesley Foundation and Church of Christ Bible Chair.

For Undergraduate Credit Only

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

- 3101 Survey of the Old Testament
A comprehensive study of the entire Old Testament.
- 3103 The Life of Christ
A historical study of the life and teachings of Christ.
- 3104 Survey of the New Testament
A comprehensive study of the entire New Testament.
- 3201 The Life of Paul
A historical study of the life and missionary endeavors of the Apostle Paul. *Prerequisite:* Sophomore standing.
- 3202 Prophetic and Wisdom Literature of the Old Testament
A study of the historical context, literary style and religious meaning of the prophetic and wisdom literature in the Old Testament. Special attention will be given to all the major and minor prophetic books as well as Job, Psalms, Proverbs and Ecclesiastes. *Prerequisite:* Sophomore standing.
- 3301 Comparative Religion
An introduction to the study of religion and an examination of primitive religion. Among the living religions, Zoroastrianism, Hinduism, Buddhism, Confucianism, Taoism, Shintoism, Judaism, and Christianity will be studied. *Prerequisite:* Junior standing.



BIOLOGICAL SCIENCES



JAMES B. REEVES, *Head*

Professors BERKMAN, REEVES; *Associate Professors* CHRAPLIWY, DUKE, METCALF, WEBB, WILLIAMS; *Assistant Professors* MANNING, TULLEY;
Instructor LANDOLT (on Leave of Absence)

Twenty-seven semester hours of Biological Sciences are required for the Bachelor of Arts with a major in Biological Sciences.

Thirty-three semester hours of Biological Sciences are required for the Bachelor of Science (in the Sciences) with a major in Biological Sciences.

A student, at his option, may pursue a field of concentration in Botany, Microbiology, or Zoology.

BIOLOGY

For Undergraduates

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

3101-02 Anatomy and Physiology (\$2-\$2) [For Nurses Only]

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.

3110 General Biology (\$2)

Principles of cell and energy relationships in biotic systems, self-perpetuation, classification, and relationships of the organism to space, time and environment. Two lectures and two laboratory hours per week. *Prerequisite:* College entrance.

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 4103. This course may not be counted for credit in addition to Zoology 5201.

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 5201.

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 5201.

3304 Genetics

Principles of heredity in their application to animals, plants, and mankind. *Prerequisite:* Zoology 4103 or Botany 4103 and Junior standing.

3314 Evolutionary Theory

History of evolutionary thought; critical examination of the evidence for evolution with emphasis on genetic, morphological, ecological and zoogeographical concepts as related to the process of evolution. Three lectures per week. *Prerequisite:* Twelve hours of biological sciences and Junior standing.

- 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:* Senior standing and permission of the Head of the department.
- 1415 **Selected Topics in the Biological Sciences – SEMINAR (\$2)**
 Two lecture hours per week. *Prerequisite:* Twelve hours of advanced biological sciences.
- 2498-6498 **Introduction to Research (\$4)**
 Credit will be granted, up to six semester hours, for research satisfactorily completed by advanced students. Only specially qualified students will be accepted for this work. *Prerequisite:* Senior standing and permission of the Head of the department.

BOTANY

For Undergraduates

- 4103 **Survey of the Plant Kingdom (\$2)**
 The life histories and phylogenetic relationships of vascular and non-vascular plants. Three lectures and two laboratory hours per week. *Prerequisite:* Biology 3100 or the equivalent.
- 3210 **Morphology and Taxonomy (\$2)**
 The form, structure, and development of the higher plants with principles of collecting, preservation, identification and classification. Two lectures and three laboratory hours per week. *Prerequisite:* Botany 4103.

For Undergraduates and Graduates

- 3301 **Plant Ecology (\$2)**
 The adaptation of plants to environmental growth conditions. Emphasis is on the origin, development, and stabilization of plant communities. Two lectures and three laboratory hours per week. *Prerequisite:* Botany 3210.
- 3304 **Economic Botany**
 Survey of the plants with the greatest economic importance to man. Study of products from the plant cell wall, cell exudates and extractions. Three lecture hours per week. *Prerequisite:* Botany 4103 and permission of Head of Department.
- 3313 **Plant Physiology (\$2)**
 A study of the processes of nutrition, growth and metabolism. Three lectures and two laboratory hours per week. *Prerequisite:* Botany 4103 and Chemistry 4103-04.
- 3320 **Plant Anatomy (\$2)**
 A comprehensive treatment of the development, function and evolutionary significance of the internal structure of plants. Two lectures and three laboratory hours per week. *Prerequisite:* Botany 3210.
- 3327 **Cytology (\$2)**
 A study of the structure and function of plant and animal cells. Gross structure and ultrastructure of nuclear and extranuclear components will be studied with emphasis on nuclear cytology and cytogenetics. Two lectures and three laboratory hours per week. *Prerequisite:* Botany 3210.
- 3423 **Mycology (\$2)**
 Morphology, taxonomy and physiology of the fungi. Two lectures and three laboratory hours per week. *Prerequisite:* Botany 3210 or Microbiology 3202 and six additional semester hours of Botany or Microbiology.

MICROBIOLOGY**3201 Microbiology (\$2) [For Nurses Only]**

Survey of microbes with emphasis on pathogens, bacteria and protozoans; culture technique; staining technique; histology of the blood and typing of blood groups. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4106 and Biology 3101.

For Undergraduates**3202 General Microbiology (\$2)**

Principles of microbiology; application of pure culture techniques employing non-pathogenic forms; bacteriological analysis of water, milk and sewage; staining techniques, preparation of media; application of microbiology to industrial problems. Three lectures and three laboratory hours per week. *Prerequisite:* Biology 3110, Botany 4103 or Zoology 4103 and Sophomore standing.

For Undergraduates and Graduates**3302 Pathogenic Microbiology (\$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:* Microbiology 3202; for juniors and seniors, the equivalent of Microbiology 3202 as determined by the Instructor and the Head of the department.

3333 Microbial Physiology

Principles of microbial activity; microbial anatomy, growth, nutrition and metabolism. Three lectures per week. *Prerequisite:* Microbiology 3202 and eight hours of Chemistry.

3334 Industrial Microbiology (\$2)

Principles of antibiotic production, microbial fermentations, microbiology of water and sewage, production of biological agents. Two lectures and three laboratory hours per week. *Prerequisite:* Microbiology 3202 and 3333.

3423 Mycology (\$2)

Morphology, taxonomy and physiology of the fungi. Two lectures and three laboratory hours per week. *Prerequisite:* Microbiology 3202 or Botany 3210 and six additional hours of Microbiology or Botany.

3424 Advanced General Microbiology (\$2)

An intensive study of the genera of bacteria, principles of dilutions, enzymatic assay, and an introduction to instrumental analyses. Two lectures and three laboratory hours per week. *Prerequisite:* Microbiology 3202 and 3333 and six additional semester hours of Microbiology.

3425 General Virology

The morphological, physiological, and biochemical study of animal and plant viruses. Three lectures per week. *Prerequisite:* Microbiology 3333 and 4360.

4360 Immunology (\$4)

Principles of the immune reaction, nature of antigens and antibodies, antigen-antibody reactions, allergic phenomena, antiviral immunity. Two lectures and six laboratory hours per week. *Prerequisite:* Microbiology 3302, and Chemistry 3221 or 4321 concurrently.

ZOOLOGY

For Undergraduates

4103 Survey of the Animal Kingdom (\$2)

A survey of the kinds of animals, their classification, phylogenetic relationships, anatomy and ecology. Three lectures and two laboratory hours per week. *Prerequisite:* Biology 3100 or the equivalent.

5201 Comparative Vertebrate Anatomy (\$7)

Classification and comparative anatomy of vertebrates, including function, ontogeny and phylogeny of their organs and organ systems. Dissection of a cyclostome, selachian, and a mammal. Three lectures and five laboratory hours per week. *Prerequisite:* Zoology 4103 with a grade of at least a "C" and Sophomore standing.

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 5201 with a grade of at least a "C" and Junior standing.

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 5201 with a grade of at least a "C" and Junior standing.

3303 Animal Ecology (\$2)

Fundamentals of the relations of animals to the physical and biological environment; adaptation of structure and functions, natural selection, populations and the factors that control them, associations and specialized relations, organization and interrelationships of plant-animal communities. Two lectures and three laboratory hours per week. *Prerequisite:* Zoology 4103 and six additional hours of biological science.

3304 General Physiology (\$4)

Principles of organization of cellular activity; molecular structure of protoplasm, surface and osmotic phenomena, permeability, nutrition, metabolism, and mechanism of energy exchange. Two lectures and three laboratory hours per week. *Prerequisite:* Zoology 5201, Biology 3203 and Chemistry 4103-04.

3305 Parasitology (\$2)

A survey of the parasitic Protozoa, Platyhelminthes, Aschelminthes and Arthropoda; their morphology, physiology, life cycles, and introduction to the pathology they provoke; the laboratory identification of the parasites. Two lectures and three laboratory hours per week. *Prerequisite:* Zoology 4103 and six additional hours of biological sciences.

3306 Vertebrate Natural History

The evolution, taxonomy, ecology, and zoogeography of vertebrates with a consideration of their morphology, physiology, and behavior pertinent for adaptation to various habitats. Three lectures per week. *Prerequisite:* Zoology 5201.

3327 Cytology (\$2)

A study of the structure and function of plant and animal cells. Gross structure and ultrastructure of nuclear and extranuclear components with emphasis on nuclear cytology and cytogenetics. Two lectures and three laboratory hours per week. *Prerequisite:* Botany 3210 or Zoology 5201. May be counted as three semester hours toward either Botany or Zoology option.

3430 Zoogeography

A study of the geographical distribution of animals. Past geologic and ecologic factors accounting for present distributional patterns are emphasized. Three lectures per week. *Prerequisite:* Twelve hours of biological sciences and Senior standing.

3463 Protozoology (\$2)

The morphology, taxonomy and physiology of the non-parasitic protozoa. Two lectures and three laboratory hours per week. *Prerequisite:* Zoology 5201 or Microbiology 3202 and six additional hours of Zoology or Microbiology. This course may be counted as three semester hours credit in Microbiology.

FOR GRADUATE STUDENTS ONLY

Prerequisite: Twelve advanced hours of Biological Sciences and a Bachelor's Degree.

3501 Selected Advanced Topics in Zoology – SEMINAR

Topics vary with student background and instructor.

3502 Problems in the Biological Sciences – SEMINAR

Research, writing and discussion in the Biological Sciences.

3503 Desert Ecology – SEMINAR

An advanced study of the relation of plants and animals to the physical and biological environments.

3504 Cytogenetics – SEMINAR

A correlation of plant and animal cytology and genetics.

GEORGE JOYCE, *Head*

Professors HATRICK, HEBERT, MILLER;

Associate Professors BLACK, BLANCHARD, DAWKINS, HOPKINS, JOYCE;

Assistant Professors AKARD, BOVARD, BUCKNER, FREELAND, JENSEN, REYNOLDS, SANDERS, TOMPKINS; *Instructor* BEHRMAN; *Part-time Instructor* FRUITHANDLER;

Teaching Assistant KUHN.

Due to the change in degree program structure certain courses may be scheduled out of sequence subject to approval of the department Head.

See pages 54-56 for Degree Plan requirements and certificates.

GENERAL BUSINESS

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

- 3101 Development of American Industry [Formerly 3100]
A comparative analysis of the major industries in the United States. Selected motion pictures, slides, and audio tapes are used to teach the factors of integration and rationalization of each industry; fundamental development of the problem — solving technique with qualitative data.
- 3102 Social Responsibility of Business [Formerly 3101]
The student correlates the objectives of business firms with those of the society as a whole, analyzes the interrelationships of business resources, and examines the management process of marshalling and utilizing resources to attain desired objectives.
- 3201 Professional Salesmanship
Analysis of the concepts and personal attributes required for professional selling; preparation, modern methods of sales presentation, building of good-will; employer, employee, and competitor relationships. *Prerequisite:* Sophomore standing or approval of the department Head.
- 3202 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:* Sophomore standing or approval of the department Head.
- 3401 Comparative Readings
An independent study opportunity designed to augment a student's unique ability or to be used as a means of encouraging broadened thought through comparisons of business philosophies. Written reports based upon assigned readings are required. *Prerequisite:* Senior standing or approval of the department Head.
- 3402 Business Policy and Management Laboratory [Formerly 3400]
Integration of accounting, business law, finance, personnel and production management, and marketing background in the solution of top-management problems. Computer simulated business operation and administration. Student placement with co-operating firms to receive on-the-job training in management. *Prerequisite:* Senior standing and nomination by the Department of Business Administration.

ACCOUNTING

- 3101 Principles of Accounting — Fundamental (\$2) [Formerly 3190]
Introductory study of the double entry accounting system. Analysis and recording of business transactions; preparation of financial statements applicable to proprietorship and partnership accounting. Problems and practice set.

- 3102 Principles of Accounting — Fundamental (\$2) [Formerly 3191]
A continuation of fundamental principles. Study of the corporate form of the business entity with an introduction to taxes (payroll, property, and income), the cost system (job order, process cost, and standard cost), and financial statement analysis. *Prerequisite:* Accounting 3101.
- 3201 Principles of Accounting — Intermediate [Formerly 3290]
Critical analysis of the balance sheet accounts. Introductory analysis of income statement expense and revenue accounts with emphasis on the matching process. Problems keyed to studies made by professional accounting societies. *Prerequisite:* Accounting 3101-3102 and Sophomore standing.
- 3202 Principles of Accounting — Intermediate [Formerly 3291]
Completion of the critical study of balance sheet accounts. Continuing intensive analysis of financial statements. Emphasis on comparative analysis of tabulated data, special ratios and measurement, funds and cash flow statements, and accounting for price level changes. *Prerequisite:* Accounting 3201 and Sophomore standing.
- 3301 Cost Analysis I [Formerly 3390]
A study of cost accounting procedures with emphasis on the basic theory and procedures of allocating materials, labor, and manufacturing expenses in job order and process cost systems. *Prerequisite:* Accounting 3101-3102 & Junior standing.
- 3302 Cost Analysis II [Formerly 3391]
Fundamental techniques of expense allocation are more fully developed. Emphasis on determining standard costs, budgetary control, variance analysis, and cost and profit analysis for management decision making. *Prerequisite:* Accounting 3301 and Junior standing.
- 3303 Management Services — Systems Design [Formerly 3392]
Analysis of fundamental accounting systems. Emphasis on systems design; relationship of system and organization; objectives, policies, procedures, and plans. Field trips scheduled to selected business offices in problem analysis of operating systems. *Prerequisite:* Accounting 3201-3202 and Junior standing.
- 3304 Management Services — Electronic Data Processing [Formerly 3491]
Punch card tabulating; electronic data processing; principles and problems of accounting systems planning, organization, and control in internal procedures, auditing, and analysis. *Prerequisite:* Accounting 3303 and Junior standing.
- 3305 Management Services — Profit Planning [Formerly 3393]
Fundamental techniques of dynamic cost and profit control. Primary emphasis on responsibility accounting. Problems in managerial planning budgets, variable expenses, cost-volume-profit analysis, and budget reports. *Prerequisite:* Accounting 3201-3202 and Junior standing.
- 3306 Governmental and Institutional Accounting [Formerly 3394]
Study of the specialized procedures and unique methods of fund accounting for governmental units and private institutions. Introduction to governmental auditing. *Prerequisite:* Accounting 3101-3102 and Junior standing.
- 3401 Principles of Accounting — Advanced [Formerly 3490]
Designed to prepare the student for special problems in accounting; consolidations, fiduciaries, consignment sales, liquidations and dissolutions, and home office-branch relationships. *Prerequisite:* Accounting 3201-3202.
- 3402 Federal Tax — Individuals [Formerly 3492]
Intensive study of the tax structure as stated public policy. Ethical implications of tax policy interpretations. Emphasis on the current income tax code with problem analysis and preparation of income tax returns for individuals. *Prerequisite:* Senior standing.

BUSINESS ADMINISTRATION

- 3403 Federal Tax — Partnerships and Corporations [Formerly 3493]
Analysis of the current Federal Income Tax code in relation to partnerships and corporations including problems and preparation of tax returns. Analysis of federal gift, estate, and inheritance tax structures. *Prerequisite:* Accounting 3402 and Senior standing.
- 3404 Auditing Principles and Procedures [Formerly 3496]
Public accounting firm organization and operation; internal control and internal auditing; verification of balance sheet and operating accounts; auditors reports and opinions. *Prerequisite:* Accounting 3201-3202.

BUSINESS LAW

- 3301 Legal Environment of Business [Formerly 3380]
Designed to introduce the student to the legal environment in which business decisions are made; meaning and nature of law; sources of law; the environment of business resulting from law; intensive study of contracts; comparative analysis of the relationships between business and government. *Prerequisite:* Junior standing.
- 3302 Labor Law [Formerly 3381]
Historical development of labor law and the rights and duties of collective bargaining. Study of applicable Federal legislation; administrative procedure, rulings, and decisions; study of significant court cases. *Prerequisite:* Junior standing.
- 3303 International Law of Commerce [Formerly 3382]
An intensive study of the practical legal problems encountered by individuals and corporations doing business abroad under national and international law. The historical development of the law merchant and the principal world legal systems. An examination of the law of contracts, business organizations and negotiable instruments under a civil law jurisdiction. Particular attention will be paid to Latin-America. *Prerequisite:* Junior standing.

FINANCE

- 3301 Money and Banking [Formerly 3370]
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 3103-3104 and Junior standing. Finance 3301 and Economics 3375 may not both be counted for credit.
- 3302 Business Finance [Formerly 3371]
Sources and applications of funds by corporations. Management and financing of current assets; the sources and use of short, intermediate, and long-term funds. Study of capital budgeting, capital structure, dividend policy, and the problems peculiar to financing new business ventures. *Prerequisite:* Accounting 3101-3102 and Junior standing.

MARKETING

- 3201 Principles of Marketing
A description and analysis of the ways in which goods move to points of consumption. Topics studied include functions, institutions, the marketing environment, markets, and government regulation. *Prerequisite:* Sophomore standing.
- 3301 Advanced Marketing
Legal, economic, and social aspects of the marketing process. Analysis of the role of marketing management; governmental regulations, pricing policies and practices, the selection of distribution channels, sales promotion, and market analysis. *Prerequisite:* Marketing 3201.

- 3302 Principles of Retailing [Formerly 3361]
Analysis of retail store management including personal requirements and career opportunities with emphasis on modern methods in buying, receiving, pricing, merchandise and financial control, sales promotion and customer service. *Prerequisite:* Marketing 3301 and Junior standing.
- 3303 Fundamentals of Advertising
Survey of advertising principles used in all media of communications. Discussion of advertising's role in small and large business enterprises. *Prerequisite:* Marketing 3301 and Junior standing. Marketing 3303 and Journalism 3350 may not both be counted for credit.
- 3304 Distribution Logistics
Provides a functional knowledge of transportation and distribution systems capable of introducing change or reacting to change in the economic system. Emphasis upon the functional analysis of carriers, distribution system alternatives, spatial arrangements of markets, and selection of physical movement channels in accordance with emerging regional and national programs. *Prerequisite:* Marketing 3301 and Junior standing.
- 3305 International Marketing
Emphasis is given international marketing from the viewpoint of the marketing manager who must recognize differences in market arrangements, and in legal, cultural, and economic factors in different countries. Areas covered include planning, and organizing for international operations, interrelationships with other functions, product strategy, pricing, promotion, channels and financial aspects of international marketing. *Prerequisite:* Marketing 3301 and Junior standing. Not to be offered until 1967.
- 3306 Sales Management
The selection and administration of the sales force; determination of marketing policies; and the planning, coordination, and control of all promotional activities. *Prerequisite:* Marketing 3301 and Junior standing.
- 3401 Marketing Research and Analysis
Scientific methods of analysis and statistical techniques are employed in solving marketing problems. Emphasis on collection of information from internal and external sources; analysis; interpretation, and presentation of research findings. *Prerequisite:* Statistics 3301 and Marketing 3301.

OFFICE MANAGEMENT AND BUSINESS EDUCATION

- 3101 Office Typist Training (\$2)
Designed to develop typewriting skill and to prepare the student for vocational application with emphasis on page arrangement and organization; to develop habits of neatness, accuracy, and concentration; to develop a minimum typewriting proficiency of 35 words a minute.
- 3102 Office Clerk - Typist Training (\$2)
Continuation of development of typewriting skill. Refinement of skills and production efficiency. Use of electric machines. Objective is to develop a minimum speed of 60 words a minute. *Prerequisite:* Office Management 3101 or equivalent.
- 3201 Office Stenographic Training (\$2)
Gregg shorthand theory with emphasis on spelling, punctuation, vocabulary, and the use of the mechanics of English; to develop the ability to write shorthand on the previewed material at a minimum rate of 60 words a minute and transcribe with 95 per cent accuracy. *Prerequisite:* Office Management 3102 or may be taken concurrently.
- 3202 Office Secretary Training (\$2)
Gregg shorthand theory continued; to develop the ability to write shorthand at a minimum rate of 80 words a minute on unpracticed material and transcribe with 95 per cent accuracy. *Prerequisite:* Office Management 3201.

- 3203 **Business Communications**
Development of clear, persuasive writing skill through intensive application of communication principles. Classroom discussion is supplemented by supervised practice in the composition of business letters, reports, memos, and other written communications. *Prerequisite:* "C" average in English 3101-3102; Office Management 3101 or equivalent; Sophomore standing.
- 3301 **Office Senior Secretary Training (\$2)**
Transcription of mailable business correspondence through sustained dictation and building of vocabulary for secretarial efficiency. *Prerequisite:* Office Management 3202 and Junior standing.
- 3302 **Office Administrative Secretary Training (\$2)**
Secretarial procedures including: processing of mail, filing and records control, procuring office supplies, receiving calls and callers, handling travel arrangements, preparing business reports; developing personal and professional qualities needed by the career secretary. Three lectures and two laboratory hours per week. *Prerequisite:* Office Management 3301.
- 3303 **Office Management** [Formerly 3357]
A study of the authority and responsibilities of the office manager. Comprehensive applications of modern management concepts and practices in the organization, operation, and control of office functions. *Prerequisite:* Junior standing.
- 3304 **Office Systems and Procedures**
Methods of establishing, analyzing, standardizing, and controlling administrative systems and procedures including: work simplification, forms analysis, work-flow charting, layout and space analysis, office manuals. *Prerequisite:* Office Management 3303.

PERSONNEL MANAGEMENT AND INDUSTRIAL RELATIONS

- 3201 **Concepts of Modern Organization**
Study and application of the concepts of management in business organization and operation. The student's attention is focused on the universality of management functions in all phases of business in his search for a practical philosophy of management. *Prerequisite:* Sophomore standing.
- 3301 **Personnel Management and Industrial Relations**
Survey of policy, procedure and practice in major areas of the Personnel-Industrial Relations field, including: employment, training, labor relations, wages and incentives, benefits and services, program research and evaluation. *Prerequisite:* Junior standing.
- 3302 **Industrial Psychology**
Psychological applications to business organizations. Primary emphasis upon research findings in Personnel Administration areas such as: selection, training, group relations, employee evaluation motivation, work environment. Also attention to other areas of Industrial Psychology such as: human engineering, advertising and public relations. *Prerequisite:* Personnel Management 3301.
- 3303 **Collective Bargaining**
Analysis of bargaining procedures; study of basic institutional issues in bargaining, economic related administrative clauses, strike and lockout tactics, contract administration. Preparation, negotiation, and interpretation of labor contracts. *Prerequisite:* Personnel Management 3301.
- 3304 **Organization Staffing**
Detailed consideration of programs and methods in procurement, selection, assessment, and development of an organization's manpower resources. Areas include: psychological testing, interviewing, and related employment techniques, counseling and employee appraisal training and development plans. *Prerequisite:* Personnel Management 3301 and Statistics 3301.

- 3401 **Human Relations in Management**
Applications of contemporary theory in motivation of employees at all organizational levels. Direct and indirect compensations; nonfinancial rewards; interrelationships among measures of morale, productivity and leadership. *Prerequisite:* Personnel Management 3301.

PRODUCTION MANAGEMENT

- 3301 **Production Management – Fundamental** [Formerly 3334]
Study of basic quantitative procedures and techniques employed in operations management with emphasis on the development and understanding of analytical techniques and their contribution to managerial decision-making. Statistical, linear programming, and general quantitative analysis applied in case problems. *Prerequisite:* Statistics 3301 and Junior standing.
- 3302 **Production Management – Advanced** [Formerly 3335]
An analytical approach to the management of physical resources. Study of new developments in mathematical and statistical bases for making rational decisions in operating management; linear programming; value analysis; problem-solving models. Production system simulation by computer. *Prerequisite:* Production Management 3301 and Junior standing.
- 3303 **Methods Analysis** [Formerly 3336]
Methods improvement procedures; process analysis; principles of motion economy. Determination of time standards and their relation to incentive systems. Emphasis on human relations problems. Development and control of performance standards. *Prerequisite:* Production Management 3301 and Junior standing.
- 3304 **Operations Research – Managerial (\$2)** [Formerly 3337]
The objective of this course is to provide an understanding of the philosophy of operations research, to introduce the mathematical techniques employed in the solution of typical management problems, and to teach the student when and where the operations research methodology can be applied. Mathematical programming, game theory, queuing theory, and Monte Carlo simulation applied to problem situations. Computer programmed problem-solving. *Prerequisite:* Production Management 3301 and Junior standing.
- 3305 **Production Control** [Formerly 3441]
The control of time, quantity, and quality of operations. Routing, scheduling, dispatching, and control problems. System relationships in manufacturing, sales, and technical staff departments. *Prerequisite:* Production Management 3301 and Junior standing.

STATISTICS AND QUANTITATIVE ANALYSIS

- 3201 **Fundamentals of Statistics (\$2)**
Introduction to the foundations of descriptive statistics. Measures of location and variation, with emphasis to specific applications. Study of Index numbers. Introduction to foundations of probability. Time series, Correlation analysis. The course will cover also an introduction to electronic data programming with application emphasis to the related statistical problems studied. *Prerequisite:* Mathematics 3101-3102 and Sophomore standing.
- 3301 **Intermediate Statistics (\$2)**
Probability and combinatorial analysis. Decision theory, mathematical expectations, tests of hypotheses, linear regression and analysis, correlation analysis, multiple linear regression. Time series and trend analysis, seasonal and cyclical movements. Probability distributions, sampling distribution, the "t" distribution, the binomial distribution, the Poisson distribution, chi-square distribution. Introduction to operations research and linear programming. This course will cover some applications of electronic data programming to the subjects covered in the course. *Prerequisite:* Statistics 3201.

3302 Operations Analysis

Introduction to philosophy, techniques and business applications of modern mathematical sciences with emphasis on the managerial viewpoint. Foundations of mathematical operations for programming; analysis methods; price analysis and its determination; study of market elasticities with applications. *Prerequisite:* Statistics 3301. Not to be offered until 1967.

3401 Business Forecasting and Time Series

Introduction to the contemporary theory of economic fluctuations, economic indicators; foundations of business forecasting; analysis of business indexes in current use. Business index number construction, methods of measuring business trends and fluctuations, with applications to business forecasting. Serial and multiple correlation and business trends. Advanced study of time series. Application of forecasting methods to specific case studies. Role of business forecasting in managerial planning, principles and methods of forecasting and evaluation of the reliability of existing forecasting techniques. Short term and long term forecasting of industry, regional and national business trends. *Prerequisite:* Statistics 3301.

For Undergraduates and Graduates

Prerequisite for courses listed below: Senior or Graduate standing.

ACCOUNTING

3498 Studies in Advanced Accounting

A study of fundamental concepts and standards; the relationship between theory and practice; criteria developed for understanding, interpreting, and applying accounting theory. *Prerequisite:* Twelve hours of advanced Business Administration including intermediate accounting. Not to be offered until 1967.

3499 Accounting Theory — SEMINAR

A study of modern accounting theory, its background, applications, and influencing forces. *Prerequisite:* Twelve hours of advanced Business Administration, including intermediate accounting. Not to be offered until 1967.

MARKETING

3498 Marketing Survey and Analysis

A comprehensive approach embracing all business activities involved in moving goods from production to consumption. Breadth and depth are pursued with analytical emphasis upon marketing institutions, functions, regulations costs, efficiency, and contemporary marketing problems. Developing a philosophy of the role of marketing in the American economy is also emphasized. Not to be offered until 1967.

3499 Marketing Theory — SEMINAR

Concepts and theories advanced in the development of marketing institutions, channels, functions and marketing processes. Emphasis is given other disciplines and their contributions to marketing thought. Not to be offered until 1967.

OFFICE MANAGEMENT AND BUSINESS EDUCATION

3498 Improving Instruction in Secretarial Subjects

Modern methodology in teaching typewriting, shorthand, and office practice courses. The psychology of skill building and techniques of office production. Not to be offered until 1967.

3499 Business Education — SEMINAR

Evaluation of methodology and materials used in teaching business subjects. The place of basic business education in general education. Not to be offered until 1967.

PERSONNEL MANAGEMENT AND INDUSTRIAL RELATIONS

3498 Management of Human Resources

Manpower management viewed in terms of overall organizational performance. Constructive personnel techniques studied as implementation of modern management theory. Behavioral concepts applied to the broad problems, changing emphases, and specific issues of managing human resources in the autonomous firm in a free society. *Prerequisite:* Senior standing and six hours of advanced Personnel Management courses or Graduate standing. Not to be offered until 1967.

3499 Industrial Relations Research — SEMINAR

Applications of the scientific method to contemporary and potential problems in manpower management, including procedures for establishment of standards and for evaluation of existing programs. *Prerequisite:* Senior standing and six hours of advanced Personnel Management courses or Graduate standing. Not to be offered until 1967.

PRODUCTION MANAGEMENT

3498 Operations Planning and Control

An analytical study of modern concepts and techniques which have been developed to plan and control operations effectively. Analysis by quantitative techniques for managerial planning and decision-making. Computer applications in problem-solving and simulation. The objective of the course is to bring the range of concepts and techniques to a point of effective application. *Prerequisite:* Production Management 3301 and three hours of advanced Production Management. Not to be offered until 1967.

3499 Production Management — SEMINAR

Current development in production engineering and management. Attention will be given to the identification, definition, and analysis of problem areas. Research of literature and investigation of modern methods. Designed to develop facility in analyzing management problems in manufacturing. *Prerequisite:* Production Management 3301 and three hours of advanced Production Management. Not to be offered until 1967.

STATISTICS AND QUANTITATIVE ANALYSIS

3498 Statistical Survey Techniques

Building of econometric models and advanced time series analysis in measuring trends and fluctuations in business and economics; mathematical programming and the analysis of business series; input-output analysis. Analysis of inter-industry relationships. Not to be offered until 1967.

3499 Regional Analysis, Methods and Principles — SEMINAR

Quantitative and mathematical approach to the analysis of regional economies; construction of regional economic models; and methods of regional analysis. Some case studies and class projects for the El Paso area. Not to be offered until 1967.

J. A. HANCOCK, *Head*

Professors ALEXANDER, HANCOCK, LAKE [emeritus], O'NEAL;

Associate Professors LEVITT, LLOYD, RIVERA; *Assistant Professors* CABANESS, SCRUGGS;

Instructors FARRARO, FOULDS, MILEDI; *Part-time Instructors* DE VRIES, SPRINGER.

B.S. Degree — The minimum course requirements in Chemistry for the Bachelor of Science Degree are Chemistry 4103-04, 5213, 4221, 4322, 4450, 4360-61, 2468, and six additional advanced hours in Chemistry. Students who plan to do graduate work should have a proficiency in German, Russian, French, or Computer Programming. **B.S. Degree** outlined on page 54.

An entering Freshman student with at least one year of high school chemistry with an "A" or "B" in chemistry and a SAT score of at least 1000 may take an Achievement Examination given by the department. If a student scores 80 or above, he will be given the corresponding grade AND credit for Chemistry 4103.

An entering Freshman student with two years of high school chemistry with grades of "A" or "B" and a SAT score of at least 1000 may take Achievement Examinations given by the department over Chemistry 4103 and 4104. If he scores 80 or above, he will be given the corresponding grade and credit for Chemistry 4103 and 4104.

An entering Freshman student with the above qualifications and who scores less than 80 on the Achievement Examination may, at the discretion of the department be allowed to enter the next higher course without credit granted.

For Undergraduates

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

3101 Generic Chemistry (\$2)

A study of the fundamentals of inorganic chemistry based upon the periodic arrangement of the elements with applications involving life experiences. Two lectures, one demonstration hour, and two laboratory hours per week. Field trips to local industries are included as part of the laboratory.

3102 Generic Chemistry (\$2)

A continuation of 3101 with emphasis on organic and biochemical processes in modern living. Two lectures, one demonstration hour, and two laboratory hours per week. May not be used as prerequisite for any other chemistry course. *Prerequisite:* Chemistry 3101 or permission of instructor.

4103-04 General Chemistry (\$6-\$6)

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.

4106 Chemistry for Nurses (\$2)

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

5213 Analytical Chemistry (\$8)

[New]

Analytical reactions from the point of view of the laws of chemical equilibrium. Principles of gravimetric and volumetric analyses. Three lectures and five laboratory hours per week. *Prerequisite:* Chemistry 4103-04 with a grade of not less than "C" in each semester. Three of the five credit hours may be counted as advanced with a grade of at least "C", if preceded by twelve hours of Chemistry.

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

A study of the fundamental types of carbon compounds. Two lectures, one recitation, 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 and one recitation per week. *Prerequisite:* Chemistry 4103-04.

4221 Organic Chemistry (\$6)

[Formerly 4321]

A study of chemical bonding and structure in organic molecules, functional group synthesis and reactions, reaction mechanisms, nomenclature and isomerism. Three lectures and five laboratory hours per week. *Prerequisite:* Chemistry 5213 or permission of the Head of the department. May not be counted in addition to Chemistry 3221-22 or 2221-22. Counts as an advanced course if preceded by twelve hours of Chemistry not including Organic.

4260 Physical Chemistry (\$5)

[Formerly 4360]

Physical and chemical properties of solid, liquid, and gaseous states of matter with special emphasis on principles related to metallurgy. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4103-04 with not less than a grade of "C", Mathematics 4212, and Physics 4216. Not counted in addition to Chemistry 4361.

4261 Physical Chemistry (\$4)

[Formerly 4361]

A continuation of Chemistry 4260 including kinetics, electromotive force, crystal structure, quantum theory and other advanced topics. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4260. Not counted in addition to Chemistry 4361.

For Undergraduates and Graduates**4322 Organic Chemistry (\$5)**

A continuation of Chemistry 4221 including reaction mechanisms, special areas of isomerism, and types of reactions. *Prerequisite:* Chemistry 4221.

3330 Biochemistry (\$2)

[Formerly 3462]

Chemistry of food substances, digestion, vitamins, enzymes, absorption, and blood. Two lectures and three laboratory hours per week. *Prerequisite:* Chemistry 3222 or 4322.

3331 Biochemistry

[Formerly 3463]

Immunochemistry, chemistry of respiration, hormones, intermediary metabolism, etc., with emphasis on cell metabolism. Three lectures per week. *Prerequisite:* Chemistry 3330.

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 4360 and Physics 4217.

4360 Physical Chemistry (\$5)

[Formerly 4460]

Properties of substances in the gaseous, liquid and solid states; solutions, thermochemistry. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 5213 and 4321, Mathematics 4212, and Physics 4216. May not be counted in addition to Chemistry 4260.

4361 Physical Chemistry (\$4)

[Formerly 4461]

A continuation of Chemistry 4360 including kinetics, electromotive force, crystal structure, quantum theory and other advanced topics. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4360. Not counted in addition to Chemistry 4261.

3465 Inorganic Chemistry

[New]

Modern bonding theories and the chemistry of transition and unusual elements. Three lectures per week. *Prerequisite:* Chemistry 4361 concurrently.

- 2468 Analytical Organic Chemistry (\$6) [New]
Identification techniques and functional group analysis of organic compounds. One lecture and six laboratory hours per week. *Prerequisite:* Chemistry 4322.
- 4470 Radiochemistry (\$8)
A study of radioactivity with emphasis on radiochemical techniques. Three lectures and three laboratory hours per week. *Prerequisite:* Mathematics 4212, Physics 4216, Chemistry 5213.
- 3474 Nuclear Chemistry – SEMINAR
Selected topics in nuclear chemistry such as activation analysis, transmutation of elements, interaction of radiation with matter, and other related subjects. Three lectures per week. *Prerequisite:* Chemistry 4470 or the equivalent as determined by the Head of department and the instructor.
- 2476-6476 Introduction to Research (\$4) [Formerly 2496-6496]
Only specially qualified students approved by the Head of the Chemistry Department will be accepted. Credit will be granted only upon completion of research in the Senior year on the recommendation of the Head of the Chemistry Department. *Prerequisite:* Permission of the Head of the Chemistry Department.

FOR GRADUATE STUDENTS ONLY

- 3580 Advanced Topics – SEMINAR [New]
A study of the more recent discoveries in the field of chemistry and its allied sciences. May be repeated for credit. Three lectures per week. *Prerequisite:* Permission of the Head of the Chemistry Department.
- 3582 History of Chemistry – SEMINAR [New]
A study of the major contributions to the science of Chemistry, with theories traced from their beginnings through modifications to the presently accepted concepts. The impact of various theories on other sciences and society in general will be discussed. *Prerequisite:* Chemistry 4322 or 3331 and Chemistry 5213 or its equivalent.
- 3584 Chemical Bonding – SEMINAR [New]
A survey of bonding theories from their inceptions to the present. Correlations of various physical and chemical properties with the various theories will be given with emphasis as to the values of current theories over the older ones. *Prerequisite:* Chemistry 4322 or 3331 and Chemistry 5213 or its equivalent.
- 3586 Special Problems – SEMINAR [New]
Primarily research orientation in area of specialization under the direction of a senior staff member. *Prerequisite:* Approval by staff member and permission of the Head of the Chemistry Department.

GIFFORD W. WINGATE, *Head*

Professors LEECH, WINGATE; *Associate Professors* CULP, REYNOLDS,*

Assistant Professors ETHERIDGE,* JONES, PARKER, TUCKER, WINDT;

Instructors ADKINS, FRIEDMAN, GOURD, GRAHAM, MICULKA.

FOUNDATIONS IN DRAMA AND SPEECH

Majors and minors pursuing the B.A. degree in Speech and/or Drama are to select nine (9) hours from the following common requirements as a foundation for specific degree routes. Teaching majors must fulfill Foundations requirements listed in their degree plans. To be admitted to any upper-division course, the major or minor must complete the core curriculum requirement.

SPEECH 3101: Basic Principles of Speech

3102: Introduction to Public Address

3103: Voice and Phonetics

3205: Oral Interpretation

DRAMA 3113: Introduction to Drama

3114: Contemporary Theatre Practices

DRAMA For Undergraduates and Graduates

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

1111 Basic Theatre Practice

Practical laboratory experience in all phases of production of major plays for public presentation. Offered every semester. May be taken four semesters for credit.

3113 An Introduction to Drama

A beginning course which analyzes the means of framing human experience in a play: the relationship of acting, directing, staging, lighting, costuming and other theatre arts to one another and to the written word. The course is designed to serve not only as an introduction to drama for departmental majors, but as a general survey for others. Three lectures and two laboratory hours weekly. Offered during the first semester of each year.

3114 Contemporary Theatre Practices

Analysis of modern play-production methods through class preparation of a 3-act play for public presentation. Two lectures and four laboratory hours per week. Offered during the second semester of each year.

3214 Acting

A lecture-laboratory course in which a student may develop his ability to analyze a character and create a role. Two lectures and four laboratory hours per week. Offered during the second semester of each year.

3221 Stagecraft

Introduction to and practice in stage methodology. Includes basic instruction in stage design and structure. Two hours of lecture and four laboratory hours per week. Offered during the first semester of each year.

*On Leave of Absence.

DRAMA AND SPEECH

- 3321 Advanced Acting**
Detailed study of characterization and styles of acting through assignment of individual roles and group rehearsal of scenes. Two lectures and four laboratory hours per week. *Prerequisite:* Drama 3214. Offered during first semester of alternate years only, beginning in 1966-67.
- 3325 Directing**
Analysis of the role of the director in contemporary theatre production. Students will be required to plan and produce a one-act play for presentation. Two lectures and four laboratory hours per week. Offered during first semester of each year.
- 3332 Technical Production and Design**
Detailed study of the technical problems of theatre production. Methods of designing, constructing, and handling scenery; lighting; backstage organization; properties; and sound effects. Two classes and four laboratory hours per week. *Prerequisite:* Drama 3221. Offered during first semester of each year.
- 3340 A History of Costume**
A study of costume from the earliest times to the present and their use on the stage. Practical experience in designing and executing costumes for actual production. Offered during first semester of alternate years only, beginning in 1967-68.
- 3342 Lighting**
A history of lighting and an analysis of contemporary lighting techniques. Practice in designing and executing the lighting for major productions. Two lectures and four workshop hours per week. *Prerequisite:* Drama 3221. Offered during second semester of each year.
- 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 four laboratory hours per week. Offered during second semester of each year.
- 3357 The Early Theatre**
Study of theatre art from earliest times to 1800. Discussion of plays, playwrights, actors, costumes, and scenic arts of each historical period. Offered during first semester of alternate years, beginning in 1966-67. *Prerequisite:* Junior standing, or permission of the instructor.
- 3358 The Modern Theatre**
Study of theatre art from 1800 to the present. Offered during first semester of alternate years only, beginning in 1967-68. *Prerequisite:* Junior standing or permission of the instructor.
- 3418 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. Offered during second semester of alternate years only, beginning with 1967-68.
- 3425 Advanced Directing and Theatre Management**
Study of techniques of direction, in various styles, modes, and periods, together with analysis of the problems of the producer and theatre manager. Two classes and four laboratory hours per week. *Prerequisite:* Drama 3325. Offered during second semester of alternate years only, beginning with 1966-67.
- 3440 SEMINAR**
Independent research in an area to be chosen from dramatic criticism, technical production, or theatre history. Admission by consent of the instructor. Offered during second semester of each year.

SPEECH **For Undergraduates and Graduates**

- 1101 Choral Reading
A laboratory course devoted to the study and performance of literature written for group interpretation. *Prerequisite:* Permission of the instructor. Offered every semester.
- 3101 Basic Principles of Speech
Emphasis on the practical skills involved in the communication of ideas to audiences under various conditions and for various purposes. Offered every semester.
- 3102 Introduction to Public Address
An introduction to speech analysis, criticism, and history. Emphasis is placed on developing an understanding of the role of speech in modern society. Offered during second semester of each year.
- 3103 Voice and Phonetics
A course intended to develop clear articulation and enunciation, correct pronunciation, proper vowel placement, and control of the speaking voice. Offered each semester.
- 3205 Oral Interpretation
Study of and practice in the techniques of oral interpretation of literature. Offered during first semester of each year.
- 3210 Introduction to 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:* Speech 3103. Offered every semester.
- 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 debate on timely issues. For entering freshman with two years of high school debate experience who have not yet completed the Foundation requirements, admission to the course may be granted on the basis of a departmental proficiency examination. Offered during first semester of each year.
- 3216 Speech and the Democratic Process
A study of the role of public speaking in our society with practice in the deliberative speech of the legislative assembly. Offered during second semester of alternate years only, beginning with 1966-67.
- 3230 Language and Thought: General Semantics
Analysis of the influence of verbal habits in human affairs. Emphasis on the study of communication problems such as conflict, confusion, prejudice; practice in developing accuracy and precision in the use of verbal symbols. Offered during second semester of alternate years only, beginning with 1967-68.
- 3305 The Oral Interpretation of Literature: Problems and Projects
A course designed to develop deeper intellectual and emotional response to the meaning of literature. Emphasis on independent preparation and performance of longer programs, according to the student's interests and needs. *Prerequisite:* Speech 3205. Offered during second semester of alternate years only, beginning with 1966-67.
- 3306 Techniques of Public Discussion
The principles and methods of group deliberation. Participation in and leadership of various forms of group inquiry — the forum, colloquy, symposium, case conference, and others. Offered during second semester of alternate years only, beginning with 1967-68.

3312 Voice Science

A study of the vocal anatomy; the physical processes involved in speech production, including respiration, phonation, and articulation. *Prerequisite:* Speech 3102, 3210. Offered during first semester of each year.

3313 Functional Disorders of Speech

A study of the nature, etiology, and therapy techniques relating to the disorders of articulation, voice, delayed speech, and stuttering. Investigation of current theories and recent experimental work is included. *Prerequisite:* Speech 3103, 3210, 3312. Offered during second semester of alternate years only, beginning with 1966-67.

3314 Organic Disorders of Speech

The nature, etiology, and therapy techniques relating to speech disorders resulting from cleft palate, cerebral palsy, aphasia, and other organic problems. Investigation of current theories and recent experimental work is included. *Prerequisite:* Speech 3103, 3210, 3312. Offered during second semester of alternate years only, beginning with 1967-68.

3333 Speech Education

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. Offered during first semester of each year.

3415 Speech Criticism

Rhetorical criticism of speeches by contemporary leaders on issues of urgent national and international concern. *Prerequisite:* Senior standing or permission of the instructor. Offered in alternate years only, beginning with 1967-68.

3421 History of Classical Oratory

A study of the orators, issues, and speaking arenas of ancient Greece and Rome, with special emphasis on the classical rhetorical tradition. Aristotle, Cicero, and Quintillian. *Prerequisite:* Junior standing. Offered during first semester of each year.

3422 History of Medieval and Modern Oratory

A study of the development of oratory through the Medieval period to modern times. St. Augustine to the present. *Prerequisite:* Junior standing. Offered during second semester of alternate years only, beginning with 1966-67.

3430 SEMINAR in General Speech

Independent research in an area to be chosen from oral interpretation, phonetics, public address, semantics, discussion, or speech education, or speech and hearing therapy. Admission by consent of the instructor. Offered during second semester of alternate years only, beginning with 1966-67.

3431 SEMINAR in Bi-lingual Speech Problems

Research in the problems of the foreign student pursuing the study of the English language. Practical Application of methods for dealing with the problems. *Prerequisite:* Speech 3103. Offered during second semester of alternate years only, beginning with 1967-68.



ECONOMICS



JOHN M. RICHARDS, *Head*

Professor RICHARDS; Associate Professors BRAND, DURIEZ, WAITS;

Assistant Professors JAMES, RAY, VAN ZANT; Instructor SOLTOW.*

B.A. Degree — Specific courses required are: Economics 3103, 3104, 3303, 3304, and twelve advanced hours of economics; B.A. 3101, and B.A. 3301, or Math 3331.

For Undergraduate Credit Only

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

3103 Principles of Economics

A survey of the basic principles of economics designed to give a broad understanding of our economic world; primary attention is given to aggregate problems and issues which are of paramount national importance.

3104 Principles of Economics

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

3205 Applied Economic Theory

An intermediate study of the concept of maximization both in traditional economic theory and under current managerial situations. Special attention will be given to the use, evaluation and limitation of operations analysis techniques. *Prerequisite:* Economics 3104.

3303 Intermediate Economic Analysis

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.

3304 National Income Analysis

A study of national income accounting and theory; emphasis is placed on the classification and analysis of conventional spending sectors and the effect upon income and employment; a critical survey of policy applications that affect the level of income and employment. *Prerequisite:* Economics 3104.

3310 Economic Development 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 Undergraduates and Graduates

3321 History of Economic Thought

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

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.

**On Leave of Absence.*

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.

3327 Economic Analysis of Consumer Behavior

An analysis of the processes and significance of consumer behavior in the economy. Attention will be given to the economic and cultural forces influencing and determining consumer behavior, many of the alternatives faced in consumption spending, and the impact of consumer behavior on the national economy. *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 Transportation, Economics of Regulated Industries

History and economic characteristics of transportation and public utility industries. Theory of rate making, rate levels, and an analysis of public policy. *Prerequisite:* Economics 3104.

3356 Public Regulation of Business

A course to consider anti-trust policy, unfair competition and other issues relating to the public regulation of business. *Prerequisite:* Economics 3104.

3363 Business Cycles and Forecasting

History and description of the phases of the cycle, leading theories of economics fluctuations. Prediction of industrial production, prices and profits. Methods of alleviation and public policy. *Prerequisite:* Economics 3104.

3365 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. Emphasis will be directed toward Latin America; and in particular to Mexico. 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 3104.

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.

3480 Selected Problems – SENIOR SEMINAR

Concentrated study of selected current economic problems; emphasis would be placed upon concerted student effort, using proper research techniques; bibliography and scholarly presentation of materials. *Prerequisite:* Economics 3104 and consent of instructor and Department Head.

SPECIAL STUDIES**For Undergraduates and Graduates****2495 to 6495 SEMINAR in Economics**

Special studies in areas for which a separate course is not organized. Supervised individual reading and research; writing of a substantial paper in the area chosen for study. Credit will vary according to the work performed, value being indicated by course numbers. *Prerequisite:* Eighteen hours of Economics, six of which must be advanced; consent of instructor and Department Head.

FOR GRADUATE STUDENTS ONLY**3597 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 which include specialized analysis of price theory, national income, and modern institutions. *Prerequisite:* Twelve semester hours of advanced courses in Economics and a bachelor's degree.



JAMES F. DAY, *Head*

Professors BURNS, DAY, FARQUEAR [Emeritus], FOSTER, HENDERSON, MEADOWS, PUCKETT [Emeritus]; *Associate Professors* CLINE, COOPER, FISHER; *Assistant Professors* AHO, E. DAVIS, V. DAVIS, GRANDSTAFF, LOWRANCE, LYON, SCARBROUGH, WALKER; *Instructors* DURIO, MUNN, ROBERTS; *Part-time Instructor* ZANKER; *Part-time Lecturers* BURCKHARTT, WIVEL.

See pages 59-68 for Degree Plan Requirements and Certificates.

For Undergraduate Credit Only

GENERAL (Elementary or Secondary Education)

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.

3201 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

General prerequisite for 3300 and 3400 courses listed below: Junior standing (completion of 60 semester hours)†

3301 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. *Recommended prerequisite*: Education 3201 or Psychology 3101.

3302 The Curriculum and Modern Media in the Elementary School

An introduction to the curriculum in the elementary school; consideration of the function of modern media in curriculum development and application.

3303 Social Studies in the Elementary School*

Content, materials, and methods of teaching social studies in the elementary school. *Prerequisite*: Education 3301.

3304 Science in the Elementary School*

Content, materials, and methods of teaching science in the elementary school. *Prerequisite*: Education 3301.

3305 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 3301.

**Prerequisite* as indicated or equivalent as determined by head of department.

†May be waived upon recommendation of department head in the case of a student who is a declared major in the department and who has credit for 12 semester hours of course work in his major and/or teaching fields or elementary subject.

- 3306 **Language Arts Materials and Methods in the Elementary School***
Materials and methods of teaching language arts in the elementary school. *Prerequisite:* Education 3301 and 3302.
- 3307 **Social Foundations of Elementary Education**
Structure and functioning of society as a background for the study and evaluation of elementary education; the contribution of sociological principles and findings to the improvement of educational practices. (This course may not be counted for credit in addition to Education 3101 and/or 3313 and/or 3437.)
- 3308 **Psychological Foundations of Elementary Education**
Introductory course in applications of psychological principles and knowledge to elementary education practices. (This course may not be counted for credit in addition to Education 3201 and/or 3314 and/or 3403 and/or 3420.)
- 3309 **Instructional Problems in Elementary Education***
An analysis of the types of curricular patterns, principles of curriculum development, evolving trends, and teaching methods in each of the major curricular areas found in the modern elementary school. Special attention is given to materials and procedures in the language arts area. (This course may not be counted for credit in addition to Education 3302 and/or 3306.) *Prerequisite:* Education 3301, 3307, and 3308.
- 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 classroom. *Prerequisite:* A grade point average of at least 2.0 in both English 3101-02 and Speech 3101; of at least 2.5 in Education 3301, 3302, 3303, 3304, 3305, 3306; senior standing and permission of the department head. (In an all-level program, permission of the department head concerned.) Students must file a practice teaching application with their college supervisor of student teaching during the semester preceding the taking of the course.
- 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, except in an all-levels program.

SECONDARY EDUCATION

- 3310 **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. *Recommended prerequisite:* Education 3201 or Psychology 3101.
- 3311 **Introduction to the Secondary Curriculum**
An introduction to the development of the curriculum in the secondary school.
- 3312 **Methodology and Technological Applications for Secondary Education***
Consideration of instructional techniques with emphasis on team teaching, laboratory methods, programming, and test development with applications from recent research. *Prerequisite:* Education 3310.
- 3313 **Social Foundations of Secondary Education**
Structure and functioning of society as a background for the study and evaluation of secondary education; the contribution of sociological principles and findings to the improvement of educational practices. (This course may not be counted for credit in addition to Education 3101 and/or 3307 and/or 3437.)

**Prerequisite* as indicated or equivalent as determined by head of department.

EDUCATION

- 3314 Psychological Foundations of Secondary Education**
Introductory course in applications of psychological principles and knowledge to secondary educational practices. (This course may not be counted for credit in addition to Education 3201 and/or 3308 and/or 3403 and/or 3420.)
- 3315 Instructional Problems in Secondary Education***
Methods and materials used in secondary teaching; particular emphasis on analysis and development of courses of study and their use in secondary education. *Prerequisite:* Education 3310, 3313, and 3314. (This course may not be counted for credit in addition to Education 3311 and/or 3312.)
- 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 a secondary school classroom. *Prerequisite:* A grade point average of at least 2.0 in both English 3101-02 and Speech 3101; of at least 2.5 in eighteen semester hours in each of two secondary teaching fields or in thirty-six semester hours in a secondary composite teaching field; of at least 2.5 in Education 3310, 3311, 3312; senior standing and permission of the department head. (In an all-levels program, permission of the department head concerned.) Students must file a practice teaching application with their college supervisor of student teaching during the semester preceding the taking of this course.
- 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, except in an all-levels program.

For Undergraduates and Graduates

Prerequisite for courses listed below: Twelve Semester hours of Education.

ELEMENTARY EDUCATION

- 3403 Evaluation and Guidance in the Elementary School**
The study and utilization of educational instruments, materials, and techniques in reference to the improvement of instruction and the guidance of pupils.
- 3404 Developmental Reading in the Elementary School**
Developmental reading growth, curriculum, methods, and materials in the elementary school with special attention to the Spanish speaking child. *Prerequisite:* Education 3306.
- 3405 Arithmetic in the Elementary School**
Content, materials and methods of teaching arithmetic in the elementary school.
- 3406 Psychology of Reading in the Elementary School**
Psychological correlates with the reading process; consideration of methodology, evaluation and counseling for reading progress with consideration for the learning process of the Spanish speaking child. *Prerequisite:* Education 3306.
- 3407 Classroom Management in the Elementary School**
The use of records and group techniques to improve human relations in the classroom.

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.

**Prerequisite* as indicated or equivalent as determined by head of department.

- 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.

GENERAL (Elementary or Secondary Education)

- 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 schools.
- 3413 **Educational Television and Radio: Preparation and Presentation of In-School Programs**
A survey course at the elementary and secondary level in the public school applications of television, including techniques of teaching by closed circuit TV. Production of in-school radio programs for presentation on commercial and educational stations.
- 3433 **Advanced Educational Psychology – SEMINAR***
Independent study in educational psychology. *Prerequisite:* Education 3201.
- 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 – 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 head of the department.
- 3437 **History and Philosophy of Education**
A survey of educational ideas and practices in the history of western civilization.
- 1450 to 6450 **Educational Workshop (Area of study will be designated)**

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.
- 3421 **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.
- 3429 **Observation, Teaching, and Field Work with Mentally Retarded – SEMINAR***
Prerequisite: Education 3409, 2421, and 3422 or permission of the head of the department.

**Prerequisite* as indicated or equivalent as determined by head of department.

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.
- 3507 **Educational Sociology**
A survey of the field of educational sociology and its application to problems in modern education.
- 3508 **Workshop in Instructional Problems (Elementary) — SEMINAR**
Study of teaching problems arising in the classroom. Students will choose their own problems and those with allied interests will be grouped together to facilitate individual research. The instructor will guide this research.
- 3509 **Workshop in Instructional Problems (Secondary) — SEMINAR**
Same as Education 3408 except the problems are at the secondary level.
- 3510 **Comparative Education**
A comparative study of educational systems of representative European, Latin American, and Afro-Asian countries.
- 3511 **Curriculum Construction and Organization of Secondary Subject Matter — SEMINAR**
The student is permitted to devote his attention exclusively to a pertinent curriculum problem in a 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 in 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.

- 3515 **Clinical Reading Laboratory Experience in the Elementary Grades**
Actual laboratory experience for application of concepts, media and evaluation, to meet reading disadvantages in the elementary grades. *Prerequisite:* Education 3404, 3406, 3506.
- 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 — SEMINAR**
Educational, occupational, and social information and its use in counseling and guidance.
- 3521 **Independent Study in Special Education — SEMINAR**
This course offers opportunities for study in any one of the following special education areas: orthopedic handicaps, visual handicaps, auditory handicaps, giftedness, mental retardation.
- 3522 **Supervised Practice in Counseling — SEMINAR**
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 3516, 3517, 3518, 3520; and only by permission of the department head.
- 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 teachers and other school employees and 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.
- 3529 **The School Plant**
Specialized study of all facets of the school plant planning and maintenance.
- 3530 **Public School Law**
A study of the constitutional provisions, legislation, court decisions, and regulations governing the public schools with special reference to Texas.

- 3531 **Principles of Public School Relations**
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.
- 3533 **Field Experience and Internship in Educational Administration**
On-the-job training in public school administration for students in the program for elementary principal, secondary principal, and superintendent.
- 3598-99 **Thesis Course for Master's Degree**
Prerequisite: Twelve semester hours of advanced courses in Education, and permission of the head of the department.
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Library Services

(Sponsored by the Department of Education)

- 3301 **Survey of School Library Services**
Topics include the role and services of the library in the school, simplified cataloging and classification of materials (Dewey Decimal system), procedures in planning the library and supervision of staff. *Prerequisite:* Junior standing.
- 3302 **Survey of School Library Services**
Continuation of 3301. *Prerequisite:* Library Services 3301 or concurrent registration in 3301.
- 3303 **Books for Elementary School Libraries**
Survey of literature for elementary school students and of their reading interests. Comprehensive examination of bibliographic tools to be used as guides to the selection of books, periodicals, and other materials for elementary school libraries. *Prerequisite:* Junior standing.
- 3304 **Books for High School Libraries**
Survey of literature for high school students and of their reading interests. Comprehensive examination of bibliographic tools to be used as guides to the selection of books, periodicals, and other materials for high school libraries. *Prerequisite:* Junior standing.
- 3305 **Children's Literature in the Elementary School**
Same as Education 3305. *Prerequisite:* Junior standing.
- 3306 **The Teacher and the School Library**
Designed to meet needs both of the teacher who may work in the library and the teacher or prospective teacher who wants to use the school library with maximum effectiveness in teaching. Provisions made for specialization in elementary or secondary schools. *Prerequisite:* Junior standing.



CIVIL ENGINEERING

CALVIN E. WOODS, *Head*

Professors HASSLER, HENDERSON, WOODS;

Associate Professors COLTHARP, YOUNG; *Assistant Professor* ROZENDAL.*

(See pages 45-49 for Degree Plans)

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

- 3102 **Introduction to Engineering (\$2)**
Studies to include the profession, curricula, functions, fields, tools and techniques of problem analysis, and the works of the engineer. Two lectures and three laboratory hours per week. *Prerequisite:* Mathematics 4111 concurrently.
- 3115 **Engineering Mechanics I**
Forces in space, equilibrium of particles and rigid bodies, friction, centroids, centers of gravity, and kinetics and kinematics of particles. Two lecture hours and two laboratory hours per week. *Prerequisite:* Mathematics 4212 concurrently.
- 3213 **Engineering Measurements**
Summer work: Theory and practice of surveying measurements with emphasis on precision, errors and significant figures. Theory of simple curves, reverse, compound and vertical; also spirals and earthwork. Seven and one-half hours per week for six weeks. *Prerequisite:* Mathematics 4111 and Mechanical Engineering 2103 or 3103.
- 3214 **Field Surveying (\$2)**
Summer Work: Practical application of the topics covered in Civil Engineering 3213 concurrently in the field. Twenty-four hours of field work each week for six weeks. *Prerequisite:* Civil Engineering 3213 concurrently.
- 3234 **Mechanics of Materials I** [Formerly 4234]
Study of stress, strain, torsion, shear, moment, flexure, combined stress, stress at a point and column action. *Prerequisite:* Civil Engineering 3115.
- 3238 **Engineering Mechanics II**
Principles of dynamics and their application to engineering problems; work and energy, impulse and momentum and kinetics and kinematics of rigid bodies. Two lecture hours and two laboratory hours per week. *Prerequisite:* Civil Engineering 3115.
- 3326 **Engineering Economy**
Business economy, cost determination, business law, engineering procedures and ethics. *Prerequisite:* Junior standing in engineering or permission of instructor.
- 3343 **Structural Analysis I**
Analysis of framed structures, trusses, girders and bridges includes moving loads and use of influence lines. *Prerequisite:* Civil Engineering 3234.
- 3346 **Engineering Law** [Formerly 3446]
A study of the law of contracts, sales, negotiable instruments, insurance, property, torts, agency and business organizations. *Prerequisite:* Junior standing in engineering or permission of the instructor.

*On Leave of Absence.

ENGINEERING

- 4356 Hydraulic Engineering (\$2)
Principles of hydrology and hydraulics applied to the design of hydraulic projects. Three lecture and three laboratory hours per week. *Prerequisite:* Mechanical Engineering 3354.
- 4360 Structural Analysis II [Formerly 3360]
Analysis of statically indeterminate structures including continuous beams and frames. Three lecture hours and three laboratory hours per week. *Prerequisite:* Civil Engineering 3234.
- 3435 Structural Design I [Formerly 3335]
Reinforced concrete theory; design of beams, slabs, footings and retaining walls using current design specifications. Two lecture hours and three laboratory hours per week. *Prerequisite:* Civil Engineering 3343 and Civil Engineering 4360.
- 3440 Transportation Engineering
Study of planning, economics, finance, location, design and administration of transportation systems. *Prerequisite:* Civil Engineering 3214, and 4448 or concurrent enrollment.
- 3441 Water Treatment and Analysis (\$2)
Principles of water treatment and its application to the design and operation of municipal and industrial water treatment plants. Laboratory analyses of water. Two lecture and three laboratory hours per week. *Prerequisite:* Chemistry 4103-04 and Civil Engineering 4356.
- 3442 Waste Treatment and Analysis (\$2)
Principles of waste treatment and disposal and its application to the design and operation of waste treatment plants. Laboratory analyses of wastes. Two lecture and three laboratory hours per week. *Prerequisite:* Civil Engineering 3441.
- 4448 Soil Mechanics (\$2) [Formerly 3348]
Physical and mechanical properties of soils; specific gravity, grain size distribution, plasticity, shrinkage, permeability, compressibility, consolidation and shear. Three lecture hours and three laboratory hours per week. *Prerequisite:* Civil Engineering 3234, Mechanical Engineering 3354, and Geology 3321.
- 3449 Foundation Engineering
Study of properties of subsurface materials, exploration methods, durability of construction materials used in foundations, construction methods and types of foundations, selection of foundations and basis for design. *Prerequisite:* Civil Engineering 4448.
- 3461 Structural Design II
Design of steel structures including the application of plastic design methods using current design specifications. Two lecture hours and three laboratory hours per week. *Prerequisite:* Civil Engineering 3343 and Civil Engineering 4360.
- 4470 Mechanics of Materials II (\$6) [Formerly 3470 & 4370]
Analysis of problems dealing with energy methods, curved bars, torsion of non-circular sections, fatigue, stress concentration, stress and strain, and experimental methods of stress determination. Three lecture hours and three laboratory hours per week. *Prerequisite:* Civil Engineering 3234.
- 3471 Engineering Problems — SEMINAR
Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. *Prerequisite:* Consent of the head of the department. Can be repeated for credit.

ELECTRICAL ENGINEERING

CLYDE R. NICHOLS, *Head*

Professor NICHOLS; *Associate Professors* AUSTIN, SMITH;
Assistant Professors BOURQUIN,* McDONALD; *Lecturer* HINTZ;
Teaching Assistant DAVIS.

(See pages 45-49 for Degree Plans)

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

- 4251 **Networks I (\$2)**
 Theory and analysis of networks including the basic laws, complex phasor algebra and impedance, sinusoidal single-phase circuits, resonance, and network equations and theorems. Three lecture and three laboratory hours per week. *Prerequisite:* Mathematics 4217 and Physics 4216.
- 3321 **Electromagnetic Field Theory**
 Fundamentals of static electric and magnetic fields, time-varying fields and Maxwell's equations, motion of charged particles in electromagnetic fields. *Prerequisite:* Mathematics 3435.
- 4339 **Electronics I (\$2)**
 Electronic properties of materials, terminal characteristics of semiconductor and vacuum tube devices, graphical methods, two-port network analysis, small-signal equivalent circuits, frequency response methods, root-locus analysis. Three lecture and three laboratory hours per week. *Prerequisite:* Electrical Engineering 4251 and Mathematics 3326.
- 4340 **Electronics II (\$2)**
 Application of the concepts and methods developed in Electronics I to large- and small-signal tuned amplifiers and broad-band amplifiers. Concepts of wave-shaping, waveform generation, and switching are developed. Three lecture and three laboratory hours per week. *Prerequisite:* Electrical Engineering 4339 and 3353 concurrently; or Physics 4339 and permission of the instructor.
- 4352 **Networks II (\$2)** [Formerly 4252]
 Continuation of Networks I. Balanced and unbalanced polyphase circuits, coupled circuits and transformers, Fourier analysis, transient response and the complex frequency plane, and the Laplace transformation. Three lecture and three laboratory hours per week. *Prerequisite:* Electrical Engineering 4251.
- 3353 **Networks III**
 Continuation of Networks II. Two-terminal-pair networks, filters, signal flow, and synthesis. *Prerequisite:* Electrical Engineering 4252.
- 3428 **Cybernetics** [Formerly 3328]
 Principles of natural and man-made mechanisms; possible behavior—regular, determinate, or reproducible. Fundamental concepts of finite differences; changes and transformations, as sets of transitions, leading to stability and feedback. Statistical concepts of complex systems and blackbox theory; Shannon's information theory. Regulation and control of mechanisms. *Prerequisite:* Senior standing in engineering or permission of the instructor.
- 3441 **Electronics III**
 Advanced topics in communications, including frequency analysis of signals, modulation, noise, information transmission, and statistical methods in system analysis. *Prerequisite:* Electrical Engineering 4340.
- 1445 **Communications Laboratory (\$2)**
 Laboratory experiments utilizing the principles set forth in Electrical Engineering 3441 and 3447. Three laboratory hours per week. *Prerequisite:* Electrical Engineering 3441 and 3447 (or concurrently).

*On Leave of Absence.

- 3447 **Electromagnetic Energy Transmission and Radiation**
Derivation and applications of the general transmission-line equations, propagation and reflection of plane waves, analysis of wave guide transmission systems, electromagnetic radiation and simple antenna systems. *Prerequisite:* Electrical Engineering 3321 and 4340.
- 4464 **Feedback Control (\$2)**
Characteristics, differential equations, and transfer functions of various physical components, characteristics of control systems, root-locus and frequency response methods of analysis and synthesis, analog techniques for system design. Three lecture and three laboratory hours per week. *Prerequisite:* Civil Engineering 3238, Mathematics 3326, and Electrical Engineering 4340, or permission of instructor.
- 3467 **Energy Conversion I**
Ideal and realistic transformers, energy storage in magnetic and electric fields, electromechanical energy-conversion principles, basic rotating machines, and the theory of ideal d-c machines. *Prerequisite:* Electrical Engineering 4352.
- 4468 **Energy Conversion II (\$2)**
Theory of ideal synchronous and polyphase induction machines, the realistic d-c and synchronous machines, polyphase induction motors, fractional-horsepower a-c motors, and the control devices employed with all machines. Three lecture and three laboratory hours per week. *Prerequisite:* Electrical Engineering 3467.
- 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:* Senior standing in engineering or permission of the instructor.
- 3471 **Engineering Problems — SEMINAR**
Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. *Prerequisite:* Senior standing and consent of the head of the department.
- 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 or permission of the instructor.
- 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:* Senior standing in engineering or permission of the instructor.
- 3480 **Microwave Theory I**
A study of the theory and techniques used in distributed-element circuits. Topics include waveguide transmission, resonant cavities, microwave networks, and radiation. *Prerequisite:* Electrical Engineering 3447.
- 3484 **Probabilistic Methods in Engineering and Science**
Problems involving discrete and continuous random variables, distribution functions, moments, and statistical dependence. Emphasis to be on formulation of physical problems. *Prerequisite:* Senior standing in engineering or permission of the instructor.

MECHANICAL ENGINEERING

K. S. EDWARDS, *Head**Professors* ABERNETHY, COLEMAN, EDWARDS;*Associate Professors* BHADURI, CERVENKA, DOWDY, WHITACRE.

(See pages 45-49 for Degree Plans)

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

- 2103 **Engineering Graphics (\$2)**
Multiview projections, lettering, primary and secondary auxiliaries, sections and conventions, detailed drawings, dimensioning, and pictorial representations. One lecture and three hours of supervised drawing per week.
- 2104 **Descriptive Geometry**
Relation of points, lines, planes and their graphical representations. Graphical solutions as applied to layouts and spatial relationships. Application of graphical methods to the solution of engineering problems. One lecture and three hours of supervised drawing per week. *Prerequisite:* M.E. 2103.
- 3201 **Engineering Communications**
Preparation and presentation of written and oral reports related to engineering. *Prerequisite:* English 3101-02, with a grade of "C" in each course, and enrollment in engineering, or permission.
- 3236 **Manufacturing Processes and Quality Control (\$2)**
Theory and practice of production as a system; power, material, choice of process. Introduction to engineering probability; quality control. Two lectures and three laboratory hours per week. *Prerequisite:* Ma. 4317 or concurrently.
- 3351 **Heat Transfer**
Introduction to heat transfer by conduction, convection and radiation; steady and transient states, steady periodic states. Heat transfer in engineering apparatus; graphical and numerical methods; electrical and fluid analogies. *Prerequisite:* M.E. 3375 and Ma. 3326 or 3436.
- 3354 **Fluid Mechanics**
Statics, kinematics, and dynamics of fluids; fluid measurements and fluid flow in pipes and open channels. *Prerequisite:* Ma. 4317 and C.E. 3238.
- 4363 **Kinematics and Dynamics of Mechanisms**
Analysis of displacement, velocity and acceleration in basic mechanisms for control, transmission and conversion of motion and force. Forces associated with accelerated motion. Three lecture and three laboratory hours per week. *Prerequisite:* C.E. 3238.
- 3364 **Design of Machine Members**
Application of mechanics, kinematics and materials science to the design and selection of machine members, fastenings, pressure vessels. Lubrication theory; stress concentration and residual stresses. Two lecture and three laboratory hours per week. *Prerequisite:* M.E. 4363.
- 3375 **Thermodynamics I**
Principles of thermodynamics of single and multi-phase systems of pure substances. *Prerequisite:* Ma. 4212.
- 3376 **Thermodynamics II**
Continuation of M.E. 3375. Application of principles to cycles and reactive systems; energy relationships and equilibrium requirements. *Prerequisite:* M.E. 3375.

ENGINEERING

- 3441 Engineering Systems Analysis**
Fundamental classification of dynamic system variables and study of engineering systems based on the concepts of state, work, energy, information and signal. Unified treatment and analysis of mechanical systems, electrical circuits, electro-mechanical systems, and feedback control systems. Introduction of the concept of a linear vector space for the development of general dynamic theories of stability and optimum control. *Prerequisite:* Ma. 3326 or permission.
- 3455 Gas Dynamics**
A study of the flow of compressible fluids. One dimensional steady flow, supersonic flow, normal and oblique shock, and flow with heating and cooling; measurement of fluid properties and flow parameters. *Prerequisite:* M.E. 3354 and 3376.
- 3465 Dynamic Response**
Fundamentals of vibration theory and system response. Simple and multiple degrees of freedom, critical speeds, damping, isolation. *Prerequisite:* Ma. 3326.
- 4466 Machine Design**
Continuation of the design sequence. Feasibility studies and preliminary design of mechanical systems, including detailed design of one or more machines in a system. Two lecture and six laboratory hours per week. *Prerequisite:* Senior standing in engineering, or permission.
- 3471 Engineering Problems — SEMINAR**
Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. *Prerequisite:* Senior standing and consent of the head of the department.
- 3481 Mechanical Engineering Laboratory I**
Calibration and use of instrumentation in the areas of property determination, thermodynamics, heat transfer, fluid flow, dynamics. Two lecture and three laboratory hours per week. *Prerequisite:* Senior standing in engineering, or permission.
- 3482 Mechanical Engineering Laboratory II**
Continuation of M.E. 3481. Testing and analysis of systems; analogies. Two lecture and three laboratory hours per week. *Prerequisite:* M.E. 3481.

METALLURGICAL ENGINEERING

J. C. RINTELEN, JR., *Head**Professors RINTELEN, THOMAS, HEER; Associate Professor EHRLINGER.*

(See pages 45-49 for Degree Plans)

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

- 3101 **Introduction to Metallurgy I (\$2)**
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.
- 3102 **Introduction to Metallurgy II (\$2)**
A course in Metallurgical operations including basic sampling, screening, grinding, flotation of ores; the roasting, leaching and electrolytic recovery of metals from calcines; cementation of copper mine waters and heap leaching effluents; amalgamation and cyanidation of gold and silver ores; copper, lead and zinc refining and metallurgical plant calculations including smelter payments and metal balances. Two one-hour lectures and one three-hour laboratory period per week. *Prerequisite:* Metallurgy 3101.
- 3201 **Principles of Process Metallurgy** [Formerly 3301]
A study of the fundamental engineering principles applied to metallurgical processes. Field trips are made to metallurgical industries. Two lectures and one laboratory hour per week. *Prerequisite:* Chemistry 4103-04.
- 4203 **Materials Science (\$3)**
A solid state study concerned with the physical and mechanical properties of metals, plastics, and ceramics. Three lectures and three laboratory hours per week. *Prerequisite:* Chemistry 4103-04.
- 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:* One semester of physics, or Metallurgy 3102.
- 4303 **Mineral Dressing II (\$2)** [Formerly 4408]
Advanced principles of ore dressing, ore testing, flowsheets, and mill design. Three lecture and three laboratory hours per week. *Prerequisite:* Metallurgy 4302.
- 3309 **Physics of Metals**
A study of solid state physics applied to metals and alloys. Three lecture hours per week. *Prerequisite:* Metallurgy 4203 or Math 4212 and Physics 4216 or 4214.
- 3315 **Non-Ferrous Process Metallurgy** [Formerly 3403]
The smelting and refining of non-ferrous metals. One-third of the course is devoted to calculations pertaining to the above subjects. Three lecture hours per week. *Prerequisite:* Chemistry 4103-04, one semester of physics, and Math 3115 or Metallurgy 3201.
- 2315 **Non-Ferrous Metallurgy**
Same as Metallurgy 3315 except that the calculations are omitted. *Prerequisite:* Permission of the Head of the Metallurgical Engineering Department.
- 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. Three lecture hours per week. *Prerequisite:* Metallurgy 3201 and 4203.

- 2402 **Ferrous Metallurgy**
Same as Metallurgy 3402 except that the calculations are omitted. *Prerequisite:* Permission of the Head of the Metallurgical Engineering Department.
- 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 3201, or Chemistry 4103-04 and Physics 4214 or 4216.
- 3471 **Engineering Problems – SEMINAR**
Original investigation of special problems in the student's field, the problem to be selected by the student with the approval of the head of the department. *Prerequisite:* Senior standing and consent of the head of the department.
- 4407 **Physical Metallurgy I (\$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 4203.
- 3409 **Corrosion**
A study of corrosion, passivity, and protection of metals and alloys. Three lecture hours per week. *Prerequisite:* Metallurgy 3404 or permission of the Head of the Metallurgical Engineering Department.
- 4411 **Physical Metallurgy II (\$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 4203 or 3309.
- 4412 **Physical Metallurgy III (\$3)**
Introduction to x-ray diffraction, the study of metallic structure, alloy constitution, deformation processes and solid phase reactions. Three lectures and three laboratory hours per week. *Prerequisite:* Metallurgy 4411 or 3309.
- 3413 **Thermodynamics of Metals**
The thermodynamics of metals and metallurgical process. Three lecture hours per week. *Prerequisite:* Metallurgy 4203 and Chemistry 4261 or 4361.
- 4415 **Mechanical Metallurgy (\$3)**
A study of plastic deformation of metals, dislocation theory, mechanical testing, and the fundamentals of metalmaking. Three lectures and three laboratory hours per week. *Prerequisite:* Metallurgy 4203.
- 3416 **Kinetics**
A study of the rates of reaction of Metallurgical phenomenon. Three lecture hours per week. *Prerequisite:* Chemistry 4261, Metallurgy 4203 and 3315.
- 4417 **Electron Microscopy (\$4)**
A study of the theory and application of electron microscopy. The preparation of specimens for transmission and replica procedures. Three lectures and three laboratory hours per week. *Prerequisite:* Metallurgy 4407.
- 2421 **Metallurgical Trip (Transportation fee: \$75.00)**
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. *Prerequisite:* Junior standing.



JOSEPH LEACH, *Head*

Professors BRADDY, BURLINGAME, LEACH, PAST, SMALL, SONNICHSEN;
Associate Professors BIRKINSHAW, COLTHARP, JAMES, NANCE, RICHESTON, WEST;
Assistant Professors COLLINGWOOD, EHMANN, FRANCIS, FUGATE, SAJDARI, SMITH,
SPIESE, STAFFORD, WADDELL; *Instructors* CALHOUN, DANZ, ESCH, GARRISON, GUNNING,
JOHNSON, LaFONTE, PENFIELD, PETERSEN, QUARM, RUSSELL, SIPIORA, STILLEY,
STROUD, WALKER, WIDMAYER, WRIGHT; *Teaching Assistants* BOWSER, COCOZZA,
FORD, HAMILTON, HEILER, LETNER, RAMSEY, SHELTON, SPRINGSTEAD.

For the degree of Bachelor of Arts and the degree of Bachelor of Science in the Sciences a minimum of twelve semester hours in English are required: English 3101-02 and either 3211-12, 3213-14, or 3215-16.

For the degree of Bachelor of Science in the Engineering fields English 3101-02 and English 3269 are required.

B.A. Degree — Specific course requirements for the English major are English 3211, 3212, 3320, 3321, twelve other advanced hours in English, Philosophy 3104, History 3203, and History 3204. *A comprehensive English Major Examination is required of all English majors who cannot present, at the time of their intended graduation, a grade average of "C" in all their English courses. Consult the English Department Head for details.*

Students planning to take graduate work in English are advised to take 3411, 3413, and 3419.

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

3101 Freshman English

Practice in improving written expression. Required of all freshmen unless exempted by advanced placement examination. For details, see note below.

3102 Freshman English

Practice in reading comprehension and research techniques. A long library research paper and various advanced writing techniques are special points of emphasis. *Prerequisite:* English 3101.

3211 English Literature

English literature from the beginning to Samuel Johnson. Required of all English majors. *Prerequisite:* English 3102.

3212 English Literature

English literature from Samuel Johnson to the present. Required of all English majors. *Prerequisite:* English 3211.

Entering students may omit English 3101 and register for English 3102 provided that —

1. They score at least 2 on the College Entrance Board's *Advanced Placement Examination* (the taking of which is optional), or
2. They score 600 on the verbal part of the Scholastic Aptitude Test (which must be taken for entrance) and in addition are rated by the English Department as "B" on the College Entrance Board's Writing Sample (which they exercise the option of taking).

For passing students, grades of "A" or "B" will be put on the permanent record, the exact grade depending on the quality of writing on the Advanced Placement Examination or the Writing Sample. (Beginning Sept. 1967, the CEEB Achievement Test in English Composition will be required in lieu of the Writing Sample.)

Whichever method (1 or 2 above) is chosen, tests should be taken in time for the College to receive them not later than two weeks before Registration.

- 3213 **Appreciation and Analysis of the Novel**
and short story with attention to contemporary works as well as to the historical development of the genres. *Prerequisite:* English 3102.
- 3214 **Appreciation and Analysis of Drama and Poetry**
with attention to contemporary works as well as to the historical development of the genres. *Prerequisite:* English 3213.
- 3215 **World Literature in Ancient, Medieval, and Early Renaissance Times**
The works of such writers as Lao Tzu, Homer, Aeschylus, Sophocles, Euripides, Vergil, St. Augustine, Dante, Boccaccio, Chaucer, Montaigne, Cervantes, and Shakespeare. All foreign literatures are read in modern translations. *Prerequisite:* English 3102.
- 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, Chekhov, Ibsen, Baudelaire, Lorca, Joyce, Mann, Kafka, and Proust. All foreign literatures are read in modern translations. *Prerequisite:* English 3102.
- 3269 **Technical Writing** [Formerly 3369]
Written and oral reports: assembling material, organizing, writing, and revising. *Prerequisite:* English 3102.
- All 3300 courses require as prerequisite completion of one of the six hour pairs of sophomore level courses: English 3211-12, or 3213-14, or 3215-16.
- 3308 **Methods of Teaching English as a Foreign Language**
Modern foreign-language teaching techniques with particular attention to the problems of the learner of English. Theories of language learning and testing, and the practical use of language laboratory equipment. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3309 **The Structure of English**
An investigation of the nature of modern spoken American English and the relation between it and its written form; a study of the levels of usage, American dialects, and recent language study. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3311 **American Literature**
Representative writers from the Colonial period to 1860, with emphasis on major figures such as Poe, Emerson, Thoreau, Hawthorne, and Melville. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3312 **American Literature**
Representative writers from the Civil War to the present, with emphasis on major figures from Whitman to Faulkner. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3313 **The American Novel**
The representative American novels and novelists from 1787 to the present. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3314 **The American Drama**
Drama from the Colonial and Revolutionary periods to modern times. Special attention is given to the works of Bird, Boker, Fitch, Crothers, Anderson, Hellman, O'Neill, Williams, and Miller. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3316 **Medieval English Literature**
Medieval English literature in translations from 1066 to Chaucer: romances, visions, satires, and the morality play. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3320 **Shakespeare: The Comedies and Histories**
Detailed study of the major plays composed before 1601, with a rapid reading of others belonging to the same period. Required of all English majors. *Prerequisite:* English 3212, 3214, or 3215-16.

- 3321 **Shakespeare: The Tragedies**
Detailed study of some of the great tragedies, followed by a more rapid examination of other plays written after 1600. Required of all English majors. *Prerequisite:* English 3212, 3214, 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 3212, 3214, or 3215-16.
- 3323 **Seventeenth-Century Prose and Poetry** [Formerly 3325 & 3326]
Major poetic movements in the seventeenth century in the works of Donne, Jonson, the Cavalier Poets, Milton, and Dryden. A study of the prose works of Bacon, Browne, Dryden, Hobbes, and others. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3328 **Eighteenth-Century Prose and Poetry** [Formerly 3329 & 3330]
The prose and poetry of the major neo-classical figures from Pope through Johnson. Exclusive of Burns and Blake. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3334 **English Romantic Poetry** [Formerly 3331 & 3332]
The works of Burns, Blake, Scott, Wordsworth, Coleridge, Byron, Shelly, Keats, and some of their contemporaries. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3337 **Nineteenth-Century English Prose** [Formerly 3335 & 3336]
The prose of Lamb, Coleridge, Hazlett, DeQuincey, Macaulay, Carlyle, Newman, Arnold, Ruskin, Huxley, Stevenson, and their contemporaries. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3341 **Victorian Poetry** [Formerly 3339 & 3340]
The poetry of Tennyson, Browning, Arnold, the Rossettis, Meredith, Morris, Swinburne, Hardy, Hopkins, Housman, and the early Yeats. *Prerequisite:* English 3212, 3214, 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 3212, 3214, or 3215-16.
- 3347 **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 3212, 3214, or 3215-16.
- 3348 **The English Novel**
A continuation of English 3347, with study of typical works of Dickens, Thackeray, the Brontes, George Eliot, Hardy, and Meredith. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3352 **The English Novel** [Formerly 3350 & 3351]
The important English novelists of the twentieth century, with special study devoted to the works of Conrad, Bennett, Lawrence, Joyce, Forster, Waugh, Woolf, Graham Greene, Henry Green, Cary, and William Golding. *Prerequisite:* English 3212, 3214, 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 3212, 3214, or 3215-16.

- 3355 **The Drama in English since 1660**
Historical Study of dramatic theory and convention in England from the Restoration to the present, through reading of representative plays of each period. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3361 **Advanced Composition**
Basic techniques of writing applicable to both fiction and nonfiction. For students interested in perfecting their powers of written expression and/or critical abilities. Emphasis is on contemporary communication at various reader levels with particular attention to viewpoint and style. The course includes a survey of character portrayal and an introduction to plotting techniques. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3362 **Nonfiction Writing**
Study and practice in the techniques of contemporary nonfiction. Scope includes analysis of magazine article types and their structure. Attention is given to the use of fictional techniques in nonfiction. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3367 **Fiction Writing**
Study and practice in the techniques of contemporary fiction writing, with particular attention to the short story form. Emphasis is given to the techniques of characterization and the development of plot from character. *Prerequisite:* English 3361.
- 3368 **Advanced Fiction Writing**
Study and practice in the techniques of contemporary fiction writing, with particular attention to dramatic structure as applicable to both the short story and longer forms. *Prerequisite:* English 3367, or 3361 and permission of the instructor.
- 3371 **Life and Literature of the Southwest**
The social background of the Southwest and its reflection in literature. *Prerequisite:* English 3212, 3214, or 3215-16.
- 3372 **Folklore**
The types and characteristics of folk literature with particular emphasis on the folklore of the Southwest and Mexico. *Prerequisite:* English 3212, 3214, 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 3212, 3214, 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 3212, 3214, or 3215-16.
- 3395 **Linguistics in the Classroom**
For those who desire a knowledge of what is both new and good in Modern Language theory, specifically as it pertains to English and the teaching of English. Meets the requirements for English 3309 for undergraduate secondary education majors with a teaching field in English. May not be counted in addition to English 3308 and 3309. *Prerequisite:* Six hours of sophomore English.
- 3411 **Milton**
An introduction to the work and times of John Milton. *Prerequisite:* Six hours of advanced courses in English.
- 3413 **Chaucer**
A survey of the life and works of Geoffrey Chaucer with emphasis on *The Canterbury Tales*. *Prerequisite:* Six hours of advanced courses in English.

- 3414 Literary Criticism [Formerly 3415 & 3416]
The development of literary theory as seen in the major critics from Plato to the present. *Prerequisite*: Six hours of advanced courses in English.
- 3419 The Foundations of the English Language [Formerly 3417 & 3418]
The development of English from Old through Middle English, with selected readings in the original. *Prerequisite*: Six hours of advanced courses in English.
- 3435 Studies in American Thought*
The origin and significance of the major thought patterns of American Literature. *Prerequisite*: a 3.0 average in nine hours of advanced courses in English. Consult the English Department Head before registering.
- 3440 Special Studies*
Pro-seminar open to English majors, the topic to vary with the professor in charge. See Department Head for details. *Prerequisite*: a 3.0 average in nine hours of advanced courses in English or consent of the instructor.
- 3455 to 6455 Workshop in the Teaching of English
May be repeated for credit when the subject varies. *Prerequisite*: Permission of the department head.
- 3470 Introduction to linguistics
Comparative linguistics, field methods and recent advances in linguistic science. *Prerequisite*: Six hours of advanced courses in English.

FOR GRADUATE STUDENTS ONLY

Prerequisite: Fourth-semester college level proficiency in French, German, or Spanish, twelve semester hours of advanced courses in English, and a Bachelor's degree. Foreign students may be required to take special proficiency tests in the English language before being allowed to register. Write Head, Department of English, for details.

M.A. degree requirements: Thirty semester hours of graduate credits in English, at least half of which consist of courses numbered between 3500 and 3600 (including 3511, 3515 or the Oral Examination, 3598, 3599); the remaining may consist of courses numbered between 3300 and 3500, provided these credits were not taken to satisfy requirements for the B.A. degree.

A student may not count subject matter other than English toward the M.A. degree except by approval of the Head, Department of English.

The student planning to continue graduate work at another institution is strongly advised to take English 3411, 3413, and 3419.

- 3511 Scholarly Methods 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 Graduate Reading Course
Reading of a selected list of English and American masterpieces. No formal classes are held, but discussion groups meet regularly. Students who make a passing grade are exempted from the Master's Oral Examination in English.
- 3520 Studies in Poe and his Influence*
Recommended prerequisite: English 3511.

*Seminar.

ENGLISH

3522 Studies in English Literature*

The subject is chosen by the professor in charge. May be repeated for credit when the topic varies. *Recommended prerequisite:* English 3511. Offered twice each year.

3523 Studies in American Literature*

The subject is chosen by the professor in charge. May be repeated for credit when the topic varies. *Recommended prerequisite:* English 3511.

3525 Studies in American Transcendentalism
(Emerson, Thoreau, and Whitman)*

Recommended prerequisite: English 3511.

3535 Studies in American Thought*

The origin and significance of the major thought patterns of American literature. May not be counted in addition to English 3435. *Recommended prerequisite:* English 3511.

3540 Studies in Melville and Hawthorne*

Recommended prerequisite: English 3511.

3560 Studies in Shakespeare*

Recommended prerequisite: English 3511.

3565 Studies in Folklore*

May be repeated for credit when the topic varies. *Prerequisite:* English 3372. *Recommended prerequisite:* English 3511.

3598-99 The Master of Arts Thesis

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

*Seminar.

W. N. McANULTY, *Head*

Professors McANULTY, QUINN (Emeritus), STRAIN; *Associate Professor* LOVEJOY;
Assistant Professors HOFFER, LEMONE; *Instructors* VOWELL, JACKSON, AUSTIN.

GEOLOGY

B.S. Degree — Specific course requirements for the geology major are Geology 3101-02, 4216-17, 4218-19, 3322, 3323, 6465, and six additional advanced hours in geology; Chemistry 4103-04; Physics 4115, 4217 (Paleontology majors may substitute biological science for physics); M.E. 2103; and English 3269 or M.E. 3201. Speech is recommended.

B.A. Degree — Specific course requirements for the geology major are Geology 3101-02, 4216-17, 4218-19, 3322, 3323, and three additional advanced hours in geology; Chemistry 4103-04, M.E. 2103; and English 3269 or M.E. 3201. Speech is recommended.

For Undergraduates

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

3101-02 Physical and Historical Geology (\$5 - \$5)

The first course, 3101, of this two-semester sequence deals with principles and processes of physical geology. The second course is a critical study of the principles of historical geology. The courses must be taken in sequence. Three lectures and two laboratory hours per week for each course. Three laboratory hours per week are required of engineering and science majors. A one-day field trip is required each semester of all students.

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 per week. *Prerequisite:* Geology 3101-02.

4216 Mineralogy (\$4)

Elementary study of crystallography, crystal chemistry, classification and physical properties of minerals, and identification of the common silicate minerals, three lectures and four laboratory hours per week. *Prerequisite:* Geology 3101, Chemistry 4103, and Math 2116.

4217 Petrology (\$4)

Hand specimen study and classification of igneous, metamorphic and sedimentary rocks. Three lectures and four laboratory hours per week. *Prerequisite:* Geology 4216.

4218 Invertebrate Paleontology (\$4)

A study of the morphology and classification of the invertebrates, and their developments and geological significance. The course includes an introduction to paleoecology and stratigraphic paleontology. Three lectures and three hours laboratory work per week. *Prerequisite:* Geology 3101-02.

4219 Invertebrate Paleontology (\$4)

A continuation of Geology 4218.

For Undergraduates and Graduates

4301 Principles of Geology (For Teachers of Earth Sciences) (\$4)

The fundamental principles of physical and historical geology are emphasized. Lectures on meteorology, astronomy, geochemistry, geophysics and economic

- geology are included. Laboratory assignments deal with the common rocks and rock-forming minerals, and ores; topographic and geologic maps; and single geologic structures. Two or more field trips will be taken to demonstrate the importance of field observation, to point out geologic phenomena, and to relate field studies to classroom work. Offered only in 6-week summer terms. *Prerequisite:* permission.
- 3320 Paleobotany (\$2)
A study of the morphology, ecology, classification, development, and geological significance of fossil plants. Three lectures and three laboratory hours per week. *Prerequisite:* Geology 3101-02, 4218, and 4219; or Botany 4103, junior standing and permission.
- 3321 Geology for Engineers
The principles of physical geology and their practical applications to civil engineering. Three lectures and three hours laboratory work per week. *Prerequisite:* Chemistry 4103-04, Math 4212; and Physics 4115 and 4217, or permission.
- 3322 Field Course in Geology
A junior-level field course in which the methods and techniques employed in conducting geologic field studies and in the construction of geologic and structure maps are introduced. Selected areas in the field near the college are studied. One lecture and four hours in the field per week. *Prerequisite:* Geology 4217, Math 2116 and/or permission.
- 3323 Structural Geology (\$2)
A study of the principles and theories of structural geology. Special attention is given to primary and secondary rock structures important in mining, petroleum, and engineer operations. Two lectures and three laboratory hours per week. *Prerequisite:* Geology 4217 and 3322, Math 3115, 2116, and Mechanical Engineering 2103.
- 3324 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:* Geology 4217.
- 3325 Sedimentation (\$2)
Methods of study and interpretation of sediments, including grain size, and statistical analysis. In addition, consideration is given to the genesis and classification of sedimentary rocks through field observation and through laboratory study of hand specimens. Two lectures and one afternoon in the field or laboratory per week. *Prerequisite:* Twelve hours of geology, including 4217, or permission.
- 3327 Geological Microscopy (\$4)
The optical theory of the interaction of light and minerals and the study of minerals and ores in grains and polished thin sections with the petrographic and ore microscopes. Two lectures and three laboratory hours per week. *Prerequisite:* Geology 4217 and Physics 4115 and 4217.
- 2401 Workshop in Earth Sciences (\$4)
A workshop designed to fit the needs of elementary and secondary school teachers of the earth sciences. Students will be introduced to and become familiar with the literature and materials of the earth sciences, receive instruction in the construction and use of models and practice in the use of demonstration techniques. Field trips will be taken to demonstrate the importance of field observations in the teaching of the earth sciences. Offered only in 6-week summer terms. *Prerequisite:* Geology 3101, or 4301 and/or permission.
- 3440 Igneous and Metamorphic Petrology (\$4)
The study of the origin, mineralogy, texture, and the mode of occurrence and thin section analysis of igneous and metamorphic rocks. Two lectures and three laboratory hours per week. *Prerequisite:* Geology 3327.

- 3450 **Advanced Invertebrate Paleontology (\$2)**
A comprehensive analysis of the faunal taxonomy and paleoecology of the geologic systems. Professional methods of collecting and preparing invertebrate fossils will be stressed. Two lectures and three laboratory hours per week. Prerequisite: Geology 4218-19.
- 3455 **Vertebrate Paleontology**
Study of the evolution, geologic history and classification of the vertebrates, with emphasis on the practical use of vertebrate fossils in the solution of stratigraphic problems. Prerequisite: Geology 3102 or Zoology 4103.
- 3460 **Economic Geology (Non-metallics)**
Study of the origin, nature, occurrence, distribution, uses, prospecting, and exploration techniques and economic factors bearing on exploitation of the industrial rocks and minerals. Two lectures and four laboratory hours per week. Prerequisite: Geology 3323 and/or permission.
- 3461 **Economic Geology (Metallics)**
Study of the origin, nature, occurrence, distribution, uses, prospecting and exploration techniques and economic factors bearing on exploitation of metallic mineral resources. Two lectures and four laboratory hours per week. Prerequisite: Geology 3323 and/or permission.
- 3462 **Stratigraphy**
A study of the fundamental principles of stratigraphy with special emphasis placed on the stratigraphy of the Southwestern United States and Northern Mexico. Prerequisite: Geology 4218-19, 3323 and/or permission.
- 3464 **The Geology of Groundwater**
Study of the geology and hydrology of groundwater; occurrence, movement, fluctuations, and production; with emphasis on the groundwater resources of the Southwest. Three lectures per week, with laboratory being substituted occasionally for the third lecture. Prerequisite: Geology 3323 and 3325, or permission.
- 6465 **Field Geology (Summer Field Course)**
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: All required courses in Geology 3101-02, 4216-17, 4218-19, 3322, and 3323. Fee varies depending on where course is based.
- 1466-3466 **Special Problems**
Special problems in geology; hours and subjects to be arranged with each student; designed to permit undergraduate students to do special work on problems in which they are interested, and for which they have sufficient preparation. Open only to senior geology majors. No student will be allowed to take more than six hours of special problems work. Prerequisite: permission.
- 3468 **Advanced Structural Geology**
A broad areal, temporal, and topical analysis of major earth structures and geotectonic problems. Prerequisite: Geology 3323, 3325, and 3462.
- 3468-3469 **Senior Thesis**
Open on a special permission basis to Senior geology majors who have indicated ability to do research and prepare a professional report on suitable topics. This course must be taken in sequence and completed in a single academic year. Prerequisite: High academic standing and permission.

PHYSICAL 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. Credit will not be given for both this course and Geology 3101; however, this course may not be substituted for Geology 3101.

3104 Elements of Geography (\$2)

Study of the physical and economic factors affecting the production and distribution of the world's principal commercial products. Three lectures and two laboratory hours per week. *Prerequisite:* Geography 3103, or permission.



GOVERNMENT (POLITICAL SCIENCE)*



Clyde J. Wingfield, *Head*

Professors MYRES, RAY, STRAUS, WINGFIELD; *Associate Professor* PERUSSE;
Assistant Professors CARDENAS, GRAVES, LEONARD; *Instructors* HOVEL, SHAH;
Part-time Instructor HORWITZ.

B.A. Degree — In addition to the basic American Government courses 3110 and 3111 (formerly 3210-3211) required of all students, a major in Government (Political Science) will include twenty-seven (27) semester hours in the Department, fifteen (15) of which must be at the advanced (300-400) level. Normally, at least one course in each of the sub-fields of the discipline, plus 3480, will be required for a major in Government. 3110 and 3111 are prerequisite to all other Government courses. A total of twelve (12) semester hours in Government must be earned before a major may enroll in a course for advanced credit. A minor will consist of at least eighteen (18) hours, six (6) of which must be at the advanced level and with junior standing.

*In the United States the terms Government and Political Science as applied to academic disciplines are used synonymously.

For Undergraduates

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

Government 3110 and Government 3111 fulfill the legislative requirement of the State of Texas for a course on the Constitutions of the United States and Texas.

3110 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.

3111 American Government

The government of the United States — national, state, and local with special emphasis on the functions of the United States government. *Prerequisite:* Government 3110.

3221 State and Local Government

Organization, powers, functions, and business methods of state and local administrative agencies; problems of integration, centralization, budget and fiscal control and plans for reorganization; and intergovernmental cooperation among federal and local agencies. Special reference to Texas. *Prerequisite:* Government 3110-3111.

3230 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 3110-3111.

3250 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 governments in the United States. *Prerequisite:* Government 3110-3111.

GOVERNMENT

For Undergraduates and Graduates

Prerequisite: Government 3110 and 3111 plus six (6) additional hours of government for majors. Government 3110 and Government 3111 and junior standing for non-majors.

AMERICAN GOVERNMENT AND POLITICS

- 3322 **Urban Government and Administration**
The organization, politics, problems, and administration of urban governments in the United States. May be counted as public administration.
- 3325 **The Party System in the United States**
An analysis of the nature and role of American parties and pressure groups and their impacts upon the political process.
- 3327 **Political and Legislative Behavior**
A study of the nature and formation of political opinion, legislative and electoral behavior, and techniques for research and measurement.

PUBLIC LAW

- 3328 **Constitutional Law**
American constitutional law and its growth, based on an analysis of leading judicial decisions.
- 3329 **Law and Society**
An analysis of the role of law in society and the causes and consequences of judicial behavior.
- 3427 **Administrative Law and Regulation**
The study of law as it affects public officials and agencies in their relations with private citizens and the business community. Attention is given to appropriate case materials and regulatory practices.

INTERNATIONAL RELATIONS

- 3331 **International Organization and Administration**
The development of the machinery and procedure of international government for the peaceful settlement of international disputes.
- 3343 **Foreign Policies of the United States**
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.
- 3344 **The Conduct of American Foreign Affairs**
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.
- 3347 **Inter-American Relations**
Latin American relations of the United States; the political, economic, and cultural relations among the Latin American states.

COMPARATIVE GOVERNMENT

- 3323 **Great Britain and the Commonwealth**
An examination of British political institutions, phenomena, and problems in the mother country and in selected parts of the Commonwealth.

- 3332 **Survey of Latin American Government and Politics**
An examination of Latin American governmental processes and political institutions, and the cultural, economic, and social environment in which they develop.
- 3333 **Problems in Latin American Government**
A study of the nature and scope of problems in the political development of Latin American nations.
- 3424 **Comparative Political Institutions**
Classroom application of the comparative approach to the study of traditional and new political institutional arrangements. Most examples will be taken from European governments.

POLITICAL THEORY AND THOUGHT

- 3336 **Elements of Political Thought**
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 Western political thought.
- 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.
- 3433 **Latin American Political Thought**
A study of representative thinkers who have influenced political development in Latin America.
- 3439 **Scope and Methods of Political Science**
A survey of the scope and methodology of political science. An analysis and criticism of research in the field with emphasis on methods and techniques. Required of majors planning graduate study.

PUBLIC ADMINISTRATION

- 3340 **Public Policy Formulation**
The dynamics of public policy formulation in the governments of the United States. Emphasis will be placed upon the National bureaucracy.
- 3351 **Municipal Planning Administration**
History, principles and theories of urban growth, planning, and development with emphasis on public policy, and the administrative and legislative processes.
- 3438 **The Administration of Complex Organizations**
An analysis of administration in government with emphasis on administrative theory. Emphasis is placed on Administrative decision-making, leadership, supervision, communications and control in public and private, civil and military organizations.
- 3450 **Internship in Public Administration**
This course is open only to seniors and graduate students with the approval of the Head of the Department. It is a work-study program in which the student is assigned two days (or 16-20 hours) each week to a governmental agency. A weekly seminar session is also required. Normally open only to students interested in professional preparation in public administration.

GENERAL

3480 Senior Seminar in Political Science

A terminal research and writing experience for undergraduates in Government. An intensive investigation into the foundations of political science with emphasis on research.

FOR GRADUATE STUDENTS ONLY

(Prerequisite: Graduate Standing)

3510 Seminar in American Government

Research, writing, and discussion.

3524 Seminar in Comparative Government

Research, writing, and discussion.

3525 Seminar in Latin American Studies

Research, writing, and discussion.

3526 Seminar in Political Parties and Politics

Research, writing, and discussion.

3528 Seminar in Public Law

Research, writing, and discussion.

3530 Seminar in International Relations

Research, writing, and discussion.

3536 Seminar in Political Theory

Research, writing, and discussion.

3550 Seminar in Public Administration

Research, writing, and discussion.

3551 Seminar in Urban Problems

Research, writing, and discussion.

3580 Selected Problems in Government

Research, writing, and discussion. (May be repeated for credit.)

3598-99 Thesis in Government

HEALTH and PHYSICAL EDUCATION

KAY H. PETERSEN, *Head*

Professor PETERSEN; Associate Professors COLLINS, HARDIN, HARRIS, MCCARTY; Assistant Professors CRAIGO, GLARDON, LOPER; Instructors MOORE, HASKINS, IBA.

HEALTH EDUCATION For Undergraduates

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

3101 Health Science Information

Open to all students. Required of all physical education majors. Scientific information essential to the understanding of individual and community health problems with major consideration of the latest research related to such areas as cancer, heart disease, narcotics, smoking, obesity, physiological aspects of exercise.

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 Head 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 Head 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 Head 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 Head of the department.

3401 Health Education in the Secondary School

Responsibilities of school for health instruction; adolescent health problems, and their relationship to instruction; social implications of individual and group health. *Prerequisite:* H.E. 3101. Senior standing.

PHYSICAL EDUCATION For Undergraduates

1101 Service Course for Men (\$2)

Three hours per week. May be repeated for credit.

1102 Service Course for Women (\$2)

Three hours per week. May be repeated for credit.

1201 Skill Course for Men

Physical education majors only. Three hours per week.

1202 Skill Course for Women

Physical education majors only. Three hours per week.

3103 Introduction to the Public Schools and to Physical Education

The purposes, objectives, and methods of operation of the public school are described. The student is provided an overview of health, physical education, and recreation. Field trips and demonstrations are included in this course.

3202 Kinesiology

Analysis of movements, specialized skills, and motor coordination in terms of the mechanics of skeletal and muscular movement. *Prerequisite:* Zoo. 4103 and Bio. 3110, 3202, 3203, 3301, and 12 hours of health and physical education.

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 Head 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 physical education program including rhythms for the Elementary and Junior High levels. *Prerequisite:* Three semester hours of Physical Education or permission of the Head of the department.

3206 Techniques of Coaching Football and Basketball

Coaching methods and problems. Fundamentals of varsity team play; comparison of systems; strategy; training, conditioning; selection of men for positions; responsibilities of the coach; and public relations. Fall term. *Prerequisite:* Sophomore standing.

3207 Techniques of Coaching Track and Field and Baseball

Spring term. *Prerequisite:* Sophomore standing.

3215 Historical and Cultural Aspects of Dance

A cultural survey of the emergence of dance on the American scene in the 20th century, with consideration of dance as an expressive art in education.

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 Head of the department.

3304 Current Methods and Materials in Physical Education in Secondary Schools

A course designed to develop methods, teaching techniques, and materials for the teaching of physical education in the secondary schools with major emphasis on teaching of team sports. *Prerequisite:* Four semesters of skill courses and junior standing.

3305 Current Methods and Materials in Physical Education in Secondary Schools

Major emphasis on teaching of dual and individual sports. *Prerequisite:* P.E. 3304.

- 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:* Six hours of advanced physical education, including P.E. 3304. Junior standing.
- 3316 **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 Head of the department.
- 3408 **Sports Officiating**
Opportunity will be provided for a student to learn and interpret the rules and playing regulations, the mechanics of officiating and the psychological aspects of officiating sports activities included in a sound program of athletics and physical education. *Prerequisite:* Twelve semester hours of Physical Education or permission of the Head of the department.
- 3409 **Sports Activities Injuries, Training, and Emergency Care**
The recognition and prevention of injuries in sports activities as well as the emergency care provisions for the usual physical education and playground injuries are emphasized. *Prerequisite:* P.E. 3202, Biology 3203 and 3301.
- 3410 **Undergraduate Seminar**
Directed study in selected areas of Physical Education. This may be substituted for a deficiency in the required advanced Physical Education course in the Physical Education major. *Prerequisite:* Twelve semester hours of Physical Education or permission of the Head of the department. May be repeated for credit.
- 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 Head of the department.
- 3414 **Developmental Programs in Physical Education**
Programs to meet the needs of those individuals who are sub-par in physical fitness and skills. Emphasis on children with physical handicaps. *Prerequisite:* Biology 3203, 3301. P.E. 3202. Senior standing.
- 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:* A grade point average of at least 2.0 in both English 3101-02 and Speech 3101; of at least 2.5 in Health and Physical Education courses; 2.0 over-all; Education 3301-02; P.E. 3205; senior standing and permission of college supervisor of student teaching. Student must file a student teaching application with their college supervisor during the spring semester preceding the taking of the course.
- 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:* A grade point average of at least 2.0 in English 3101-02 and Speech 3101; of at least 2.5 in Health and Physical Education courses; 2.0 over-all; Education 3310-11; P.E. 3304; senior standing and permission of college supervisor of student teaching. Student must file a student teaching application with their college supervisor during the spring semester preceding the taking of the course.

6498 Student Teaching in the Secondary School

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

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 supervisor in health and physical education in elementary and secondary schools.

3504 Curriculum Construction in Health Education

The study of curriculum construction with respect to the establishment of basic curriculum philosophies, the application of educational principles, the acquisition of materials, and the comprehension of the sequence of content as recommended by the T.E.A. Health Education curriculum will be studied at all public school levels.



HISTORY



K. B. SHOVER, *Head*

Professors BAILEY, FULLER, PORTER, RIEGEL, STRICKLAND, TIMMONS;
Associate Professors McNEELY, SHOVER; *Assistant Professors* JACKSON, TREXLER;
Instructors BROADDUS, DENNY, DOZIER.

For Undergraduates

B.A. Degree — Specific course requirements for History major are: 1) History 3101-3102; 3201-3202 or 3203-3204; and eighteen advanced hours; 2) Three semester hours of Sociology.

3101 History of the United States, to 1865

Survey of American history through the Civil War, emphasizing the European background, the colonial contribution, the American Revolution, the republican government, growth of democracy, the background and course of the Civil War.

3102 History of the United States, since 1865

Reconstruction, rise of big business, clash of economic interests, struggle for reform, imperialism and world power status, Progressivism, World War I, the Twenties, the New Deal, World War II, post-war America.

Prerequisites for 3200 courses in History: Six hours of History. History 3201, 3203, and 3205 are prerequisites for History 3202, 3204, and 3206 respectively.

3201 History of Western Civilization to 1715

[Formerly 3106]

The ancient and classical civilizations, medieval Europe, Renaissance and Reformation, development of national states, expansion of Europe, age of absolutism, development of parliamentary government in England.

3202 History of Western Civilization, since 1715

[Formerly 3107]

The European states in the 18th century, the Enlightenment, the era of the French Revolution, Industrial Revolution and its impact, nationalism, intellectual currents, imperialism and World War I, the dictatorships, the world in conflict since 1939.

3203 History of England, to 1603

A survey course in English history embracing primarily the period between the Conquest and the close of the reign of Elizabeth I, with special stress on the evolution of legal, constitutional, and parliamentary institutions.

3204 History of England, since 1603

A continuation of History 3203, with emphasis on constitutional developments in the 17th century, the Industrial Revolution in the 18th century, and social reform during the 19th century.

3205 Latin America — The Colonial Period

[New]

A general survey, emphasizing the Indian Civilizations, the Spanish Colonial empire, and the revolutions for independence.

3206 Latin America — The National Period

[New]

A continuation of History 3205, emphasizing the national histories of the ABC countries and Mexico.

For Undergraduates and Graduates

Prerequisites: Junior standing; and twelve semester hours of History, or six hours of History and six hours of other social sciences.

THE UNITED STATES

- 3301 Colonial America, to 1763 [Formerly 3325]
Background of European exploration and colonization, settlement and development of the English colonies, British imperial policy, and the Anglo-French conflict in North America.
- 3302 The Era of the American Revolution, 1763-1789
Causes of the colonial revolt, the military, political, diplomatic, social aspects of the Revolution, the Confederation, and Federal Constitution.
- 3303 The Early National Period, 1789-1829 [Formerly 3326]
The new government under the Constitution, Hamiltonian federalism, development of foreign policy, rise of Jeffersonian Democracy, expansion, War of 1812, the new nationalism, and the emergence of sectional issues.
- 3304 The Jacksonian Era, 1829-1850 [Formerly 3335]
Background and rise of Jacksonian Democracy, Manifest Destiny and westward expansion, the reform impulse, growth of sections, and revival of sectional issues.
- 3305 The Civil War and Reconstruction, 1850-1876 [Formerly 3336]
The prosperous fifties, nativism, immigration, rise of the Republican party, the coming of war, Union and Confederacy, the conflict over reconstruction, Radical rule in the South, emerging social and economic problems, the Compromise of 1876.
- 3306 The Rise of Modern America, 1876-1900 [Formerly 3355]
The legacy of Reconstruction, growth of industry, organized labor, the rise of the city, passing of the frontier, the eclipse of agrarianism, protest and reform, the acquisition of a colonial empire.
- 3307 The Twentieth Century:
From Roosevelt to Roosevelt [Formerly 3356]
The United States as a world power, foreign policies, domestic problems, the Progressive Era, World War I, the Twenties, the Great Depression.
- 3308 Contemporary America, 1933 to the present
The New Deal at home and abroad, intellectual trends in the Thirties, World War II, post-war domestic problems, the Cold War, the United States as leader of the Free World.
- 3310 United States Biography Since 1875
Deals with men and women in various phases of life who have themselves been important, but who have also helped to create and to exemplify the more important trends in American History.
- 3311 Diplomatic History of the United States, to 1900 [Formerly 3350]
The diplomacy of the American Revolution, problems of the new nation, Jeffersonian diplomacy, the War of 1812, and resulting nationalism in foreign affairs, Manifest Destiny, diplomacy of the Civil War, world power status and the acquisition of empire.
- 3312 Diplomatic History of the United States, since 1900 [Formerly 3351]
Diplomacy of Theodore Roosevelt, Taft, and Wilson, World War I and the peace, diplomacy of the Twenties, Franklin Roosevelt and foreign affairs, World War II, the Cold War and the Revolution in American foreign policy.

- 3314 **Intellectual History of the United States**
The major intellectual currents in American history in philosophy, religion, literature, and science with special emphasis upon Puritanism, the Enlightenment, Transcendentalism, the Scientific Mind, and the Democratic Faith.
- 3315 **Social History of the United States from the Revolution to 1875**
American life, with its changing characteristics and ideals. Emphasis is placed on the knowledge and interests of Americans, including their leisure time activities, with the purpose of describing the development of American culture.
- 3316 **Social History of the United States from 1875**
Continuation of History 3315.
- 3317 **History of Texas**
Special emphasis upon the frontier movements in Texas; a survey of the history and institutional development of the native races, Spanish and Mexican Texas, Anglo-American colonization, the Texas Revolution, the Republic, statehood, expansionism, Civil War and Reconstruction.
- 3319 **The Old South** [New]
A history of the economic, social, and cultural development of the South to the Civil War.
- 3320 **The New South** [Formerly 3357]
A history of the American South since 1876, emphasizing the social, economic, and political adjustments in the late 19th century, and the vast changes in Southern society since World War I.
- 3321 **The Trans-Mississippi West, to 1860** [Formerly 3359]
American expansion into Texas and the Southwest, Santa Fe trade, the Texas Revolution, British and American rivalry in Texas, Mexican War and the acquisition of California.
- 3322 **Trans-Mississippi West, since 1860** [Formerly 3360]
The mining frontier, railroad expansion, day of the cattlemen, the farmer frontier, populist movement, reclamation and conservation.

RUSSIA and ASIA

- 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.
- 3331 **History of Russia, to 1905**
Survey of Russian history from the earliest times with special attention given to the institutions, literature, church, and foreign policy.
- 3333 **History of Russia, 1905 to the present**
The Revolution of 1905, World War I, the Revolutions of 1917, with special emphasis on the Soviet state since 1917.

LATIN AMERICA

- 3346 **The United States and Latin America**
A history of the Hispanic relations of the United States, emphasizing recognition, Monroe Doctrine, the United States and Mexico, Pan Americanism, the Big Stick, the Good Neighbor, and the Organization of American States.

HISTORY

3347 South America, since 1810

A history of the South American countries beginning with revolutions for independence, emphasizing their political, social, economic, and cultural development.

3348 Mexico in the Colonial Period, to 1821

The native peoples, European discovery, exploration, conquest and colonization of the Caribbean and Spanish North America, colonial institutions and culture, the Mexican movement for independence.

3349 Mexico, since 1821

Independent Mexico, the period of Santa Anna, Juárez and the Reform, the Díaz regime, the Revolution, major developments since 1920.

EUROPE

3352 The Tudors and Stuarts

[New]

The history of England, 1485-1714, the great Tudor monarchs, the English Reformation, the Stuarts and Cromwell, the Revolution of 1689, political, intellectual, and religious developments.

3353 Great Britain in the Nineteenth Century

Tory rule, the beginnings of reform, the Victorian age, Gladstone and Disraeli, the Irish question, imperial relations.

3354 Britain and the Empire in the Twentieth Century

The Boer War, imperial affairs, the Liberal party and internal reform, World War I, domestic and imperial developments between the wars, World War II, Britain and the Empire in the post-war era.

3356 English Constitutional History

[New]

Anglo-Saxon beginnings, monarchy under the Normans and Angevins, development of parliament and legal institutions, Tudor monarchy, 17th century revolution, development of the cabinet, parliamentary reform.

3360 The Ancient World, to 200 A.D.

[New]

Survey of the Ancient Near Eastern civilizations, Aegean origins, Greece, the Hellenized Ecumene, Rome and the Mediterranean world.

3361 The Early Middle Ages, 200-1100 A.D.

The feudalization of Roman civilization, church and state in the later Roman Empire, the migrations and the First Europe, Islamic, Byzantine, and Germanic empires and civilizations, the early European social order, the European Revolution of the 11th century.

3362 The Later Middle Ages, 1100-1400

Church and State in the Later Middle Ages, urban civilization and agricultural innovations, international trade, feudal rule in the New Europe, the universities, Europe in transition.

3363 The Renaissance and Reformation

[Formerly 3340]

Political, social, economic developments in the 14th century, the Papacy, the Renaissance in Italy and northern Europe, the Protestant movement, the Catholic Reformation, religious conflict, and the settlement of 1648.

3364 The Old Regime

[Formerly 3341]

Absolutism in France, Prussia, Austria, Russia, social and economic trends, international relations, scientific and intellectual revolution, enlightened despotism.

3365 The French Revolution and Napoleon

[Formerly 3342]

The causes of the Revolution, the constitutional monarchy, the French republic, Jacobin Commonwealth, the era of Napoleon Bonaparte, the Congress of Vienna.

- 3366 Europe in the Nineteenth Century [Formerly 3343]
The Metternichian era, the Industrial Revolution, liberalism and radicalism, development of nationalism, imperialism in Asia and Africa.
- 3367 Europe in the Twentieth Century, to 1939 [Formerly 3323]
The causes of World War I, the war, the Paris Peace Conference, the totalitarian dictatorships, the democracies, the background of World War II.
- 3368 Contemporary Europe [Formerly 3324]
World War II, the United Nations, the Cold War, the rising tide of nationalism in Asia, the Middle East, and Africa.
- 3381 Independent Reading Course for Honors Students [New]
Advanced Honors work, open only to Honors students who have completed Honors work in History 3102, 3201, and 3202, or with permission of department head.

FOR GRADUATE STUDENTS ONLY

Prerequisite for Graduate Courses: Twelve semester hours of advanced courses in History and a bachelor's degree.

- 3580 Topics in Regional History — SEMINAR
- 3581 Historical Method and Historiography¹ — SEMINAR
- 3582 Topics in Modern European History — SEMINAR
- 3583 Topics in Latin-American History² — SEMINAR
- 3584 International Aspects of Texas History, 1803-1850 — SEMINAR
- 3585 Topics in American History³ — SEMINAR
- 3598-99 Thesis Course for the Master's Degree

¹ Required of all History majors in the M.A. Degree.

² Reading knowledge of Spanish required.

³ May be repeated once for credit.

JOURNALISM, RADIO-TELEVISION *and* PUBLICATIONS

VIRGIL C. HICKS, *Head*, Radio-Television

JOHN J. MIDDAGH, *Head*, Journalism

Professors HICKS, MIDDAGH; *Associate Professor* LOWENSTEIN,*

Assistant Professor MAX L. MARSHALL;

Consultant in Publicity and Public Relations, STEELE JONES.

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 Head of the Department, Business Administration 3364 will be accepted for credit as part of a major or minor in Journalism.)

JOURNALISM

For Undergraduates

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

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.

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 finding 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.

*On Leave of Absence.

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.

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 head of the department.

3350 Fundamentals of Advertising

Survey of advertising principles used in all media of communications. Discussion of advertising's role in small and large business enterprises. *Prerequisite:* Junior standing or consent of the head of the department.

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 the head 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 head 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 head of the department.

COLLEGE PUBLICATIONS

For Undergraduates

1104, 1105 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, 1205 Publications (second year)

Further work on the college publications with increased responsibility. Three hours per week for two semesters. *Prerequisite:* Journalism 1104-05.

1304, 1305 Publications (third year)

Further work on the college publications with increased responsibility. Three hours per week for two semesters. *Prerequisite:* Journalism 1204-05.

1404, 1405 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

Upon approval by the Head of the Department, Education 3412 and 3413 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 head 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 head 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 head 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:* Radio-TV 3320 or consent of the head of the department.

3323 Production in Educational Television

Television production problems peculiar to educational television. A companion course to Education 3413, 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:* Six hours of radio-television or 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. (Cannot be taken in conjunction with any other Radio or Television course.)

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. (Cannot be taken in conjunction with any other Radio or Television course.)

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 Educational Television and Radio:

Preparation and Presentation of In-School Programs

A survey course in the public school applications of television, including techniques of teaching by closed circuit TV. Production of in-school programs for presentation on commercial and educational stations. *Prerequisite:* Junior standing.

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 head 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



C. H. GLADMAN, *Head*

Professors BOYER, KNAPP; *Associate Professors* ALLGOWER, BENTZ, GLADMAN;
Assistant Professors KRUSCHWITZ, MICULKA, R. G. OMUNDSON, PATTERSON, RESLEY;
Instructors BAILEY, BALL, BURGETT, DURAN, FOX, HANSEN, HORNER, HUNTLEY,
LIGUORI, McDONALD, MITER, PRYOR, THREADGILL;
Part-time Instructors EZZELL, ROSS; *Teaching Assistants* BENSON, HIGGINS,
HUTCHINS, SEGURA, YANCY.

MATHEMATICS

Mathematics 3101 and 3102 are recommended for those students whose mathematics requirements are not explicitly stated in degree plans. Mathematics 3201 is an elective course which will open the way to some advanced elective work in mathematics to the liberal arts or social science student who does not wish to major in mathematics.

B.A. and B.S. Degree — Students who wish to take either of these degrees with a major or minor in mathematics must include Mathematics 4217. The advanced hours used to fulfill the major or minor requirements must be approved by the Mathematic Department.

For Undergraduates

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

3101 Introductory Mathematics

An introductory course designed to fit the needs of liberal arts students. The objectives are to give the student an appreciation of the logical structure of mathematics and its use as a language to express ideas. Topics include the nature of proof, the number system, and elementary algebra.

3102 Introductory Mathematics

A continuation of Mathematics 3101. Topics include the algebra of sets, the function concept, and elementary coordinate geometry, trigonometry, statistics, inequalities, and maxima and minima. *Prerequisite:* Mathematics 3101.

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, or three semester hours of mathematics.

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, or sufficiently high score on the College Entrance Examination Board test (S.A.T.).

4212 Analytical Geometry and Calculus

Continuation of Mathematics 4111. *Prerequisite:* Mathematics 4111.

4217 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.

- 3201 **Introductory Analysis (Fall Semester)**
A study of selected topics of special interest to the liberal arts student. An introduction to the calculus is included in the course. *Prerequisite:* Mathematics 3102 or its equivalent or a sufficiently high score on the College Entrance Examination Board Test (S.A.T.). Not counted for credit in addition to Mathematics 4111.
- 3302 **A Course for Teachers or Supervisors of Elementary Mathematics (Spring Semester)**
A concrete study of topics in mathematics usually taught in the elementary school. Modern concepts are introduced and used throughout the course. Structure and properties of the number system are emphasized. *Prerequisite:* Current registration in elementary education and junior standing. May not be counted as part of the advanced hour requirements for a major or minor for the B.A. or B.S. degree in Mathematics.
- 3319 **Elementary Number Theory**
An introduction to the theory of primes, congruences, and related topics. *Prerequisite:* Nine hours of mathematics or permission of the instructor.
- 3324 **Computer Programming (Fall Semester)**
Introduction to digital computer programming and problem formulation for computers. *Prerequisite:* Mathematics 4217 or its equivalent.
- 3326 **Differential Equations**
Study of the common types of ordinary differential equations of geometry, mathematics, mechanics, and electricity. *Prerequisite:* Mathematics 4217 or concurrent registration in Mathematics 4217.
- 3327 **Selected Topics in Modern Mathematics (Fall Semester)**
A study of selected topics in finite Mathematics, especially useful to prospective teachers and students in the social sciences. *Prerequisite:* Nine hours of mathematics or permission of the instructor. May not be counted as part of the advanced hour requirement for a major or minor for the B.A. or B.S. degree in Mathematics.
- 3328 **Selected Topics in Modern Mathematics (Spring Semester)**
An introduction to the logical methods of mathematics. A detailed development and study of the natural, rational and real number systems starting from Peano's postulates. Well ordering, axiom of choice, countability, uncountability and related topics. Recommended for teachers and mathematics majors. *Prerequisite:* Nine hours of mathematics or consent of the instructor.
- 3331 **Statistics (Spring Semester)**
An introductory course in the fundamental concepts of mathematical statistics. *Prerequisite:* Mathematics 4212 or Mathematics 3201 with grade of "C" or better and permission of the instructor.
- 3421 **Theory of Equations (Fall Semester)**
Theory of polynomials, cubic and quartic equations, approximate methods, determinants, symmetric functions, and other topics. *Prerequisite:* Mathematics 4212.
- 3422 **Modern College Geometry (Spring Semester)**
A course in modern plane geometry involving an extension of some of the material of elementary geometry, together with an introduction to projective geometry. Properties of the triangle, properties of the circle, similitude, inversion, cross ratio, and principle of duality. *Prerequisite:* Mathematics 4212.
- 3423 **Vector Spaces and Matrix Algebra (Spring Semester)**
An introduction to the algebra of vectors and matrices, and to linear transformations on vector spaces. *Prerequisite:* Mathematics 4212.

MATHEMATICS

- 3425 Modern Algebra (Fall Semester)
Groups, rings, integral domains, and fields. *Prerequisite:* Mathematics 4217 or consent of instructor.
- 3426 Modern Algebra (Spring Semester)
Continuation of Mathematics 3425. *Prerequisite:* Mathematics 3425.
- 3429 Numerical Analysis (Spring Semester)
Continuation of Mathematics 3324. Numerical techniques and the mathematics of computation, including finite difference, curve fitting and the solution of equations. *Prerequisite:* Mathematics 3324.
- 3431 Introduction to Point Set Topology
Topological spaces, continuous mappings, homeomorphisms and topological properties. *Prerequisite:* Mathematics 4217.
- 3435 Higher Mathematics for Engineers and Physicists (Fall Semester)
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:* Mathematics 4217.
- 3436 Higher Mathematics for Engineers and Physicists (Spring Semester)
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 3326.
- 3437 Introduction to Complex Variables (Fall Semester)
The definition of the elementary analytic functions, differentiation, integration, Taylor series, and an introduction to conformal mapping. *Prerequisite:* Mathematics 4217.
- 3441 Introduction to Real Functions (Fall Semester)
A study of those topics usually considered in courses in advanced calculus and intermediate analysis with emphasis on the theoretical aspects of the content. *Prerequisite:* Mathematics 4217.
- 3442 Introduction to Real Functions (Spring Semester)
A continuation of Mathematics 3441. *Prerequisite:* Mathematics 3441.
- 3443 Intermediate Differential Equations (Spring Semester)
A continuation of Mathematics 3326, emphasizing series and numerical methods for solving ordinary differential equations. Some partial differential equations. Development of some existence and uniqueness theorems. *Prerequisite:* Mathematics 3326 or its equivalent.

FOR GRADUATE STUDENTS ONLY

- 3511 Applied Mathematics I
Spectral Theory of operators, distribution theory, perturbation theory. Green's functions. Applications to ordinary and partial differential equations, integral equations and calculus of variations. *Prerequisite:* Mathematics 3435 and 3436 or the equivalent as approved by the instructor.
- 3512 Applied Mathematics II
A continuation of Mathematics 3511. *Prerequisite:* Mathematics 3511 or its equivalent as approved by the instructor.
- 3521 Advanced Abstract Algebra I
Groups, rings, fields, modules, with an introduction to homological methods. *Prerequisite:* Mathematics 3426 or its equivalent as approved by the instructor.
- 3522 Advanced Abstract Algebra II
A continuation of Mathematics 3521. *Prerequisite:* Mathematics 3521 or its equivalent as approved by the instructor.
- 3531 Real Variables I
Measurable sets and functions, Lebesgue-Stieltjes integration, Baire categories, L_p spaces and various types of convergence. *Prerequisite:* Mathematics 3442 or its equivalent as approved by the instructor.
- 3532 Real Variables II
A continuation of Mathematics 3531. *Prerequisite:* Mathematics 3531 or its equivalent as approved by the instructor.
- 3541 Topology I
A study of topological spaces, uniform spaces and function spaces, with an introduction to algebraic topology. *Prerequisite:* Mathematics 3431 or its equivalent as approved by the instructor.
- 3542 Topology II
A continuation of Mathematics 3541. *Prerequisite:* Mathematics 3541 or its equivalent as approved by the instructor.
- 3551 Complex Variables
Analytic continuation, Riemann surfaces, Riemann mapping theorem, infinite series and product representations of meromorphic functions, elliptic functions. *Prerequisite:* Mathematics 3437 or its equivalent as determined by the instructor.
- 3562 Functional Analysis
Normed linear spaces and linear operators. *Prerequisite:* Mathematics 3532 or consent of the instructor.
- 3570 SEMINAR
Various topics not included in regular courses will be discussed. May be repeated once for credit as the content changes. *Prerequisite:* Consent of instructor.
- 3598-99 THESIS Course for the MASTER'S DEGREE



MILITARY SCIENCE



COLONEL LEON F. LAVOIE, *Commandant*

Professor COLONEL LAVOIE;

Assistant Professors MAJOR WOODYARD, CAPTAIN BASSETT;

Instructors SGT. MAJOR STEWART, M/SGT. THOMAS, SGT. HELTON.

GENERAL: Courses offered by this department are designed to produce junior commissioned officers, who by their education, training, and demonstrated leadership qualities, are considered suitable for continued development as officers in the United States Army. Army ROTC Courses provide leadership training and experience that is not duplicated in any other college course. Instruction is designed to develop self-assurance, personal discipline, physical stamina, poise, bearing, acceptance of responsibility, and other basic qualities required of an Army Officer. These same qualities also contribute significantly to success in civilian careers.

Military Science Courses are offered during the fall and spring semesters only. The first two years (Military Science 1101-02 and 2201-02) form the Basic Course and are normally taken during freshman and sophomore years. The second two years (Military Science 3301-02 and 3401-02) form the Advanced Course and are taken during the student's junior and senior years. Military Science (ROTC) is elective at TWC.

ELIGIBILITY: *Basic Course.* Normally a student may only enroll in Military Science courses that correspond to his academic year in college, and he may be permitted to begin ROTC only if sufficient time remains for him to complete his Military Science studies by the time he is scheduled to obtain his baccalaureate degree. Enrollment is limited to students who can qualify for a degree prior to their 28th birthday. Exemptions may be granted by the Professor of Military Science (PMS) for as much as one year of the Basic Course for students having satisfactorily completed three years of high school ROTC or its equivalent. Veterans with four or more months of active military service may be exempted, by the PMS, from the entire Basic Course and apply for admission to the Advanced Course upon attaining approximate junior standing.

To enroll in ROTC a student must be a full-time student carrying 12 or more semester hours, physically qualified as evidenced by a recent physical examination, and be a male citizen of the United States, or must qualify for U. S. citizenship prior to admission to the Advanced Course. To accommodate transfer students from Junior Colleges, other college or universities not having a Senior ROTC Program, or sophomores at TWC, who wish to obtain an Army Officer's commission through ROTC; it is possible to qualify for the two-year Army ROTC Program offered at TWC. Application for the two-year Army ROTC Program must be made in March of the year that the student approaches junior standing. Upon satisfactorily passing a mental screening test, a physical examination and approval of applicant by the PMS, the student may attend a six weeks Basic Summer Training Camp, in lieu of the Basic Course, and thereby qualify for admission to the Advanced Course.

Advanced Course. Upon satisfactorily completing the Basic Course (MS I and MS II) or the Basic Summer Camp under the two-year ROTC Program (attended between student's sophomore and junior years) or exemption from the Basic Course by the PMS for four or more months active military service, a student may qualify for admission to the Advanced Course provided he is selected by the PMS, based upon a mental screening test, a physical examination, and the student's overall academic performance. If accepted for the Advanced Course the student is required to execute a contract with

the government whereby he agrees to enlist in the Army Reserve for a period of six years, complete the Advanced Course, accept a commission if offered, and serve on active duty for two years. Once enrolled in the Advanced Course, its completion, to include attendance at Advanced Summer Camp (attended between the student's junior and senior years), is a prerequisite to graduation from college, unless the student is relieved of his contractual obligations by the PMS.

PAY AND ALLOWANCES: All students enrolled in ROTC are furnished summer and winter uniforms, textbooks, and equipment on a loan basis. A \$20.00 deposit is required at initial registration to cover possible loss or damage to government and college property. This deposit is refunded upon completion of Military Science studies. The government pays all Advanced Course cadets \$40.00 a month, for a maximum of twenty months, excluding the six week Advanced Summer Training Camp, where pay is at the rate of \$147.30 per month. The government also provides a mileage allowance of six cents per mile to and from Advanced Summer Training Camp. Monetary allowances accruing to Advanced Course cadets approximates \$1,300.00 including a \$300.00 clothing allowance paid upon entering on active duty.

SCHOLARSHIPS: Approximately 2,000 four- and two-year Army ROTC Scholarships will be available for school year 1966-67. All scholarships are on a national competitive basis with some emphasis placed upon geographical distribution. Four-year Army ROTC Scholarships are for high school graduates. Interested high school seniors should apply in March of their senior year to Headquarters Fourth U. S. Army, ATTN: AKARF-R, Fort Sam Houston, Texas, for information packets. Two-year Army ROTC Scholarships are exclusively for TWC sophomores, who have, or are about to complete the Basic Course (MS I and MS II). TWC sophomores about to complete MS II, should obtain and file scholarship applications with the PMS of TWC, in Memorial Gym, during March of their sophomore year. Both four and two-year Army ROTC Scholarships provide for the payment of tuition, fees, textbooks and essential classroom materials. Additionally, both four and two-year Army Scholarship recipients are paid \$50.00 per month for the period of their scholarship excepting for their period at Advanced Summer Training Camp where pay is at the rate of \$147.30 per month.

FLIGHT TRAINING: Flight Training at a local flying school is available in limited quotas to Senior ROTC Cadets at TWC. A more rigid physical examination is required and cadets must attend flight training on their own time. The ROTC flight training program seeks to qualify the cadet for a Federal Aviation Agency Pilot's License. Instructional costs approximating \$600.00 per person are paid by the government. If a Senior ROTC cadet elects to take flight training he must agree to serve three years on active duty where he may receive more advanced flight training and possible duty with Army Aviation. Qualified Army Aviators receive an extra \$100.00 per month.

SUMMER CAMPS: There are two summer training camps. A Basic Training Camp and an Advanced Training Camp. The Basic Training Camp is a prerequisite of the two-year Army ROTC Program to accommodate transfer students who could not take the Basic Course at their former institutions and TWC sophomores who did not take the Basic Course, who may now wish to qualify for the Advanced Course and an Army officer's commission. The Basic Training Camp is of six weeks duration and pay is at the rate of \$78.00 per month. Attendance at Advanced Training Camp is required of all Advanced Course cadets as an integral part of the Advanced Course. Advanced Training Camp is attended between a student's junior and senior year. For a cogent reason, attendance at Advanced Training Camp may be postponed one year, upon the written request of the student. Under these circumstances, cadets who have met all of their

MILITARY SCIENCE

academic requirements for a baccalaureate degree will be commissioned at the end of their Advanced Summer Training Camp. Those who have not met all academic requirements for a degree will be commissioned upon obtaining their baccalaureate degree.

COMMISSIONS OFFERED: Upon successful completion of all Military Science studies and graduation from Texas Western College, a cadet is tendered a commission as a Second Lieutenant in the United States Army Reserve and will be required to serve on active duty, not to exceed two years (three years for those taking ROTC Flight Training). Students who qualify as Distinguished Military Students at the end of their junior year and maintain the prescribed academic and leadership standards through Advanced Training Camp and their senior year, will be designated as Distinguished Military Graduates of TWC. Distinguished Military Graduates may apply and qualify for a Regular Army Commission — the same as given at the United States Military Academy at West Point. Since TWC offers a General Military Science Curriculum, a commission in most branches of the Army is obtainable, excepting those requiring professional graduate work. Following graduation, the newly commissioned officer is sent to an Orientation Course of about eight weeks duration to qualify him in his Branch, and then completes his tour of active duty through challenging assignments overseas and in the United States. Following eighteen months active duty, promotion to First Lieutenant can be reasonably expected with a substantial increase in pay. Likewise, upon the completion of two years active Military Service, another substantial increase in pay will occur. Delays in call to active duty are generally obtainable for those students who wish to pursue graduate studies leading to a Master's Degree.

BASIC COURSE

1101-02 Military Science I*

Organization of the Army and ROTC; Individual Weapons and Marksmanship; United States Army and National Security; and Leadership Laboratory. One classroom hour and one drill hour per week. Academic credit: One hour per semester.

2201-02 Military Science II

Map and Aerial Photograph Reading; Introduction to Operations and Basic Tactics; American Military History; Counterinsurgency; and Leadership Laboratory. Two classroom hours and one drill hour per week. Academic credit: Two hours per semester.

ADVANCED COURSE*

3301-02 Military Science III

Leadership; Military Teaching Principles; Branches of the Army; Small Unit Tactics and Communications; Counterinsurgency; 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 the College. Academic credit: Three hours per semester.

3401-02 Military Science IV

Operations; Logistics; Army Administration; Military Justice; The Role of the United States in World Affairs; Service Orientation; and Leadership Laboratory. Three classroom hours and one drill hour per week. *Prerequisite:* Military Science 3301-02. Academic credit: Three hours per semester.

* In addition to the above schedule, Military Science I and 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.



MODERN LANGUAGES



EDGAR T. RUFF, *Head*

Professors RUFF, SHARP, BEVANS; *Associate Professors* TAPPAN, WEBB, RUSSELL,
Assistant Professors BREWER, SCRUGGS; *Instructors* HAUGHTON,* BAILEY, CHRISTIAN,*
NICOLAI, JONES, SPYROPOULOS, BOLLINGER, F. RODRIGUEZ, IRWIN, NAVAR;
Part time Instructor BALDWIN.

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
- 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 3365 or equivalent. Major examination required. Teaching majors who wish departmental recommendation must meet the same requirements, plus those for the certificate on an earlier page of this catalog. First semester, basic courses numbered 4101 are not counted in addition to two units in same language in high school.

FRENCH

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

4101-02 Fundamentals of Reading, Writing and Speaking

Oral drill, dictation, grammar, reading of elementary and intermediate texts, laboratory and written exercises.

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*

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

A survey of masterpieces of French literature, including the *Chanson de Roland*, Montaigne's *Essais*, etc. At least four important works will be covered in class. Outside reading reports. *Prerequisite:* French 3202.

3335 Nineteenth Century French Novel: Early Period*

3337 Nineteenth Century French Novel: Later Period*

*Undergraduate courses indicated by an asterisk are not given in the period covered by this catalog. *On Leave of Absence.

MODERN LANGUAGES

- 3341 **Modern French Drama**
The French drama from the end of the eighteenth to the end of the nineteenth centuries. Combines previous courses 3336 and 3340. *Prerequisite:* French 3202.
- 3357 **Advanced Composition and Grammar Review**
Oral and written composition on topics of current interest; correspondence and commercial letters. *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 Rolland, Saint-Exupéry, Gide, Camus, Cocteau, Giraudoux, Anouilh, etc. *Prerequisite:* French 3202.
- 3377 **The History of French Poetry: A Survey**
- 3490 **SEMINAR**
Prerequisite: Six hours of advanced French.
- 3491 **Advanced Reading Course: SEMINAR**
Prerequisite: Six hours of advanced French.

FOR GRADUATE STUDENTS ONLY

Prerequisite: Twelve hours of advanced courses in French and a Bachelor's degree.

- 3590 **SEMINAR**
May be repeated for credit.
- 3591 **Graduate Reading Course: SEMINAR**
May be repeated for credit.

GERMAN

- 4101-02 **Fundamentals of Reading, Writing and Speaking**
Oral drill, dictation, grammar, reading of elementary and intermediate texts, laboratory and written exercises.
- 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.
- 3321 **The Literary History of Germany***
- 3333 **Masterpieces of German Literature**
Intensive readings from masterpieces of German literature. At least four complete works from such authors as Goethe, Schiller, Kleist, etc. *Prerequisite:* German 3202.
- 3357 **Advanced Composition and Grammar Review***
- 3358 **Contemporary German Literature**
Emphasis on the novel with some attention to the contemporary drama. Study of such authors as Hesse, Mann, Kafka, Grass, etc. *Prerequisite:* German 3202.
- *Undergraduate courses indicated by an asterisk are not given in the period covered by this catalog.

SPANISH

4101-02 Fundamentals of Reading, Writing and Speaking

Oral drill, dictation, grammar, reading of elementary and intermediate texts, laboratory and written exercises.

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.

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*

3111 España contemporánea*

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

A survey of Spanish culture and literature, stressing the parallel development of Spanish institutions, thought and art forms. Conducted in Spanish. *Prerequisite:* Spanish 3202.

3324 The Literary History of Mexico

Principal movements and writers in Mexican literature. Emphasis on the novel of the Revolution. Conducted in Spanish. *Prerequisite:* Spanish 3202.

3328 Golden Age Drama*

3333 Masterpieces of Spanish Literature

Extensive readings from masterpieces of Spanish literature. At least four complete works including the *Poema de Mio Cid*, *Libro de Buen Amor*, *La Celestina*, etc. *Prerequisite:* Spanish 3202.

3335 Nineteenth Century Spanish Novel: Early Period*

3337 Nineteenth Century Spanish Novel: Later Period

The Spanish novel of the second half of the nineteenth century: Palacio Valdés, Blasco Ibáñez, Pío 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

The Spanish drama from the end of the eighteenth to the end of the nineteenth centuries. *Prerequisite:* Spanish 3202.

3356 Twentieth Century Spanish Literature: Early Period

The "Generation of '98," including Unamuno, Benavente, Ortega y Gasset, Azorín, García Lorca, etc. *Prerequisite:* Spanish 3202. (Not counted in addition to Spanish 3358.)

*Undergraduate courses indicated by an asterisk are not given in the period covered by this catalog.

- 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.
- 3359 **Twentieth Century Spanish Literature: Later Period***
- 3360 **The Regional and Historical Novel in South America**
A study of the famous regional and historical novels of South America, exclusive of Brazil. At least one representative author of each country or region. Special attention to major regional language differences. Outside reports. *Prerequisite:* Spanish 3202.
- 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*; Cortes' *Cartas de Relación*; Cabeza de Vaca's *Neufragios*; Castañeda's *Jornada de Cíbola*, etc. Special attention to the American Southwest. *Prerequisite:* Spanish 3202.
- 3363 **The Literary History of Argentina***
- 3364 **Contemporary Poets of Latin America***
- 3365 **Contemporary Urban Novel of Latin America**
A survey of the increasing tendency among Latin American novelists to portray life in rapidly growing population centers. *Prerequisite:* Spanish 3202.
- 3366 **The New World in Spanish Literature (Southern Hemisphere)***
- 3377 **History of Spanish Poetry***
- 3400 **Language Theory and Analysis**
Seminar in language improvement and Spanish literature and culture. Methods for teaching Spanish on all levels. Practical linguistics; written and oral participation in language improvement; problems of literary analysis, appreciation, criticism and explication with sociological and cultural anthropological factors. *Prerequisite:* Six hours of advanced Spanish.
- 3432 **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:* Six hours of advanced Spanish.
- 3461 **Don Quixote**
The literary value and influence of the *Quijote*. Traditional and modern interpretations. The life and times of Cervantes. Collateral readings and reports. *Prerequisite:* Six hours of advanced Spanish.
- 3467 **El ensayo hispánico***

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. May be repeated for credit.
- 3591 **Graduate Reading Course: SEMINAR**
May be repeated for credit.

*Undergraduate courses indicated by an asterisk are not given in the period covered by this catalog.

- 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

- 4101-02 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.
 3108 Conversational Russian
 Intended to broaden the vocabulary of Russian 4101 for oral use. Attention will be given to basic military terminology. *Prerequisite:* With or after Russian 4101.



OLAV E. EIDBO, *Head*

Professors EIDBO, THORMODSGAARD; *Associate Professors* BRIGGS, CHAVEZ, HENDERSON, HILLYER; *Assistant Professors* MEYER, THAYER; *Instructors* CARDON, WOODUL; *Part-time Instructors* ALDERETTE, EICHER, HEUSER, KENNESON.

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, 3114 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. Open to all students. Three lectures per week.

1211, 1212 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, 3214 Harmony

Continuation of melodic and harmonic dictation and part writing; harmonic analysis and simple forms; seventh chords; altered chords; keyboard practice. Three lecture and two workshop hours per week. *Prerequisite:* Music 3113-14.

For Undergraduates and Graduates

2311, 2312 Counterpoint (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, 2314 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 3214-14 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 in 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, 2414 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 four 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*

Reading of music and the study of selected works characteristic to the performing group. *Prerequisite:* Preceding course or placement.

3121 Introduction to Musical Literature

A course for Music Majors. 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. For Music Majors.

3124 Our Fascinating World of Music

A course for all students, except music majors, who wish to derive understanding and enjoyment from musical experiences. Guided listening to live and recorded music typical of significant periods from antiquity through the present. Familiarization with listener's terminology. Development of background for selection of personal libraries. Group introductory experiences with social instruments and folk songs. Three hours per week.

3125 Our Music Heritage

Continuation of 3124. More detailed and expanded study of the basic elements, forms (symphonic, etc.) and major style periods for increased understanding and listening pleasure. Relationship of a nation's music to its daily life, activities, ideals and conditions. Experimental comparison of the music of major ethnic groups. Emphasis on the style periods from the Baroque era through the 20th Century. Continued group participation and experiences with social instruments and folk songs. Three hours per week. *Prerequisite:* Music Literature 3124.

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, six hours of music and junior standing.

3322 Music History

Continuation of Music History 3321, beginning with the Classic Period and continuing through contemporary music. *Prerequisite:* For music majors, Theory 3214 and junior standing; for others, six hours of music and junior standing.

*May be repeated for credit.

MUSIC EDUCATION For Undergraduates**1101, 1201 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. Minimum of 2 hours per week per semester, and written reports on 6 concerts attended. (1201, two hours per week for Sophomores, requires observation in a variety of selected public school classrooms.)

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 administration and direction of a church music program; pastor and music director relationships; worship and training materials for all choirs; functions of lay groups; budgeting; choice and use of equipment. *Prerequisite:* Permission of the Head of the department.

3232 Age Group Choirs and Church School Music

Purposes and functions of age group choirs; care of child voices and changing voices; suitable materials; worship training; rote songs and reading. Integrating music with graded church school lessons; parent cooperation. *Prerequisite:* Music Education 3136 or equivalent experience and permission of the Head of the department.

3233 Hymnology and Liturgics

History, interpretation and use of hymns and hymn tunes, plainsong, spirituals, and carols. Twentieth century trends in hymnology. Uses of introits, responses, chants, and other similar forms in liturgical and non-liturgical services. *Prerequisite:* Music Education 3136 or equivalent experience and permission of Head of the department.

For Undergraduates and Graduates**3331 Choral Procedures, Techniques and Conducting in Elementary Schools**

A study of unique problems in choir organization including the selection of voices. Special attention is given to the musical needs of the Elementary Grades, including rehearsal techniques phonetics, literature, interpretation, and baton techniques. *Prerequisite:* For music majors, 20 hours in music and Junior standing; for others, Music Theory 3114 and Junior standing.

3333 Techniques, Materials and Conducting in Secondary Schools

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, correlation and integration with the elementary curriculum. Curricular plans and materials. For Elementary Education Majors. *Prerequisite:* Junior standing in Education.

*May be repeated for credit.

- 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.
- 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; correlation and integration with the entire school curriculum; public school type music as it is related to the life and needs of a community. *Prerequisite:* Junior standing in music education, and Theory 3214.
- 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:* Six hours of Education, six 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 ten hours per week for one semester of laboratory observation and teaching experience in the elementary school music classes. For all-level teacher certification. *Prerequisite:* Six hours of Education, six hours of upper level Music Education, senior standing and approval of Music Faculty Teacher Education Committee.
- 3498 **Professional Laboratory Experience in Junior and Senior High Schools**
Continuation of 3496. *Prerequisite:* Music Education 3496, 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:* Twelve 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:* Twelve 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 Head 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 All-College 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. Two hours per week. *Prerequisite:* Permission of instructor.

1102 Goldiggers*

A course for women in dancing, twirling, pom pom and marching activities; participation in football shows and other public appearances. *Prerequisite:* Admission by try-out only.

GROUP INSTRUCTION

Credit granted only when taken as a minor or elective. Open to all students. 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.

2223, 2224 Opera Workshop

Study and participation in all phases of opera production, dramatic interpretation, preparation of scenes and directing of small-scale productions. Survey of practical opera literature for community and public school performances. *Prerequisite:* Sophomore standing, permission of the instructor, and preceding course where listed. Two lectures and one laboratory hour per week as assigned.

For Undergraduates and Graduates

2323, 2324 Opera Workshop

Continuation of 2224. *Prerequisite:* Junior standing, permission of the instructor, and preceding course where listed. Two lectures and one laboratory hour per week as assigned.

**May be repeated for credit.*

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," and registers in all voice classifications. Methods of voice development through song literature. *Prerequisite:* Senior standing in music, or equivalent in vocal study and experience, Voice 2292, and permission of instructor.

BALLET**For Undergraduates****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, 1242 Character and Jazz Dance*

Interpretation of national dancing; fundamentals and techniques of Jazz. Two hours per week. *Prerequisite:* Ballet, modern dance, or athletic (football, basketball, etc.) background, and permission of Head of department.

3241, 3242 Intermediate Ballet

Continuation of 2142, with more advanced work in the creative aspects of dance movements. Four and one-half hours per week. *Prerequisite:* Ballet 2142 or permission of Head of department. (Formerly 2241, 2242.)

3341, 3342 Ballet Techniques

Continuation of 3242; advanced techniques with increased emphasis on certain creative aspects of dance movements. Four and one-half hours per week. *Prerequisite:* Ballet 3242, or equivalent, junior standing, and permission of the Head of the department.

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. Students are expected to study on campus with members of the College music faculty.

For Undergraduates and Graduates

Only junior and senior courses with "9" as the third digit are acceptable towards a graduate degree.

SECONDARY LEVEL**3491, 3492 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, or equivalent, in music, and experience, and permission of instructor.

PIANO, ORGAN

Courses designated as Piano 2181-82, Piano 2281-82, Organ 2181-82, etc.

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.

*May be repeated for credit.

MUSIC

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 nine practice hours per week. Recital participation. *Prerequisite:* Preceding course or placement.

4391, 92, 4491, 92 (\$50)

Two thirty-minute lessons and nine 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 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.



PHILOSOPHY



J. H. HADDOX, *Head*

Professors CRAWFORD, HADDOX, ROMANELL;

Assistant Professor GIANNONI; Special Lecturer FIERMAN.

B.A. Degree — Specific courses required for the Bachelor of Arts in Philosophy are Philosophy 3104, 3201, 3202, and 3301; also History 3360, 3361, 3362 (any two of the three); also English 3211 and 3212, or English 3215 and 3216. The undergraduate major in Philosophy is especially recommended for Pre-law or Pre-ministerial students.

- 3103 Introduction to Philosophy [Formerly 3102]
The problems of matter, life, mind, truth and value.
- 3104 Introductory Logic [Formerly 3101]
The validities and fallacies of both deductive and inductive thinking.
- 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.
- 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 Head 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.
- 3331 Ethical Theory
An analysis of ethical method and ethical theory with emphasis on the basis, meaning, and application of moral concepts. *Prerequisite:* Philosophy 3103, 3201, 3202.
- 3332 Recent and Contemporary Philosophy
A study of philosophical thought in the twentieth century with special emphasis on logical positivism, linguistic analysis, and existentialism. *Prerequisite:* Philosophy 3103, 3201, 3202.

- 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 3103, 3201, 3202; or the equivalent as determined by the Head of the department.
- 3452 **Problems of Philosophy — SEMINAR**
The problem of knowledge, the mind-body problems, the problems of values, and such problems as those of matter, life, consciousness, personality, etc. May be repeated when the course content varies. *Prerequisite:* Philosophy 3103, 3201, 3202; or the equivalent as determined by the Head of the department.
- 3453 **Independent Study**
Independent student work under the supervision of the staff. Permission of the instructor required.



PHYSICS



MAX C. BOLEN, *Head*

Professors BARNES, BOLEN, KNAPP, MCMAHAN; *Associate Professors* BLUE, BRIENT, MCINTYRE, SCHUMAKER; *Assistant Professors* COOPER,* SLUSHER; *Lecturer* WEBB;

Instructors DEAN,* PROVENCIO, WIEMER;

Teaching Assistants DUKES, GILLESPIE, GILLEY, KENNY.

Departmental Requirements:

1. The major: Thirty-six semester hours for the Bachelor of Science or twenty-five semester hours for the Bachelor of Arts in Physics including 4115, 4216, 1216, 4217, which are prerequisites for all upper division Physics courses; also 3351, 3352, 3441, and 3442. For the Bachelor of Science Degree, at least eleven additional semester hours to be selected in conference with the Physics faculty advisor or Head of the Physics Department are required.
2. Additional requirements: Mathematics 4111, 4212, 4217, 3435, and 3326; Chemistry 4103 and 4104. (Exception: Chemistry is not required for the Bachelor of Arts Degree in Physics.)
3. For students interested in geophysics or atmospheric physics, a program is available that supplements the basic physics requirements.

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

3101 Principles of Physical Science (\$2) – Fall Semester

Designed to introduce as clearly and simply as possible the essential elements of physical science to the liberal arts student. Consists of a study of the basic laws of physics, the developments of contemporary physics, geophysics, meteorology, and astronomy. Emphasis is placed strongly on principles. Laboratory consists of formal laboratory exercises and visits to various research laboratories. May not be counted as physics toward a major or minor in physics or as a prerequisite to any physics course other than Physics 3102. Two lectures and two laboratory hours per week. Open to all students.

3102 Principles of Physical Science (\$2) – Spring Semester

Continuation of Physics 3101. *Prerequisite:* Physics 3101. May not be counted as physics toward a major or minor in physics or as a prerequisite to any other course in physics. Two lectures and two laboratory hours per week.

4103 General Physics (\$2)

Mechanics and heat. This course may not count as physics toward a major or minor in physics or as a prerequisite to any course in physics other than Physics 4104. Three lectures and two laboratory hours per week.

4104 General Physics (\$2)

Electricity, magnetism, sound, and light. This course may not be counted as physics toward a major or minor in physics or as a prerequisite to any course in physics. Three lectures and two laboratory hours per week.

3106 Elementary Theory of Sound – Spring Semester

A study of sound as related to speaking, singing, and to musical instruments. It includes physical principles of sound production, transmission, interference, hearing, resonance, pitch, quality, musical intervals, stringed instruments, wind instruments, acoustics of rooms, and associated electronic equipment. May not be counted as physics toward a major or minor in physics or as a prerequisite to any course in physics.

4107 Elementary Astronomy (\$2) – Fall Semester

A survey of the solar system. The main ideas of physical science in their relation to the universe. Topics covered are the earth, moon, planets, minor planets, comets, and meteors. The mathematical level is the same as in a freshman physics

**On Leave of Absence.*

course. Three lectures and one two-hour night laboratory per week. May not be counted as physics toward the major or minor in physics or as a prerequisite to any physics course but may be counted as a laboratory science in the liberal arts curriculum.

4108 Elementary Astronomy (\$2) — Spring Semester

A continuation of Astronomy 4107. The sun, stellar properties, binary and variable stars, star cluster, and galaxies. Three lectures and two laboratory hours per week. *Prerequisite:* Astronomy 4107. May not be counted as physics toward the major or minor in physics or as a prerequisite to any physics course but may be counted as a laboratory science in the liberal arts curriculum.

4115 Mechanics (\$2) [Formerly Physics 4215]

Three lectures and three laboratory hours per week. *Prerequisite:* Mathematics 4111 or concurrently and one unit of high school physics or approval of Head of the Physics department.

4216 Electricity and Magnetism

Three lectures and one two-hour problem session per week. *Prerequisite:* Mathematics 4212 or concurrently and Physics 4115 or Civil Engineering 3115, Physics 1216 concurrently for all except those in Engineering.

1216 Laboratory for Physics 4216 (\$2)

This laboratory must be taken concurrently with Physics 4216, *Electricity and Magnetism*, by all persons with the exception of those in Engineering. This laboratory meets two hours per week.

4217 Optics, Sound and Heat (\$2) [Formerly Physics 4317]

Three lectures and three laboratory hours per week. *Prerequisite:* Physics 4115 or Civil Engineering 3115 and Mathematics 4212 or concurrently.

For Undergraduates and Graduates

All of the following courses have the prerequisites of Physics 4115, 4216, 1216, 4217, or the equivalent and any other prerequisites shown in the description of the course.

4320 Introduction to Geophysics (\$2) — Fall Semester

A study of the application of the principles and practices of physics to the solution of problems related to the earth. It includes a study of geochronology, temperature of the earth, seismology, dimensions of the earth, gravity, isostasy and tectonics, and geomagnetism. Three lecture hours and three laboratory hours per week. Not counted in addition to Physics 3320.

4321 Introduction to Geophysics (\$2) — Spring Semester

A study of geophysical prospecting. A general discussion of the methods of physics applied to exploration problems. Topics covered are seismic and gravimetric methods of prospecting. Three lectures and three laboratory hours per week.

3322 Thermodynamics — Spring Semester

A study of the fundamental principles of Thermodynamics, Kinetic Theory and Statistical Mechanics.

3323 Physical Optics — Fall Semester

A brief study of geometrical optics, Physical Optics dealing with waves, interference, diffraction, absorption, scattering, polarization, magneto- and electro-optics. Quantum Optics is introduced.

4324 Applied Geophysics (\$2) — Spring Semester

A study of geophysical prospecting with special emphasis on geomagnetism and nuclear geophysics. Includes theory and field work on the various magnetic and nuclear techniques. Three lectures and three laboratory hours per week.

3325 The Fundamentals of Modern Physics – Fall Semester

A study of gaseous ions, electrons, cathode rays, isotopes, alpha, beta, and gamma rays, positrons, neutrons, relativity, the quantum, natural radioactivity, and the various accelerators of charged particles. The most recent developments and applications will be emphasized.

3326 Fundamentals of Modern Atomic Physics – Spring Semester

A study of the atom using the vector Model for Hydrogen atom and complex atoms. Spectra, selection rules, Zeeman, Paschen-Bach and complete Paschen-Bach effects. An introduction to the operator algebra of Quantum Mechanics and the Quantum Mechanical study of the particle in a box, harmonic oscillator and Hydrogen atom.

3427 Theoretical Geophysics – Fall Semester

A study of hydrodynamics, elasticity, and gravitational potential fields. A working knowledge and understanding of fundamentals of geophysics is emphasized with special emphasis on earth problems. *Prerequisite:* Mathematics 3326 or 3436.

3428 Theoretical Geophysics – Spring Semester

A continuation of Physics 3427. *Prerequisite:* Mathematics 3326 or 3436.

3330 Applied Radiation Physics (\$2) – Spring Semester

A study of the physics of ionizing radiation and its interaction with matter. An introduction to the effects of ionizing radiation, to exposure units and related calculations, to the use of instruments for measuring radiation, to the calibration of sources, to the use of isotopes, and to protective measures. Two lectures and three laboratory hours per week. *Prerequisite:* Physics 3325.

4339 Electronics (\$2) – Fall Semester

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. May not be counted in addition to Engineering 4339.

4340 Theory and Applications of Electron Tubes (\$2) – Spring Semester

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:* Physics 4339. May not be counted in addition to Engineering 4340.

2343 Advanced Laboratory Practice (\$2) – Fall Semester

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.

2344 Advanced Laboratory Practice (\$2) – Spring Semester

A continuation of Physics 2343.

3351 Analytical Mechanics – Fall Semester [Formerly Physics 3451]

Equilibrium and motion of a particle and a rigid body in two and three dimensions. *Prerequisite:* Mathematics 3326 or concurrently.

3352 Analytical Mechanics – Spring Semester [Formerly Physics 3452]

Continuation of Physics 3451. *Prerequisite:* Physics 3351 and student is encouraged to have Mathematics 3423 or be concurrently enrolled.

- 3441 Electricity and Magnetism — Fall Semester [Formerly Physics 3341]
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. *Prerequisite:* Physics 3352, or permission of Department Head.
- 3442 Electricity and Magnetism — Spring Semester [Formerly Physics 3342]
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. *Prerequisite:* Physics 3441.
- 3445 Electromagnetic Waves and Radiating Systems — Fall Semester [Formerly Physics 4445]
Application of Maxwell's equations to electromagnetic wave transmission, reflection, and refraction, including the study of guided waves, transmission lines, and antennas. *Prerequisite:* Physics 4340 or Engineering 4340 or Physics 3441 or concurrently.
- 2446 Senior Laboratory (\$2) (Both Semesters)
May be repeated once for credit. *Prerequisite:* Senior standing and Physics 2343 or 2344.
- 2447 Undergraduate Research (\$2) (Both Semesters)
Credit will be granted only on the recommendation of the Head of the Physics Department, in consultation with the research advisor. May be repeated once for credit. *Prerequisite:* Senior standing and must have a 3.0 average in Physics and have the permission of the research advisor and Head of the department, and Physics 2343 or 2344.
- 3447 Fundamentals of Acoustics — Spring Semester [Formerly Physics 3347]
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:* Mathematics 3326 or 3436. (Offered 1964-65 and subsequently when demand is sufficient.)
- 3459 Introduction to Atomic Spectra — Fall Semester
Quantization of rotator and vibrator correspondence principle and selection rules, quantum mechanical vector model, anomalous Zeeman effect, magnetic properties of atoms, photo-electric processes in gases, excitation and ionization of electrons, Debye theory of molecular structure, electrical behavior of molecules, energy levels in molecules, Frank Condon principles. *Prerequisite:* Physics 3326 and Physics 3352.
- 3460 Introduction to Quantum Mechanics — Spring Semester
de Broglie theory, time-independent Schroedinger equation, uncertainty principle, probability density and conservation of total probability, square well, central potential in three dimensions, hydrogen atom, commutation relations, perturbation theory, Born approximation to scattering theory. *Prerequisite:* Physics 3459.
- 3470 Atmospheric Physics — Fall Semester
Considers the physical structure of the atmosphere as related to the Earth and near-space environment. The time and spatial distribution of its composition; the kinetic, atmospheric, and electromagnetic parameters—all are presented in detail. The effects on man's operation in the atmosphere are discussed with emphasis on the relatively new factors presented by recent expansion into the new speed and space regime.

3471 Atmospheric Physical Process — Spring Semester

The occurrence of energy transfer processes such as convection, advection, condensation, evaporation, ionization, radiation, and absorption are considered in relation to the over-all atmospheric physical structure. The development of ionized regions of the atmosphere, the state changes incident to the precipitation cycle, and the electrical environment in which these processes operate will be studied. Interaction between the Earth's surface, the troposphere, the stratosphere, and the ionosphere as well as the new space environment will be discussed. *Prerequisite:* Physics 3470.

3472 Stratospheric Circulation

Background of the historical development of our knowledge of the structure of the stratosphere with particular attention to the development of the Meteorological Rocket Network. Rocket techniques, sensor systems and data acquisition and processing systems employed in MRN, climatological structure of the stratospheric circulation, and the changes which may be expected as a longer period of record is obtained will be considered. Gravitational influences on the solar heat disposition as well as the distribution of atmospheric absorbers and the dynamic factors which exert an influence on the global stratospheric circulation. *Prerequisite:* Physics 3470.

1476 Seminar in Advanced Topics (Both Semesters)

Prerequisite: Senior standing and permission of Head of the department. May be repeated once for credit.

FOR GRADUATE STUDENTS ONLY

The department offers a program of courses and research leading to the degree of Master of Science in Physics. Fields of concentration for thesis research are Atmospheric Physics, Geophysics, Molecular Physics, Nuclear Physics, Solid State Physics, and Theoretical Physics. Twenty-one semester hours of graduate work at the 3500 level including the thesis are required, specific courses required are Physics 3521, 3541, and 3561.

The following courses have the prerequisites of the equivalence of a B.S. degree in Physics from Texas Western and any other prerequisite shown in the description of the course.

3501 Principles of

Geodynamics — Fall Semester [Formerly Physics 3581]

An extensive mathematical and physical study of geodynamics. Study takes up the geophysical data regarding the earth, mechanics of deformations, effects of the rotation of the earth, orogenesis, dynamics of earthquakes, dynamics of volcanism, and related topics. Given 1964-65 and in alternate years.

3502 Principles of

Geodynamics — Spring Semester [Formerly Physics 3582]

Given 1964-65 and in alternate years.

3521 Mechanics — Fall Semester

[Formerly Physics 3587]

D'Alembert's and Variational Principles, Lagrange's Equations, Hamilton's Principle, Two-body central force, Rigid Body, Kinetics and Force Equations, Lagrangian Relativistic Mechanics, Principle of Least Action.

3522 Mechanics — Spring Semester

Hamilton's and Hamilton-Jacoby theory, small oscillations, continuous systems and fields. Poisson's and Lagrange brackets invariants, conservation theorems and symmetry. Relativistic mechanics. *Prerequisite:* Physics 3521.

3531 Statistical Mechanics — Fall Semester

Classical and quantum statistics of systems in equilibrium. Treatment of fluctuations and transport phenomena. Introduction to the many-body problem. *Prerequisite:* Physics 3322 and Physics 3459.

- 3532 Plasma Physics — Spring Semester
Physics of fully ionized gases. Fluid and kinetic description. Waves and instabilities. Transport properties. Interaction of charged particles with electromagnetic fields. *Prerequisite:* Physics 3521 and Physics 3583.
- 3541 Electricity and Magnetism — Fall Semester [Formerly Physics 3588]
Boundary value problems: polarization, and stress tensor; Conservation laws and energy momentum-tensor. Relativistic electrodynamics. Covariant form of field equations. Potentials and gauge invariance.
- 3542 Electricity and Magnetism — Spring Semester
A continuation of Physics 3541. Multipole radiation, radiation damping, "Bremsstrahlung." Interference, diffraction and scattering. Special resolution, the Lagrangian to terms of second order, and other topics. *Prerequisite:* Physics 3541.
- 3550 Advanced Modern Physics — Spring Semester [Formerly Physics 3575]
Topics of Physics since 1900 supplementing the Atomic Spectra, Quantum Mechanics, and Nuclear Physics in other courses.
- 3551 Nuclear Physics — Fall Semester
Systematics of nuclei, binding energy, nuclear models, scattering of protons and neutrons, nuclear reactions, passage of charged particles and gamma rays through matter. *Prerequisite:* Physics 3460.
- 3552 Nuclear Physics — Spring Semester
Continuation of Physics 3551. *Prerequisite:* Physics 3551 and Physics 3561 or permission of Head of the Physics Department.
- 3554 Cosmic Radiation [Formerly Physics 3586]
Topics of Cosmic Radiation and high energy, Nuclear Physics. (Given on sufficient demand.)
- 3561 Quantum Mechanics — Fall Semester [Formerly Physics 3583]
Solution of the Schroedinger wave equation for discrete and continuous energy eigenvalues; Representation of Physical variables as operators and the matrix formulation of quantum mechanics; approximation methods. *Prerequisite:* Physics 3460 and Mathematics 3432 recommended.
- 3562 Quantum Mechanics — Spring Semester [Formerly Physics 3584]
Continuation of Physics 3561. Relativistic wave equations and quantization of fields. *Prerequisite:* Physics 3561.
- 3571 Solid State Physics — Fall Semester [Formerly Physics 3585]
Electromagnetic, elastic and particle waves in periodic lattices as applied to the electrical, magnetic and thermal properties of solids. *Prerequisite:* Physics 3460.
- 3572 Quantum Theory of Matter — Spring Semester
Phonon, magnon, polaron and photons and their interactions in matter. Selected topics in super-conductivity, energy bands, cyclotron resonance, impurity state, optical absorption, and recoilless emission. *Prerequisite:* Physics 3322 and Physics 3561.
- 1591-3591 Research Problems in Physics — Every Semester
May be repeated for credit; maximum credit allowed is six hours. May not be counted as thesis research. *Prerequisite:* Permission of Head of the Physics Department.
- 1595-3595 Graduate Seminar — Every Semester [Formerly Physics 1576-3516]
- 3598 Thesis Course for the Master's Degree — Every Semester
- 3599 Thesis Course for the Master's Degree — Every Semester

E. B. COLEMAN, *Head*

Professors COLEMAN, HIMELSTEIN, KELSEY;

Associate Professors BOSWORTH, WHITWORTH; *Assistant Professors* BARRIENTOS,
MILLER; *Instructors* BOWLES, COX, GARCIA, HACKETT.

Degree Requirements:

The Psychology Department offers two programs leading to the Bachelor of Arts Degree:

1. B.A. Degree for students who intend to get advanced degrees. Required courses are:
 - a) Psychology 3101, 3102, 3317, 3310, 3452, and one course in experimental psychology.
 - b) Sciences: 12 hours of Chemistry, or 12 hours in Physics, or 12 hours in Zoology and Physiology.
 - c) Mathematics: 4111 and 4212.
 - d) Language: German or French.
 - e) Minor: Select after consultation with advisor. Students without firm plans for a career should minor in Zoology, Mathematics, Chemistry, or Physics.

Additional courses especially recommended are:

- a) Psychology – social, abnormal, personality, history and systems, physiological.
- b) Chemistry 3330, 3331, or Physics 4339, or Zoology 5201.
- c) Mathematics 3324, 3331, 3429.
2. B.A. Degree for students who do NOT intend to get advanced degrees. Required courses are: Psychology 3101, 3102, plus one course in experimental psychology; Chemistry 3101-02 or Physics 4103-04 or Zoology 3101-02.

For Undergraduate Credit Only

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

3101 Introduction to Psychology

A survey of basic principles in general psychology. *Prerequisite:* College entrance.

3102 Statistical Methods

A study of the basic concepts of descriptive and inferential statistics as applied to research in the behavioral sciences. Topics include descriptive statistics, experimental design, correlation, analysis of variance, and non-parametric tests. Three lectures and one laboratory session per week. Required of all psychology majors.

3201 Child Psychology

Principles of growth and development from infancy to adolescence. *Prerequisite:* Psychology 3101.

3202 Social Psychology

The individual in society, dealing with human relations, group effectiveness, and conflicts among people. Principles of social behavior. Applied social psychology, cognition, motivation, attitudes, society, culture, groups, leadership. Three lectures or field trips per week. *Prerequisite:* Psychology 3101.

3204 Differential Psychology

A survey of the psychological principles and methods of investigating individual and group differences. *Prerequisite:* Psychology 3101.

3205 Personnel Psychology

A survey of principles and methods used for selection and placement in personnel management and industry.

- 3206 **Psychology of Personality**
A study of the normal personality. Includes such topics as biological and social determinants of personality; appraisal of personality; and reactions to anxiety, frustration, and conflict.
- 3208 **Principles of Testing and Counseling**
The basic principles underlying testing and counseling.
- 3210 **Developmental Psychology**
A study of the behavior and special problems characteristic in the development of the individual. *Prerequisite:* Psychology 3101.
- 3211 **History and Systems of Psychology**
A study of the historical development of psychological views. *Prerequisite:* Psychology 3101.
- 3212 **Introduction to Abnormal Psychology**
A review of historical approaches to the problems of abnormal behavior. Topics will include the dynamics of abnormal behavior, its classification, symptomatology, and treatment.
- 3221 **Experimental Psychology: Learning**
An introduction to method and theory in contemporary experimental psychology. Emphasis is on method rather than on content. Topics emphasize the phenomena of learning. Three lectures and one laboratory session per week.
- 3222 **Experimental Psychology: Sensation and Perception**
An introduction to method and theory in contemporary experimental psychology. Emphasis is on method rather than on content. Topics emphasize the phenomena of sensation and perception. Three lectures and one laboratory session per week.

For Undergraduates and Graduates

Prerequisite for all courses listed below: Twelve semester hours in Psychology, including Psychology 3101.

- 3302 **Theories of Personality**
A study of major systematic positions, i.e., Freud, Lewin, Cattell, etc. Major emphasis is put on the various theoretical interpretations of human dynamics.
- 3310 **Introduction to Learning Theory**
Introduction to the nature of the learning process and the application of learning principles. 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 **Advanced Abnormal Psychology**
A study of the psychological factors contributing to pathological behavior. Emphasis will be placed on current research in genetics, biochemistry, and learning theory, in the area of schizophrenia and neurotic processes. *Prerequisite:* Abnormal (3212).
- 3317 **Advanced Statistics**
Further study of experimental design, analysis of variance, covariance, correlation, orthogonal polynomials, complex experimental designs, and non-parametric statistics. *Prerequisite:* Psychology 3102.
- 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.

PSYCHOLOGY

- 3402 Practicum in Intelligence Testing (\$3)
Instruction and practice in the administration, scoring, and interpretation of intelligence tests. Two lectures and two laboratory hours per week. *Prerequisite:* Psychology 3401 or the equivalent as determined by the Head of the department.
- 3406 Psychology of the Exceptional Child
Application of psychological principles to the study of the atypical child, including a survey of etiological theories.
- 3411 Physiological Psychology
Basic psychological processes in relation to structure and function. Three lectures per week.
- 3441 Motivation and Learning
The similarities in motivation and learning with an attempt to clarify the processes involved.
- 3452 Independent Study
Independent student work under the supervision of the staff. Permission of the instructor required.
- 3453 Independent Study
Independent student work under the supervision of the staff. Permission of the instructor required.
- 3454 Seminar in Psychology
Topic to be discussed will be selected. Permission of the instructor required.

FOR GRADUATE STUDENTS ONLY

- 1501-6501 Individual Research
Student, in conference with a member of the staff, will design and perform an original experiment. Results will be prepared for possible publication in a psychological journal. Permission is required from head of department
- 3511 Advanced Statistics: Experimental Design
Consideration of problems of analysis and design commonly encountered in psychological research. *Prerequisite:* Psychology 3317 or the equivalent.
- 3521 Projective Techniques
Introduces the student to projective theory and acquaints him with the more widely-used projective instruments, their uses and limitations. Two hours lecture and two hours laboratory.



SOCIOLOGY



CLARK S. KNOWLTON, *Head*

Professors KNOWLTON, ROEBUCK; *Associate Professor* STODDARD;
Assistant Professors DASILVA, GERALD, SEGALMAN; *Instructor* GOODMAN.

B.A. Degree — Specific requirements for a Sociology major are:

a) Thirty semester hours including the following required courses:

I. Basic Core Courses (9 hours).

Principles of Sociology.

Three hours of Sociological Theory.

Three hours of Research Methodology.

II. Areas Diversification (a minimum of three hours in EACH of the following three areas):

Social Organization and Social Institutions: 3212, 3213, 3214, 3325, 3336, 3345, 3349, 3360, 3453.

Social Disorganization: 3327, 3333, 3348, 3352, 3442, 3455.

General Sociology: 3246, 3250, 3340, 3347, 3462.

b) Three semester hours of Anthropology.

SOCIOLOGY

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

Unless otherwise noted, Sociology 3101 is a required prerequisite for all other courses in Sociology. Exceptions to this must receive permission from Head of Department.

3101 Principles of Sociology

Nature and scope of sociology, its terminology and concepts; study of social processes, social institutions, development of society and characteristics of group life.

3102 Social Problems

A study of selected social problems of our society including crime, juvenile delinquency, family problems, alcoholism, drug addiction, and gambling; Causes of social problems and their interrelationships; programs for rehabilitation will be analyzed. *Prerequisite:* None.

3212 Urban Sociology

A study of the function, growth, characteristics, and problems of cities and urbanized areas. Emphasis will be given to urbanization in Texas.

3213 Rural Sociology

A study of the characteristics of rural people, their ways of life, and rural social organization. Emphasis will be placed upon the rural people of the Southwest.

3214 The Community

A comparative study of community types; methods of studying the community, analyses of underlying social processes and institutions; trends and problems of community change.

3215 Courtship and Marriage

A study of the factors involved in an adequate preparation for marriage, marital adjustment, parenthood and adult life. *Prerequisite:* None except Sophomore standing.

3246 Sociology of Religion

[New]

A study of the role of religion in society and its relation to other social institutions.

- 3325 Medical Sociology [New]
An analysis of the medical profession, recruitment, training and professional organizations; Doctor-patient, Doctor-Nurse relationship; cultural variations in medical practices and responses to pain; minority groups and medical practice.
- 3310 Guided Readings
Students will be required to read 20 books assigned by staff and prepare written reports on their readings.
- 3312 Measurement and Inference in Social Research [New]
Sociological factors and their measurement; development and use of scales; assumptions underlying the use of statistical models in analysis of social data; application and limitations of statistical analysis; recent trends in methodology.
- 3320 Fields of Social Work
A survey of the various fields of social work, both public and private, with particular attention given to those organized on a regional and national basis. An examination will be made of the methods used in the various fields of social work.
- 3323 Elements of Social Case Work [New]
Theory and practice of case work from journals and social agency records; role of caseworker and techniques for diagnosis, development, evaluation, and treatment. Supportive resources. *Prerequisite:* Sociology 3320 or its equivalent and 3 hours of Psychology.
- 3325 Social Class and Stratification
Social class differences in static and dynamic societies; theories of social class and criteria of measurement; selected community studies and social mobility patterns in U. S. and foreign societies.
- 3327 Minority Groups in the United States
A study of the principal minority groups in the United States and of the processes of accommodation, acculturation, and assimilation.
- 3333 Juvenile Delinquency
An investigation of the social and legal definitions of Juvenile Delinquency; major theories of juvenile deviancy; the social system of the gang; factors contributing to apprehension, conviction, detention and parole; assessment of present and potential prevention programs.
- 3336 Comparative Cultures
A study of the folk-ways, 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.
- 3340 Industrial Sociology
A structural-functional analysis of management and labor organizations; social consequences of work and occupation in U. S. society; dynamic changes in automation and problems of leisure; community-industrial relations.
- 3345 Border Sociology
A survey of the major ethnic groups, social processes, problems and characteristics of the inhabitants in Northern Mexico and Southwestern United States.
- 3347 Demography
Statistical analysis of the world population, the U. S. and the southwest. Study of fertility, mortality, and migration patterns.
- 3348 Criminology
Theories, causes, characteristics, and social function of crime in our society. Methods of prevention and reduction of crime will be analyzed.
- 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.

- 3350 **Child Welfare and Sociology of Childhood**
Use of Sociological concepts in understanding child development, interaction of the child with the family, school and peer groups; Process of socialization and an analysis of problems in child development and measures taken by society to serve children with problems.
- 3352 **Sociology of Poverty** [New]
A systematic survey of the causes of poverty, the characteristics of group living in poverty, and problems of dealing with impoverished peoples and the reduction of poverty.
- 3355 **Contemporary Sociological Theory**
Study of major theories in Sociology. Analysis of the contributions of Max Weber, Karl Mannheim, Emile Durkheim, Talcott Parsons, R. K. Merton, and other contemporary Sociologists.
- 3358 **Spanish-Speaking Groups in Texas and the Southwest**
A survey of the culture, social structure and social change among the Spanish-speaking groups of Texas and the Southwest.
- 3360 **Institutions and Cultures of Latin America**
Survey of social institutions, the diverse cultures, and the processes of social change in Latin America.
- 3440 **Independent Social Research**
Planning and conducting independent research projects under staff supervision. Open only to Seniors and Juniors with written approval of the Department Head. Some prior course work in methodology strongly recommended.
- 3442 **Sociology of Deviants** [New]
A study of deviations from social norms which encounter disapproval and to which theory and concepts derived from sociology and social psychology may be applied. Deviators and societal reaction to deviators are included.
- 3453 **Human Ecology** [New]
Study of the Interdependence of human groups, institutions and resources in their spacial and temporal relations.
- 3455 **Social Change and Technological Development** [New]
The impact of technological advances on society; functional requisites for effecting social change; latent and manifest consequences of unplanned social change; impact of and resistance to domestic and foreign aid programs.
- 3460 **Internship in Social Work**
A work-study program open only to sociology majors of Senior standing preparing for a social work career. Students are assigned two days (16-20 hours) each week to a given social agency plus a weekly seminar. *Prerequisite:* Written approval of Department Head.
- 3462 **The Sociology Profession** [New]
Requisites of a profession—legal, medical, academic. Journals and professional organizations and their function; recent trends in specialty areas, methodology and theory since World War II; applied fields, training and limitations of Sociology discipline.
- 3465 **Field Methods of Social Research** [New]
Nature of scientific research with emphasis upon actual field experience; techniques of social research from initial formulation of proposal, collection and analysis of data, to preparation of final report. *Prerequisite:* Twelve hours of Sociology.
- 1450-6450 **Workshops in Sociology**
Area of study will be designated.

ANTHROPOLOGY

3103 The Nature of Man

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.

3104 Social Institutions

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.

3210 Southwestern Archaeology

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, Hohokan, Anasazi, and Casas Grandes cultures. *Prerequisite*: Sociology 3103 and 3104.

3211 Southwestern Ethnology

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.

GEOGRAPHY

3210 Cultural Geography

A study of other nations and other people, 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 Sociology or sophomore standing. Not counted as laboratory science.

3312 Geography of Latin America

A systematic survey of the geographical characteristics of Latin America. The interrelations between social structure, the culture and the geography of these countries will be analyzed. *Prerequisite*: Junior standing.

FOR GRADUATE STUDENTS ONLY

Prerequisite: Graduate standing and consent of Head of Department.

3510 Seminar on Social Organization

(May be repeated for credit when topics vary.) Theories and types of social organizations; field research and social theory.

3515 Seminar in Social Disorganization

(May be repeated for credit when topics vary.) Theories and types of social deviancy and social disorganization; specific areas such as Criminology and Correction emphasized.

3518 Seminar in Social Differentiation

(May be repeated for credit when topics vary.) Stratification and non-hierarchical differentiation; plural and homogeneous ethnic systems, social mobility, differentiation and subcultural groupings, economic, religious and cultural differentiation.

3525 Seminar in Sociological Theory

(May be repeated for credit when topics vary.) Changing developments in sociological theory as related to ongoing research.

3535 Seminar in Social Systems

(May be repeated for credit when topics vary.) Macroscopic studies, institutional analysis; rural and urban systems; types of societies and societal change.

Official Regulations

Student Expense

[TUITION]

Financial Aid to Students

[SCHOLARSHIPS AND LOANS]

Regulations Affecting Student Life

[CONDUCT - DISCIPLINE]

Extra Curricular Activities

[ORGANIZATIONS]

Scholastic Regulations

[GRADES]

Statistics

Index





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 provided they are in the amount owed the College. No change can be given for the balance of a check.

Resident and Non-Resident Students

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. *Persons in the military services* 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.

A person on military service who wishes to pay the resident tuition fee for himself or his dependents must submit at the time of **EACH** registration a statement from his Commanding Officer or Personnel Officer certifying that he is then on permanent as distinguished from temporary military assignment in Texas.

3. 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.

4. 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.

5. 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 contact 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**.

* *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 until such time as she receives her undergraduate degree, provided there is not a break of longer than a semester in her education, and if her parents have been residents and tax payers of Texas for at least three years immediately prior to her marriage and continue to provide their daughter's tuition, fees, and other school expenses.*

STUDENT EXPENSES

7. Employees of Texas State institutions of higher learning or their dependents who have lived in Texas less than one year are eligible for resident classification under the same provisions that are made for military personnel in paragraph 2 of the preceding section. Applications must be made in the Office of the Registrar.

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. Every student classified as a non-resident student shall be considered to retain that status and shall be obligated for the payment of the non-resident tuition fee until such time as he shall have made written application for re-classification in the form prescribed by the College and shall have been officially re-classified in writing as a resident by the Registrar of the College.

11. If emancipation in the case of a minor is clearly proved, the residence classification of the minor will be determined by the statutory requirements applicable to those over 21 years of age.

12. 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.

TUITION

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. These rates of tuition are subject to change by the Legislature of the State of Texas.

Long Session (each semester)

Semester Hours	Resident	Non- resident
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)

Semester Hours	Resident	Non- resident
6 (or more)	\$25.00	\$101.00
5	23.00	84.50
4	19.00	68.00
3 (or less)	15.00	51.50

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 tuition fee will be taken seriously and may lead to expulsion.

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

All questions relative to residency must be submitted to the Office of the Registrar.

REFUND OF TUITION

A refund of the tuition is made only to students withdrawing from school. 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 if the student remains enrolled in school. If the withdrawal is official and falls within the following time limit, a student will, upon presentation of his registration 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 tuition.

There will be no refund made of course and/or laboratory fees after the student has met the course or laboratory session.

A refund will not be made to a student within 15 days after the beginning of

STUDENT EXPENSES

classes but, upon written 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 tuition for the second semester refunded.

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 or in certain of the auxiliary services in World War I, World War II, the Korean conflict, 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 to receive educational benefits provided for veterans by the United States Government, are exempted from the payment of tuition and certain required academic fees but not from the payment of deposits. To obtain this exemption, the 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 3201, 3205, 3301, 3311, 3312 . . .	\$2.00
3203, 3204, 3303, 3304 . . .	5.00
Biology 3101, 3102, 3202, 3203, 3301, 3401, 4415 . . .	2.00
Botany 4103, 3210, 3301, 3313, 3320, 3327, 3423 . . .	2.00
Business Administration:	
Accounting 3101, 3102 . . .	2.00
Office Management & Business Education 3101, 3102, 3201, 3202, 3301, 3302 . . .	2.00
Production Management 3304 . . .	2.00
Statistics & Quantitative Analysis 3201, 3301 . . .	2.00

Chemistry 3101, 3102, 3330, 4106, 4450 . . .	2.00
3221, 3222, 4261, 4361, 2496, 6476 . . .	4.00
4322, 4260, 4360 . . .	5.00
2468, 4103, 4104, 4221 . . .	6.00
4470, 5213 . . .	8.00
Engineering:	
Civil Engineering 3102, 3214, 3441, 3442, 4356, 4448 . . .	2.00
4470 . . .	6.00
Electrical Engineering 1445, 4251, 4339, 4340, 4352 . . .	2.00
4464, 4468 . . .	2.00
Mechanical Engineering 2103, 3236 . . .	2.00
Metallurgical Engineering 3101, 3102, 4302, 4303, . . .	2.00
3404, 4407, 4411, 4412, 4415 . . .	3.00
4417 . . .	4.00
Geology 3210, 3320 3323, 3325, 3450 . . .	2.00
4216, 4217, 4218, 4219, 4301, 3327, 2401, 3440 . . .	4.00
Journalism 3308, 4207 . . .	5.00
Microbiology 3201, 3202, 3302, 3334, 3423, 3424 . . .	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, voice 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
Physical Education 1101, 1102 . . .	2.00
Physical Geography 3103, 3104 . . .	2.00
Physics 2343, 2344, 3101, 3102, 1216, 3330, 4103, 4104, 4107, 4108, 4324, 4115, 4320, 4321, 4339, 4217, 2446, 2447, 4340 . . .	2.00
Psychology 3401, 3402 . . .	3.00
Zoology 4103, 3301, 3302, 3303, 3305, 3463 . . .	2.00
3304 . . .	4.00
5201 . . .	7.00
TRANSPORTATION FEES:	
Geology 6465 . Amount Determined by Location	
Metallurgy 2421 . . .	75.00

Miscellaneous Required Fees

Student Union Fee — Under the authority of Senate Bill No. 359, enacted into law by the 54th Legislature, the Board of Regents has 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, equipping and maintaining the Student Union Building. This fee is required of all students registering for course work on campus.

Refund of the fee will be made only under the same conditions as the Tuition.

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 before payment is made.

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

Veterans attending College under an exemption as mentioned on pages 166-168 are not exempted from payment of this fee.

Student Services Fee — Under the authority of legislation enacted by the 56th Legislature, the Board of Regents has authorized a Student Services Fee in the amount of \$26.00 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 are the Health Service, Student Association, Intramurals, Intercollegiate Athletics, Student Publications, Swimming Pool, Band, Choir, Orchestra, Co-ed Association, Forensics, Associated Women Students, College Players, Marching Cavalcade, and Opera and Ballet.

Refund of the fee will be made only under the same conditions as the Tuition 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 58th 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 Regents has, therefore, approved a parking fee as follows for those students desiring to park cars on campus:

	<i>Seniors Juniors</i>	<i>Soph. Fresh.</i>
Fall Semester	\$4.00	\$3.00
Spring Semester	2.50	2.00
Summer Session	1.50	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 must make a General Property Deposit of \$10.00. This deposit is subject to charges for violation of Library rules and for loss of or damage to College property. The student, upon notice from the Business Manager, will be required to restore the deposit to the original amount any time it is reduced by fines or other charges. The payment must be made immediately upon request. Pending receipt of payment, no credit will be allowed on the work of that semester or term, and the student will be ineligible to re-enter the College.

General Property Deposits will be refunded only when a student ends his career at the College; Military Property Deposits will be refunded only when a student ends his military 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 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 beginning 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 upon successful completion of the R.O.T.C. course unless the student is released from his obligation under pertinent regulations prior to such successful completion.

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.

Upon request of the Professor of Military Science, the College will withhold transcripts of grades and certificates of graduation from those students who, in the opinion of the Professor of Military Science, are improperly holding Government property.

HOUSING

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.

Texas Western College considers student housing as an integral part of the total educational process. Every dormitory is supervised by a dormitory director, student counselors, and an elective council, each of which endeavors to provide opportunities for social, cultural and academic development of all residents. All housing (except financial and physical plant matters) at Texas Western College is administered by the Dean of Students who delegates supervision of men's dormitories and Student Family Housing to the Dean of Men and women's dormitories to the Dean of Women.

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. The College administers six dormitories. There is a centrally located cafeteria fully equipped with modern facilities for furnishing meals. This cafeteria is available to all students, both boarding students and students who live off campus.

RESIDENCE HALLS

There are four men's residence halls on the campus. Miner's Hall houses 72 athletes. Worrell is a single room honor dormitory housing 30 men. Honor graduates of high schools and academic scholarship recipients are eligible to apply for residence in Worrell Hall (Honor Dorm). Hudspeth Hall houses 100 men, two to a room. Conveniences include a washbasin in each room, evaporative cooling, television and study lounges, and a kitchen. Each room in each dormitory is equipped with a private telephone. Although no extra charge is made by the College for the telephone, students must pay the telephone company for all long distance calls made. Burges Hall was completed in 1963 and houses 180 men in double rooms. It has refrigerated air conditioning throughout.

There are two College owned and operated women's residence halls. Bell Hall houses 98 women in double rooms; Benedict Hall houses 24 women in single rooms. These are modern structures designed with consideration for the comfort and convenience of women residents.

Reservations

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 office of the Business Manager. Remittances must be in the form of a check, draft or money order and made payable to Texas Western College. The \$10.00 deposit places the applicant's name on the waiting list for the session indicated, but does not assure a room reservation. It is further required that a student complete an Application and Contract Form for Texas Western College residence halls.

The Dormitory Deposit will be refunded, upon written request, at the close of the semester provided the student does not withdraw from the dormitory before that time and provided there is not a deduction for breakage, lost keys or other lost or damaged items. The Dormitory Deposit will be refunded to those students who cannot be accommodated or to those who cancelled their reservations prior to September 1 for the Fall Semester or January 15 for the Spring Semester. A room reservation is cancelled and the Dormitory Deposit is forfeited if the room is not claimed by 11:00 p.m. the last day of registration before classes begin. Students are advised of their room assignments after July 1 for the Fall Semester and after January 1 for the Spring Semester.

STUDENT EXPENSES

Charges

Charges for room and board per person are \$337.00 per semester in Bell Hall (women) and Hudspeth Hall (men). Room and board charges per person in Benedict Hall (women), Worrell Hall (men), which provide single rooms for students, and Burges Hall (the new air-conditioned men's dormitory), are \$367.00 per semester. An additional charge of approximately \$9.00 per semester per student is made for linen. This charge must be paid at the beginning of the semester by each student. The entire amount of room and board charges may be paid upon entering the dormitory or the student may pay one-quarter upon entering the dormitory and the balance in three quarterly payments which shall be due on or before such dates as will be announced.

A two percent (2%) Texas State Sales Tax applies to meals. It is, therefore, necessary to collect an amount for this tax in addition to regular dormitory charges.

Room Rent and Board

Per Semester, Per Person:

Bell Hall (women); Hudspeth Hall (men)

<i>Room and Board</i>	<i>Tax</i>	<i>Laundry</i>	<i>Total</i>
\$337.00	\$4.70	\$9.00	\$350.70

Benedict Hall (women);

Worrell Hall and Burges Hall (men)

<i>Room and Board</i>	<i>Tax</i>	<i>Laundry</i>	<i>Total</i>
\$367.00	\$4.70	\$9.00	\$380.70



STUDENT FAMILY HOUSING

TWC Village located on Oregon and Robinson Streets on the Texas Western Campus is a project of 60 family apartments. Each unit has upstairs and downstairs apartments and each apartment has two bedrooms, a living-dining room and a kitchen. The project was completed in 1963 and each apartment is air-conditioned. The apartments are unfurnished except that a stove and refrigerator are provided.

To be eligible for Student Family Housing, the husband must be a full-time student. To apply for Student Family Housing, send a \$10.00 Housing Deposit to the Business Manager and complete a Student Family Housing Application Form.



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 Placement Office, 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 skills. 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 OFFICE

For the student who wishes to contribute to his income while attending college, the Placement Office acts as an employment agency. The office 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 must file records of their training and experience for submission by the office to both national and local employers. Many graduates receive career jobs through the Placement Office.

Address applications and correspondence to: DIRECTOR OF FINANCIAL AID AND PLACEMENT, Texas Western College, El Paso, Texas.

Scholarships

Texas Western College has an excellent Scholarship Program which is administered to attract and retain outstanding students and to reward academic excellence. These awards are made possible by the generosity of numerous business firms, civic organizations, professional groups, and individuals. Persons wishing to establish scholarships or contribute to the scholarship fund may secure information from the Director of Financial Aid. The average amount of awards is \$200.00 per year although awards range up to \$1,250.00 per year.

To be considered for a scholarship, an applicant must have a "B" average. All selections are made by the Faculty Com-

mittee on Scholarships and recipients ordinarily are selected from those who have a 3.5 (B+) high school final average and who score above 1,000 on the College Entrance Examination Board Scholastic Aptitude Test.

Scholarship Applications may be obtained from the Office of Financial Aid and Placement at Texas Western College or from High School Counselors. Applications will not be considered unless accompanied by a transcript of high school grades, two letters of reference, and Scholastic Aptitude Test scores. The deadlines for applications are March 1 for the Fall Semester and December 15 for the Spring Semester; however, SAT scores may be submitted at later dates when necessitated by national testing schedules.

Students should also complete the Parents Confidential Statement of the College Scholarship Service of the College Entrance Examination Board.

Texas Western College is especially desirous of attracting students who show high academic promise. Advanced placement and credit, honors classes, honorary organizations, and an honor dormitory have been instituted to challenge superior students and facilitate their achievement.

For further information write:

OFFICE OF FINANCIAL AID
Texas Western College
El Paso, Texas

Loan Funds

Student loan funds are administered by the Office of Financial Aid. For information concerning loans contact the Office of Financial Aid, Student Union Building, room 313.

Long Term Loans:

These loans are payable after graduation or after the borrower ceases to be a full-time student. The National Defense Student Loan program which is jointly sponsored by the Federal government and Texas Western College is included in this category. The National Defense Loan draws no interest until one year after the borrower ceases to be a student. At this time, interest begins to accumulate at the rate of 3% per annum on the unpaid balance.

Emergency Loans:

The Rebekah Coffin Loan Fund: This loan fund was established in July, 1963 by donations from friends of Rebekah Coffin who taught in El Paso and Barstow, Tex.

TWC Women's Auxiliary Loan Fund: This fund was established by the Women's Auxiliary of Texas Western College and is administered by the loan office of the College.

Foreign Student Loan Fund: This fund was established to assist foreign students attending Texas Western College.

TWC Ex-Student's Loan Fund: This fund was established by the Ex-Student's of Texas Western College and is administered by the Student Loan Committee.

TWC Loan Fund: This fund is made up of small contributions from students and friends of the College. It is administered by the Student Loan Committee.

El Paso Chapter—National Office Management Association: This fund was established in the amount of \$200 in September of 1959, for Business Administration students. At the present time it contains many restrictions.



REGULATIONS AFFECTING STUDENT LIFE

Student Services

The Office of the Dean of Students is the office on the campus of the college responsible for all student affairs. This office consists of the Dean of Students, the Dean of Men, the Dean of Women, the Counseling Service, the Offices of the Registrar and Director of Admissions, the Offices of Student Job Placement and Financial Aid, the Student Association, Intramurals and the Student Union Program. The staff members are available to talk over personal or organizational problems, and to answer questions that concern members of the student body. In addition, the Office of the Dean of Students supervises a Student Health Service.

The Dean of Men and the Dean of Women supervise all student housing and student activities.

The Counseling Service is maintained by the College to assist students in the selection of their careers, planning their college courses, and in meeting personal problems. To assist the academic departments, an IBM-test-scoring service is maintained.

The personnel in the Office of the Dean of Students is concerned with the welfare of the entire student body and all are available for the discussion of any problem the student may have.

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. A jury indictment for a felony or other offense of serious character suspends the student, without prejudice, until acquitted.

3. All students are expected to show respect 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.

4. The use of intoxicating beverages by students who are minors (less than 21 years old) cannot be approved by the College administration. The use of intoxicants by minors in a public place is a violation of state law. The possession and/or consumption of intoxicating beverages on College property, in residence halls, or chapter houses is prohibited. The possession or consumption of any intoxicating beverage by a student at an off-campus function of a College-approved organization is discouraged, and improper conduct resulting from such indulgence makes the student subject to disciplinary action by the College.

5. The possession or use of chemicals dangerous or destructive to self, to others or to College property will be considered inconsistent with good order and may subject the student to disciplinary action by the College.

6. 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 Academic 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 Academic 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 pledge or 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, parents or guardians will be informed and asked to co-operate with the authorities.

Debts

The College is not responsible for debts contracted by individual students or by student organizations.

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.

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.



STUDENT ACTIVITIES BOARD

The Director of Student Activities supervises eight different committees which comprise a great variety of programs for the Texas Western Student Union. In addition to promoting educational, social, and recreative activities, the SAB provides an ideal laboratory for the development of student leadership and initiative.

STUDENT ASSOCIATION

Student Government at Texas Western is divided into three branches: Executive (Student Council), Legislative (Student Senate), and Judicial (Student Court). The purpose of student government is to serve the student and further his relationship with fellow students and faculty members. Full time students are automatically members of the Student Association, part-time students may become members upon request.

ATHLETICS

Texas Western College participates as an independent institution in a variety of intercollegiate sports. This allows for student participation and 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 Health and Physical 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 ninety-eight different groups from which a student may choose his activities. They are:

Accounting Club.

Alpha Chi—Scholastic honorary for Juniors and Seniors.

Alpha Epsilon Phi—National social society.

Alpha Epsilon Rho—Honorary radio society.

Alpha Lambda Delta—National honorary society for freshmen women.

Alpha Phi Omega—Local social fraternity.

Alpha Psi Omega—Honorary drama society.

Alpha Sigma Mu—Collegiate branch of national honorary metallurgical engineering society.

American Chemical Society—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.

Associated Women Students—Organization of all regularly enrolled women students of Texas Western College.

Association for Childhood Education—Organization of future elementary school teachers.

Association of Arab Students.

Baptist Student Union.

Bell Hall Dorm Council.

Benedict House Committee.

Burges Hall Dorm Council.

Campus Crusade for Christ.

Chenrizig—Scholastic and service honorary for senior women.

Chess Club.

Chimes—Junior women honorary service organization.

Chi Omega—National social sorority.

Christian Science—A campus organization of Christian Science students and faculty members.

Circle K International—Men's service club.

College Players—Drama group.

Collegiate Chorale—College choir sponsored by the Department of Music.

Cosmopolitan Club—Organization of International Students.

Delta Chi—National social fraternity.

Delta Delta Delta—National social sorority.

Delta Sigma Pi—Professional society for men Business majors.

Engineering Council—Co-ordinating group for all Engineering activities.

Episcopal Community.

Coldiggers—Girls Marching unit.

Hawthorne House Council.

Hawthorne House Scholars.

Hillel—Social, cultural and religious organization for Jewish students.

Honors Council—Co-ordinating group for Honorary organizations.

Hudspeth Hall Dorm Council.

Independent Club Council—Co-ordinating group for members clubs' activities.

Institute of Electrical and Electronic Engineers—Collegiate branch of professional society.

Interdormitory 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 Council* — Co-ordinating group for intramural athletics.
- Judo Club*—Athletic organization for students interested in art of Judo.
- Kappa Delta* — National sorority for women.
- Kappa Delta Pi*—National honorary education society.
- Kappa Kappa Psi* — Honorary Band and Marching Cavalcade organization.
- Kappa Pi* — Honorary art society.
- Kappa Sigma*—National social fraternity.
- Lambda Chi Alpha* — National social fraternity.
- Lampiters* — Social and service organization to foster fellowship among members of the Church of Christ.
- 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.
- Lloyd A. Nelson Geology Club*.
- Mechanical Engineering Society*.
- Modern Dance Club*.
- 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.
- Pershing Rifles*—National honorary ROTC fraternity.
- Phi Alpha Theta* — Honorary history society.
- Phi Kappa Tau*—National social fraternity.
- Phrates International*—International independent service and social group for women.
- Physical Education Majors Club*.
- Pi Delta Phi*—Honorary French society.
- Pi Kappa Delta* — National honorary Forensic fraternity.
- Political Science Club*—Regularly enrolled students interested in political science.
- Pre-Med Club*—Students interested in the profession of medicine.
- Press Club* — Honorary service club for journalism majors and minors designed to serve the student body through publications.
- Psi Chi Society*—Honorary Psychology society.
- Rodeo Club*.
- ROTC Sponsors of TWC*—Auxiliary drill team to the Cadet Corps.
- Sardonyx*—Scholastic and service honorary for Junior and Senior men.
- Scabbard & Blade* — ROTC honorary society.
- Sigma Alpha Epsilon*—National social fraternity.
- Sigma Alpha Mu* — National social fraternity.
- Sigma Delta Pi*—Honorary Spanish society.
- Sigma Gamma Epsilon* — Honorary society for earth sciences.
- Sigma Pi Sigma* — Honorary Physics society.
- Society of American Military Engineers* — National professional society for ROTC and Engineering students.
- Sociology Club*.
- Spurs* — National service organization for Sophomore women.
- Stevens Scholars*—For men who are recipients of Stevens scholarships.
- Student Education Association*.
- Sybarites*—Local Art Society.
- Tau Beta Sigma*—Honorary service society to promote band activities.
- Tau Kappa Epsilon* — National social fraternity.
- TWC Villagers* — Association of married students.
- United Campus Christian Fellowship*—Interdenominational religious organization consisting of the following groups: Presbyterian, Churches of Christ, United Lutherans of America, Congregational Christian, Christ Christian Churches, and the Churches of the Nazarene.
- Wesley Foundation*—Campus organization for Methodist students.
- Worrell Hall Dorm Council*.
- Young Americans for Freedom*.
- Young Democrats Club*.
- Young Republicans Club*.
- 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:

Student Leader Conference

At the beginning of each semester selected student leaders are invited to participate in discussions of topics of special concern to students.

"M" Day

The "M" on the east side of Mt. Franklin was first laid out in 1923. Every year since, it has been repaired and re-white-washed by the freshman men and women, under the supervision of the Student Association Officers and Senate. Painting the "M" is followed by a traditional "Bean Feed" sponsored by the Student Association.

Homecoming

Homecoming is observed each fall at Texas Western College. This is a time of reunion for former students, who return to the campus for a variety of programs ranging from banquets to football. Highlights include recognition of a distinguished alumnus. Homecoming banquets, breakfasts, luncheons and dinners, and class reunions. Many of the activities are centered about student-sponsored functions, such as the traditional Homecoming parade and "bean feed," and contests for decorating the campus. Other events include election and crowning of the Homecoming queen, the traditional Homecoming dance, and a pep rally lighted by a giant bonfire. Homecoming is a holiday and everyone—students, alumni and faculty—participates in the celebration.

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 Associated Women Students make this affair one of the most popular and original throughout the year.

Variety Show

In the late Spring semester, Alpha Psi Omega sponsors a Variety Show in which the proceeds go to a drama scholarship. Any organization may compete with original skits.

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 gather 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 the TWC mines around the area of Seaman Hall.

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 sing-song, held in the Fall semester, is a concert in which the various choruses compete for a cup. This event has one of the most popular College traditions.

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.

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.

Campus Carnival and Spring Fiesta

A day of social and sports events is set aside each year as All-Texas Western Day. Held usually in April or May, the day's activities open with social organizations competing in a swimming meet. Organiza-

tions on campus set up booths of games or refreshments for the festival. Highlight of the day is the annual beauty revue at which "Miss TWC" is selected from entries made by campus organizations.

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.

Annual Honors Convocation

Sardonys and Chenrizig sponsor, each spring, the Annual Honors Convocation ceremony. At this traditional Honors Con-

vocation, 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.

Womens' Honors Night

Chenrizig, Alpha Lambda Delta, Chimes, and Spurs tap new members at a Womens' Honors Night in each Spring Semester. All women students who have achieved special distinction in any major field of study are recognized and an outstanding Faculty woman is named. This event is sponsored by Associated Women Students.



SCHOLASTIC REGULATIONS

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. This loss of credit penalty may be waived by the appropriate academic dean upon the affirmative recommendation of the head of the student's major department. 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.

Adding Courses

A course may be added within the stipulated time limit by (a) authorization of the Academic 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 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) permission of the Academic Dean, (c) validation by the Business Office, and (d) 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 *F* 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 *F*.

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. Absences 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.

(b) 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

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

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

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.

Engineering Students—Beginning freshmen may not register for more than seven semester hours except with permission of the Dean. Sophomores, juniors and seniors may not register for more than nineteen semester credit hours except with permission of the Dean of Engineering.

Arts and Science Students—Beginning freshmen may not register for more than sixteen 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 point average is at least 3.0 in a minimum of twelve semester credit hours for the preceding semester. A full summer session may be counted as a semester.

In no case may a student register for a total of more than 15 semester credit hours in a full summer session. With the written permission of the Dean, a student may register for 9 semester credit hours in a single summer term if he has completed or agrees to register for six hours in the other term of the summer session of the same year and if he presents his official degree plan showing that he would thereby be able to complete all courses required for graduation at the end of the summer session. The Dean may at his discretion waive this rule in the case of a student who has completed 60 semester hours or more with a cumulative grade point average of 3.5 or higher.

Official Notices

Official notices are posted on bulletin boards, published in the Prospector, 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.

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

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

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

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

Examinations

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.

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

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

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 the Academic Dean 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. May not be taken to satisfy any part of the last 30 semester credit hours required for graduation.
4. Will be searching in character, strictly graded, and four hours in length.
5. The passing grade is "B".
6. Absence from the examination, after a permit has been granted, gives a grade of *F*.

7. No student is eligible who has registered for or has been given a grade in the course.

8. The Registrar supervises the examination.

9. Student must currently or previously be registered in the College.

10. Credit thus earned is applicable toward a degree from this College only.

11. In some instances, credit is granted on the basis of Advanced Placement Tests given by the College Entrance Examination Board. Further information may be obtained from the appropriate Academic Department Head.

Scholarship

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), *Pr* (in Progress), *Inc.* (incomplete), and *Px* (postponed final examination).

Students who officially withdraw from college during the semester will receive, grades of *WP* in courses which they are passing and *F* 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*, *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.

Repetition of Course

If a student repeats a course, the official grade is the last one made; however, the student's cumulative grade point average is determined, for any official purpose, by dividing the total grade points earned by the total number of hours attempted in this College.

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.*, 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.)

In publishing the honor list the Engineering 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

Students' Responsibility

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

Minimum Requirements

For students who have registered for thirty hours or less in any college, the minimum grade point average requirement is 1.50 in each semester or summer session. After the total number of hours for which a student has registered is more than thirty hours and less than sixty the minimum grade point average is 1.75 for work attempted in each semester or summer session. After the total number of hours for which a student has registered is sixty hours or more, the minimum grade point requirement is 2.0 for work attempted in each semester or summer session. Where appropriate, the prevailing Western Athletic Conference scholastic requirements may be substituted in the case of students matriculating before September, 1967. A student is placed on Scholastic Probation at the end of the semester or summer session in which his grade point average falls below the applicable minimum.

Scholastic Probation

A student on Scholastic Probation who withdraws with grades of "WP" in all courses will be continued on Scholastic Probation for the next semester or summer session of attendance.

Scholastic Probation shall mean that a student may not:

- a. Register for more than sixteen hours except by written permission of his Academic Dean.
- b. 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.
- c. 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 Academic Dean.

Removal of Scholastic Probation

A full-time student must take 12 or more hours to remove Scholastic Probation with all hours attempted counting in the average. A part-time student must complete at least the same number of hours as he was taking when he incurred Scholastic Probation. In either case, the requirements outlined under Minimum Academic Performance must be met.

A student taking less than the required number of hours will be continued on Scholastic Probation for the next period of attendance. He must however, meet the Minimum Requirements for all courses taken or the student will be dropped under Enforced Academic Withdrawal.

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 or summer session.

A student ineligible for registration because of academic failure may submit a petition to his Dean for re-instatement. The petition must be in the form of a letter and must be accompanied by a transcript of the students' academic record.

Each such application will be considered on its merits. A student so re-instated will be on such terms of Scholastic Probation as the Dean may require.

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. (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: Ineligible for readmission. Exceptions may be made after two calendar years when the President's Academic Council considers the circumstances to be extenuating. Petition for consideration on this basis must be filed with the Registrar one calendar month before the first day of registration of the semester or term in which readmission is sought.

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.

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 *F* in each course for which he was registered. Students who withdraw unofficially must comply with the regulations listed under Readmission.

Statistical Summaries

S T U D E N T S

ENGINEERING:	LONG	SESSION, 1964-65	
	Men	Women	Total
Seniors	131	0	131
Juniors	133	0	133
Sophomores	199	2	201
Freshmen	374	0	374
TOTAL	837	2	839

ARTS and SCIENCES:

Postgraduates	724	426	1150
Seniors	587	420	1007
Juniors	603	458	1061
Sophomores	803	644	1447
Freshmen	1695	1259	2954
TOTAL	4412	3209	7619

<i>Total Individual Students</i>	5249	3209	8458
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	SUMMER	SESSION, 1965	
	Men	Women	Total
Students registered in the first term	2147	1879	4026
Students registered in the second term	1962	1555	3517
TOTAL	4109	3434	7543
<i>Total Individual Students in Summer Session .</i>	2858	2524	5382

DEGREES CONFERRED

	CONFERRED IN 1964			CONFERRED IN 1965			TOTAL CONFERRED 1916 - 1965
	Men	Women	Both	Men	Women	Both	
ENGINEERING:							
Engineer of Mines	----	----	----	----	----	----	49
Bachelor of Science in Mining Engineering	4	----	4	1	----	1	392
Bachelor of Science in Engineering:							
Civil	----	----	----	----	----	----	120
Electrical	----	----	----	----	----	----	147
Bachelor of Science in Civil Engineering	13	----	13	13	----	13	96
Bachelor of Science in Electrical Engineering	19	----	19	15	----	15	185
Bachelor of Science in Mechanical Engineering	15	----	15	6	----	6	39
Bachelor of Science in Metallurgical Engineering	6	----	6	11	----	11	70
	57	----	57	46	----	46	1098
ARTS and SCIENCE:							
Bachelor of Arts	147	98	245	179	114	293	4316
Bachelor of Science in the Sciences	65	7	72	69	18	87	935
Bachelor of Business Administration	98	11	109	99	14	113	1210
Bachelor of Music	11	2	13	9	13	22	175
Bachelor of Science in Education	33	132	165	47	165	212	746
	354	250	604	403	324	727	7382
GRADUATES:							
Master of Arts	11	7	18	23	7	30	840
Master of Education	26	8	34	38	34	72	213
Master of Science	----	----	----	4	----	4	4
	37	15	52	65	41	106	1057
TOTAL DEGREES CONFERRED							9537



I N D E X



- Academic Performance, 50, 198
Administration Officers, 5, 6
Admission Methods, 39, 40
Anthropology, 178
Art: Courses, 75-77
 Teaching, 60
Arts and Sciences Division, 51-68

Bachelor of Arts, 52
Bachelor of Business Administration, 54-56
Bachelor of Music Degree, 58
Bachelor of Science in Education, 63-65
Bachelor of Science in Engineering, 45-49
Bachelor of Science (science), 54
Bachelor of Science in Medical
 Technology, 57
Bible: Courses, 78
Biological Sciences: Courses, 79-83
 Major, 54
Board of Regents, 4
Botany: Courses, 80
Business Administration: Courses, 84-91
 Bachelor of (Degree), 54-56

Calendar, 2, 3
Campus Pictures, 20-37; Map, 204
Chemistry: Courses, 92-94
Classification of Students, 196
Commencement, 44
Conduct, 189
Convocation (Freshman), 2, 3
Course Descriptions, 75-178
Course Regulations, 195
Crafts, 76
Curriculum, 41-44

Degrees Offered, 41
 Requirements, 44
 Suggested Plans, 42, 43
Degrees Conferred, 201
Deposits:
 Dormitory, 184
 General Property, 184
 Military Property, 184
Description of College, 21-37
 Discipline, 189
 bad checks, 190
 debts, 190
 expulsion, 190
 hazing, 190
 probation, 190
 rules, 189
 suspension, 190

Dormitories:
 fees for rent and board, 186
 location, map, 204
Drama: Courses, 95, 96
Drawing:
 Art, 75, 76
 Engineering Graphics, 113

Economics: Courses, 99-101
Education: Courses, 102-108
 B.S. Degree, 63-65
Employment by the College, 187
Endowments, 36, 37
Engineering: Courses, 109-116
 Civil Engineering, 109, 110
 Electrical Engineering, 111, 112
 Mechanical Engineering, 113, 114
 Metallurgical Engineering, 115, 116
 Degrees, 45-49
English: Courses, 117, 122
 Graduate Courses, 121, 122
Enrollment Statistics, 200
Entrance, 27
Events, Annual, 192-194
Examinations, 196, 197
Expenses, 181-186
Expulsion, 190
Extra-Curricular Activities, 191-194

Faculty, 7-19
Fees: payment, refunds, 182
 Laboratory, 183
 Registration, 182
 Special Examination, 184
 Tuition, 182
Financial Aid, 187, 188
French: Courses, 151, 152
Freshman Guidance, 2, 3, 189

Geography: Physical, 126
 Cultural, 178
Geology: Courses, 123-126
German: Courses, 152
Government: Courses, 127-130
 Required, 44



I N D E X



- Grades, 197, 198
Graduate Division, 69-72
Graduates, Statistics, 201
Graduation Requirements, 44
Graphic Arts, 76

Hazing, 38, 190
Health Education: Courses, 131-134
History: Courses, 135-139
 Required, 44
 Graduate Courses, 139
Honors at Graduation, 50
Honor List, 198
Housing, 186

Inter-American Studies: Major, 53
Journalism: Courses, 140, 141

Kidd, Memorial, 33

Laboratory Fees, 183
Language, Modern: Courses, 151-155
 Graduate Courses, 153-155
Late Registration, 38
Law, preparation for degree, 50
Library, 29, 31
Library Services, 57, 108
Loan Funds, 187, 188

Master of Arts Degree, 70
Master of Education Degree, 70-72
Master of Science Degree, 72
Mathematics: Courses, 144-146
 Graduate Courses, 147
Map: Campus, 204
Medical Technology, 57
Medicine, preparation for degree, 50
Microbiology: Courses, 81
Military Science and Tactics, 148-150
Modern Languages, 151-155
Museum, 31, 33
Music: Courses, 156-163
 Degree, 58; Teaching, 62

Non-Resident Students, 181
Organizations on Campus, 191, 192

Philosophy: Courses, 164, 165
Physical Education: Courses, 131-134
 Teaching, 61
Physics: Courses, 166-171
Placement Service, 187
Plan: Curriculum, 41-44
Press, 33
Probation, 198, 199
Psychology: Courses, 172-174
Publications, 141, 142

Radio: Courses, 142, 143
Refund of Tuition, 182
Registration, 38
 Dates, 2, 3
Regulations, Official, 179
Resident Students, 181
R.O.T.C.: Courses, 148-150
Russian: Courses, 155

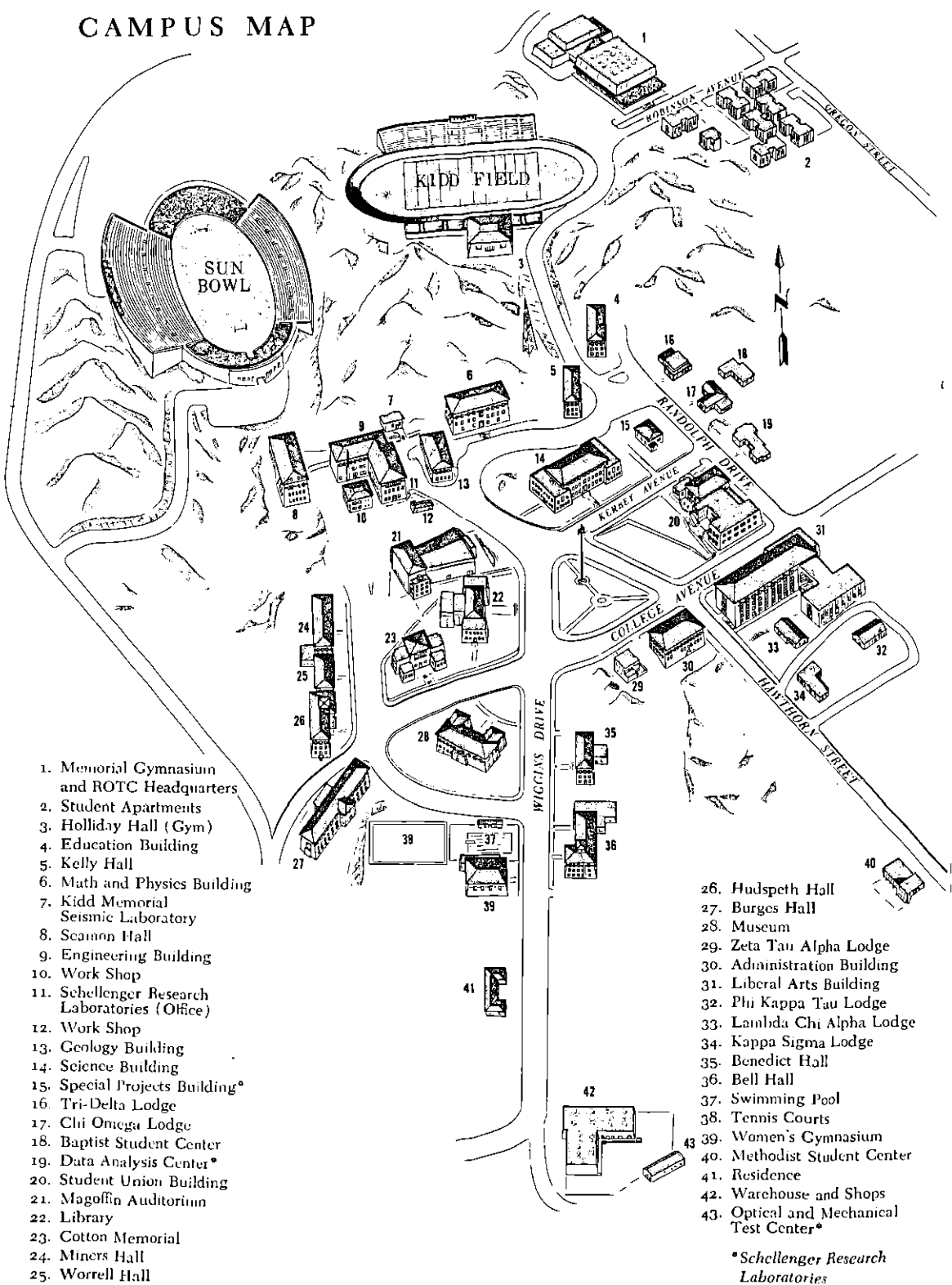
Schellenger Foundation, 31
Scholarships, 187
Scholastic Standards, 44, 50, 195-199
Science: Majors, 43
Sociology: Courses, 175-178
Spanish: Courses, 153-155
Speech: Courses, 97, 98
Statistics, 200
Student Activities, 191-194
Student Employment Service, 187
Student Guidance, 189
Student Regulations, 189, 190
Suspension, 190
Special Services, 29-35

Teaching Certificates, 59
Teacher Programs, 60-68
Television: Courses, 142, 143
Tuition, 182; Refund of, 182

Veterans, 33
 Exemptions from fees, 183

Withdrawal, 199
Zoology: Courses, 82

CAMPUS MAP



1. Memorial Gymnasium and ROTC Headquarters
2. Student Apartments
3. Holiday Hall (Gym)
4. Education Building
5. Kelly Hall
6. Math and Physics Building
7. Kidd Memorial Seismic Laboratory
8. Seamon Hall
9. Engineering Building
10. Work Shop
11. Schellenger Research Laboratories (Office)
12. Work Shop
13. Geology Building
14. Science Building
15. Special Projects Building*
16. Tri-Delta Lodge
17. Chi Omega Lodge
18. Baptist Student Center
19. Data Analysis Center*
20. Student Union Building
21. Magoffin Auditorium
22. Library
23. Cotton Memorial
24. Miners Hall
25. Worrell Hall

26. Hudspeth Hall
27. Burges Hall
28. Museum
29. Zeta Tau Alpha Lodge
30. Administration Building
31. Liberal Arts Building
32. Phi Kappa Tau Lodge
33. Lambda Chi Alpha Lodge
34. Kappa Sigma Lodge
35. Benedict Hall
36. Bell Hall
37. Swimming Pool
38. Tennis Courts
39. Women's Gymnasium
40. Methodist Student Center
41. Residence
42. Warehouse and Shops
43. Optical and Mechanical Test Center*

*Schellenger Research Laboratories

