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TEXAS TECHNOLOGICAL COLLEGE

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With Announcements for 1947-48

TEXAS TECHNOLOGICAL COLLEGE

LUBBOCK, TEXAS

ISSUED MONTHLY BY TEXAS TECHNOLOGICAL COLLEGE, LUBBOCK, TEXAS. ENTERED AS SECOND-CLASS MATTER, DECEMBER 24, 1924 AT THE POSTOFFICE AT LUBBOCK, TEXAS, UNDER THE ACT OF AUGUST 24, 1912.

CALENDAR

1947

JANUARY

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COLLEGE CALENDAR FOR 1947-1948

Twenty-Third Annual Session

First Semester

1947

Sept. 9. Entering freshmen and transfer students submitting transcripts after this date may be delayed in registration.

Sept. 15. Monday, 10:00 A. M. General Faculty Meeting.

Sept. 15. Monday. Dormitories open. First meal breakfast, Tuesday, September 16.

Sept. 16. Tuesday, 1:30 P. M. All entering freshmen report to College Gymnasium.

Sept. 16-18. Tuesday-Thursday. Freshmen counseling program.

Sept. 18. Thursday. Preregistration consultations for all students.

Sept. 19-20. Friday-Saturday. Registration. Fees must be paid before scheduling classes. Those who wish may pay fees as early as September 16.

Sept. 22. Monday, 8:00 A. M. Classes begin.

Sept. 23. Tuesday, 5:00 P. M. Late registration fee required after this time.

Sept. 26. Friday. Last day a student may register in the first semester.

Sept. 26. Friday. All-Church Night—Lubbock churches.

Sept. 27. Saturday. Last day to add courses.

Oct. 1. Wednesday, 10:00-12:00 A. M. Student Convocation. Election of class officers for the year.

Oct. 11. Saturday. Last day for filing with academic deans requests to make up examinations missed or postponed, or to remove conditions incurred during the preceding spring semester.

Oct. 18. Saturday. Annual Homecoming.

Oct. 20. Monday, 5:00 P. M. Progress reports on all freshman students due in Registrar's office.

Oct. 25. Saturday. Date for taking examinations petitioned on October 11.

Oct. 27. Monday. Last day on which students may petition to drop a course without grade penalty.

Nov. 15. Saturday, 5:00 P. M. Mid-semester reports due in Registrar's office.

Nov. 27-29. Thursday-Saturday. Thanksgiving holidays.

Dec. 20. Saturday, 2:00 P. M. Classes dismissed for Christmas holidays.

1948

Jan. 5. Monday, 8:00 A. M. Classes resumed after Christmas holidays.

Jan. 19-24. Monday-Saturday. Week of restricted social activities.

Jan. 26-31. Monday-Saturday. Final examinations for first semester.

Feb. 2. Monday. Students without room reservations for the second semester must vacate dormitory rooms not later than this time.

Feb. 5. Thursday, 8:00 A. M. First semester ends.

Second Semester

Feb. 4. Wednesday, 3:00 P. M. New occupants may enter dormitories.

Feb. 5. Thursday, 8:00 A M. Second semester begins. Entering freshmen assemble in Aggie Memorial Auditorium.

Feb. 6-7. Friday-Saturday. Registration. Fees must be paid before scheduling classes. Those who wish may pay fees as early as February 4.

Feb. 9. Monday, 8:00 A. M. Classes begin.

Feb. 10. Tuesday, 5:00 P. M. Late registration fee required after this time.

Feb. 13. Friday. Last day a student may register in second semester.

Feb. 13. Friday. All-Church Night—Lubbock churches.

Feb. 14. Saturday. Last day to add courses.

Feb. 23-28. Monday-Saturday. Religious Emphasis Week.

Feb. 24, 25. Tuesday, Wednesday, 10:00 A. M. Convocation. Willson Lecturer.

Feb. 26, 27. Thursday, Friday, 11:00 A. M. Convocation. Willson Lecturer.

Mar. 6. Saturday. Progress reports on all freshman students due in Registrar's office.

Mar. 15. Monday. Last day on which students may petition to drop a course without grade penalty.

Mar. 25. Thursday, 10:00 P. M. Easter Vacation begins.

Mar. 30. Tuesday, 8:00 A. M. Easter Vacation ends and classes resumed.

Apr. 3. Saturday, 5:00 P. M. Mid-semester reports due in Registrar's office.

May 2. Sunday—Parent's Day. All-College Recognition Day.

May 8. Saturday. Last day for submission of first draft of thesis for June graduates. (Graduate Students)

May 21-27. Friday-Thursday. Week of restricted social activities.

May 28-June 3. Friday-Thursday. Final examinations for second semester.

June 4. Friday. Last day for submission of thesis for binding.

June 5. Saturday, 9:00 A. M. Meeting of Deans and Department Heads.

June 6. Sunday, 8:00 P. M. Baccalaureate Sermon.

June 7. Monday, 8:00 P. M. Commencement. Long session ends.

June 9. Wednesday. (Tentative) Summer School begins.

BOARD OF DIRECTORS

Charles C. Thompson, Chairman ..... Colorado City

Mark McGee, Vice-Chairman ..... Fort Worth

Chanslor E. Weymouth, Treasurer ..... Amarillo

Leon Ince ..... Houston

A. G. (Pat) Mayse ..... Paris

Robert B. Price ..... El Paso

O. B. Ratliff ..... Lubbock

Kyle Spiller ..... Jacksboro

Charles W. Wooldridge ..... Dallas

W. T. Gaston, Secretary ..... Lubbock

OFFICIAL DIRECTORY

College Year 1946-47

OFFICERS OF ADMINISTRATION

WILLIAM MARVIN WHYBURN, B. A., M. A., Ph. D., ... *President*
Office, 217 Administration Building.

TRENT CAMPBELL ROOT, B. A., M. B. A., ...
Assistant to the President, Acting Dean of Business Administration
Office, 217 Administration Building.

WILLIAM CURRY HOLDEN, B. A., M. A., Ph. D. .....
.....*Dean of Graduate Studies and Curator of West Texas Museum*
Office, 209 Administration Building.

OTTO VINCENT ADAMS, B. S. in C. and I. E., M. S. E., Sc. D. .....
..... *Dean of Engineering*
Office, 202 Engineering Building.

ROBERT CABANISS GOODWIN, B. A., M. A., Ph. D. .....
..... *Dean of Arts and Sciences*
Office, 211 Administration Building.

ERNEST WALLACE, B. S., M. A., Ph. D. .....
..... *Assistant Dean of Arts and Sciences*
Office, 211 Administration Building.

WENZEL LOUIS STANGEL, B. S., M. S., ... *Dean of Agriculture*
Office, 201A Agriculture Building.

MARGARET WATSON WEEKS, B. S., M. S. .... *Dean of Home Economics*
Office, 104 Home Economics Building.

JOHNNYE GILKERSON LANGFORD, B. B. A., M. A. ..... *Dean of Women*
Office, 107 Administration Building.

ELEANOR M. CHITWOOD ..... *Assistant Dean of Women*
Office, 107 Administration Building.

JAMES GEORGE ALLEN, B. A., M. A. ..... *Dean of Men*
Office, 114 Administration Building.

WILLIAM THOMAS GASTON ..... *Business Manager and Secretary of Board of Directors*
Office, 102 Administration Building.

MOZELLE EUGENIA CRADDOCK, B. S., M. A.
..... *Director of the Dormitory Systems*
Women's Residence Hall II.

WARREN PERRY CLEMENT, B. A., M. A. .....
..... *Registrar and Director of Admissions*
Office, 112 Administration Building.

FLORENCE EVELYN CLEWELL, B. A. .....*Assistant Registrar*
Office, 112 Administration Building.

AUGUSTINE SMITH GAYLORD, JR., B. A., Certificate of Librarianship ..... *Librarian*
Office, 205 Library Building.

JACOB HOMER MILLIKIN, B. A., M. A. ..... *Director of Extension*
Office, 315 Administration Building.

LUDLOW CALHOUN ADAMS, B. S., *Lt. Colonel, Corps of Engineers, United States Army* .... *Professor and Head of Military Science and Tactics*
Office 1, Military Science Building.

* * *

CLIFFORD BARTLETT JONES, LL. D., ...*President Emeritus*
MARY WOODWARD DOAK, B. A., M. A. ..... *Dean Emeritus*
JAMES MARCUS GORDON, B. A., M. A., LL.D. ..... *Dean Emeritus*
ARTHUR HENRY LEIDIGH, B. S., M. S. ..... *Dean Emeritus*
ELIZABETH HOWARD WEST, B. A., M. A. ..... *Librarian Emeritus*

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Explanations of Symbols

* Effective February 1, 1947.
† Resigned.
§ On Leave.

WILLIAM MARVIN WHYBURN, B. A., M. A., Ph. D., *President, Professor of Mathematics.*

LUDLOW CALHOUN ADAMS, B. S., *Lt. Colonel, Corps of Engineers, United States Army, Professor and Head of Military Science and Tactics.*

OTTO VINCENT ADAMS, B. S. in C. and I. E., M. S. E., Sc. D., *Dean of Engineering and Professor of Civil Engineering.*

JAMES GEORGE ALLEN, B. A., M. A., *Dean of Men and Professor of English.*

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LEONARD GEORGE KAMMERDIENER, B. A., M. A., *Lecturer in History.*

ANDREW FRANKLIN KELLEY, *Instructor and Mechanician in Textile Engineering.*

SABE MCCLAIN KENNEDY, JR., B. A., M. A., *Instructor in Government.*

PAULINE HOOSER KEYES, B. S., *Instructor in Clothing and Textiles.*

§LILA ALLRED KINCHEN, B. S., M. S., *Assistant Professor of Clothing and Textiles.*

OSCAR ARVLE KINCHEN, B. A., M. A., Ph. D., *Professor of History.*

HAROLD LYMAN KIPP, B. S., in M. E., M. E., M. S., *Professor of Mechanical Engineering.*

FLORIAN ARTHUR KLEINSCHMIDT, B. S., M. in Arch., *Professor and Head Department of Architecture.*

MINA MARIE WOLF LAMB, B. A., M. S., Ph. D., *Associate Professor of Foods and Nutrition.*

MILTON FREDRICK LANDWER, B. S., M. A., Ph. D., *Associate Professor of Zoology.*

JOHNNYE GILKERSON LANGFORD, B. B. A., M. A., *Dean of Women, Professor and Head Department of Physical Education for Women.*

WANN LANGSTON, JR., B. S., *Instructor in Geology.*

CECIL JIM LEE, B. S. in E. E., *Instructor in Electrical Engineering.*

*RALPH FRANK LEE, B. S. in E. E., *Instructor in Electrical Engineering.*

ARTHUR HENRY LEIDIGH, B. S., M. S., *Professor of Agronomy.*

SAM LEIFESTE, B. A., M. A., *Assistant Professor of Marketing.*

QUANAH BELLE LEWIS, B. F. A., M. A., *Instructor in English.*

IVAN LEE LITTLE, B. A., M. A., *Assistant Professor of Philosophy and Sociology.*

ROBERT IVAN LOCKARD, B. S. in Arch., M. S. in Arch., *Associate Professor of Architecture.*

ELMER LEON MCBRIDE, B. S., M. S., *Professor and Head Department of Agricultural Economics and Farm Management.*

JANE WOODRUFF MCDONALD, B. A., M. A., *Instructor in Government.*

SETH SHEPARD MCKAY, B. A., M. A., Ph. D., *Professor of History.*

FITZHUGH LEE MCREE, B. S. in C. E., M. S. in C. E., *Professor of Civil Engineering.*

RAYMOND DE ELMONT MACK, B. A., *Instructor in Government.*

ERNEST LEE MADER, B. S., M. S., *Assistant Professor of Agronomy.*

THURSTON NATHANIEL MALLARD, B. S., *First Lieutenant, United States Army, Assistant Professor of Military Science and Tactics for Signal Corps.*

HULDA WILD MARSHALL, B. A., M. A., *Associate Professor of Chemistry.*

ROBERT LOUIS MASON, B. S. in M. E., *Assistant Professor of Mechanical Engineering.*

ADDIE BELLE FORT MAUZEY, B. A., *Instructor in Secretarial Administration.*

LIDA BELLE MAY, B. A., M. A., *Assistant Professor of Mathematics.*

MARIE MCCRUMMEN MENAUL, *B. A., Instructor in Chemistry.*

JAMES NEWTON MICHIE, B. S. in Engineering, M. A., *Professor and Head Department of Mathematics.*

§JONNIE HEMPHILL MCCRERY MICHIE, B. S., M .A., *Professor and Head Department of Foods and Nutrition.*

MARIE AGNES MILES, B. A., M. A., *Instructor in English.*

RUFUS ARTHUR MILLS, B. A., M. A., *Professor of English.*

FREEDIS LLOYD MIZE, B. S., M. Ed., *Associate Professor of Economics and Management.*

JOHN ODELL MORGAN, B. A., *Head Football Coach.*

THOMAS ORLANDO MORGAN, *Staff Sergeant, United States Army, Assistant ROTC Instructor.*

RAY CLIFFORD MOWERY, B. S., M. S., *Professor of Animal Husbandry.*

JAMES HAROLD MURDOUGH, S. B., M. S. E., *Professor and Head Department of Civil Engineering.*

DONALD VAN DALE MURPHY, B. A., M. A., *Associate Professor of English.*

KLINE ALLEN NALL, B. A., M. A., *Instructor in English.*

DORIS NESBITT, B. A., M. S., *Assistant Professor of Home Economics Education.*

ROBERT LEE NEWELL, B. S. in M. E., *Assistant Professor of Mechanical Engineering.*

†WALKER LEONARD NICHOLS, B. A., *Assistant Professor of Physical Education for Men.*

AARON GUSTAF OBERG, B. S. in Ch. E., M. S., Ph. D., *Associate Professor of Chemical Engineering.*

CECIL THOMAS OVERBY, B. S. in C. E., *Instructor in Civil Engineering.*

ROBERT PARKER, B. A., M. A., *Instructor in Mathematics.*

DEAN ROBERTS PARKER, B. A., Ph. D., *Assistant Professor of Zoology.*

L. E. PARSONS, B. S. in T. E., *Professor and Head Department of Textile Engineering.*

LEROY THOMPSON PATTON, B. A., B. S., M. S., Ph. D., *Professor and Head Department of Geology.*

MARY PEACOCK, B. S., *Instructor in Physical Education for Women.*

WILLIAM MARTIN PEARCE, B. A., M. A., *Instructor in History.*

ANNAH JOE PENDLETON, B. A., M. A., *Professor and Head Department of Speech.*

JOHN MOORE PENICK, JR., B. A., M. Ed., Ph. D., *Associate Professor of Industrial Engineering and Engineering Drawing.*

CONNOR COLUMBUS PERRYMAN, B. S., *Associate Professor of Engineering Drawing.*

*LAVERNE PHELPS, B. S., M. A., *Part-time Instructor in English.*

MARTYE POINDEXTER, Ph. B., M. A., *Professor and Head Department of Applied Arts.*

†ESTUS CANTRELL POLK, B. A., M. A., *Instructor in English.*

LOUIS JOHN POWERS, B. S. in M. E., *Professor of Mechanical Engineering.*

CHARLES BLAISE QUALIA, B. A., M. A., Ph. D., *Professor and Head Department of Foreign Languages.*

ETTIE CLAIRE QUICKSALL, B. A., M. A., *Instructor in Secretarial Administration.*

SUE AVA RAINEY, B. S., M. A., *Assistant Professor of Physical Education for Women.*

PAUL FRANCIS REAGAN, *Staff Sergeant, United States Army, Assistant ROTC Instructor.*

KENNETH MILLER RENNER, B. S., M. S., *Professor and Head Department of Dairy Manufactures.*

ROBERT POLK RIORDAN, B. A., *Lt. Colonel, Air Corps, United States Army, Assistant Professor of Military Science and Tactics for Air.*

WILBUR IRVIN ROBINSON, B. S., M. S., Ph. D., *Associate Professor of Geology.*

POLK ROBISON, B. A., *Associate Professor of Physical Education for Men.*

TRENT CAMPBELL ROOT, B. A., M. B. A., *Assistant to the President, Acting Dean of Business Administration, and Professor and Head Department of Accounting and Finance.*

ANNIE NORMAN ROWLAND, B. S., M. S., *Instructor in Mathematics.*

REGINALD RUSHING, B. A., M. B. A., C. P. A., *Associate Professor of Accounting and Finance.*

OSCAR T. RYAN, B. S., M. S., *Assistant Professor of Agricultural Education and Teacher Training.*

CLARENCE CARL SCHMIDT, B. A., M. A., Ph. D., *Professor and Head Department of Physics.*

VALERIE SCHNEIDER, B. S. in Ch. E., M. S. in Ch. E., Sc. D., *Associate Professor of Chemical Engineering.*

CLARK HASBROUCK SCHOOLEY, B. J., *Assistant Professor of Journalism.*

ELEANOR BRYCE SCOTT, B. A., M. A., Ph. D., *Assistant Professor of English.*

JESSE Q. SEALEY, B. A., M. A., *Assistant Professor of Biology.*

JAMES THOMAS SHAVER, B. S., M. A., *Associate Professor of Education.*

MYRTLE DUNN SHORT, B. Mus., *Instructor in Music, Part-time.*

RAYMOND GILBERT SIDWELL, B. A., M. A., Ph. D., *Associate Professor of Geology.*

WILLIAM MACKEY SLAGLE, B. A., M. A., *Associate Professor of Chemistry.*

GEORGE SMALLWOOD, B. A., M. A., *Professor of English.*

MABEL BROOKS SMITH, B. A., M. A., *Instructor in Spanish and Sociology.*

RALPH LESTER SMITH, *Captain, Air Corps, United States Army, Air ROTC Instructor.*

OSCAR CLARENCE SOUTHALL, B. A., M. A., *Assistant Professor of Chemistry.*

FRED WINCHELL SPARKS, B. S., M. A., M. S., Ph. D., *Professor of Mathematics.*

§MERRILL ADDISON STAINBROOK, B. A., M. S., Ph. D., *Professor of Geology.*

WENZEL LEWIS STANGEL, B. S., M. S., *Dean of Agriculture, Director of Farms, and Professor and Head Department of Animal Husbandry.*

OSCAR ALLEN ST. CLAIR, B. S. in E. E., *Professor and Head Department of Industrial Engineering and Engineering Drawing.*

RUSSELL J. STEFFY, B. of M. E., *Instructor in Physics.*

ALFRED BELL STREHLI, B. A., B. S., M. A., *Assistant Professor of Spanish.*

ALAN LANG STROUT, B. A., M. A., Ph. D., *Professor of English.*

MARGRET RUSSELL STUART, B. A., *Instructor in Chemistry.*

RICHARD ARTHUR STUDHALTER, B. A., M. A., Ph. D., *Professor of Botany and Head Department of Biology.*

JOHN GEORGE TANNER, *Master Sergeant, United States Army, Assistant Air ROTC Instructor.*

HASKELL GRANT TAYLOR, B. B. A., M. A., *Assistant Professor of Accounting and Finance.*

GUSSIE LEE TEAGUE, B. A., M. A., *Associate Professor of English.*

ETHEL KING TERRELL, B. A., M. A., *Associate Professor and Acting Chairman of Marketing and Secretarial Administration.*

EARL L. THOMPSON, B. A., M. A., Ph. D., *Professor of Mathematics.*

FRANCES V. THOMPSON, B. A., *Instructor in English.*

INNOKENTY PAVLOVICH TOLMACHOFF, M. S., *Visiting Professor of Paleontology.*

AGNES ANN TRUE, B. A., M. A., Ph. D., *Associate Professor of Education and Psychology.*

SCOTTI MAE TUCKER, B. A., M. A., *Instructor in Spanish.*

§MAYME LUCINDA TWYFORD, B. S., M. A., *Associate Professor of Foods and Nutrition.*

RALPH SYLVESTER UNDERWOOD, B. A., M. A., Ph. D., *Professor of Mathematics.*

JOHN LUCIEN UPSHAW, B. A., *Instructor in Speech.*

ERNEST WALLACE, B. S., M. A., Ph. D., *Associate Professor of History and Assistant Dean of Arts and Sciences.*

*HAZEL DOSCH WALLACE, B. S., *Instructor in Foods and Nutrition.*

DOROTHY JANE WATSON, B. A., *Instructor in Journalism.*

MARGARET WATSON WEEKS, B. S., M. S., *Dean of Home Economics, Professor and Acting Head Department of Foods and Nutrition and Head Department of Home Management.*

MARY ALMA WELLS, B. A., M. A., *Instructor in English.*

*VINITA WEST, B. A., M. A., *Instructor in English.*

GEORGE ARTHUR WHETSTONE, B. S., M. S., Ph. D., *Assistant Professor of Civil Engineering.*

*CLARENCE KING WHITESIDE, B. A., B. B. A., M. B. A., *Part-time Lecturer in Accounting and Finance.*

FRED BIXLER WIDMOYER, JR., B. A., *Instructor in Biology.*

THOMAS FERDINANT WIESEN, B. S., M. B. A., *Professor and Head Department of Economics and Management.*

DEWEY O. WILEY, B. Mus., *Professor of Music and Director of Band.*

FLOYD LEWIS WILLIAMS, B. S. in M. E., *Assistant Professor of Mechanical Engineering.*

HERMAN FRANK WILLIAMS, B. S., *Instructor in Agricultural Engineering.*

MARY GLASS WILSON, B. A., M. A., *Instructor in Secretarial Administration.*

RUTH DONALD WILSON, B. A., M. A., *Instructor in English.*

*VAUGHN WILSON, B. A., LL. B., *Part-time Lecturer in Business Law.*

BEATRICE LOVE WITTE, B. A., M. A., *Instructor in French.*

OPAL LANIER WOOD, B. S., *Assistant Professor of Foods and Nutrition, Director of College Cafeteria.*

HORACE EUGENE WOODWARD, B. A., M. A., *Assistant Professor of Mathematics.*

WARREN WATSON YOCUM, B. S., M. A., Ph. D., *Professor of Horticulture.*

ARTHUR WESLEY YOUNG, B. S., M. S., Ph. D., *Professor of Agronony and Head Department of Plant Industry.*

STAFFS IN SPECIAL DEPARTMENTS

Instructors In Biblical Literature

(Available to students but not paid from college funds.)

CECIL RAYMOND MATTHEWS, B. A., B. D., *Biblical Literature, under the auspices of the Northwest Texas Conference of the Methodist Church.*

DEARL DALTON RICHARDSON, B. A., *Biblical Literature, under the auspices of the Disciples of Christ.*

CARL SPAIN, B. A., M. A., B. D., *Biblical Literature, under the auspices of the Churches of Christ.*

TO BE SUPPLIED, *Biblical Literature, under the auspices of the Baptist General Convention of Texas.*

Music Teachers Available to Students

JULIEN PAUL BLITZ, D. Mus., *Cello.*
VIRGINIA BELLE GAMBLE, B. Mus., *Piano and Voice.*
ESTELLE GEORGE, B. Mus., *Piano.*
MARGARET JOHNSTON HUFF, B. Mus., *Piano, Organ, and Voice.*
DORIS KOLB, M. Mus., *Piano.*
CECIL CONAWAY MESKIMEN, B. A., *Piano.*
MAMIE I. NEAL, B. A., *Pipe Organ.*
ELTON PLOWMAN, B. A., *Voice.*
EMMA SLATER SCOGGIN, B. Mus., *Voice.*
MYRTLE DUNN SHORT, B. Mus., *Voice and Piano.*
IMOGENE WEBSTER, B. S., *Piano and Organ.*
DEWEY O. WILEY, B. Mus., *Violin.*

LIBRARY STAFF

AUGUSTINE SMITH GAYLORD, JR., B. A., Certificate of Librarianship, *Librarian.*
EMMA LILLIAN MAIN, B. A., *Part-time Associate Librarian.*
ELIZABETH HOWARD WEST, B. A., M. A., *Librarian Emeritus.*
LULU STINE, B. A., M. A., *Assistant Librarian.*
MILDRED DULANEY, B. S., *Circulation Librarian.*
MARGARET SANGSTER PARROT, B. A., *Circulation Assistant.*
MARGARET SUNSHINE IRBY, B. A., *Reference Librarian.*
ELIZABETH EARLENE SENTER, B. A., *Assistant Reference Librarian.*

OTHER EMPLOYEES

SETH THOMAS CUMMINGS, *Purchasing Agent.*
GUS WOOD MCCLEARY, *Bursar.*
JOHN EHLE BOWDEN, *Auditor.*
HUBERT LEE BURGESS, *Bookkeeper-Cashier.*
FLOSSIE BURKHOLDER, B. A., *Bookkeeper-Cashier.*
WAYNE KITTLEY, B. A., *Superintendent of Tech Press.*
WILLIAM CONNER COLE, B. B. A., *Manager of College Bookstore.*
WALTER RUSSELL HEDRICK, *Architect and Construction Supervisor.*
GEORGE BURGESS LONG, B. A., *Superintendent of Buildings and Grounds.*
WILLIAM H. RODGERS, *Superintendent of Farms.*
JAMES H. GRIMSLEY, *Supervisor of Janitors.*

GENERAL INFORMATION

Location

Texas Technological College, Lubbock, Texas, is a state-supported coeducational college. It serves a great area of the Southwest, some of which is sparsely settled ranch country, while other parts are rich farming and productive oil regions.

The college is located in the South Plains area, approximately two hundred miles from the northern line of the Panhandle and four hundred miles northwest of the state capitol. The elevation is 3200 feet above sea level. Lubbock is located on two railroad systems, the Fort Worth and Denver City and the Santa Fe, giving excellent connections and good time schedules to most parts of the state. Frequent bus service operating on a system of hard surfaced highways connects Lubbock with all sections. Braniff, Continental, and Pioneer Airlines also operate through the city.

The city and suburbs have a permanent population of approximately 50,000. Excellent churches, schools, hotels and shopping centers are available.

History

Texas Technological College was established by authority of an act of the Thirty-Eighth Legislature of the State of Texas. This act, passed in 1923, authorized the establishment of a college west of the ninety-eighth meridian and north of the twenty-ninth parallel, which should be a coeducational college of a senior class.

Pursuant to this act of the Legislature, the college was located at Lubbock, Texas. The first buildings were erected and opened to the students on September 30, 1925.

The first president was Paul Whitfield Horn (1925-1932). He was followed by Bradford Knapp (1932-1938), Clifford B. Jones (1938-1944, President Emeritus 1944-), and William Marvin Whyburn (1944-).

The college opened with 1379 students and has had a steady growth with increased enrollment, new buildings, and constantly expanding facilities.

Texas Technological College, under the terms of the act authorizing its establishment, is a public trust charged with the responsibility of giving instruction in technology, manufacturing, engineering branches, agriculture, home economics, and also complete courses in "arts and sciences, physical, social, political, pure and applied", leading to degrees Bachelor of Science and Bachelor of Arts in the several fields of learning. By authority of the Board of Directors there was offered degrees, Bachelor of Business Administration, and the graduate degrees, Master of Arts, Master of Science, and Master of Education.

Government and Organization

The government of the college is vested in a board of nine directors appointed by the Governor and approved by the Senate for terms of six years. The immediate regulations and direction of academic affairs are delegated by the Board of Directors to the president, administrative officers, and faculty.

Aims and Purposes

Texas Technological College has been established by the State of Texas to make available to young men and young women of the state instruction and training at the college level in scientific and technological fields, as well as the arts and classics. It recognizes the task of training men and women to integrate their knowledge in terms of participation in community and world affairs. The ultimate aim of the college, therefore, is the development of human beings to the fullness of their capacities. By means of instruction, research, and the original investigation, the college endeavors to place the resources of higher education of the state at the disposal of its citizens.

Buildings and Facilities

The college, with its modern buildings and extensive campus is located on the western edge of the city of Lubbock. The actual campus comprises 320 acres with modern and well equipped buildings erected at an aggregate cost of approximately $4,000,000.

The plans for the physical development of the college were carefully drawn and approved by the Board of Directors to promote orderly and careful building over a long time period. All permanent buildings are of the Spanish Renaissance type.

The following are the principal buildings on the campus:

Administration Building, erected in 1924-25, contains the administrative and business offices of the college, together with classrooms for arts and sciences and business administration.

Engineering Building, erected in 1927-28, contains the offices of the dean of engineering and faculty of the division, as well as classrooms, laboratories, and drafting rooms. The latest engineering and scientific equipment has been provided.

Textile Engineering Building, erected in 1924-25, houses offices, classrooms, laboratories, and spinning and weaving rooms of the Department of Textile Engineering. Accommodations are also provided for a wide program of textile research sponsored jointly by Texas Technological College and private industry.

Chemistry Building, erected in 1928, was originally designed for the Department of Chemistry. At present it houses laboratories and classrooms for the Departments of Chemistry, Biology, Geology and Petroleum Engineering, and Physics.

Library, erected in 1937, has a capacity of approximately 200,000 volumes. It has two large reading rooms and numerous seminar and research quarters.

Home Economics Building, erected in 1924, and at present supplemented by three temporary annexes, contains offices, classrooms, and laboratories for the Division of Home Economics.

Press Building, erected in 1941, houses classrooms and offices for the Department of Journalism. It also includes quarters for the Tech Press; the publishing agency for the student weekly newspaper, The Toreador; college catalogues and bulletins, and research committee books. Included also is an up to date photography laboratory used by students in the Department of Journalism and others interested in photography.

Agriculture Building, erected in 1942, provides ample accommodation of classrooms, laboratories, seminar rooms, and offices for the Division of Agriculture. The Livestock Judging Pavilion, the Greenhouse, the Meats Laboratory, and the Farm Shop and farm machinery buildings are adjuncts of the Agriculture building in providing facilities for teaching and research in the fields of agriculture. As a detached unit from the Agriculture building is a complete creamery for the production and sales of creamery products by the Department of Dairy Manufactures.

Gymnasium, erected in 1926, is a temporary frame structure used not only as a gymnasium for intramural and intercollegiate athletics, but as a general auditorium for student convocations.

Mechanical Engineering Shop Building, erected in 1926, contains pattern shops, wood shops, machine shops, foundry, sheet-metal shop, and other requirements for work in the Department of Mechanical Engineering.

Nursery School, erected in 1938, is a cottage-type building serving as laboratory for child development classes in the Division of Home Economics.

Home Management House, erected in 1927, is a completely furnished home and is used as laboratory for students in home management.

West Texas Museum, which is the ground floor of an ultimately larger building, houses a large collection of historical, scientific, and artistic exhibits. All is part of the collection of the West Texas Museum Association.

Military Building, erected in 1936 and enlarged in 1942, contains classrooms and offices of the Senior Reserve Officer's Training Corps.

The Bookstore was erected in 1925. It is operated by the college for the purpose of supplying students with books, stationery, and other necessary supplies.

Power Plant, erected in 1925 and enlarged in 1931, supplies heat, water, and power for the campus.

Agriculture Building Annex, erected in 1927, and formerly used for classrooms and offices for the Division of Agriculture is now used as a temporary office and class building, and for research activities.

Dairy Manufactures Building Annex, erected in 1939 contains offices and laboratories devoted to research.

Stock Judging Pavilion, erected in 1924, contains a large arena, tiered seats, and is used by the students of the Division of Agriculture.

Greenhouse, erected in 1927, used as a laboratory for the Departments of Horticulture and Plant Industry.

Meats Laboratory, erected in 1937, contains facilities for slaughtering animals, dressing and preserving of meat.

Farm Shop, erected in 1934, is provided with tools and equipment for work in agricultural engineering, farm machinery, and farm shop.

Farm Buildings, erected at intervals since the establishment of the college. Among them are the dairy barn, erected in 1925, and homes for herdsmen, livestock barns, and similar equipment.

Residence Halls

Jim West Hall, men's residence hall erected in 1934, and named in memory of the late Honorable James West of Houston, former member of the Board of Directors, has housing accommodations for 320 men. It has all modern appointments and conveniences.

Joe Sneed Hall, erected in 1939 and named in memory of the late Honorable Joe T. Sneed of Amarillo, former member of the Board of Directors, has accommodations for 320 men. It, likewise, offers every convenience and comfort for student life.

Women's Dormitory Number 1, erected in 1934, has accommodations for 320 young women. All appointments and arrangements are modern and up to date.

Drane Hall, erected in 1941, offers individualized and modern furnishings and surroundings for 320 young women.

Women's Dormitory System No. 3. For the beginning of the 1947 fall semester, two additional large dormitories will be open to women students. The buildings are designed and constructed for the comfort and convenience of young women and will provide accommodations for 720 students.

Men's Dormitory System No. 3. At the beginning of the second semester 1947-48, it is hoped that two additional modern

dormitories will be ready for men students. The buildings are now under construction. At the conclusion of the dormitory building program, these eight dormitories will accommodate 2720 students.

Casa Linda, erected in 1938, is a cooperative dormitory for women, with a capacity of 18 young women who share in the work of upkeep and maintenance, thereby reducing the expenses for occupants. Application for reservation should be made to the dean of women.

The College Farm, comprises 2,008 acres. The front 320 acres is occupied by the buildings and campus, while the remaining 1,688 acres are used by the Division of Agriculture as a model farm for the production of feed crops for the college herds, and for research and instructional work in the growth of feed crops, cotton, forage crops, vegetables and fruits. On the farm are pastures, grain silos, and other equipment for directing a program of modern agriculture.

Library

The Library, erected in 1937, is equipped with the most modern facilities. The main loan desk and reading rooms are located on the first floor. The reference department and serial department (handling all current periodicals, government documents, etc.) and the library offices are located on the second floor.

Individual study rooms reserved for graduate students and faculty members engaged in special research work are available in the tower of the library building.

Special microfilm readers and film collections are available by application to the reference librarian.

The present stock of catalogued books is approximately 95,000. This represents books and other materials specifically acquired to serve the various departments of instruction of the college. This collection, as well as rare materials and particularly valuable documents, will soon be housed in a modern steel stack installation, which will have a capacity of 200,000 volumes. Work on this installation is to begin about the first of September, 1947.

The library was designated a full depository for documents of the United States in 1933. A large collection of state and foreign government publications is also provided and is being added to constantly.

The library is particularly interested in the collection and preservation of source material in the field of Texas history, with special emphasis on the West Texas and Plains regions. Valuable gifts of documents and manuscripts have been made to the library in that field from time to time; notably, a group of papers connected with the estate of James Bowie, given to the library by the late Senator Arthur P. Duggan of Littlefield, Texas; a collection of records of the Matador Land and Cattle Company, the gift of Mr. Maurice Reilly, and a collection of records of the Spur Ranch, given by President Emeritus Clifford B. Jones.

The library is specifically designated to serve the faculty, students, and employees of Texas Technological College. Use may also be made of the library's facilities by individual citizens or study groups upon the placing of a deposit of five dollars with the business office to cover possible loss or damage.

Library hours are: 8:00 A. M. to 10:00 P. M., Monday through Friday; 8:00 A. M. to 5:00 P. M., Saturday, with the exception of academic holidays.

West Texas Museum Association

The Plains Museum Society which was originated in 1929, was changed to the West Texas Museum Association in 1936. The object of this association is to foster, increase, and diffuse among the people of this section and of the State a knowledge and appreciation of history, science, and art. Membership is open to any person actively interested in the work of the association. A good beginning has been made in collecting objects of scientific, historic, and artistic value. These are now being stored and exhibited for the benefit of the public insofar as possible in the first floor unit of the new museum building constructed with funds from the Centennial appropriation.

Art Institute

The Art Institute was originated during 1932 and is an organization composed of faculty members, students, and people of the community who are interested in sponsoring an active art program. The Art Institute sponsors traveling exhibitions of works of art and lectures on art. It sponsors local adult and children's art exhibitions. It seeks to establish a fitting showplace, not only for the traveling exhibitions which are offered to educational institutions, but also for the many original oils, water-colors, and prints already included in the permanent collection.

The College Bookstore

The College Bookstore, situated on the campus, is a self-supporting enterprise owned and operated by the college. It is maintained to enable students to purchase textbooks, books for extension courses, supplies, and other equipment needed for laboratory and class work. The Bookstore handles secondhand books, purchasing them at the end of the year from students who desire to dispose of such books.

Official Publications

The college maintains a series of publications, one of which is the general catalogue issued annually. Other publications are devoted to particular divisions of the college. Scientific and literary productions will likewise appear from time to time as a part of the series.

INFORMATION FOR MEN AND WOMEN WITH MILITARY SERVICE RECORDS

Credit for Educational Achievements During Military Service. A limited amount of credit may be obtained on military programs. A student who has attended a training program conducted on a college campus such as College Training Detachment (air crew), Navy V-5, Navy V-12, ASTP, or ASTRP, should request an official transcript of such record. This transcript, with civilian high school or college record, should be filed as a part of his application for admsision. Ex-service men or women no longer on active duty should submit W. D., A. G. O. Form 100, or Notice of Separation from U. S. Naval Service, NavPers. 553, or U. S. M. C. Report of Separation. In case of Naval commissioned officers, NavPers. 305 should be submitted. The student will then be advised as to procedure for obtaining credit. A commissioned officer who retained his commission in the Reserve Corps will be awarded credit for 12 semester hours in advanced military science.

Any student who has been honorably dismissed from any branch of the Armed Forces with a minimum of 90 days service will receive credit for two semester hours of physical education normally required as a part of his curriculum. With not less than one year of active service he will receive credit for four semester hours in physical education normally required.

The student returning from the Armed Services will be allowed credit for correspondence courses completed with the United States Armed Forces Institute, or with colleges cooperating with same, provided the courses are of college grade and are appropriate to a chosen curriculum.

Any former student of Texas Technological College, after not less than two semesters in residence, aggregating 30 semester hours credit, who was interrupted in his work by entry into the Armed Forces, and who was assigned to further college training at another approved educational institution may transfer credits so earned back to this college. If this work is not in excess of 20 semester hours and completes the requirements for his degree, he may be graduated from this college without further residence.

Application For Educational Benefits Under Public Law 16 *(Part VII) and Public Law* 346 *(Part VIII)*: All applications for benefits under the "Servicemen's Readjustment Act of 1944," and as amended in 1946, should be filed direct with the nearest office of the Veterans Administration. For benefits under part VII (Rehabilitation), the student should request Veterans Administration Form 1900. For benefits under part VIII (Refresher and Retraining) application should be made on Veterans Administration Form 1950. Application should be filed at the earliest possible time after discharge from the service. The service officer of the local post of the American Legion will usually be glad to be of assistance to veterans in filing this application.

RESERVE OFFICERS TRAINING CORPS

The National Defence Act as amended, provides for the establishment of units of the Reserve Officers' Training Corps at civil educational institutions. The primary object of the Reserve Officers' Training Corps during peacetime is to provide systematic military training at these institutions for the purpose of qualifying selected students for appointment as reserve officers in the Army of the United States. In order to qualify for appointment as a reserve officer, students must complete four years of military science and attend a summer camp for a period of six to eight weeks.

The advanced course ROTC, suspended during the years of the war, was reactivated with the fall semester 1946. Summer camps for 1947 were held: at Fort Sill for the Signal Corps, at Camp Hood for the Corps of Engineers, and at Randolph Field for the Air Forces. 1948 summer camps have not yet been announced by the War Department.

Units Available

At the present time the War Department maintains the following units on the campus: Corps of Engineers, for which only students enrolled in Civil, Electrical, or Mechanical Engineering are eligible; Signal Corps, for which only students enrolled in Electrical or Mechanical Engineering, Physics majors, or Electronics are eligible; and Air Forces, for which students from all academic divisions of the college are eligible. The War Department has recently authorized the establishment of an infantry unit which will be activated in September, 1947, and likewise will be open to students from all divisions of the college.

Division of Work Into Elementary and Advanced

The Military Science work is divided into two divisions: an elementary course and an advanced course.

The elementary course is offered as a means of providing basic military training common to all arms and services and, as such, the training provides an excellent military background for service in any branch of the armed forces. The course is of two years' duration, divided into four semesters, and serves as a prerequisite for civilian students for admission to the advanced course. Once entered upon, the course becomes a prerequisite for graduation.

The advanced course consists of the last two years of instruction in the ROTC program and is based on five hours of instruction per week. The program of the advanced course consists of subcourses specialized for the students' technical branch. The second year advanced course is further specialized in the Air Forces unit with two or more Air Forces Administrative courses

open to the students, such as, Air Forces Supply and Administration, Aircraft Maintenance Engineering, Transportation, and Statistical Control Methods. The particular course in which each student will enroll will be selected by reference to the academic field he is pursuing on the campus. In most cases, the student will be able to state a preference for his second year advanced course, Air Forces.

Credits in elementary and advanced courses are obtained in a manner similar to those for other college work.

Requirements as to grade points for graduation from Texas Technological College apply to all semester credit hours in military science in the same manner as to credit hours in any other subject in the curriculum for the degree sought.

Special Information

The ROTC program of study is prepared, sponsored and supervised through the War Department; however, enrollment in the ROTC does not constitute enlistment in the regular Army, or its reserve components. ROTC students are subject to military control only to the extent as it facilitates instruction.

Since much of the training in the ROTC is of a technical nature, and little of value can be accomplished in less than two years, a signed statement from each elementary student that he will pursue the course for a period of two years is required.

Advanced course students must sign a contract with the War Department and agree to complete the advanced course work in order to qualify for monetary allowances and to become eligible for a commission as second lieutenant in the Officers Reserve Corps upon satisfactory completion of all advanced training.

Requirements for Admission To Military Science Division

Certain requirements of age, citizenship, physical, mental, and educational standards must be met before admission to the military science division is approved. These will be discussed more fully with all prospective students at the time of enrollment.

Veterans not of officer rank during the recent war, if qualified under regulations contained in current War Department directives, may be granted up to two years credit in the elementary course for prior service in the Army, Navy, Marine Corps, or Coast Guard.

Time Limitations

The complete ROTC course requires four years' attendance, and the advanced course is two years in length; therefore, all entering freshmen who desire to complete the course must register, and all veterans who desire a commission and who have only two years remaining in college likewise must begin work in military science upon re-enrollment.

Emoluments and Monetary Allowances

Students enrolled in the elementary course will be furnished the major portion of the prescribed uniform by the Government.

Students enrolled in the advanced course will receive, subject to a raise if Cogress approves a request by the War Department, a monetary allowance in lieu of subsistence, equivalent to the current value of the garrison ration; an officer-type uniform, or a commutation in lieu of uniform at the rate to be prescribed by the War Department; and the pay of the seventh enlisted grade while in attendance at advanced camp plus travel pay to and from camp at the rate of five cents per mile. All reimbursement for ROTC is over and above allowances afforded students by the GI Bill of Rights.

ROTC texts will be furnished on a loan basis to both basic and advanced students.

INFORMATION FOR STUDENTS

Application and Credentials

The registrar is the director of admissions and has charge of all matters pertaining to admission into any division of the college. Each new student is required to file an application for admission on a blank which may be secured from the admissions office. In addition, he must have his credentials (transcripts) sent direct from the high school or the college previously attended. If the high school does not have a form for submitting the high school record, forms may be obtained by communicating with the admissions office. If the student has attended more than one college, he must present an original transcript from each college attended. Failure to give complete information regarding all colleges attended will be regarded as a serious breach of honor and will result in cancellation of registration.

The new student is urged to send in credentials immediately following the close of the last semester in high school or another college. No advantage will be gained by sending partial or incomplete records. Transcripts submitted after September 10 of the fall semester or June 1 of the summer session will likely result in delay in registration. Credentials brought by the student on registration day will be accepted if in order but the student will have to stand in long lines and wait for necessary admission papers.

Freshman Early Registration Orientation. Each student entering the freshman class of any division of the college is subject to the general college requirement of early registration orientation. All freshmen are required to assemble at the college a few days in advance for a period of guidance and counseling and early registration (see College Calendar, page 4). Analyses and tests of training and aptitudes will be conducted with a view to assisting the student in his selection of a study program and to aiding the faculty and administration in the guidance of the individual student. The tests which are given are not to be used as a basis for admission except in extreme cases of deficiencies in fields of study which are prerequisite to success in a given curriculum. The student deficient in a given field may be directed to take certain preparatory courses to correct such weaknesses. Failure on the part of the freshman student to participate in the early registration program will result in delay in registration.

Smallpox Vaccination Certificates. All entering students are required to file in the Registrar's Office a certificate of a successful smallpox vaccination. Veterans of World War II are exempt from this requirement.

Dormitory Reservations. All inquiries pertaining to dormitory reservations should be made to the Director of Dormitory Systems, Tech Station, Lubbock, Texas. Due to crowded conditions reservations should be made months in advance of the date of registration.

All arrangements for housing accommodations in private homes and private dormitories off the campus should be made through the Office of the Dean of Men, or the Dean of Women.

ADMISSION

All inquiries regarding admission should be addressed to the registrar who has charge of such matters for all divisions of the college.

Uniform Requirements for Admission

Admission by High School Certificate. Graduation from an accredited high school with a minimum of 15 units of work is required for admission. No credit may be obtained without graduation. The following units are the uniform minimum requirements for admission to any division.

1. English 3
2. Mathematics 2
   (Algebra, Geometry, Trigonometry)
3. Two units each from any two of the following groups 4
   Laboratory Sciences
   (Biology, Chemistry, Physics, Zoology, Botany)
   Social Sciences
   (History, Civics, Economics, Contemporary Social and Economics Problems, Sociology).
   Foreign Languages
   If two units of foreign language are offered, they must be from the same field. One unit of foreign language may be offered for elective credit).
   Vocational Home Economics, or Vocational Agriculture
4. Electives 6
   (From the subject groups 1, 2, and 3 above, and from other subjects in which an accredited high school gives credit. Not more than four units may be offered from one subject group or from vocational subjects).

Total 15

Admission to the Division of Engineering with Condition. The student with the above minimum will be admitted to the Division of Engineering with conditions. The study of engineering requires a thorough background of high school preparation in mathematics and physics. A prospective engineering student is strongly urged, therefore, to present three units in mathematics, not including general mathematics or arithmetic. Likewise he should present at least two units in science, one of which should be physics. The student lacking one unit in algebra or geometry will be required to remove this deficiency by completing the course through such

agencies as the Division of Extension at Texas Technological College, by the end of his first semester's work in college. The student deficient in high school physics will be required to remove the condition by satisfactory completion of Physics 131 and 132 during the first long session, or its equivalent. Physics is not required for admission for majors in commercial art or architecture, design option.

Admission to Other Divisions with Condition. An applicant for admission to the Divisions of Agriculture, Arts and Sciences, and Home Economics who is able to present a certificate of high school graduation with 15 units of work which do not fit the pattern as outlined above, may be admitted with conditions. Such a student may be required to do additional work in college to make up for the subject matter shortage in high school preparation. A condition in high school English will not be permitted. A conditioned student may remove these conditions by making a grade average of "C" in the first 30 semester hours work of his chosen curriculum. If this grade average is not made, the student must remove the conditions: (1) by correspondence work taken in the Division of Extension; or (2) by transferring work done in college to high school credit. In such case, four semester hours of college credit will be regarded as equivalent to one unit of high school work.

Admission to the Division of Business Administration. For admission to the Division of Business Administration the student must show successful completion of not less than 30 semester hours of college credit. The Business Administration student, therefore, may enroll for the freshman year in the Division of Arts and Sciences and pursue the uniform freshman curriculum. (See page 91). At the beginning of the sophomore year he may transfer to the Division of Business Administration.

Quality Provisions for Admission. Quality is more important than quantity in the matter of high school preparation for college. Therefore, an applicant ranking in the upper quarter of his high school graduating class may enter without condition, provided that he presents the required units in English for all divisions, and the required units in mathematics for engineering.

Applicants of Low Rank. As a rule students who do poor work in high school likewise do poor work in college. Therefore, a student ranking in the lower quarter of his high school graduating class is strongly urged to complete an additional year of high school work with high quality grades before applying for admission to college. If, however, he and his parents still wish him to enter he may be admitted on probation with a reduced load and placed under special observation of the dean of the division.

Admission from Other Colleges or Universities. Legal residents of Texas who have attended another recognized college or university may be admitted on presentation of an official transcript showing a grade point average of not less than 1.00 (C

average) in (1) all courses for which he has been enrolled or (2) the last two full semesters or their equivalent. Students who, for any reason, are ineligible to continue in the college or university formerly attended cannot be admitted. Transfers from other colleges will not be permitted to register until an official transcript is on file and students are urged to send their records well in advance of registration date.

Any transfer student who expects to be graduated from Texas Technological College must meet the regular catalogue requirements for graduation in his chosen curriculum, and must complete a minimum of 30 semester hours of credit in residence in this college. This 30 hours must include a minimum of six semester hours in the major subject. This may be increased to ten hours at the discretion of the dean.

Since the college offers a number of degrees which require the fulfillment of widely different prescribed curricula, the acceptance of credits from another college by the registrar does not guarantee the use of all of these credits in a given curriculum. The usefulness of transferred credit in a chosen curriculum is determined by whether or not the transferred work is equivalent to required work in the curriculum, or may be used as permissable electives. After admission and acceptance of transferred credit by the registrar, the student should consult the dean of the division in which he plans to enroll. There he will be advised as to the usefulness of his transferred work in meeting degree requirements. Such conferences should be held in advance of the date of registration.

Admission of Nonresident Students. Texas Technological College is supported by the state and has an obligation to Texas residents, particularly to those who are veterans. During the post war emergency, preference in matters of admission will be given to residents of this state. Insofar as facilities will permit, high school graduates whose parents are not legal residents of Texas may be admitted on presentation of a high school transcript which will conform to the regular admission requirements, and in addition thereto show a grade point average of 2.00 (B average). Nonresident students who have attended another college, either outside the state or within the state may be admitted on presentation of a college transcript showing a grade point average of 2.00 (B average).

Admission of Graduate Students. See bulletin of Division of Graduate Studies.

Admission of Mature Students on Condition. On recommendation of the registrar and with the approval of the dean of the particular division, a mature student (21 years of age and over) may be admitted as a freshman on condition without having met the formal admission requirements. A request for such admission must be accompanied by credentials including a transcript of all one's high school record. The applicant should first apply for an interview at the registrar's office before the opening of the se-

mester and he then may be directed to the dean of the particular division in which he wishes to enroll. On advice of the dean, the applicant will be asked to take certain tests which will determine his suitability for admission. Admission in this manner is allowed only in the case of an applicant who shows by his record that he is above average in his ability as a student and has not recently attended high school.

Any veteran of World War II who was deprived of high school graduation by entrance into the Armed Forces may be admitted as a mature student on condition without regard to the age requirement. Such admission will be according to the plan outlined above.

Admission of a mature student on condition does not confer special privileges, but on the contrary, puts the applicant under special obligation. Neglect of work or other evidence of lack of serious purpose on the part of the student thus admitted is sufficient cause for withdrawal of approval of his continuing as a student. The student admitted as a mature student on condition will be assigned to his chosen curriculum. A grade point average of at least a C (1.00) on the first 30 semester hours work will absolve all admission requirements for that curriculum.

Specific conditions in mathematics and physics for students in the division of Engineering must be removed as set forth on page 32.

EXPENSES

The question of expense while attending college is of importance to every student. In a student body of more than five thousand members there are so many different tastes, as well as such a wide range of financial resources, that each student must determine his own budget in keeping with his own needs and financial condition. It is possible to live simply and to participate moderately in the life of the college community on a modest budget. The best help the college authorities can offer the student in planning his budget is to furnish information on certain definite items of expense and acquaint him with others for which he, in all probability, will have to make provision.

Payment of Fees. All fees and tuition are payable in full at the time of registration. During the long session, tuition and fees must be paid before registration. Payment may be made in check, or in money order payable to Texas Technological College. All checks, money orders, and drafts are accepted subject to final payment. If a check or draft is returned unpaid by the bank on which it is drawn, the student will be required to pay a service charge of $2.00. If such returned checks are not taken up and paid immediately upon notice of the business office, the registration will be cancelled.

Tuition. For each student enrolled for 12 or more semester credit hours the tuition is $25 per semester for legal residents of

the State of Texas. For those enrolled for less than 12 semester hours there is a reduction in the amount of tuition charged. Such students will pay the full tuition charge at registration time, and after registration a refund will be made.

Student Health and Activity Fee. Pursuant to an act of the Texas Legislature* each student is required to pay a student health and activity fee of $30.00 per year, payable $15.00 per semester. This fee covers recreational activities, health and infirmary service (see Health Service, page 59), student publications, and admission to intercollegiate athletic contests.

Uniform Laboratory Fee and Breakage Deposit. A uniform deposit of $12.50 is required for each student. After registration the total of laboratory fees for laboratory courses for which the student is enrolled is deducted from the Laboratory Fee and Breakage Deposit. The deduction is used as payment of laboratory fees. The remainder of the deposit is to cover breakage, library fines, or damage to college property or equipment while in the student's use or possession. The unused portion of the deposit is returnable to the student upon withdrawal, or at the close of the college year.

Laboratory fees referred to above are charged as follows: For all courses in which the combined credit of lecture and laboratory is from one to three semester hours, a laboratory fee of $1 is charged for each semester. For courses in which the semester credit is four semester hours or more, the laboratory fee is $2 per semester. A laboratory fee of $2 is charged for each freshman student participating in the early registration counseling and testing program to cover laboratory materials and supplies.

Artist Course Fee. The Artist Course Fee is $1.80, including tax. This is payable at the time of registration for each semester, and entitles the student to admission to a series of entertainments selected by the Artist Course Committee. While the fee is optional all students are urged to take advantage of the educational and entertainment features provided.

Visitor's Fee. A fee of $5 for each course is required for the privilege of visiting any course. No credit may be obtained for auditing courses in this manner.

Late Registration Fees. Any student who fails to register and pay fees within three days of the regular registration period shall be required to pay an additional service charge of $2.

Exemption From Tuition by Honorable Discharge From the Armed Forces. Men and women who are legal residents of Texas and who hold an Honorable Discharge from World Wars I or II are exempt from payment of state tuition except when discharged

* Fortieth Legislature General Session. Amended Fiftieth Legislature General Session.

by reason of being over 38 years of age or by reason of personal request. Similar exemptions apply to children of members of the armed forces whose fathers were killed in action or who died in the service in World War II.

Discharge papers and other necessary proof must be presented by the student to the business office at the beginning of each semester. The above exemption does not apply to deposits and other student fees.

The above regulation is not to be confused with the educational program under the Veterans Administration (Public Law No. 16, Public Law No. 346). Students eligible for educational benefits under these laws are not eligible for exemption of tuition fees under state law as outlined above.

Tuition for Nonresident Students. Each nonresident student* is required to pay a nonresident tuition fee of $150.00 per semester or $300.00 for the nine months' session. For the nonresident student enrolled in the long session for less than 12 semester hours, the tuition charge is $12.50 per semester hour for which the student is enrolled.

It shall be the responsibility of the student to pay all nonresident fees at the beginning of each semester or term he may be enrolled. For failure to pay these fees, a penalty may be assessed, not to exceed $5.00 per semester.

Definition of Residence

* 1. A nonresident student is hereby defined to be a student of less than twenty-one years of age, living away from his family and whose family resides in another state, or whose family has not resided in Texas for the twelve months immediately preceding the date of registration; or a student of twenty-one years of age or over who resides out of the State or who has not been a resident of the State twelve months subsequent to his twenty-first birthday and for the twelve months immediately preceding the date of registration.

2. All individuals are classified as nonresident students who have come from without the State of Texas and who are within the State primarily for educational purposes as evidenced by registration in this institution.

3. No one shall be deemed a resident of Texas for the purpose of registering in this institution unless he has resided in this State for twelve months immediately preceding the date of his enrollment.

4. The residence of a minor shall be that of the parent or guardian except where guardianship has been established in this State obviously for the purpose of evading the nonresident fee. In no event shall the resident fee become effective until the expiration of one year from date of appointment.

5. A parent or guardian may not claim residence in this State for school purposes until residence of at least twelve months has been continuously maintained. It shall be the responsibility of the student to submit legal evidence of any change in residence status.

6. All aliens shall be classified as nonresident students. An alien who has applied for naturalization in the United States and who has received his first citizenship papers shall have the same privileges of qualifying for resident status for fee purposes as has a citizen of the United States.

7. The residence status of a student is determined at the time of his first registration in the college and his residence is not changed by his sojourn at Texas Technological College as a student except as provided by law. This policy shall apply to both graduate and undergraduate students regardless of any fellowships, scholarships, student assistantships, or graduate assistantships that may be granted to any student.

8. A student who claims that he has no permanent residence but who has not been a bonafide resident of the State of Texas for at least one year immediately preceding the date of his original or subsequent enrollment in the college may not claim exemption from the nonresident fee.

Return of Fees. Any student withdrawing officially during either semester will receive a refund of tuition, health and activity fees according to the following schedule:

1. During the first week of class work, 80 per cent.
2. During the second week of class work, 60 per cent.
3. During the third week of class work, 40 per cent.
4. During the fourth week of class work, 20 per cent.
5. During the fifth week or thereafter, nothing.

A student who pays fees and, for good and sufficient reason, does not complete his registration to the point of securing the approval of the dean, may have the registration cancelled on request and a refund of all tuition and fees paid for that registration.

In the summer session any student withdrawing officially during the first week of class work will receive a refund of 50 per cent of any tuition, health and activity fees paid. A student who withdraws after the first week of either term will receive no refund.

No refund on unused balance of deposits will be made until at least ten days after the student withdraws from the college during the semester, or at least ten days after the end of the semester. In the latter case, refund is made without application from the student.

In no case will fees be refunded to a student suspended from college by college authorities.

Summary of Registration Expenses

Each student should have available at the time of his first enrollment approximately $125 in Traveler's Checks, Cashier's Checks, or Money Order.

All registration expenses must be paid in full at the time of registration. Room and board may be paid by partial payments made from the first to the fifth of each month. See page 38.

To enable the student to approximate his expense at the time of entering college, the following estimates are offered:

Fall Semester

Tuition	$25.00
Health and Activity Fee	15.00
Breakage Deposit	12.50
Books and Incidentals	20.00
First payment of room and board in the college dormitory	36.25
TOTAL (estimated)	$108.75

72.50 xx

Spring Semester

Tuition	$25.00
Health and Activity Fee	15.00
Breakage Deposit (new student)	12.50
Books and Incidentals	20.00
First payment of room and board in the college dormitory	47.50
TOTAL (estimated)	$120.00

The cost of books and supplies will vary with the different curricula of the college from a minimum of $10 to a maximum of $25. Engineering students are required to purchase their own drawing equipment, costing approximately $30.

Estimate of Annual Cost. An estimate of the annual expense by semesters for one long session will be as follows:

Tuition	$25.00	$25.00
Health and Activity Fees	15.00	15.00
Breakage Deposit	12.50	——
Books and Incidentals	20.00	20.00
Room and Board in College Dormitory	215.00	190.00
TOTAL (estimated)	$287.50	$250.00

Charges for Room and Board in College Dormitories. Price uncertainties make it impossible to state definite charges for room and board in the college dormitories at this time. All prices indicated are subject to change without notice prior to registration date and with ten days notice thereafter. It is hoped that the following prices will provide for dormitory service and bond liquidation during the 1947-48 year. Charge per person in the college dormitories, except Dormitory No. 3 for men and Dormitory No. 3 for women, to be $405.00 per nine months' period for the regular double room occupied (for as long as the critical housing conditions exist) by three students. Of this amount $36.25 is payable on registration and the remaining installments are $47.50 each, except for the month of December, which is $36.25. In Dormitory No. 3 for men and Dormitory No. 3 for women, the charge to be $427.50 per nine months' period for a regular double room occupied by two students. Of this amount $38.75 is payable on registration date and the remaining installments are $50.00 each, except for December, which would be $38.75.

In each dormitory there are a few rooms with private bath for which there will be an additional charge of $7.50 per person. Corner rooms will be $1.50 per person per month additional.

Room and board payments are due on the first day of each month after registration, and there will be a penalty of 25 cents per day if the payment is made later than the fifth of each month.

Special Courses In Music

By special arrangement and approval of the Board of Directors, specially approved artists and teachers offer credit courses in music and are authorized to charge fees for applied music covering a full range of instruction in voice, piano, violin, viola, cello, bass, and brass and reed instruments. Instruction is generally given at the rate of two lessons a week carrying college credit. This credit is not given, however, unless the student is duly enrolled in the applied music class held once each week and supervised by the head of the department of Music. No extra tuition is charged for this class.

Pianos may be rented for practice purposes at reasonable rates. For further discussion of courses, and fees for special courses, see *Department of Music* in this bulletin.

RECOGNITION OF SCHOLARSHIP

All-College Recognition Service

Recognition Service honors those college students who have shown scholarship of outstanding merit, who have received official awards and honors from the college, and who have demonstrated their leadership and citizenship in a way significant to the student body and the college during the year. This service, to be held May 2 of the present academic year, will be a part of the program for Parents' Day. Recognition Service is sponsored by the Convocation Committee in cooperation with the Honors and Awards Committee.

Honors

Honor Roll. At the close of each semester the registrar's office issues an honor roll which includes the names of all students who, during the semester, have been registered for not less than twelve semester hours of work and who have ranked in the upper five per cent of the student body in the quality of grades made in such work, without having received any failing, conditional, or incomplete grades.

Graduation With Honors. Those members of the graduating class who complete their work with a grade point average of 2.8 or above are graduated with High Honors and those who complete their work with a grade point average of 2.5 or above but less than 2.8 are graduated with Honors. Appropriate designation of this distinction is made on the diploma and the commencement program. No person shall be considered for honors unless at least one half of the work is done at this institution, and the half shall include the senior year. Only the grades earned in this college will be counted.

LOAN FUNDS

Texas Technological College has a number of funds from which loans may be made to worthy students to assist in paying their expenses at this college. Some of the funds are small and are available only to certain groups of students. In case of others, the principal sum is invested, and only the income from the fund is available for loans to students.

Loan Funds Administered by the College

Freshman Loan Fund is a small fund available to freshmen. It is made up from a portion of the proceeds of the sale of freshman caps each year by Hemphill-Wells Company. Application should be made to the dean of men.

Dr. R. J. Hall Loan Fund was established by bequest of the late Dr. R. J. Hall of Lubbock. Application should be made to the business manager.

Will C. Hogg Loan Fund of $25,000 was made available to the college by the will of the late Will C. Hogg of Houston, Texas. It is administered by the Board of Directors appointed in accordance with the directions of the will of Mr. Hogg. Application should be made to the president's office.

Olive Holden Memorial Fund. This fund, established by the Ko Shari Social Club, is available to any non-social club senior woman who has a B minus average in all college work. Applicants may secure information at the office of the dean of women.

George T. Morrow Loan Fund of $20,000 was left to the college by the late George T. Morrow, a prominent businessman of Lubbock for a number of years. Application should be made to the business manager.

Twentieth Century Club Loan Fund amounts to $500. Loans are made either to men or to women with preference being given to upper-classmen. Applications should be filed in the president's office.

Spencer A. Wells Fund is a fund available to women students and for women's work on the campus. It is made up from a portion of the proceeds of the sale of freshman hats to women students. The fund is administered by a committee of students and faculty members through the office of the dean of women.

Loan Funds Not Administered by the College

Agricultural Club Loan Fund. The Agricultural Club has founded a small loan fund. Loans from this fund are limited to use in emergencies among agricultural students. Application should be made to Dr. F. G. Harbaugh.

Athenaeum Club Loan Fund. This fund was started in 1926. It is available to any worthy woman student. Application should be made to Mrs. T. C. Delaney, 2303 10th Street, Lubbock, Texas.

The City Federation Loan Fund. This loan fund was established by the Federation of Women's Clubs of Lubbock. Application should be made to the dean of women.

Dairy Club Loan Fund. The Dairy Club maintains a loan fund, the principal of which is approximately $200, available to junior and senior members majoring in dairy manufactures. Application should be made to Prof. L. G. Harmon.

Engineering Society Loan Fund. The Engineering Society maintains a loan fund which is available to advanced engineering students. Application should be made to Prof. J. H. Murdough.

Anne Johnston Ford Student Loan Fund of the Nancy Anderson Chapter of the Daughters of the American Revolution is a small fund available to junior and senior students who meet requirements, preference being given to women students. Applications should be made to Mrs. R. T. Bucy, 2219 17th Street, Lubbock, Texas.

Home Economics Club Loan Fund. This fund, known as the Margaret W. Weeks Loan Fund, was established during the first year of the college by the Home Economics Club. This fund is open to home economics students. Application should be made to the dean of Home Economics.

The Paul Whitfield Horn Memorial Fund, established by the Quarterly Club, the Council of Women Graduates, and Las Leales Club—is a loan fund available only to graduate women. Applications should be filed with the dean of women.

The Houston City Panhellenic Association Loan Fund. This association has an available fund from which loans may be made to junior or senior women students who are residents of Harris County. Students interested in applying for a loan should see the dean of women.

Lending Library for Women Students. A textbook loan service for women students has been established. By means of this service, a limited number of textbooks are available to women students needing financial assistance. A fee of twenty-five cents a semester is charged for use of the books, which have been placed in the office of the dean of women by members of women's social clubs.

Rotary Loan Fund. This fund was established by contributions of members of the Rotary Club of Lubbock. Loans may be made in small amounts to upperclassmen who have attended the college a year or more. Application should be made to Rotary Loan Fund Committee, care of dean of men.

The X Loan Fund. This small loan fund, the donor of which desires to remain anonymous, is handled through the office of the dean of women for deserving women students of the college.

Fellowships, Scholarships, and Awards

All fellowships, scholarships, and awards are administered by the college through its faculty committee on scholarships and awards with the assistance of other designated faculty members or organizations. Correspondence concerning a particular fellowship, scholarship, or award should be addressed as directed in each case.

Fellowships and Scholarships

All fellowships and scholarships offered for work done in the college are supported by funds paid to the college for that purpose. Unless a different method of payment is specified under a particular fellowship or scholarship, the stipend will be paid to the recipient at the rate of fifty per cent for the first semester and fifty per cent for the second semester. Fellowships or scholarships which are inactive due to resignation or non-attendance of the holder will be regarded as vacated and may be filled in the usual manner.

The LaVerne Noyes Scholarships. The LaVerne Noyes Foundation has approved Texas Technological College to participate in the funds of a foundation created by the late LaVerne Noyes of Chicago. The income allotted to the college may be used for the payment of tuition of veterans of World War I, or the sons or daughters of such veterans, provided need of assistance can be established.

Only a limited number of scholarships are available which are awarded on the basis of scholarship and are open to high school students in the first quartile of their graduating class. If the applicant is a college student, he shall have a grade point average of at least 1.50. Scholarships, once awarded, are good for four years, provided funds are available and provided the holder of the scholarship maintains a satisfactory scholastic and citizenship record; but they must be renewed by application each year.

Applications for this scholarship should be addressed to the chairman of the Committee on Scholarships and Awards.

William L. Ellwood Fellowship. This fellowship consists of the income from $10,000, established in 1943 by Mrs. F. H. Chappell, New London, Connecticut, and Mrs. Harriett E. Kenney, Sommerville, Connecticut, in memory of their father, the late William L. Ellwood. It is to be awarded, when sufficient funds are available, to a graduate student majoring in Animal Husbandry. Applications for this scholarship should be addressed to the head of the Department of Animal Husbandry.

The Texas Cottonseed Crushers' Graduate Fellowship. This research fellowship of $500 was established in 1937, and is awarded to a graduate student majoring in Animal Husbandry. Applications should be addressed to the head of the Department of Animal Husbandry.

Scholarships for Honor Graduates of Texas High Schools. The Legislature of the State of Texas has granted a scholarship for the one highest honor graduate of each accredited high school of the state. This scholarship is awarded to the high school to be presented to the highest ranking graduate for the entire year. The scholarship is not transferrable. The name of the scholarship holder must be filed by the superintendent or high school principal direct with the State Department of Education at Austin, and an official list of high school scholarship holders is furnished by the State Department of Education to each of the state-supported colleges. The student may attend the college of his choice and claim the scholarship. The scholarship must be used during the long session immediately following graduation and is worth $50 in the remission of tuition charges for the year.

Correspondence regarding this scholarship should be addressed to the registrar.

Sears - Roebuck Foundation Scholarships. Sears - Roebuck Foundation has approved Texas Technological College to receive certain scholarships for the benefit of students in the Division of Agriculture. A graduate scholarship is also available to a graduate student majoring in vocational agriculture who has a high scholastic average and a minimum of one year's successful experience as a teacher of vocational agriculture. The scholarships are awarded for the long session, being renewed for the second semester provided the holder of the scholarship maintains a satisfactory record. Applications for this scholarship should be made to the head of the Department of Agricultural Education.

Freshmen Textile Engineering Scholarships. Beginning in the fall of 1944 there were made available to men and women several Freshmen Textile Engineering Scholarships. Correspondence concerning these scholarships should be addressed to the head of the Department of Textile Engineering.

Dunlap Stores Scholarships. The Dunlap Department Store of Lubbock has given to the college a sum of money to be used for scholarships for one high-ranking graduate of each high school in Lubbock, Crosby, Floyd, Hale, Lamb, Hockley, Terry, Lynn and Garza counties which regularly graduates 20 or more seniors. Applications for this scholarship should be addressed to the dean of men.

Mr. and Mrs. Hiram Parks Scholarships. Through the generosity of Mr. and Mrs. Hiriam Parks of Lubbock, Texas, four four-year scholarships are provided for students of Mexican descent. One scholar is chosen each year from the graduates of high schools in the Panhandle and South Plains areas of Texas. Inquiries concerning this scholarship should be addressed to the head of the Department of Foreign Languages.

The Borden Company Foundation Scholarship in Agriculture. The Borden Company Foundation, in a desire to stimulate and rec-

ognize scholastic achievement by undergraduate students of agriculture, has established an award of $300 a year. The award is to be made in the fall to the senior student of agriculture who has achieved the highest average grade in all college work preceding the senior year. Eligibility for consideration requires the successful completion of two or more dairy subjects. This award may be withheld if the year's conditions are inappropriate. Correspondence concerning this scholarship should be addressed to the dean of Agriculture.

The Borden Company Foundation Scholarship in Home Economics. The Borden Company Foundation, in a desire to stimulate and recognize scholastic achievement by undergraduate students of home economics, has established an annual award of $300. All senior students majoring in home economics in Texas Technological College who have included in their curricula two or more courses in foods and nutrition shall be eligible for the award. The award shall be presented to that eligible student who has achieved the highest average grade of all other similarly eligible students in all college work preceding their senior year. This award may be withheld any year whenever conditions are inappropriate, but in such a case only one award shall be made in the succeeding year. Correspondence concerning the award should be addressed to the dean of Home Economics.

Elsie M. Adams Memorial Scholarship in Textile Engineering. A $200 scholarship to be awarded for 1947-48 to the sophomore student in textile engineering with the highest standing in the entire work of the freshman year. Applications for this award should be addressed to the head of the Department of Textile Engineering.

Business and Professional Women's Club Annual Award. The sum of $50 will be awarded to the outstanding junior girl majoring in Business Administration each year. Correspondence concerning this award should be addressed to dean of Business Administration.

Avalanche-Journal Scholarship. The sum of $50 will be awarded annually to the student of junior standing majoring in journalism who does the best work in reporting in the first semester. This scholarship is given by the Avalanche-Journal Publishing Company, Lubbock, Texas. Applications for this award should be addressed to the head of the Department of Journalism.

Wilbur C. Hawk Memorial Scholarship. The sum of $50 will be awarded annually to the student of junior standing majoring in journalism who does the best work in reporting in the second semester. This scholarship is given by the News-Globe Publishing Company, Amarillo, Texas. Inquiries concerning this scholarship should be addressed to the head of the Department of Journalism.

Roscoe Wilson Memorial Scholarship in Foreign Languages. A stipend of $30 a month for nine months each year will be paid to a student majoring in foreign languages, from the income of a fund known as the Roscoe Wilson Memorial Fund. Applications for this scholarship should be addressed to the head of the Department of Foreign Languages.

Lubbock Panhellenic Society Scholarship Award. Approximately $50 will be awarded to the freshman student in the Division of Home Economics making the highest grades in all her work for the year. Correspondence concerning this scholarship should be addressed to the dean of Home Economics.

The Global Corporation Agricultural Scholarship Award. In 1946 the Global Corporation of Lubbock, Texas, in a desire to stimulate high scholarship and achievement in agriculture, particularly in the agronomic field, established an annual award of $200. The award is to be made in the fall semester to the senior student of agriculture who has achieved the highest average grade in all college work preceding the senior year. Eligibility for consideration requires the successful completion of eleven semester hours in agronomy prior to September first of the school year in which the award is granted. The award shall not be granted to the recipient of any other similar scholastic award. It may be deferred any year whenever conditions are inappropriate, but in such a case only one award shall be made in the succeeding year. Correspondence regarding this scholarship should be addressed to the head of the Department of Plant Industry.

Awards

The following awards are offered annually:

Mrs. J. T. Hutchinson Award. The sum of $100 will be given annually for the purchase of newspapers, magazines, and books for use in the journalism reading room. This amount is given by Mrs. J. T. Hutchinson, Lubbock, Texas.

Faculty of the Department of Architecture and Allied Arts Prize to the student doing the best work in architecture.

The National Block and Bridle Club awards a properly engraved plaque to the senior student who has contributed the greatest achievement to the local chapter of The Block and Bridle Club. The club also awards a gold medal to the junior student who ranks as high individual in the Junior Livestock Judging Contests, held annually at the college.

The Local Chapter of the National Block and Bridle Club awards gold medals to the six members of The International Livestock Judging Team and to the four members of the National Dairy Cattle Judging Team.

Mary Overton Craig Prize in Chemistry given by Dr. and

Mrs. William M. Craig in memory of Mary Overton Craig to the young man of the sophomore class who shows the greatest promise as a future chemist. Correspondence concerning this award should be addressed to the head of Department of Chemistry.

The Dairy Club annually awards individual gold medals to the members of the Senior Dairy Products Judging Teams who participate in the International Collegiate Dairy Products Judging Contest. Awards are also made by the Dairy Club to high ranking individuals in the Annual Collegiate Dairy Products Judging Contest which is held on the campus each year.

Forum annually awards a medal to the girl making the highest grade in her freshman year.

Gargoyle Club Prize to the freshman student doing the best work either in architecture or commercial art.

The West Texas Geological Society Award, a two-year, paid-up membership in the American Society of Petroleum Geologists to the outstanding senior student in the Department of Geology.

American Society of Mechanical Engineers Award of a book presented to the most valuable member of the local branch of the American Society of Mechanical Engineers for the past year's activities.

The Department of Music grants instrumental and voice diplomas to those students who have accomplished the junior and senior applied courses with distinction and who present junior and senior recitals open to the public.

National Association of Cotton Manufacturers annual award to the highest ranking senior student in textile engineering.

The Plant Industry Club annually awards individual gold medals to all members of the senior judging teams participating in international and national judging contests in crops, floriculture, and fruits. Awards are also made by this club to winners in the freshman-sophomore and advanced contests in horticulture and agronomy which are held each spring.

Allen Brothers Post No. 148, *American Legion Medal Award* to the first-year student registered for military science and tactics making the highest record score in gallery range rifle marksmanship.

Post No. 2466, *Veterans of Foreign Wars of the United States Medal Award* to the first year student registered for military science and tactics showing the greatest progress in this subject as the result of the first year's instruction.

Standefer-Canon Trophy to the student among the varsity football lettermen making the highest scholastic standing for the year. That student's name is to be inscribed on the bronze football plaque in the athletic trophy room. In addition, he is to receive a gold football properly inscribed.

Texas Society of Architects Prize. The Lubbock and Amarillo sections of the Texas Society of Architects awards to the architectural design student, judged the winner of the special design problem, $25 in books on architecture and allied arts to be selected by the winner.

REGULATIONS FOR STUDENTS

Supervision of School Life

The Deans of Academic Divisions

In all matters pertaining to student life except those of academic nature, the student is under the guidance and subject to the counsel of the dean of men or the dean of women. More particularly, on all matters of citizenship, health, part-time employment, housing, and group and personal relationships the student may receive helpful advice and suggestion from the dean of men or the dean of women.

Each student registering enrolls in one of the five academic divisions of the college. The academic dean has general executive responsibility for the administration of the curricula leading to degrees and for the supervision of all academic activities.

Dean of Women

The dean of women is a member of the faculty committees on Student Welfare, Social Activities, and Discipline for Women and the faculty-student committee on Student Life and Recreation.

Houses in which women students room and board are under her supervision. Women students must secure her approval of their places of residence during their connection with the college and not change places of residence during a semester without her approval.

Women students who work must report such employment to the dean of women. They may secure her guidance and help in obtaining employment and must supplement their employment report as changes occur.

She is available as an advisor for organizations among the women and for consultation with students concerning matters of personal health, social affairs, work for self support, and more personal problems.

She also has general supervision of the conduct of women students on the campus and in the college dormitories.

Dean of Men

The dean of men, in general, has supervision over all those activities and interests of the men students of the college which are not academic in nature. He has particular responsibility for matters relating to their health, social activities, employment, housing, and general citizenship, and is available for advice and

counsel on problems relating to these matters as well as those of personal nature.

He is chairman of the Convocation Committee and is a member of the Student Welfare Committee and the Social Activities Committee.

Regulations Affecting Student Conduct

Every student registered in Texas Technological College is expected to obey the laws of the city of Lubbock, of the state of Texas, and of the United States of America. He is expected to conform to the rules of ethical and gentlemanly conduct; to respect the rights of others; to be truthful; to attend punctually and regularly all required classes and exercises; to be diligent in his studies; and to preserve and respect property, both of the college and of individuals.

Suspension From College

Any student who proves himself to be an unworthy citizen of the college community by actions destructive to the standing and objectives of the college as an educational institution, or who fails to react in the proper way to counsel given him in the endeavor to improve his citizenship or to correct his attitude toward his work in college or toward the college itself, shall be dropped from the college roll either by an order of expulsion, or by suspension for a definite term, or by indefinite suspension. A student suspended from the college must remain off the college campus during the period of his suspension except when keeping a previously arranged appointment with, or when summoned by, an administrative official of the college. In no case will fees be remitted to students suspended from college by college authorities.

A student suspended for disciplinary reasons, or dropped from the college rolls for failure to attend class, or required to remain out of college for scholastic reasons for one semester or more, is required to petition the president of the college for readmission before he may again register. If approval is not secured the student may not register.

When a student is suspended from the college, the grades will be given in accordance with the paragraphs on grades in the same manner as in the case of withdrawal.

Sponsors

The college requires that any student organization must be under the supervision of a faculty sponsor. The sponsor for a general organization must be approved by the Committee on Social Activities. The sponsor is charged with general supervision of the organization, its activities, and the conduct of the members in all of their relations with the organization. The sponsor of a student organization within the division is approved by the dean of the division.

Library Regulations

Library rules regarding fines, etc.

1. Student fines

In order to enforce the return of books to the library on the date when they are due, so that they may be promptly available to other persons wishing to consult them, a revised schedule of fines and penalties is recommended as follows:

A. Books and other materials on general circulation

Third day overdue ..... $0.25 per book or other item
Fifth day overdue 0.50
Seventh day overdue 1.00
Eighth day overdue ..... Notice sent stating that if book is not returned by fourteenth day from date on which book was due a new copy will be ordered, and student billed for list price of book plus accrued fine of $1.00.
Fourteenth day overdue ..... Order for replacement issued, and business office instructed to bill student or charge his deposit with the appropriate amount.

B. Books and other materials on two-hour reserve, overnight reserve, etc.

Fine of $.25 per hour overdue until a fine of $1.00 is accrued. Suspension of library privileges until item is returned.

Regulations Regarding the Dormitories

At the present time the college has six large modern dormitories. At the beginning of the spring semester, 1947-48, two additional dormitory buildings will also be ready for occupancy. These eight buildings will accommodate 2720 students. The buildings are fireproof in construction, well-furnished, fully equipped with modern facilities for furnishing meals, and include proper recreational rooms for the social life of the students. In order that the college may care for the students properly, the following regulations have been adopted concerning the life of students in the college residence halls.

All students whose homes are not in Lubbock are required to live in the dormitories or cooperative houses on the campus to the full capacity of the facilities.

For charge for board and room, see page 38. These charges may be paid in monthly installments on the first day of each month after registration. If the monthly installment is not paid by the fifth of each month, there will be an additional charge of 25 cents per day. The $5.00 room deposit fee will be retained as a dormitory breakage or damage deposit and is refundable in case no charge is made for breakage.

The college reserves the right to alter the charge for board and room in case there should be a material change in the cost of food or other services, but such change will not be made without due notice to all students. It is the aim of the college to conduct the dormitories as economically as possible and to furnish board and room at the lowest possible figure consistent with service rendered.

Should a student withdraw from the college a few days before the close of either semester, he will not be entitled to a refund nor shall he receive a refund for board and room should he withdraw the last day before the Christmas holidays.

No student may move from the dormitory to a residence in the city without first securing permission from the dean of men or the dean of women. Before moving from the dormitory the student must give one week's notice to the dormitory management. Students may not move from the dormitories until the end of the month and, should a move be made before the end of the month, the student shall forfeit all payment for board and room for that monthly payment period.

Students will not be permitted to remain in the dormitories during the Christmas vacation.

Students who do not register for the second semester must vacate dormitory rooms not later than 8 A. M., Monday, February 2.

A small monthly fee will be charged for electrical equipment, such as radios and irons in students' rooms.

Each student is required to furnish linens, bedding, pillows, and towels. All rooms are equipped with single beds, springs, mattresses, tables, and other furniture. Each room has large closets.

Dormitory Room Deposits All applications for reservations in the dormitories should be adressed to Miss Mozelle Craddock, Director of the Dormitory Systems, Texas Technological College, Lubbock, Texas. Each application must be accompanied by a deposit of $5.00. This will insure a reservation or an assigned place on the waiting list should no rooms be available. The room deposit fee is non-transferable. When the student takes up residence in the dormitory, this deposit will be retained as a dormitory breakage and/or damage deposit. The deposit on a room for the regular session is refundable up to and including August 15. Failure to report late arrival in writing or by wire before the opening of the given semester will forfeit the room reservation and deposit, and the space may be assigned to another person.

Casa Linda, Cooperative House. The cooperative house is completely furnished except for bedding and linens which the students are expected to furnish. This house cares for eighteen women students under the direction of a senior or graduate student. The work is done by the students themselves. The charge made covers the actual cost of operation. It varies with rising prices, but is in line with a carefully worked out budget. This cooperative house furnishes a fine opportunity for cooperative

living in a dignified and pleasant environment. Application for residence in the cooperative house must be made through the office of the dean of women.

Housing Regulations for Students Not Living on the Campus

The Committee on Student Welfare, a faculty committee, has as one of its responsibilities student housing.

When the full capacity of the residence halls on the campus has been reached, students may, with the approval of the dean of men and dean of women, arrange for rooms off the campus. The college retains the right to fix or to change a student's place of residence should such a change in the judgment of the college seem advisable or desirable.

Complaints about the physical condition of rooms, food order, or other conditions of living which is not conducive to the best interest of the student should be made to the dean of men or dean of women.

The college reserves the right to inspect those houses which are to be approved to accommodate its students. The terms of the agreement between the college and the housemother shall be set by the dean of women and the dean of men.

Special Regulations Applying To Men Students Not Residing With Their Parents

A young man student in college may change his place of residence during the semester only with the permission of and according to the procedure set up by the dean of men. Failure to observe the approved method of changing residence may subject the student to disciplinary action.

The student living in rooms off of the campus shall be expected to observe good citizenship and a way of life conducive to his best achievement as a student and to his interest as a man. He shall be expected to observe the rules and regulations for acceptable college living as set up by his college and by his housemother.

Special Regulations Applying To Women Students Not Residing With Their Parents

1. In accordance with a ruling of the Board of Directors, all women students not residing in Lubbock, shall, to full capacity of the dormitories, room and board in the women's residence halls. In event that the women's residence hall should prove inadequate to care for all out-of-town students, other halls will be provided.

2. After consultation with the dean of women, graduate students will be permitted to make special arrangements for living quarters.

3. A student who engages room, or room with board, may not change her place of residence during the semester except by

request of the proprietor, or by permission of the dean of women. Two weeks' notice is required before a change becomes operative.

4. Monday, Tuesday, Wednesday, and Thursday nights during the school session are definitely reserved as study periods. For this purpose quiet hours shall be maintained every night after 8:00 p. m. Friday and Saturday nights should be used for study by students in general but engagements may be taken for such nights, holidays, and nights preceding holidays. This rule applies to all women's rooming houses and dormitories.

5. Senior women maintaining a clear discipline record will, upon request, be accorded special social privileges. A definite statement of these privileges will be sent to the housemother, and a copy of the privileges will be kept in the dean of women's office. In no case shall these privileges conflict with the general regulations of the hall.

6. Housemothers are expected to report at once all absences, all cases of illness, and infractions of the general rules to the office of the dean of women.

7. Women students are not permitted to go to the dormitories and boarding houses of men students except upon special invitation and after arrangements with the Social Activities Committee.

Hazing

Hazing is forbidden by the laws of the state and by college regulations. Upon registration, every student is pledged to obey the laws of the state, and particularly to obey this law. Chapter 4-A of Title 15 of Vernon's Criminal Statutes of the State of Texas specifically forbids students at any state institution to engage in what is commonly known and recognized as hazing or to encourage, aid, or assist any other person thus offending. The statutes particularly define hazing and require not only that students shall obey the law, but that teachers of the institution shall enforce it. The full cooperation of the faculty and student body must be directed toward the entire elimination from this institution of any and all practices coming within the very complete definition contained in the Texas law.

Warning On Student Checks

Students are urged to exercise care in paying fees or making campus purchases by check. A returned check calls for a penalty of $2.00 which will be charged against the student's breakage deposit. A student issuing such check may, upon the notification of the business office, be immediately suspended by his dean and may be reinstated only upon petition to, and favorable action by, the college. The college will not accept a check from a student who has once been suspended for giving a worthless check.

Student Employment

Students with part-time employment are required to make a record of this employment in the office of the dean of men or of the dean of women at the time they secure this employment and at the beginning of each semester. Advice on student employment and direction to jobs that are available are made by the dean of men and the dean of women.

The scholastic load of a student having part-time employment is determined by the dean of the division in which he is registered.

ACADEMIC REQUIREMENTS FOR STUDENTS

Special Academic Regulations

The deans of the divisions of the college are in charge of matters pertaining to the student's academic work and program. See page 47.

When desirable, the student is referred to the dean of women or to the dean of men or to advisors, but in all matters pertaining to academic work, the student reports to his academic dean.

Matters requiring the dean's approval include the following:

Absence from class.
Honorable dismissal.
Withdrawal from college.
Scholarship requirements.
Scholarship reports.
Scholarship probation.
Change in schedule.
Dropping and adding courses.
Approval of registration and assignment to classes.
Student load.
Curriculum requirements.
Guidance programs and assignment to advisors.
Graduation requirements and candidacy for degree.

Absence From Classes

1. Students are required to be regular in their class attendance. Those who fail to meet these requirements will be requested to withdraw from the college.
2. Students are urged to attend all meetings and examinations of courses for which they are registered. For each eighteen absences per semester in any or all subjects, the student will be required to complete one extra hour for graduation. The grade point rule is to apply to extra hours thus required. (Cuts are counted pro rata in the summer session).

3. Absences are excusable subject to the following conditions:
   a. Absences on field trips, with debating teams, judging teams, inter-collegiate athletic teams, or other organizations which leave the college on official work; absences of individuals who are permitted by the president or by the deans to leave the college on official business pertaining to the college or some organizations thereof, provided the coach, manager, or other person in charge files with the student's dean at least twenty-four hours before the student leaves the college a list giving the name of each student who proposes to make the trip, and provided the student is approved for the trip by the dean of the division in which he is enrolled.
   b. Absences of one day or more:
      1. Due to illness of the student provided such illness has been reported to the dean of men or dean of women by the person in charge of the student's domicile.
      2. Due to illness or death in the student's family.
4. Students whose absences fall in any of the above classifications may have their absences excused only by applying at the office of the dean of their division for an excused absence card and returning same properly signed to the dean's office within one week of the last date of absence. Each absence on the two days preceding or the two days following any school holiday counts double except when excused.
5. Persistent unexcused absence from class may result in the student's being dropped from the rolls of the college at the request of his dean. When dropped for such reason, the rules pertaining to suspension from college shall apply.

Adding a Course

After the regular registration period a student may add a course only with the approval of his dean and the instructor concerned. Only under extra-ordinary conditions can a course be added after one week of class work in either semester of the long session or after a comparable length of time in either summer term. Adding a course must be attended to in person and obtained from the dean's office. If a fee is required, the charge is made by the business office. No add is official until all of the procedure is completed.

Dropping a Course

A student may drop a course only with the consent of his dean. If the course is dropped within five weeks of the beginning

of either semester, no grade is received; otherwise, the grade of W or F will be given as provided in the paragraph. entitled "Grades".

A student who persistently absents himself from class may be dropped from college by the registrar on recommendations of the dean. Dropping of a course must be done by the student in person and not by a friend or by mail. The student must complete all details necessary for dropping a course in order for the drop to be official.

Changing the Section of a Course

After completion of his registration a student may change from one section of a course to another only with the approval of the dean of the division and the instructors concerned. The request for this action is not granted if made later than five weeks after date of registration in either semester, or after a comparable length of time in either summer term. Section changes must be attended to in person and not by mail or by a friend. Change in registration cards made in duplicate (made in triplicate for veterans) should be obtained from the dean's office. No change is official until all of the procedure is completed.

Classification of Students

Students are classified as freshmen, sophomores, juniors, seniors and graduate students.

For the purpose of determining eligibility to hold certain offices and for other similar reasons, students are classified as follows:

Freshman: A regularly enrolled student with all entrance requirements met, who has completed fewer than thirty semester hours.

Sophomore: A regularly enrolled student who has completed a minimum of thirty semester hours including two semesters of required physical education or military science.

Junior: A regularly enrolled student who has completed not less than sixty semester hours, including four semesters of required physical education or military science, with sixty grade points.

Senior: A regularly enrolled student who has completed not less than ninety semester hours, including four semesters of required physical education or military science, with ninety grade points.

For "Standing," and classification as affecting prerequisites, please see *Curricula and Courses of Study.*

Semester Hour

The unit of measure for instructional purposes is the course. Most courses meet three hours a week, having a credit value of three hours for one semester or six hours for both semesters.

The unit of measure for credit purposes is the *semester hour,* which means one hour of recitation (or equivalent in shop or laboratory work) per week for one semester of eighteen weeks. For each classroom hour, two hours of preparation are expected. Three hours of shop or laboratory work are counted equivalent to one classroom hour with its preparation.

Number of Semester Hours Allowed

In case of a student with low scholastic standing, the normal student load may be reduced. The limit may not be exceeded without a sufficiently high grade average. A student earning all or part of his expenses while in college is not allowed to register for more than twelve semester hours if his outside duties demand as much as three hours per day. This limit may be increased by the dean of the division in which the student is registered, if the nature of the employment permits this and if the student's record shows a sufficiently high average grade.

All students who are working any portion of their time for support while they are in college must report to the dean of men or the dean of women, and through them to the dean of the division, the number of hours per week which they are working, and other such data regarding the employment as may be required by the deans. This report must be supplemented as changes occur. Intentional misstatements may lead to deprivation of privileges.

A student may not receive credit in any course in which he is not regularly enrolled or to which he has not been officially assigned.

Auditing Courses

There are two ways of auditing courses without credit when permission is granted:

Visiting the Course. The first method, that of visiting the course, is open to persons not regularly enrolled in the college and consists of the privilege of hearing or observing only, and not of handling in papers, taking part in class discussions, in laboratory or field work, or of receiving credit for the course. This permission is not granted during the summer session or for extension classes. A visitor's permit to attend any class may be denied to any person in case the class is already overcrowded.

Any person desiring to visit a course should first secure the necessary forms from his academic dean. When these forms have been completely filled out and approved, he pays a fee of $5 per course and receives a permit to visit the course.

Enrolling for No Grade. The other method is for students regularly enrolled in the college either in the summer session or in the long session and entitles them to register for residence courses for no grade. Such registrations are to be considered on the same basis as registrations in credit courses in making the student's schedule, both in the payment of fees and in the consideration of the amount of work to be carried. Class cards for

such students shall be indicated by the registrar as "no-grade"; such registrations shall not be changed to carry a grade after the designation date for adding or dropping courses. A student registered in a course for no grade shall have the privilege of taking part in class discussions, submitting class exercises, and taking quizzes and examinations if he desires.

Grades

The standing of a student in his work is expressed by the grades made up from class work and examinations. The grades used are: A, excellent; B, good; C, fair; D, passing; Inc., Incomplete; W, withdrawal from the course; F, failure. Plus and minus grades may be used at the instructor's discretion to make a finer distinction above and below the letter given. Thus, if A is 90 to 100, A− is low and A+ is high within that range; likewise, D− is barely passing. The letters A, B, C, D, numerically are approximately equivalent grades for 95, 85, 75, 65, the numerical equivalent of the lowest passing grade is 60, which is indicated by D−.

Grades are given by semesters, but where the student's published curriculum requires the completion of a two-semester course, one semester of a course will not count for a degree until credit has been received for the entire required course.

Semester grades are recorded by instructors on grade cards and on grade sheets and are filed with the registrar. The registrar reports all grades to the student's parent or guardian, to the student and to the student's dean. All students regularly enrolled in any given course five weeks after the beginning of either semester, or after a comparable length of time in either summer term, must receive a grade at the end of the semester. No grade may be given to a student not regularly enrolled in a course during the semester covered. No grade may be corrected or changed without inquiry as to the reason and necessity for the change, except the grade Inc., for the changing of which definite regulations are provided. A student may not receive a passing grade in a course unless he is regularly enrolled in that course at the end of the semester or term.

Grade of Inc.

The grade Incomplete (Inc.) may be given by the instructor whenever the student's work in the course indicates a major deficiency in quantity though sufficient in quality, provided the deficiency has been occasioned by causes beyond the student's control.

Completion of the work: Within four weeks after the beginning of the next regular semester of residence after the grade of Inc. is given, the student shall initiate a petition to the dean of the division in which he is enrolled for permission to complete the work reported incomplete. The dean and the instructor in joint conference shall decide whether the work may be completed

or the grade become F. The dean may extend the time for initiating the petition. The student who fails to initiate his petition within the time limit stated (unless the time is extended by the dean) shall forfeit all privileges of completing the work, and the grade becomes F. Upon receiving permission, the student shall complete the work in whatever manner and within whatever time the instructor specifies, provided that the time shall not exceed one year from the giving of Inc.

Record of Inc.; The instructor shall note on the reverse side of the grade card the reason Inc. was given, the quality of the work done, and the time allowed for doing the work. The instructor shall transmit the new grade to the registrar who, in recording the new grade, shall supplement the original grade with the one last recorded.

When an Inc. stands for one year without action, it becomes F, except that at mid-semester before graduation, any grade of Inc. then standing without action becomes F. The foregoing does not apply to grades for thesis.

The responsibility of seeing the record cleared of Inc. rests upon the student.

Grade of W

The student who withdraws from a course within five weeks from the beginning of either semester, in a manner prescribed by the college regulations, receives no grade, and his name is not entered on the final sheet.

A student who withdraws from a course after five weeks from the beginning of either semester receives a grade of W if his work is of a passing grade; otherwise, the grade is F.

A student who transfers from one section to another receives no grade in the original section, and his name is not entered on the final grade sheet for that section.

Grade of F

The grade of F is given when a student fails in a course, also when the student withdraws from the course in a manner prescribed by college regulations after five weeks from the beginning of either semester and is not then passing in the course.

Grade Points

In order to encourage students to do the best work of which they are capable, the college considers not only the number of credit hours taken by students but also the grades received in the various subjects and gives a definite number of grade points for each grade. For the grade of A, the student is entitled to three grade points for each credit hour; for the grade of B, two grade points for each credit hour; for the grade of C, one grade point for each credit hour. The grade of D is a mere passing grade and does not entitle the student to any grade points whatever. The grade of F, or failure, not only does not entitle the student to any

grade points but will reduce the grade point average, since such work must be repeated. In order for a student to graduate from Texas Technological College, the total number of grade points must equal or exceed the total sum of the semester hours required for graduation.

No grade points are required or allowed for credit from other institutions. A student who has the number of semester credit hours required for graduation, but not the corresponding number of grade points, may satisfy the requirements by completing additional courses until the grade point requirements have been met. Courses used to meet these requirements must have the approval of the student's dean. In the case of a student transferring credits from other institutions, the number of credit hours in this college required for graduation is the required total in his curriculum less the transferred hours accepted in that curriculum; the number of grade points required is the same as the number of credit hours required in this college in his curriculum.

The grade point average is determined by multiplying the grade points by the number of hours in each subject as shown by the grades. The total of all grade points is then divided by the total of all hours in which the student has received grades of A, B, C, D, F,—and including in the total, the grade of F for each reregistration in the same course. This grade point average is then interpreted in terms of the corresponding grade.

Physical Education

Physical education is required of all freshmen and sophomores, both men and women, unless excused upon recommendation of physician, but such excuse shall not relieve the student from making the total semester hour requirements for graduation. Military science may be taken in place of the required physical education by any physically fit male student enrolled in any of the eligible courses and otherwise qualified. When approved by the dean, band may be substituted for physical education.

A student twenty-five years of age, or above, who does not wish to enroll for physical education, and one excused from the requirements on the recommendation of a physician must complete at least two semester hours college credit in health and hygiene as a part of the requirements for graduation.

Veterans of World War II may receive credit for physical education on time spent in military service according to regulations as set forth on page 26.

Health Service

The college infirmary, a twenty-bed unit, provides an accommodation for those regularly-enrolled students ill enough to require the constant supervision of the college physician and nursing staff, and not in such physical condition as to require the services of specialists or surgery. A student judged by the college physician to need such hospitalization may stay in the infirmary

for as many as seven days during a semester without charge; he will pay a fee to cover cost for each additional day the college physician requires him to stay.

The infirmary will be open to all students for consultation with the college physician and nursing staff at regular, announced hours. Emergency cases will be treated at any hour, day or night.

As a part of fulfilling entrance requirements, the college requires each student to take a medical examination under the direction of the infirmary staff, and may require a re-examination if in its opinion the health of the student or of the student group demands it.

Certain tests, such as the skin test for tuberculosis, may be required by the college; other tests will be offered for the student's election.

The college requires that students with communicable diseases be isolated until, in the judgment of the college physician, danger of transmission has passed.

Eligibility For Extra-Curricular Activities

An extra-curricular activity is understood to be in general the representing by a student of the student body or any organization, department, or activity in the college, or the holding of any elective or appointive position or office. In particular such activity may be acting in the capacity of a college or class officer, or representative, or representative or officer of a social, departmental, divisional, or common-interest club or organization; holding an office or named-post on any student publication; or being a member of an athletic, academic, or departmental team, squad, or committee for intercollegiate or open competition.

Any undergraduate student not on scholarship or disciplinary probation who is regularly registered for twelve or more semester credit hours is eligible to become a candidate for or to hold student office, or may represent the college in any extra-curricular activity, provided such student has a grade average of at least 1.00 for both the whole of his college work and that of the preceding semester on the complete scholastic load. * Also no student shall make a public appearance in any extra-curricular activity or be nominated to, hold, or be recommended for a student office unless he has been certified as eligible by the registrar, the dean of the division in which he is registered and the dean of men or the dean of women. The responsibility for securing certification shall rest with the student concerned and the supervisor of the activity in question. Eligibility for extra-curricular activity must be satisfied each semester. A student who does not meet these regulations shall not represent the college. This paragraph does not apply to students mentioned in the following paragraph.

*The average grade is determined by multiplying the grade points by the number of hours in each subject as shown by the grades; the total of all grade points is then divided by the total of all the hours in which the student has received grades of A, B, C, D, and F and including repeatedly each re-registration in the same course with a grade of F in the total. The average grade of a transfer student shall be made on the whole of his college academic record, on both that which he brings by transcript and that which he makes in this college.

An undergraduate student not on scholarship or disciplinary probation, who is regularly registered, may compete in intercollegiate athletics. Participation in intercollegiate athletics is governed by the athletic conference rules followed by the college and administered by the Athletic Council. No student shall make a public appearance in an intercollegiate athletic activity unless he has been certified by the Faculty Committee of the Athletic Council. The responsibility for securing this certification shall rest with the student concerned and with the Faculty Committee of the Athletic Council. A student who does not meet these regulations shall not represent the college.

Scholarship Probation

A. The following types of students shall be on scholarship probation:

1. The student who makes passing grades in six hours but fails to pass in ten hours out of a regular load in any semester.
2. The student who, on account of employment or for similar reasons, is required to register for less than fifteen hours and who fails more than one course which carries three or more hours credit, provided six semester hours are completed with passing grades.
3. The student who attends both terms of summer school and fails to pass in two-thirds of his work.
4. The freshman student who was in the lowest quartile of his high school class.

B. This probation status shall mean that:

1. The student may not register for more than four courses, approximately twelve hours, except upon the advice of the dean.
2. In order to allow more time for his studies, he shall not be permitted to represent the college in any intercollegiate contest, hold any collegiate office or elective collegiate position during his period of probation and he shall not be permitted to be absent from the college for any cause except illness.
3. Lack of interest in his studies as evidenced by unnecessary absences will result in his being dropped from the rolls of the college by the registrar at the request of his dean.
4. The student may not effect an intramural transfer until he has removed his probation status.
5. The probation status may not be removed during the semester. A student who withdraws from college while on scholarship probation will not be considered to have met the minimum work requirement.

6. The student on scholastic probation who fails to pass in ten hours in that semester or two-thirds of his work in a twelve weeks summer session will not be allowed to re-enter.
7. A student on probation may be dropped at mid-semester at request of his dean if he is not passing in ten semester hours. This period shall extend until the beginning of the second long session semester thereafter.
8. Any student who would otherwise be placed on scholarship probation for the third time will not be again allowed to register in college.

C. To remove probation a student must make passing grades in ten semester hours in a given semester or two-thirds of a regular load in a twelve weeks summer session.

Six Hour Rule

A student who fails to pass in six hours of resident work in any semester or four hours in a twelve weeks summer session will not be allowed to re-enter until after a lapse of a period of one semester, except that when he has been allowed to register for less than six hours, he may enroll if he passes in all his work.

Readmission of Students Who Have Been Dropped

A person dropped under the six hours rule; or for any reason set forth in the paragraph on Scholarship Probation; or for failure to attend classes, and who after one semester or more wishes to return to college should consult his dean. If the dean is willing the applicant may then petition the president of the college for readmission. Unless the president approves the petition the petitioner may not register.

Freshman Progress Reports

All failing and unsatisfactory students in freshman classes are reported at the end of four weeeks in each semester. Any entering freshman who is not passing in nine hours at that time may withdraw as of that date with the privilege of re-entering the next semester. If he elects to remain in college and is not passing in nine hours at mid-semester he may be dropped from the rolls of the college. In case the student is dropped, or if he withdraws under these conditions, he will not be allowed to re-enter until after the lapse of at least one entire semester.

Withdrawal From College

A student who finds it necessary to withdraw from the college before the close of the semester should apply to the dean of the division in which he is registered for permission to withdraw with

honorable dismissal. A student under 21 years of age should first consult his parents and should bring with him a written statement showing that he has the permission of his parents to withdraw. If the dean is convinced that withdrawal is necessary, the student will be given honorable dismissal from the college, and his parents will be notified. Such withdrawal protects the student's record in case he desires to return to the institution or transfer to another institution at some future time. The grades recorded are given in accordance with the grade requirements in the preceding paragraphs, and the grades whether W or F, will be based on the student's standing on the last day of attendance in each of the specific courses in which he is assigned. The fact that the student may have withdrawn does not alter the scholarship probation requirements.

A student who withdraws from a residence course with a grade of W may complete the course by correspondence provided the work is given by the same instructor who taught the residence course and provided also that the course is regularly taught by correspondence. The credit recorded will be correspondence credit.

Intramural Transfers

The college encourages students to develop interest and knowledge in specialized fields of learning. Frequently it is necessary that opportunity for a change of major must be provided, and to this end transfers between the main divisions of the college are encouraged whenever such seems advisable for the best interest of the student. A student desiring to transfer from one division of the college to another must apply to his dean before the close of any registration period.

Transfers are made in writing from the dean to the registrar. If a student has failed to pass the number of hours required under the scholarship probation regulations, he will not be transferred to, or enrolled in, another division of the college until the provisions of the probation regulations have been met.

Week of Restricted Social Activities

During the week preceding examination, the faculty Social Activities Committee will not schedule any social function at the college.

STUDENT ORGANIZATIONS

Student Council

The Student Council is the official body of the students. It is made up of representatives of the various divisions and classes elected by vote of the student body. The Student Council allocates certain fees and charges for the conduct of student affairs, supervises elections, is represented on several college committees, has charge of certain matters affecting student activities and cooperates with the college authorities in administering affairs peculiar to the students.

Music Organizations

The music organizations of the college are directed by members of the music faculty.

College Band. The Matador Band plays on concert tours, at athletic meets, and at other college events. Rehearsals daily or weekly according to credit desired.

College Oratorio. Rendered by a chorus. One or two presentations each year.

Various Chamber Music Organization. Carries credit by arrangement with the head of the Department of Music.

Student Publications

There are at present two publications representing the student life of the college:

The Toreador is the college paper published each week by officers elected by the student body. It is the official publication of the student body and constitutes the principal means of keeping the student body, faculty, and friends of the institution informed regarding the weekly news of the college.

La Ventana is the college annual published each year and issued near the end of the second semester. It records the principal events and historical progress of the institution, together with a display of all phases and interests of college life.

The two college publications offer valuable training to students in the field of journalism and in business management of publications.

Artist Course

The Artist Course is a series of attractions sponsored by the college and offered to the student body at a cost of $1.80 a semester, including tax.

Such distinguished artists and organizations as Rose Bampton, Helen Jepson, Ballet Russe de Monte Carlo, James Melton, Lansing Hatfield, Vronsky and Babin, Anna Kaskas, Rise Stevens, Larry Adler, Paul Draper, Mona Paulee, Morley and Gearhart, Richard Crooks, Albert Spalding, Charles Kullman, General Platoff's Don Cossacks, Bartlett and Robertson, Igor Gorin, Eleanor Steber, Mia Slavenska, Patricia Travers, William Kapell, Nino Martini, Nadine Conner, Rosario and Antonio, Whittemore and Lowe, Walter Cassel, Frances Yeend, Zino Francescatti, and Jussi Bjoerling have appeared under the sponsorship of this committee.

Public Speaking and Debate

The ability to speak effectively is an extremely valuable asset. The professional business man or woman of today who wishes to influence and persuade others cannot achieve the fullest measure of success without this ability. Several clubs on the campus give the student the opportunity to take part in discussion, debate, and platform speaking. For years the college has actively partici-

pated in intercollegiate debate, and any student who meets the Student Council eligibility requirement may become a candidate for membership on an intercollegiate debate team.

Clubs and Societies

Texas Technological College has encouraged such student activities and organizations as seem to offer opportunities for individual self development. No organization among students on the campus will be permitted unless application is made to the college administration for the right to organize such a club, stating the object, type of membership, and other matters necessary for its organization. Every organization must have the approval of the college. No club will be permitted to organize unless the objectives are such as will promote not only the best interests of the individual students who become members, but also the best interests of the institution itself. No organization which fails to maintain these standards may continue on the campus. All clubs and societies are required to have faculty sponsors; the treasurers of student organizations are required to follow certain regulations and to deposit their funds with the college business office. By a ruling of the Board of Directors, Greek letter social fraternities are not permitted in the college. No student shall be a member of, be identified with, or be active in a student secret organization or one not recognized by the college. Such affiliation will justify the permanent expulsion of a student from the college.

Service Clubs

Alpha Phi Omega.
Association of Women Students.
Collegium.*
College Unit of American Red Cross.
Forum.
Junior Council.
Las Leales.*
Men's Dormitory Association.
Saddle Tramps.
Women's Self-Governing Association.

Religious Organizations

The Young Men's Christian Association and Young Women's Christian Association endeavor to create and maintain Christian fellowship on the campus. The Student Religious Council serves as a discussion group for student problems. Other clubs function in religious matters. These are: Baptist Student Union, Canterbury Club, Christian Youth Fellowship, Newman Club, Presbyterian Student League, and Wesley Foundation.

* Became inactive during the war.

National Honorary and Professional Organizations

Alpha Chi (Scholarship)
Alpha Epsilon Delta (pre-medicine)
Alpha Psi Omega (dramatics)
American Chemical Society
American Dairy Science Association (student branch)
American Institute of Chemical Engineers (student branch)
American Institute of Electrical Engineers (student branch)
American Society of Civil Engineers (student branch)
American Society of Mechanical Engineers (student branch)
Block and Bridle (agriculture)
Future Farmers of America
Future Teachers of America
Kappa Mu Epsilon (mathematics)
Kappa Kappa Psi (band)
Phi Eta Sigma (Freshman Men)
Phi Psi (textile engineering)
Phi Upsilon Omicron (home economics scholarship)
Pi Sigma Alpha (government)
Sigma Delta Pi (Spanish)
Sigma Gamma Epsilon (geology)
Sigma Tau Delta (English)
Society of American Military Engineers
Tau Beta Pi (engineering scholarship)
Tau Beta Sigma (women's band)
Theta Sigma Phi (women's journalism)
Women's Recreational Association

Local Honorary and Professional Organizations

Freshman Honor Society (scholarship)

Divisional and Departmental Organizations

Agricultural Club
Biology Club
Book Reviewers Club
Capa y Espada
Cercle Francis
Cornucopia Society (business administration)
Debate Club
Double T Association
Engineering Society
Foreign Language Club
Gargoyle Club
Home Economics Club
Industrial Engineering Society
International Relations Club

Liederkranz
Philosophy Club
Plant Industry Club
Pre-Law Club
Pre-Med Club
Press Club
Senate Club
Sock and Buskin
Society of Petroleum Geologists and Petroleum Engineers
Sociology Club
Tech Accounting Society
Texas Tech Chamber of Commerce
Textile Engineering Club
Texas Tech War Veterans Association
Women's Branch War Veterans Association
Women's Physical Education Major and Minor Club

REQUIREMENTS FOR GRADUATION

Undergraduate Degrees

To receive any undergraduate degree in Texas Technological College, the student must have met certain uniform requirements together with certain other requirements that may vary with the different divisions of the college.

1. Each student is required to do work in actual residence in this college of at least two Long Session semesters, five Summer Session terms, or one Long Session semester and two Summer Session terms, in addition to any residence credit obtained through extension, and must complete in residence a minimum of thirty semester hours of work counting toward a degree. At least twenty-four of the last thirty semester hours offered for the undergraduate degree must be taken in this college. A maximum of six hours of the final semester's hours required for a degree may be completed by correspondence, provided the courses are offered by correspondence, and provided further the courses taken by correspondence do not constitute a part of the major or minor requirements for the degree.

The student must make, before graduation, a total number of grade points at least equal to the number of credit hours required for graduation, as provided for in the paragraph on grade points in this catalogue.

2. The candidate for any degree must file his application for the degree with his dean not less than two semesters in advance of graduation.

3. Any work taken through the Division of Extension of Texas Technological College or other approved colleges will not be counted as residence work required for a degree in this college.

4. The completion of all requirements of the course of study as outlined in the college announcement or its equivalent as determined by the faculty of the division offering the course must be certified to by the registrar and by the dean. The curriculm requirements will be found in the appropriate divisions of the catalogues and announcements issued from time to time. At the option of the head of the department concerned, no grade lower than C in the major subject will be accepted for satisfaction of requirements for graduation. This requirement is to apply to all divisions of the college.

Students who enter State-supported institutions of higher learning after September 1, 1937, will be required to complete satisfactorily a course in government covering the Federal and Texas Constitutions. This applies to all detailed statements of curricula published in this catalogue.

5. No second Bachelor's degree will be conferred until the candidate has completed at least twenty-four semester hours in addition to courses counted toward the first Bachelor's degree.

6. Diplomas are awarded at the regular commencement in June. Students completing requirements for a degree at the end of the Fall Semester or Summer School will be awarded diplomas at the following June commencement, but the diploma will bear the date of completion of degree requirements.

7. Students who find it impossible to attend commencement exercises may apply for the privilege of graduating in absentia by filing a written request with the dean of the division.

A candidate for a degree will be held to the graduation requirements as stated in the catalogue and announcements for the year in which he entered the college; but he may meet the graduation requirements in the catalogue of the year in which he graduates. A student may graduate under the provisions of the catalogue of the year in which he enters provided he receives his degree within seven years of that date. This does not mean that if a student fails to complete the requirements within seven years he loses credit for the work done, but that he must choose the next later catalogue and fulfill the requirements as set down in it in accordance with the first sentence in this paragraph. In case a candidate for a degree has perfected an intramural transfer, he will be held to the requirements in the catalogue which would normally govern him in keeping with the classification he assumes under the transfer.

Graduate Degrees

For requirements for master's degrees, see either the *Division of Graduate Studies* in this catalogue or the separate Graduate Bulletin.

DIVISION OF AGRICULTURE

WENZEL L. STANGEL, *Dean*

The aim of the Division of Agriculture is to afford its students a liberal education, including instruction in the scientific and technical subjects which are fundamental to an understanding of the agricultural industry. The purpose of the courses of study is to meet the needs of those who desire to prepare themselves for service and life in some part of the agricultural organization of this country.

The scientific and technical subjects are fundamental. In the latter years of the student's work, the scientific and agricultural subjects have a more specific application to certain special lines of work which the student may desire to pursue as a life work.

Building and Equipment. The Agriculture building, which cost approximately $300,000, has a floor area of 49,000 square feet. It provides offices for the agricultural faculty and laboratories and classrooms for the Departments of Agricultural Economics, Agricultural Education, Animal Husbandry, Dairy Manufactures, and Plant Industry.

Other buildings of the Division of Agriculture consist of the Livestock Pavilion, the Dairy barn, and the Greenhouse—all of which are of permanent construction and are so planned that they may be added to as the occasion demands. In addition, there are buildings comprising the Meats laboratory, the Farm Machinery laboratory, and a number of farm buildings.

Approximately 600 acres of pasture land and 1100 acres of cultivated land and small pastures are available for out-of-door laboratory purposes. In addition, the campus of 320 acres is used for laboratory instruction in special branches of horticulture.

Service. Instruction in all the subjects offered in the various courses is available to all students in the college. To the end that the agricultural equipment and facilities may serve the greatest number of people, the Division of Agriculture conducts contests for vocational agriculture students and boys' club members, as well as short courses and demonstrations of one to two days each.

Field for Graduates. There is a demand for college trained men in specialized lines of agriculture, as well as for professional men with a basic agricultural education. Among the lines of work usually open to graduates are the following:

Farmers and farm managers; marketing agents; managers of cooperative associations; teachers in colleges and high schools; extension experts in agricultural colleges, railroad and land companies; dairy and creamery experts or operators; milk distributors; government and experiment station employees; horticultural experts; poultry experts; county agents; assistants in seed houses; agricultural writers for farm journals; plant quarantine inspect-

ors; plant pathologists; entomologists trained in agriculture; city park superintendents; farm machinery specialists; field men for livestock associations; livestock feeding experts; feed salesmen; Federal Soil Conservation Service employees; and Federal Farm Security Administration employees.

Teacher Training in Vocational Agriculture. Federal and state requirements provide that the teacher of vocational agriculture in the high school "must have completed a four-year course of college grade in agriculture." These requirements may be met in the Division of Agriculture. The other requirements for this certificate are shown under *Agricultural Education.*

Teachers' certificates other than in vocational agriculture may be secured by students in the Division of Agriculture. Special certificates authorize the holders to teach agriculture and may entitle the school in which the holder teaches to receive state and federal aid.

Trips and Judging Teams. To enable students to secure a better conception of the agricultural industry, the Division of Agriculture recommends and fosters trips of inspection and intercollegiate judging contests for advanced students. These trips are not required, and the college does not pay the expenses of the students. In the case of judging teams, staff members coach and train the teams outside of regular classes, supplementing class instruction.

Requirements for Graduation. Special courses of study are offered in agronomy, agronomy and farm machinery, animal husbandry, horticulture, agricultural economics, dairy manufactures, and agricultural education.

All agricultural students follow a definite course of study in the first two college years. This is to allow the student to become familiar with the courses of instruction and to decide fully about his qualifications before selecting a specific major. The uniform requirements include survey courses in the various departments of the Division of Agriculture, a series of orientation lectures, and work in English, chemistry, biology, economics, and mathematics. Students who are found to be notably deficient in the fundamentals of oral and written English are required to remove such deficiency before proceeding with work of the junior year. No grade lower than C may be counted in the major subjects or in subject matter closely connected therewith.

With the approval of the dean, subjects other than those in the uniform curriculum for the first two years may be followed. Such subjects will not be considered a part of the uniform requirements but may be considered a part of the elective credit permissable in the junior or senior years. Substitution and combinations are permitted only when there is good evidence that the student desiring such work is reasonably certain he will follow the branch selected.

The four-year curricula leading to the degree of Bachelor of Science in Agriculture have a two-fold purpose. It is desired that

the student shall receive instruction in all of the fundamental courses that are necessary for a broad occupational understanding of southwestern agriculture. Students are allowed to select departments in which they wish to do advanced work and are allowed to choose a certain amount of elective work. The student who is awarded a degree is thus specially trained in a particular field.

A candidate for a degree in agriculture must have had satisfactory farm, dairy, or other experience in labor or management during the recent years. A statement giving details regarding this experience must be filed in the dean's office previous to the first semester of the candidate's senior year and is required before registration for senior studies.

Undergraduate Degree. The degree of Bachelor of Science in Agriculture is conferred upon students who satisfactorily complete the requirements for graduation outlined on the following pages. This degree is given with majors in agronomy, agronomy and farm machinery, animal husbandry, horticulture, agricultural economics, agricultural education, and dairy manufactures.

Master's Degree. The Division of Agriculture gives graduate work in certain departments leading to the degree of Master of Science. Discussion of graduate work, including admission and departments offering graduate work, will be found in this catalogue under *The Division of Graduate Studies.*

Electives. Prior to the beginning of the junior year the student shall designate his electives. These electives must be approved by the head of the department and by the dean of the Division of Agriculture before the student registers for these courses. Subjects to absolve extra hours required because of excessive absences or deficiency in grade points must be approved by the dean of the division.

INFORMATION FOR MAJORS IN THE DIVISION OF AGRICULTURE

Department of Agricultural Economics

The objective of this department is to provide training in the solution of basic economic problems and the business aspects of farming and ranching. Emphasis is placed on a study of consumer demand for agricultural products and of the methods best adapted to supply such demand most economically, to increase the standards of living of farm people, and to improve the agricultural industry as a whole.

Courses are provided for students who wish preparation for research positions and commercial and industrial vocations closely allied with agriculture. The degree of Bachelor of Science in Agriculture with a major in agricultural economics is offered on

the completion of the work prescribed by the department. The curriculum in agricultural economics is intended to meet the needs of students who expect to return to the farm, enter county agent work or vocational agriculture teaching, or to serve federal or private agencies dealing with problems of rural planning, The two curricula offered in the previous catalogue; i. e., a departmental major in agricultural administration and a departmental major in farm management, will be available for students who entered under earlier catalogues.

Department of Agricultural Education

The curriculum in the department of Agricultural Education is designed to qualify the prospective teacher of vocational agriculture to teach under the Federal Vocational Education (Smith-Hughes) Act, and to supplement the student's instruction in technical and professional agriculture. To secure approval, the prospective teacher must receive the degree of Bachelor of Science in Agriculture or a higher degree in agriculture. The flexibility of the course permits sufficient range in the choice of electives to permit students majoring in the several fields of agriculture to qualify without undue loss of time. In case of students transferring credits from other institutions or curricula, substantially the same qualifications will be required. The satisfactory completion of the requirements will be followed by recommendations to teach agriculture in high schools.

A minimum of four years of farm experience after the 12th birthday is an important part of the requirements.

A teacher of vocational agriculture must be at least 21 years of age and must not have more than five years teaching experience in non-vocational education.

The vocational agricultural education curriculum includes a number of courses which are required in some of the other agricultural curricula, but which do not appear uniformly in all of them. These required courses are suitable for use as electives in some of the other agricultural curricula; hence, it is possible for students majoring in the other curricula to meet requirements of the vocational agricultural curriculum by electing necessary additional hours in that curriculum. As only one degree is offered in the division of Agriculture, that being the degree of Bachelor of Science in Agriculture with a designated major, the student is not required to do a specifically designated amount of work to meet a second major, and he cannot receive an additional degree for meeting a second major. The student's work includes two uniform years; then at the beginning of the junior year, he enters upon the more specialized part of his work.

Graduate students who desire to qualify to teach vocational agriculture under the Smith-Hughes Act should so state in submitting application for admission to the division of Graduate Studies. A statement of courses to be completed for this certification will be furnished upon request.

Department of Animal Husbandry

The department of Animal Husbandry provides instruction designed to train students to select, breed, feed, manage, and market farm and ranch animals and poultry. It is the function of this department to furnish the student with the instruction and facilities for developing a background of sound principles, information, and skill which will enable him to conduct livestock enterprises, or to engage in general farming, in which the production and utilization of livestock become integral parts of his system of farming.

Students may major in the department of Animal Husbandry as candidates for the degree of Bachelor of Science in Agriculture. Several of the courses offered are required of all agricultural students, but any student in the college who has the prerequisites may enroll in any of the courses offered.

The department owns two breeds of beef cattle, two breeds of dairy cattle, and three breeds each of hogs, horses, and sheep; one breed of goats; and three varieties of poultry—all of which are maintained primarily for class instruction. The equipment of the department includes a livestock judging pavilion, a dairy barn with silo, three horse barns, a central hog house, a sheep barn and a meats laboratory. In addition to large permanent pastures, there are also 38 acres in sheep pastures, 18 acres in hog pastures and 20 acres in a poultry farm—all fenced and cross-fenced and provided with housing facilities. Laboratory equipment for instruction in veterinary science, poultry brooding, and incubation, meats, and livestock feeding and production is also available.

Department of Dairy Manufactures

The department of Dairy Manufactures offers courses in the fundamentals of the science of dairying. Special technical courses are offered which prepare the student to become a general dairy plant operator; dairy, food, and sanitary inspector; dairy products salesman; and technical dairy laboratory control operator. The curriculum is so arranged that electives may be pursued in other fields closely allied with the dairy industry.

Certain courses in this department are required of all agriculture students. While much of the work taught is planned especially for students majoring in this technical subject, all students in the college who have the proper prerequisites may enroll in these courses.

The department maintains a dairy plant with modern equipment for laboratory instruction in market milk, cheese, butter, ice cream, condensed milk, and laboratory control of dairy products. Complete laboratory facilities are maintained for making analysis of dairy products. Individuals within the State of Texas may avail themselves of this service at the actual cost of performing the tests.

Department of Plant Industry

The department of Plant Industry offers work in horticulture, agronomy, farm machinery, and genetics. While several of the courses presented are service courses and as such are required of all students in agriculture, the department offers an opportunity for all students to major in options in plant industry as candidates for the degree of Bachelor of Science in Agriculture.

In view of the fact that these subjects require intimate local application, the department maintains field plots and an orchard and vineyard in which many varieties of farm crops, fruit trees, and grapes are grown to illustrate practically all of the material that it is possible to produce in this region. A nursery is maintained for instruction and practice in plant propagation. A well-equipped greenhouse, apiary, honey house, and farm machinery shop are part of the equipment.

The horticulture major includes instruction in the basic principles underlying plant propagation, orcharding, olericulture, floriculture, ornamentals, and landscape gardening. The agronomy major includes instruction in the basic principles of forage crop production, grain crops, crop breeding and improvement, pasture management, soils, soil fertility, and soil management, especially under sub-humid climatic conditions, and moisture utilization in irrigation farming and dry farming. Three options are provided under the agronomy major to permit students to choose between crops, soils, and range management for their specialization.

The agronomy and farm machinery major includes instruction in the fundamentals of agronomy and gives the student an extensive training in care, use, repair and management of farm machines and the design, theory, and construction of farm buildings, moisture conservation structures, and irrigation systems. The department also teaches the science of genetics stressing its application to plant and animal improvement. In some of the courses field trips are taken, and since the college is located in a highly developed and productive region, these trips are of great assistance to the student.

CURRICULA IN THE DIVISION OF AGRICULTURE

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

Uniform Freshman and Sophomore Years for All Students in Agriculture

Freshman Year

First Semester		Credit	Second Semester		Credit
Animal Husbandry 121 Types and Market Classes, I	(1-3)	2	Animal Husbandry 122 Types and Market Classes, II	(1-3)	2
Dairy Manufactures 131 Principles of Dairying	(2-3)	3	Poultry Husbandry 131 Farm Poultry	(2-3)	3
Horticulture 131 Principles of Horticulture and Plant Propagation	(2-3)	3	Agronomy 131 The Fundamentals of Crop Production	(2-3)	3
Botany 131 Principles of Botany	(2-3)	3	Botany 132 Principles of Botany	(2-3)	3
Chemistry 131 General Chemistry	(2-3)	3	Chemistry 132 General Chemistry	(2-3)	3
English 131 English Composition	(3-0)	3	English 132 English Composition	(3-0)	3
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		18			18

Sophomore Year

First Semester		Credit	Second Semester		Credit
Agronomy 221 Soils	(2-0)	2	Animal Husbandry 231 Breeds of Livestock	(3-0)	3
Ag. Economics 235 Fundamentals of Economics	(3-0)	3	Dairy Manufactures 222 The Dairy Industries	(2-0)	2
Chemistry 341 Organic Chemistry	(3-3)	4	Horticulture 231 Vegetable Gardening	(2-3)	3
Bacteriology 231 Bacteriology	(2-3)	3	Ag. Economics 236 Principles of Marketing Agricultural Products	(3-0)	3
Mathematics 137 Commercial Algebra	(3-0)	3	Chemistry 220 Qualitative Analysis	(1-3)	2
English 234 Special Work on Correct Usage	(3-0)	3	Mathematics 138 Mathematics of Finance	(3-0)	3
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		19			17

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRICULTURAL ECONOMICS MAJOR

For Uniform Freshman and Sophomore Years See Page 76

Junior Year

First Semester		Credit
Ag. Economics 323 Advanced Agricultural Economics	(2-0)	2
Ag. Economics 331 Statistical Problems	(2-3)	3
Ag. Economics 333 Cooperation in Agriculture	(3-0)	3
Agronomy 331 Forage and Pasture Crops	(2-3)	3
Speech 338 Business and Professional Speech	(3-0)	3
Textile Engineering 234 Cotton Classing and Marketing	(2-3)	3
		17

Second Semester		Credit
Ag. Economics 322 Marketing Agricultural Products	(2-0)	2
Animal Husbandry 331 Animal Nutrition and Principles of Feeding	(2-3)	3
Plant Industry 341 Principles of Genetics	(3-3)	4
Engineering Drawing 223 Agricultural Drawing	(0-6)	2
Approved Electives		6
		17

Senior Year

First Semester		Credit
Ag. Economics 411 Ag. Economics Seminar	(1-0)	1
Ag. Economics 421 Land Economics	(2-0)	2
Ag. Economics 433 Farm Management	(2-3)	3
Rural Sociology 431 Agricultural Research and Extension	(1-6)	3
Government 230 American Government	(3-0)	3
Approved Electives		5
		17

Second Semester		Credit
Ag. Economics 412 Ag. Economics Seminar	(1-0)	1
Ag. Economics 422 Agricultural Prices and Forecasting	(2-0)	2
Ag. Economics 434 Advanced Farm Management	(3-0)	3
Ag. Economics 435 International Agricultural Economics	(3-0)	3
Rural Sociology 432 Rural Sociology	(3-0)	3
Approved Electives		5
		17

Hours required for graduation 140.

Electives

Students may select courses in advanced agriculture, journalism, education, economics, business administration, or military science.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRICULTURAL EDUCATION MAJOR

For Uniform Freshman and Sophomore Years See Page 76

Junior Year

First Semester		Credit	Second Semester		Credit
Ag. Economics 331 Statistical Problems	(2-3)	3	Ag. Engineering 322 Farm Shop	(1-3)	2
Ag. Engineering 321 Farm Shop	(1-3)	2	Animal Husbandry 331 Animal Nutrition and Principles of Feeding	(2-3)	3
Agronomy 331 Forage and Pasture Crops	(2-3)	3	Plant Industry 341 Principles of Genetics	(3-3)	4
Animal Husbandry 322 Farm Meats	(0-6)	2	Ag. Education 321 Organization and Administration of Vocational Education in Agriculture	(2-0)	2
Plant Industry 331 Plant Insects and Diseases and Their Control	(3-0)	3	Psychology 231 Educational Psychology	(3-0)	3
Education 234 Principles of Secondary Education	(3-0)	3	Veterinary Science 333 General Veterinary Science	(3-0)	3
Government 230 American Government	(3-0)	3			
		19			17

Senior Year

Ag. Education 431 Agricultural Education	(3-0)	3	Ag. Education 432 Agricultural Education	(3-0)	3
Ag. Education 421 Practice Teaching	(1-3)	2	Ag. Education 422 Practice Teaching	(1-3)	2
Ag. Economics 433 Farm Management	(2-3)	3	Ag. Economics 435 International Agricultural Economics	(3-0)	3
Agronomy 422 Soil Management	(2-0)	2	Electives		7
Ag. Engineering 411 Soil Management Lab.	(0-3)	1			15
Electives		6			
		17			

Hours required for graduation, 140.

CURRICULUM FOR THE DEGREE BACHELOR OF SCIENCE IN AGRICULTURE

AGRONOMY MAJOR

For Uniform Freshman and Sophomore Years See Page 76

Junior Year

First Semester		Credit
Ag. Economics 331 Statistical Problems	(2-3)	3
Animal Husbandry 331 Animal Nutrition and Principles of Feeding	(2-3)	3
Agronomy 331 Forage and Pasture Crops	(2-3)	3
Government 230 American Government	(3-0)	3
Range Management Option		
Botany 232 Taxonomy	(2-3)	3
Biology 333 Plant Bio-ecology	(1-6)	3
		18
Crop Option		
Agronomy 332 Grain Crops	(2-3)	3
Electives		3
		18
Soils Option		
Electives		6
		18

Second Semester		Credit
Plant Industry 331 Plant Insects and Diseases and Their Control	(3-0)	3
Plant Industry 341 Principles of Genetics	(3-3)	4
Agronomy 311 Soils Laboratory	(0-3)	1
Plant Industry 333 Functions of Horticultural and Agronomic Crop Plants	(3-0)	3
Range Management Option		
Agronomy 333 Range Plants	(2-3)	3
Veterinary 333 General Veterinary Science	(3-0)	3
		17
Crops Option		
Agronomy 323 Principles of Crop Judging and Grain Grading	(0-6)	2
Agronomy 333 Range Plants	(2-3)	3
		16
Soils Option		
Agronomy 323 Principles of Crop Judging and Grain Grading	(0-6)	2
Electives		3
		16

Senior Year

First Semester	Credit
Agronomy 422 (2-0) Soil Management	2
Ag. Economics 433 (2-3) Farm Management	3

Range Management Option

Agronomy 437 (2-3) Range Management	3
Agronomy 435 (2-3) Soil Morphology and Genesis	3
Ag. Engineering 432 (1-6) Land Mapping and Measurement	3
Electives	2
	16

Crops Option

Textile Engineering 234 (2-3) Cotton Classing and Marketing	3
Ag. Engineering 323 (1-3) Farm Machinery	2
Ag. Engineering 411 (0-3) Soil Management Lab.	1
Electives	6
	17

Soils Option

Agronomy 435 (2-3) Soil Morphology and Genesis	3
Agronomy 439 (2-3) Soil Microbiology	3
Ag. Engineering 323 (1-3) Farm Machinery	2
Ag. Engineering 411 (0-3) Soil Management Lab.	1
Electives	4
	18

Second Semester	Credit
Agronomy 434 (2-3) Soil Conservation and Use Planning	3
Plant Industry 411 (1-0) Plant Industry Seminar	1
Plant Industry 431 (3-0) Advanced Plant Breeding and Improvement	3
Ag. Economics 435 (3-0) International Agricultural Economics	3

Range Management Option

Animal Husbandry 424 (2-0) Beef Cattle Production	2
Animal Husbandry 426 (2-0) Sheep & Wool Production.	2
Animal Husbandry 438 (3-0) Range Management	3
	17

Crops Option

Agronomy 421 (2-0) Cotton and Other Fiber Crops	2
Agronomy 423 (2-0) Soil Management	2
Ag. Engineering 412 (0-3) Soil Management Laboratory	1
Electives	2
	17

Soils Option

Agronomy 423 (2-0) Soil Management	2
Agronomy 436 (2-3) Soil Chemistry	3
Ag. Engineering 412 (0-3) Soil Management Laboratory	1
	16

Hours required for graduation—140.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRONOMY AND FARM MACHINERY MAJOR

For Uniform Freshman and Sophomore Years See Page 76

Junior Year

First Semester	Credit	Second Semester	Credit
Agronomy 311 (0-3) Soils Laboratory	1	Agronomy 331 (2-3) Forage and Pasture Crops	3
Agronomy 332 (2-3) Grain Crops	3	Ag. Engineering 332 (2-3) Farm Power	3
Ag. Engineering 321 (1-3) Farm Shop	2	Ag. Engineering 322 (1-3) Farm Shop	2
Ag. Engineering 331 (2-3) Farm Power	3	Plant Industry 341 (3-3) Principles of Genetics	4
Plant Industry 331 (3-0) Plant Insects and Diseases and Their Control	3	Electives	6
Ag. Economics 331 (2-3) Statistical Problems	3		18
Government 230 (3-0) American Government	3		
	18		

Senior Year

First Semester	Credit	Second Semester	Credit
Agronomy 422 (2-0) Soil Management	2	Agronomy 421 (2-0) Cotton and Other Fiber Crops	2
Ag. Engineering 411 (0-3) Soil Management Lab.	1	Agronomy 423 (2-0) Soil Management	2
Ag. Engineering 323 (1-3) Farm Machinery	2	Ag. Engineering 412 (0-3) Soil Management Lab.	1
Ag. Engineering 431 (3-0) Farm Building	3	Plant Industry 411 (1-0) Plant Industry Seminar	1
Electives	8	Speech 338 (3-0) Business and Professional Speech	3
	16	Ag. Economics 435 (3-0) International Agriculture Economics	3
		Electives	4
			16

Hours required for graduation—140.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

HORTICULTURE MAJOR

For Uniform Freshman and Sophomore Years See Page 76

Junior Year

First Semester		Credit
Horticulture 333 Fruit Culture	(2-3)	3
Agronomy 311 Soils Laboratory	(0-3)	1
Plant Industry 331 Plant Insects and Diseases and Their Control	(3-0)	3
Ag. Economics 331 Statistical Problems	(2-3)	3
Government 230 American Government	(3-0)	3
Horticulture 331 Trees and Shrubs	(3-0)	3
		16

Second Semester		Credit
Plant Industry 341 Principles of Genetics	(3-3)	4
Agronomy 331 Forage and Pasture Crops	(2-3)	3
Horticulture 322 Landscape Appreciation	(2-0)	2
Electives		9
		18

Senior Year

First Semester		Credit
Horticulture 431 Advanced Pomology	(3-0)	3
Ag. Economics 433 Farm Management	(2-3)	3
Speech 338 Business and Professional Speech	(3-0)	3
Electives		9
		18

Second Semester		Credit
Horticulture 432 Advanced Pomology	(3-0)	3
Agronomy 423 Soil Management	(2-0)	2
Ag. Engineering 412 Soil Management Laboratory	(0-3)	1
Plant Industry 411 Plant Industry Seminar	(1-0)	1
Plant Industry 333 Functions of Horticultural and Agronomic Crop Plants	(3-0)	3
Plant Industry 431 Advanced Plant Breeding and Improvement	(3-0)	3
Ag. Economics 435 International Agricultural Economics	(3-0)	3
		16

Hours required for graduation—140.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

ANIMAL HUSBANDRY MAJOR

For Uniform Freshman and Sophomore Years See Page 76

Junior Year

First Semester	Credit
Veterinary Science 331 (2-3) Anatomy and Physiology	3
Agronomy 331 (2-3) Forage and Pasture Crops	3
Ag. Economics 331 (2-3) Statistical Problems	3
Speech 338 (3-0) Business and Professional Speech	3
Animal Industry Option	
Animal Husbandry 312 (0-3) Advanced Livestock Judging	1
Electives	4
	17
Dairy Husbandry Option	
Animal Husbandry 324 (2-0) Dairy Breeds, Pedigrees, and Records	2
Dairy Manufactures 331 (3-0) Market Milk and Inspection	3
	17
Poultry Husbandry Option	
Poultry Husbandry 324 (1-3) Advanced Poultry Judging	2
Electives	3
	17
Range Management Option	
Botany 232 (2-3) Taxonomy	3
Biology 333 (1-6) Plant Bio-ecology	3
	18

Second Semester	Credit
Animal Husbandry 331 (2-3) Animal Nutrition and Principles of Feeding	3
Animal Husbandry 311 (1-0) Animal Nutrition	1
Veterinary Science 332 (3-0) Livestock Diseases and Parasites	3
Plant Industry 341 (3-3) Principles of Genetics	4
Animal Industry Option	
Animal Husbandry 313 (0-3) Advanced Livestock Judging	1
Animal Husbandry 322 (0-6) Farm Meats	2
Electives	3
	17
Dairy Husbandry Option	
Animal Husbandry 323 (1-3) Advanced Dairy Cattle Judging	2
Dairy Manufactures 323 (1-3) Market Grades and Classication of Dairy Products	2
Electives	2
	17
Poultry Husbandry Option	
Poultry Husbandry 331 (1-6) Incubation and Brooding	3
Electives	3
	17
Range Management Option	
Agronomy 333 (2-3) Range Plants	3
Electives	2
	16

Senior Year

First Semester		Credit
Animal Husbandry 422 Animal Breeding	(2-0)	2
Government 230 American Government	(3-0)	3

Animal Industry Option

Animal Husbandry 417 Livestock Production Practices I	(0-3)	1
Animal Husbandry 421 Purebred Herds and Flocks	(0-6)	2
Animal Husbandry 427 Swine Production	(2-0)	2
Electives		7
		17

Dairy Husbandry Option

Animal Husbandry 417 Livestock Production Practices I	(0-3)	1
Animal Husbandry 428 Dairy Cattle Production	(2-0)	2
Animal Husbandry 427 Swine Production	(2-0)	2
Electives:		6
		16

Poultry Husbandry Option

Animal Husbandry 417 Livestock Production Practices I	(0-3)	1
Animal Husbandry 428 Dairy Cattle Production	(2-0)	2
Electives		9
		17

Second Semester		Credit
Ag. Economics 433 Farm Management	(2-3)	3
Ag. Economics 435 International Agricultural Economics	(3-0)	3

Animal Husbandry Option

Animal Husbandry 411 Animal Husbandry Seminar	(1-0)	1
Animal Husbandry 418 Livestock Production Practices II	(0-3)	1
Animal Husbandry 424 Beef Cattle Production	(2-0)	2
Animal Husbandry 426 Sheep and Wool Production	(2-0)	2
Electives		5
		17

Dairy Husbandry Option

Animal Husbandry 411 Dairy Husbandry Seminar	(1-0)	1
Animal Husbandry 429 Advanced Dairy Cattle Production	(2-0)	2
Dairy Manufactures 335 Dairy Bacteriology	(2-3)	3
Electives		6
		18

Poultry Husbandry Option

Animal Husbandry 411 Animal Husbandry Seminar	(1-0)	1
Animal Husbandry 418 Livestock Production Practices II	(0-3)	1
Poultry Husbandry 421 Poultry and Turkey Production	(2-0)	2
Electives		7
		17

Range Management Option		
Ag. Engineering 432 Land Mapping and Measurement	(1-6)	3
Agronomy 437 Range Management	(2-3)	3
Agronomy 435 Soil Morphology and Genesis	(2-3)	3
Electives		2
		16

Range Management Option		
Animal Husbandry 411 Animal Husbandry Seminar	(1-0)	1
Animal Husbandry 424 Beef Cattle Production	(2-0)	2
Animal Husbandry 426 Sheep and Wool Production	(2-0)	2
Animal Husbandry 418 Livestock Production Practices II	(0-3)	1
Animal Husbandry 438 Range Management	(3-0)	3
Agronomy 434 Soil Conservation and Land Use Planning	(2-3)	3
		18

Hours required for graduation 140

Electives

Electives may be chosen from the following curricula.

1. Agricultural Economics
2. Agricultural Education
3. Agronomy
4. Agronomy and Farm Machinery
5. Biology
6. Business Administration
7. Chemistry
8. Dairy Manufactures
9. Foreign Languages
10. Horticulture
11. Journalism
12. Military Science
13. Physics
14. Speech

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

DAIRY MANUFACTURES MAJOR

For Uniform Freshman and Sophomore Years, See Page 76

Junior Year

First Semester		Credit
Dairy Manufactures 321 Technical Control of Dairy Products	(1-3)	2
Dairy Manufactures 323 Market Grades and Classification of Dairy Products	(1-3)	2
Dairy Manufactures 331 Market Milk and Inspection	(3-0)	3
Ag. Economics 331 Statistical Problems	(2-3)	3
Speech 338 Business and Professional Speech	(3-0)	3
Electives		3
		16

Second Semester		Credit
Dairy Manufactures 332 Market Milk and Inspection	(2-3)	3
Dairy Manufactures 335 Dairy Bacteriology	(2-3)	3
Dairy Manufactures 337 Technical Dairy Problems	(3-0)	3
Animal Husbandry 331 Animal Nutrition and Principles of Feeding	(2-3)	3
Plant Industry 341 Principles of Genetics	(3-3)	4
Electives		2
		18

Senior Year

First Semester		Credit
Dairy Manufactures 420 Dairy Products Merchandising	(2-0)	2
Dairy Manufactures 431 Cheese Making	(2-3)	3
Dairy Manufactures 441 Butter Making	(2-6)	4
Government 230 American Government	(3-0)	3
Electives		5
		17

Second Semester		Credit
Dairy Manufactures 411 Dairy Seminar	(1-0)	1
Dairy Manufactures 421 Creamery Organization and Control	(2-0)	2
Dairy Manufactures 422 Dairy Technology	(2-0)	2
Dairy Manufactures 433 Ice Cream Making	(2-3)	3
Ag. Economics 435 International Agricultural Economics	(3-0)	3
Electives		6
		17

Hours required for graduation 140

Electives

The electives will be chosen from the following elective groups:

A. General Agriculture Minor—Courses to be selected from departments in the division other than Dairy Manufactures. Four hours of elective work in Dairy Manufactures will be allowed.

B. General Science Minor—Chemistry, bacteriology, physics, mathematics, engineering drawing.

C. Business Administration—Economics including agricultural economics, psychology.

D. Combination of A, B, and C, and journalism, physical education, foods, Education 234.

E. Military Science.

DIVISION OF ARTS AND SCIENCES

R. C. GOODWIN, *Dean*

The division of Arts and Sciences of Texas Technological College has three chief functions:

First, the division offers the requisites of a general and liberal education, directed toward the attainment and enrichment of social and personal culture.

Second, the division makes available specialized training in the various departments of its program of studies:

Biology	History and Anthropology
Chemistry	Journalism
(Economics)*	Mathematics
Education and Psychology	Music
English	Philosophy and Sociology
Foreign Languages	Physical and Health Education
Geology	Physics
Government	Speech

Specialization in these subjects is designed to prepare students to go directly into professional work as writers, translators, industrial chemists, geologists, physicists, social workers, teachers and school administrators, government representatives at home or abroad; to enter upon the study of medicine, dentistry, pharmacy or law; or to continue advanced study in the humanities or sciences in the graduate schools and research institutions.

Third, the division provides training in certain foundation subjects necessary for advanced study in the other divisions of Texas Technological College.

Degrees and Degree Requirements

The division of Arts and Sciences offers curricula leading to the degrees of Bachelor of Arts, Bachelor of Science, and Bachelor of Science in Education. Curricula required for admission to the standard law and medical schools are also provided.

The completion of the course of study for a degree usually requires four years. This time may be shortened approximately one year by attending the summer sessions. Each student in the division will pursue during the freshman year the uniform curriculum set forth below. The required courses beyond the freshman year vary according to the degree sought and are described in the curricula established for each degree.

* For administrative and other obvious reasons, the department of Economics is a part of the division of Business Administration. Students in the division of Arts and Sciences may, however, offer a major in economics for the Bachelor of Arts degree or the Bachelor of Science in Education degree.

Uniform Freshman Curriculum. Unless the student's curriculum specifies otherwise, the following program of courses is prescribed for all freshman students entering the division of Arts and Sciences:

English 131-2. English Composition	6 hours
Physical Education, Military Science or Band	2 hours
Mathematics, Foreign Language, Natural Science, or History	18 hours*
Electives or optional courses if needed to complete 32 hours	6 hours*
Total for both semesters of freshman year	32 hours

The standard amount of work for a student in the division of Arts and Sciences is 16 semester hours. Unless called for in a specific curriculum, more than 17 hours or less than 12 hours cannot be taken by a student without the approval by the dean. In the calculation of the load, all active correspondence courses will be counted.

The Bachelor of Arts Degree. The curriculum established for the degree of Bachelor of Arts is designed specifically to fulfill the aims of liberal education through a well-rounded study of the humanities, the physical and biological sciences. It provides also the basis of facts and insights requisite for specialized study and professional work in these fields.

The minimum requirements for the degree of Bachelor of Arts in terms of semester hours, are as follows:

1. English	12
2. A foreign language	12°
3. Mathematics	0-6**
4. Government 230-1	6
5. History 131-2 or its equivalent	6
6. Six hours of a social science above the freshman level other than major or minor	6
7. A laboratory science	6-12***
8. Physical Education, Military Science, or Band (A maximum of four one-hour courses)	4
9. Major, minor, and electives sufficient with the above required courses to total 127 semester hours.	

* Not more than six semester hours may be taken in the same subject unless called for in a specific curriculum.

° If three or more units in a foreign language are accepted for admission, one year in college of the same language (a 300 course or above) will satisfy the foreign language requirement. If no admission units in a foreign language are accepted, three years or eighteen semester hours in college are required for graduation with a Bachelor of Arts degree.

** If three and one-half units of mathematics including algebra, plane geometry, and plane trigonometry are accepted for admission, no further courses in mathematics are required. If three units are accepted including 2 units in algebra and 1 in plane geometry, Math 130 or 131 or 137 is required.

*** If two or more units of laboratory science, biological or physical or both, are accepted for admission, one year of a laboratory course in college will satisfy the natural science requirement. Should either or both the units accepted be in general science and applied science, two years of college science will be required to satisfy degree requirements. If two years are required in college, they cannot be offered in the same subject.

Order and Choice of Work. All entering freshman will follow the prescribed uniform curriculum. During the sophomore year the student should take English 231-2 and remove all unabsolved freshman requirements. The student may decide upon his major field as a sophomore and adjust the remainder of his sophomore work accordingly. The selection of the major and minor fields should be made by the time the student reaches his junior year. For his major subject he will be required to complete 24 semester hours in addition to the minimum degree requirements in that subject. In the case of a subject offered as a major in which no specific courses are included in the uniform requirements for the Bachelor of Arts degree, a minimum of 30 semester hours must be completed in the major subject. Eighteen hours of the major subject must be in courses of junior and senior rank. For his minor he will complete a minimum of 18 semester hours, at least six of which must be of junior and senior rank. All courses in the major and minor subject must be approved by the head of the department concerned.

Not more than 42 semester hours in one subject may be counted in the requirement for the Bachelor of Arts degree. Not more than 12 hours in Biblical history and literature may be counted; nor more than 8 hours in music, except for students offering music as a major or a minor. A maximum of 24 semester hours of electives in the technical or professional subjects of agriculture, commence, education, engineering, and home economics may be offered for the degree of Bachelor of Arts. Courses in shorthand and typewriting may not, however, be offered for this degree.

Students majoring in subjects other than education may qualify for a teacher's certificate by enrolling for the requisite amount of education required for the various certificates. Candidates for the Bachelor of Arts degree or the degree of Bachelor of Science in Education may qualify for the permanent teacher's certificate by completing a minimum of 24 semester hours in education. Choice of education courses should be approved by the head of the department of Education.

Pre-Professional Courses

A student may combine his courses in arts and sciences and law or medicine or dentistry, securing the Bachelor's degree after three years in this college and graduation from the professional school.

Studies Preparatory to Law. The minimum requirements for admission to standard law schools are 15 entrance units, with graduation, as prescribed by the division of Arts and Sciences, and at least three full years (90 semester hours) of college work, except in the case of veterans, for whom special requirements are sometimes fixed. Many law schools now require a degree from a reputable college or university as the entrance requirement and

in most cases it is recommended that a degree be completed. The following curriculum is suggested for students who contemplate the study of law:

Freshman Year: The uniform freshman curriculum should be followed but should include History 133-4 and Government 131-2. The course in the freshman year will vary somewhat depending upon whether or not the student intends to complete a degree before going to law school.

Sophomore Year: English 231-2, History 231-2, Government 232-3, and Economics 231-2 should be taken. If a foreign language was begun in the freshman year, it should be continued. The student should consult with his advisor concerning other courses.

Junior and Senior Years: A major and minor should be designated by the beginning of the junior year, and if a Bachelor of Arts degree is anticipated, a degree plan should be worked out during the junior year. Electives should be chosen chiefly from the social sciences.

The Degree of Bachelor of Arts for Pre-Law Students: The Bachelor of Arts degree will be awarded to students who follow the pre-law program through four years and who complete the requirements for the Bachelor of Arts degree as prescribed in this catalogue.

Pre-law students may obtain the Bachelor of Arts degree from Texas Technological College upon the completion of three years' work (96 hours minimum) in the division of Arts and Sciences of this college and graduation from a three-year standard law school.

The head of the department of Government is the advisor for pre-law students. All pre-law students should consult with him at each registration period.

Studies Preparatory to Medicine and Dentistry. Colleges of medicine and of dentistry require an applicant to present 15 entrance units of approved work and a certificate of graduation from an accredited high school and a minimum of two years of college work. Many medical schools require three years of college work and some require a bachelor's degree.

The following course of study meets the usual pre-medical requirements. For pre-dentistry students, certain modifications may be advisable.

Freshman Years The uniform freshman curriculum should include both Chemistry 131-2 and either Zoology 131-2 or Biology 131-2. Those students who plan to enter the University of Texas Medical school should enroll for History 231-2.

Sophomore Years English 231-2, the foreign language, Physics 141-2,* Zoology 231-2, Chemistry 220 and 242, and physical education make up the recommended sophomore year.

* Prerequisite: Two units in high school algebra, one unit in plane geometry; or Mathematics 130.

Junior Years The junior year should include Chemistry 331-2 and 343-4, Zoology 331-2 or Bacteriology 331-2 and government.

The Degree of Bachelor of Arts for Pre-Medical or Pre-Dental Students: The degree of Bachelor of Arts for pre-medical or pre-dental students may be obtained while in residence by completion of degree requirements or may be awarded upon completion of three years of work in the division of Arts and Sciences, totaling a minimum of 100 semester hours, and upon graduation from a Class A medical or dental college.

Each pre-medical or pre-dental student should consult with the pre-medical adviser in the department of Chemistry at each registration period. Applications for admission to the professional college should be made through his office. The medical aptitude test sponsored by the American Medical Colleges is administered by The Graduate Record Office. Texas Technological College has been designated as an examination center where the test may be taken on the date set by The Graduate Record Office.

CURRICULA IN THE DIVISION OF ARTS AND SCIENCES

CURRICULA FOR THE DEGREES OF BACHELOR OF ARTS, BACHELOR OF SCIENCE AND BACHELOR OF SCIENCE IN EDUCATION

Uniform Freshman Year

First Semester		Credit
English 131	(3-0)	3
English Composition		
Any four of the following:		
Foreign Language		3
A Natural Science		3
History 131	(3-0)	3
History of Civilization		
Mathematics 130	(3-0)	
Algebra,		
or		
Mathematics 137	(3-0)	3
Commercial Algebra		
Elective or major subject		3
Physical Education, Military Science, or Band		1
		16

Second Semester		Credit
English 132	(3-0)	3
English Composition		
Any four of the following:		
Foreign Language, continued		3
A Natural Science, continued		3
History 132	(3-0)	3
History of Civilization		
Mathematics 131	(3-0)	
Trigonometry		
or		
Mathematics 138	(3-0)	3
Mathematics of Finance		
Elective or major subject		3
Physical Education, Military Science, or Band		1
		16

CURRICULUM FOR THE DEGREE OF BACHELOR OF ARTS

JOURNALISM MAJOR

For Uniform Freshman Year See Page 91

Sophomore Year

First Semester		Credit	Second Semester		Credit
English 231 Survey of American Literature	(3-0)	3	English 232 Major English Writers	(3-0)	3
Government 230 American Government	(3-0)	3	Government 231 American Government	(3-0)	3
Journalism 231 Newspaper Reporting	(3-0)	3	Journalism 232 Newspaper Reporting	(3-0)	3
Science		3	Science, continued		3
Foreign Language begun in Freshman Year		3	Foreign Language, continued		3
Physical Education, Military Science, or Band		1	Physical Education, Military Science, or Band		1
		16			16

Junior Year

First Semester		Credit	Second Semester		Credit
Journalism 335 History of American Journalism	(3-0)	3	Journalism Elective		3
Journalism 336 Advanced Reporting	(1-6)	3	Journalism 337 Advanced Reporting	(1-6)	3
Economics 231 Principles of Economics	(3-0)	3	Economics 232 Principles of Economics	(3-0)	3
English Elective		3	English Elective		3
Electives		4	Philosophy 330 Introduction to Philosophy or	(3-0)	
		16	Phychology 230 Introduction to Psychology	(3-0)	3
			Elective		1
					16

Senior Year

First Semester		Credit	Second Semester		Credit
Journalism 434 Editorial Writing or	(3-0)		Journalism 430 Principles of Journalism	(3-0)	3
Journalism 333 Problems of the Community Newspaper	(3-0)	3	Journalism Electives		6
Journalism Electives		6	Electives		6
Electives		7			15
		16			

Hours required for graduation—127.

NOTE: Students who have not had typewriting in high school must take at least one semester in college without credit

CURRICULUM FOR THE DEGREE OF BACHELOR OF ARTS
MUSIC MAJOR OR BAND MAJOR

For Uniform Freshman Year See Page 91*

Sophomore Year

First Semester		Credit	Second Semester		Credit
English 231 Survey, American Literature	(3-0)	3	English 232 Major English Writers	(3-0)	3
Foreign Language begun in freshman year		3	Foreign Language, continued		3
Music 221 Solfeggio	(2-0)	2	Music 222 Solfeggio	(2-0)	2
Music 223 Harmony	(2-0)	2	Music 224 Harmony	(2-0)	2
Music 225 Applied Music or	(2-0)		Music 226 Applied Music or	(2-0)	
Band 225 Applied Band	(2-0)	2	Band 226 Applied Band	(2-0)	2
Science		3	Science, continued		3
Physical Education, Military Science, or Band		1	Physical Education, Military Science, or Band		1
		16			16

Junior and Senior Years

First Semester		Credit	Second Semester		Credit
Government 230 American Government	(3-0)	3	Government 231 American Government	(3-0)	3
History 131 History of Civilization	(3-0)	3	History 132 History of Civilization	(3-0)	3
Mathematics 130 Algebra or	(3-0)		Mathematics 131 Trigonometry or	(3-0)	
Mathematics 137 Commercial Algebra	(3-0)	3	Mathematics 138 Mathematics of Finance	(3-0)	3
Science		3	Science, continued		3
Phychology 230 Introduction to Psychology or	(3-0)		Philosophy 330 Introduction to Philosophy or	(3-0)	
Social Science		3	Social Science		3
Music		9	Music		9
Electives		9	Electives		6
		33			30

Hours required for graduation—127.

* Six hours of music may be substituted for six hours of mathematics or history though such work must be included later. The music branches offered are Music 121-2, Music 123-4, Applied Music 125-6, or Band 125-6.

CURRICULUM FOR THE DEGREE OF BACHELOR OF ARTS

RECREATIONAL LEADERSHIP MAJOR

For Uniform Freshman Year See Page 91*

Sophomore Year

First Semester		Credit
English 231	(3-0)	3
A Survey of American Literature		
Foreign Language begun in freshman year		3
Zoology 235	(2-3)	3
Anatomy, Physiology, and Hygiene		
Speech 231	(2-3)	3
Principles of Acting		
Unabsolved freshman requirement; if none,		
Education 131	(3-0)	3
Introduction to Education		
Physical Education 210	(0-2)	1
Clogging		
		16

Second Semester		Credit
English 232	(3-0)	3
The Major English Writers		
Foreign Language, continued		3
Zoology 236	(2-3)	3
Anatomy, Physiology, and Hygiene		
Speech 232	(2-3)	3
Play Production		
Unabsolved freshman requirement; if none,		
Education 138	(3-0)	3
Career Guidance in Education		
Physical Education 217	(0-2)	1
Folk Dancing		
		16

Junior Year

First Semester		Credit
Architecture 239	(1-6)	3
Pottery		
Education 234	(3-0)	3
Principles of Secondary Education		
Physical Education 230	(3-0)	3
Principles of Health Education		
Psychology 230	(3-0)	3
Introduction to Psychology		
Physical Education 331	(3-0)	3
Recreational Methods		
		15

Second Semester		Credit
Applied Arts 232	(1-6)	3
Crafts Design		
Education 235	(3-0)	3
High School Methods		
Physical Education 233	(3-0)	3
Methods in Physical Education for the Elementary Teacher		
Sociology 330	(3-0)	
Introduction to Sociology		
or		
Sociology 333	(3-0)	3
Current Social Problems		
Physical Education 332	(3-0)	3
Physiology of Exercise		
		15

*The student must take Biology 131-2 as his science, Applied Arts 131-2 and Music 113-4 as his elective work, and Spanish as his foreign language.

RECREATIONAL LEADERSHIP MAJOR

Senior Year

First Semester		Credit	Second Semester		Credit
Physical Education 338 Technique of Sports	(3-0)	3	Physical Education 339 Technique of Sports	(3-0)	3
Nutrition 333 Elementary Nutrition and Food Selection	(3-0)	3	Phychology 331 Child Psychology	(3-0)	
			or		
Physical Education 439 Community Recreation	(3-0)	3	Psychology 335 Psychology of Adolescence	(3-0)	3
Applied Arts 332 Metal and Plastic	(1-6)		Physical Education 3312 Safety and First Aid	(3-0)	3
or					
Applied Arts 333 Jewelry and Lapidary	(1-6)	3	Applied Arts 431 Wood	(1-6)	3
Government 230 American Government	(3-0)	3	Government 231 American Government	(3-0)	3
Architecture 3216 Clay Modeling	(0-6)	2	Education 3310 Children's Literature	(3-0)	3
		17			18

Hours required for graduation——129.

The Degree of Bachelor of Science

For students primarily interested in the natural sciences and mathematics, the division of Arts and Sciences provides a curriculum leading to the degree of Bachelor of Science. The fundamentals of liberal education as well as the foundation courses necessary for advanced study in the field of the sciences are emphasized in the general requirements for this degree:

1. English ..... 12 semester hours
2. Foreign Language ..... 12 semester hours
3. Mathematics ..... 6 semester hours
4. Economics ..... 6 semester hours
5. Government ..... 6 semester hours
6. Physical Education, Military Science, or Band ..... 4 semester hours
   (A maximum of four one-hour courses)

7. Additional courses to make a total of 128 semester hours as a minimum. Of these courses, at least 72 hours are to be completed in the departments of Biology, Chemistry, Geology, and Physics with at least six semester hours in each department. Students majoring in mathematics or physics are required to take the courses in only three departments. Students majoring in chemistry may substitute six semester hours of mathematics for six semester hours of science elective. With the consent of the head of the department, students majoring in geology may select, as optional courses in place of two years of foreign language, one year of mechanical drawing and one year of mathematics beyond

the minimum requirements, for the Bachelor of Science degree.

Freshmen will follow the curriculum for the uniform freshman year with the specific recommendations as shown under the respective majors.

The candidate for the Bachelor of Science degree will select his major at the beginning of his sophomore year, and will thereafter follow the prescribed curriculum of the department of his choice as set forth below. The general major and minor requirements may be met in either of two ways: (1) at least 36 semester hours in biology, chemistry, geology, physics (or mathematics) shall constitute a major, and no specific minor will be required. (2) At least 24 semester hours above the freshman course may be taken in any one department for a major. In this case a minor consisting of a minimum of 12 semester hours above the freshman course must be taken in a second science or department. In either event all electives in any curriculum are to be approved by the head of the department in which the student seeks his degree. Approval must be obtained in advance of taking the courses.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

BOTANY MAJOR

For Uniform Freshman Year See Page 91*

Sophomore Year

First Semester		Credit	Second Semester		Credit
**Botany 233 General Morphology	(2-3)	3	** Botany 232 Taxonomy	(2-3)	3
Zoology 131 General Zoology	(2-3)	3	Zoology 132 General Zoology	(2-3)	3
Science Course in a department not represented in the freshman year.		3	Science Continuation of course begun in first semester		3
Foreign Language The foreign language begun in the freshman year		3	English 232 The Major English Writers	(3-0)	3
English 231 A Survey of American Literature	(3-0)	3	Foreign Language Continuation of course begun in first semester		3
Physical Education, Military Science, or Band		1	Physical Education, Military Science, or Band		1
		16			16

* A second science, chemistry, geology, or physics, should be substituted for History 131-2.

**Students who have completed Biology 131-2 in their freshman year should register for Botany 131 parallel with sophomore botany; no credit will be lost.

Junior Year

First Semester		Credit	Second Semester		Credit
Botany		3	Botany 331	(2-3)	3
A course of junior rank			Plant Physiology		
Zoology 231	(2-3)	3	Zoology 232	(2-3)	3
Comparative Vertebrate Anatomy			Comparative Vertebrate Anatomy		
Bacteriology 331	(2-3)	3	Bacteriology 332	(2-3)	3
Principles of Bacteriology			Principles of Bacteriology		
Science		3	Science		3
Course in the department not represented in the freshman and sophomore years			Continuation of the course begun in the first semester		
*Electives		6	*Electives		3
		18			15

Senior Year

First Semester		Credit	Second Semester		Credit
Botany 411	(1-0)	1	Botany 431	(1-6)	3
Botany Seminar			Plant Microtechnique		
Botany		3	Botany		3
A course of junior or senior rank			A course of junior or senior rank		
Economics		3	Economics		3
An approved course			An approved course		
Government 230	(3-0)	3	Government 231	(3-0)	3
American Government			American Government		
Electives		6	Electives		3
		16			15

Hours required for graduation—128.

*Electives should be distributed as follows: (1-) six semester hours of sophomore courses in chemistry, geology, or physics; (2) six semester hours of courses in plant industry, foods and nutrition, mathematics, sciences, or education; (3) six semester hours of approved electives.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

ZOOLOGY MAJOR

For Uniform Freshman Year, See Page 91*

Sophomore Year

First Semester		Credit
**Zoology 231 Comparative Vertebrate Anatomy	(2-3)	3
Botany 131 Principles of Botany	(2-3)	3
Science Course in a department not represented in the freshman year.		3
English 231 Survey of American Literature	(3-0)	3
Foreign Language The foreign language begun in the freshman year.		3
Physical Education, Military Science, or Band		1
		16

Second Semester		Credit
**Zoology 232 Comparative Vertebrate Anatomy	(2-3)	3
Botany 132 Principles of Botany.	(2-3)	3
Science Continuation of course begun in first semester.		3
English 232 The Major English Writers	(3-0)	3
Foreign Language Continuation of course begun in first semester		3
Physical Education, Military Science, or Band		1
		16

Junior Year

First Semester		Credit
Zoology 331 Animal Histology	(1-6)	3
Botany 233 General Morphology	(2-3)	3
Bacteriology 331 Principles of Bacteriology	(2-3)	3
Science Course in the department not represented in freshman and sophomore years		3
***Electives		6
		18

Second Semester		Credit
Zoology 332 Comparative Vertebrate Embryology	(1-6)	3
Botany 232 Taxonomy	(2-3)	3
Bacteriology 332 Principles of Bacteriology	(2-3)	3
Science Continuation of course begun in first semester		3
***Electives		3
		15

* A second science, chemistry, geology or phyhics, should be substituted for history 131-2.

**Students who have completed Biology 131-2 in their freshman year should register for Zoology 132 parallel with their sophomore zoology; no credit will be lost.

***Electives should be distributed as follows: (1) six semester hours of sophomore courses in chemistry, geology, or physics; (2) six semester hours of courses in foods and nutrition, plant industry, mathematics, science, or education; (3) six semester hours of approved electives.

Senior Year

First Semester		Credit	Second Semester		Credit
Zoology 411	(1-0)	1	Zoology		3
Zoology Seminar			A course of junior or senior rank		
Zoology		3	Zoology		3
A course of senior rank.			A course of senior rank		
Economics		3	Economics		3
An approved course			An approved course		
Government 230	(3-0)	3	Government 231	(3-0)	3
American Government			American Government		
Electives		6	Electives		3
		16			15

Hours required for graduation—128.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

CHEMISTRY MAJOR

For Uniform Freshman Year, See Page 91*

Sophomore Year

First Semester		Credit	Second Semester		Credit
Chemistry 220	(1-3)	2	Chemistry 242	(3-3)	4
Qualitative Analysis			Inorganic Chemistry		
Science—courses in two science departments not represented in the freshman year		6	Science		6
			Continuation of courses begun the first semester		
Foreign Language		3	Foreign Language		3
**Government 230	(3-0)		**Government 231	(3-0)	
American Government			American Government		
or			or		
**Mathematics 335	(3-0)	3	**Mathematics 336	(3-0)	3
Differential and Integral Calculus			Differential and Integral Calculus		
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		15			17

* A second science should be substituted for History 131-2.

**If Mathematics 121-2 and Mathematics 131-2 were taken during the freshman year, Mathematics 335-6 may be taken in the sophomore year. If Mathematics 130 and Mathematics 131 were taken in the freshman year, Mathematics 235-6 should be taken in the sophomore year and Mathematics 335-6 in the junior year.

Junior Year

First Semester		Credit
Chemistry 331 Quantitative Analysis	(3-6)	3
Chemistry 343 Organic Chemistry	(3-3)	4
Foreign Language		3
Physics Elective		3
Government 230 American Government or	(3-0)	
Mathematics 335 Differential and Integral Calculus	(3-0)	3
		16

Second Semester		Credit
Chemistry 332 Quantitative Analysis	(3-6)	3
Chemistry 344 Organic Chemistry	(3-3)	4
Foreign Language		3
Physics Elective		3
Government 231 American Government or	(3-0)	
Mathematics 336 Differential and Integral Calculus	(3-0)	3
		16

Senior Year

First Semester		Credit
Chemistry 411 Seminar	(1-0)	1
Chemistry 441 Physical Chemistry	(3-3)	4
Economics		3
English 231 A Survey of American Literature	(3-0)	3
Chemistry 435 Advanced Quantitative Analysis or	(0-9)	
Chemistry 436 Biological Chemistry	(2-3)	3
Science Elective		3
		17

Second Semester		Credit
Chemistry 412 Seminar	(1-0)	1
Chemistry 442 Physical Chemistry	(3-3)	4
Economics		3
English 232 The Major English Writers	(3-0)	3
Science Electives		4
		15

Hours required for graduation—128.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

MATHEMATICS MAJOR

For Uniform Freshman Year, See Page 91*

Sophomore Year

First Semester		Credit	Second Semester		Credit
Mathematics 235 Analytic Geometry	(3-0)	3	Mathematics 236 Analytic Geometry	(3-0)	3
English 231 A Survey of American Literature	(3-0)	3	English 232 The Major English Writers	(3-0)	3
Foreign Language		3	Foreign, Language		3
History 131 History of Civilization	(3-0)	3	History 132 History of Civilization	(3-0)	3
Chemistry 131 General Chemistry	(2-3)	3	Chemistry 132 General Chemistry	(2-3)	3
**Astronomy 231 General Astronomy	(3-0)	3	**Astronomy 232 General Astronomy	(3-0)	3
Physical Education, Military Science, or Band		1	Physical Education, Military Science, or Band		1
		19			19

Junior and Senior Years

First Semester		Credit	Second Semester		Credit
Mathematics 333 Advanced Algebra	(3-0)	3	Mathematics 334 Advanced Algebra	(3-0)	3
Mathematics 335 Differential and Integral Calculus	(3-0)	3	Mathematics 336 Differential and Integral Calculus	(3-0)	3
Mathematics 433 Theory of Equations	(3-0)	3	Mathematics 432 Differential Equations	(3-0)	3
***Mathematics One (or two) courses		3 (6)	***Mathematics One (or two) courses		3 (6)
Government 230 American Government	(3-0)	3	Government 231 American Government	(3-0)	3
Economics 231 Principles of Economics	(3-0)	3	Economics 232 Principles of Economics	(3-0)	3
Science		3	Science		3
Civil Engr. 331 Applied Mechanics-Statics	(3-0)	3	Philosophy 337 Logic	(3-0)	3
Electives		6 (3)	Electives		6 (3)
		30			30

Hours required for graduation—130.

*Physics 131-2 should be scheduled as the first science course. Either Geology 131-2 or Biology 131-2 should be scheduled for the second science course in lieu of History 131-2.

**This may be deferred to junior or senior year and may be replaced by a mathematics course if Astronomy 111 is taken.

***The series Mathematics 434-5 or Mathematics 437-8, or both, is suggested.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

PETROLEUM GEOLOGY MAJOR

For Uniform Freshman Year, See Page 91*

Sophomore Year

First Semester		Credit	Second Semester		Credit
Geology 231 Mineralogy	(1-6)	3	Geology 234 Elementary Structural Geology	(3-0)	3
English 231 Survey of American Literature	(3-0)	3	English 232 Major English Writers	(3-0)	3
Foreign Language or **Mathematics		3	Foreign Language or **Mathematics		3
Physics 131 Elements of College Physics	(2-3)	3	Physics 132 Elements of College Physics	(2-3)	3
Biology 131 Natural History	(2-3)	3	Biology 132 Natural History	(2-3)	3
Physical Education, Military Science, or Band		1	Physical Education, Military Science, or Band		1
		16			16

Summer

***Geology 363 Field Geology	6

Junior Year

First Semester		Credit	Second Semester		Credit
Geology 333 Petrography and Petrology	(1-6)	3	Geology 334 Petrography and Petrology	(1-6)	3
Geology 335 General Paleontology	(2-3)	3	Geology 336 General Paleontology	(2-3)	3
Government 230 American Government	(3-0)	3	Government 231 American Government	(3-0)	3
Economics 231 Principles of Economics	(3-0)	3	Economics 232 Principles of Economics	(3-0)	3
Electives		3	Electives		3
		15			15

*Geology 131-2 should be taken for the science. Chemistry 131-2 should be substituted for History 131-2. Mechanical drawing may be substituted for the foreign language. If so, Mathematics 130 and 131 must be taken.

**Courses approved by department head.

***May be used as a junior elective.

Senior Year

First Semester		Credit	Second Semester		Credit
Geology 411 Geology of Texas	(1-0)	1	Geology 412 Geology of Texas	(1-0)	1
Geology 413 Seminar	(1-0)	1	Geology 414 Seminar	(1-0)	1
Geology 431 Advanced General Geology	(3-0)	3	Geology 432 Advanced General Geology	(3-0)	3
Geology 433 Structural Geology	(3-0)	3	Geology 434 Petroleum Geology	(3-0)	3
Geology 435 Index Fossils	(1-6)	3	Geology 436 Micropaleontology	(1-6)	3
General Elective		3	General Elective		3
Elective in Science		3	Elective in Science		3
		17			17

Hours required for graduation—128.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

PHYSICS MAJOR

For Uniform Freshman Year, See Page 91*

Sophomore Year

First Semester		Credit	Second Semester		Credit
Foreign Language begun in freshman year		3	Foreign Language begun in freshman year		3
Mathematics 251 Calculus	((5-0)	5	Mathematics 233 Calculus Applications	(3-0)	3
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Chemistry 131 General Chemistry	(2-3)	3	Chemistry 132 General Chemistry	(2-3)	3
Physical Education, Military Science or Band		1	Elective		3
		16	Physical Education, Military Science or Band		1
					17

* Physics 141-2 should be scheduled as the first science course. Mathematics 131 and 132 should be scheduled along with Mathematics 121 and 122 in lieu of History 131-2.

Junior and Senior Years

First Semester		Credit
English 231 Survey of American Literature	(3-0)	3
Government 230 American Government	(3-0)	3
Economics 231 Principles of Economics	(3-0)	3
Mathematics 321 Differential Equations	(2-0)	2
Mathematics 434 Advanced Calculus	(3-0)	3
Physics 331 Light	(2-3)	3
Physics 333 Electricity and Magnetism	(3-0)	3
Physics 337 Introduction to Modern Physics	(3-0)	3
Physics 312 Modern Physics Laboratory	(0-3)	1
Physics 411 Physics Seminar	(1-0)	1
Physics 413 Physics Seminar	(1-0)	1
Physics 423 Electrical Measurements	(0-6)	2
Physics 437 Introduction to Theoretical Physics	(3-0)	3
Geology 131 General Geology or A freshman course in the Biology Department	(3-2)	3
		34

Second Semester		Credit
English 232 Major English Writers	(3-0)	3
Government 231 American Government	(3-0)	3
Economics 232 Principles of Economics	(3-0)	3
Mathematics 435 Advanced Calculus	(3-0)	3
Physics 332 Heat	(3-0)	3
Physics 334 Electricity and Magnetism	(3-0)	3
Physics 338 Introduction to Modern Physics	(3-0)	3
Physics 313 Modern Physics Laboratory	(0-3)	1
Physics 412 Physics Seminar	(1-0)	1
Physics 414 Physics Seminar	(1-0)	1
Physics 424 Electrical Measurements	(0-6)	2
Physics 438 Introduction to Theoretical Physics	(3-0)	3
Geology 132 General Geology or A freshman course in the Biology Department	(3-2)	3
Elective		3
		35

Hours required for graduation—134.

The Degree of Bachelor of Science in Education

The degree of Bachelor of Science in Education is set up specifically for teachers in order to give definite professional training in their field of work.

The work of the freshman year is largely prescribed. In the sophomore year, the student may choose the particular field of education in which he desires to work. Choice must also be made of the subject matter field in which he desires to prepare for teaching. The student must also elect a second subject which he may use as a subject-matter minor in his classroom teaching. Such teaching majors and minors are available in the various subject fields of the division of Arts and Sciences, including music and band. Certain more general teaching majors and minors are available, such as social science, general science, and foreign language. With the approval of the deans concerned, teaching majors and minors may also be taken in other divisions of the college. Ordinarily the teaching major calls for the completion of a minimum of 24 semester hours, and the teaching minor a minimum of 18 semester hours.

The prescribed subjects together with electives total 128 semester hours for the degree with a minimum of 138 grade points.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN EDUCATION

For Uniform Freshman Year, See Page 91*

Sophomore Year

First Semester		Credit	Second Semester		Credit
Education		3	Education		3
English 231	(3-0)	3	English 232	(3-0)	3
A Survey of American Literature			The Major English Writers		
Zoology 235	(2-3)		Zoology 236	(2-3)	
Anatomy, Physiology and Hygiene			Anatomy, Physiology and Hygiene		
or			or		
Biology 131	(2-3)	3	Biology 132	(2-3)	3
Natural History					
Government 230	(3-0)	3	Government 231	(3-0)	3
American Government			American Government		
Teaching Major		3	Teaching Major		3
Physical Education, Military Science, or Band		1	Physical Education, Military Science, or Band		1
		16			16

* The student will take either mathematics or science and may substitute speech for history.

Junior Year

First Semester		Credit	Second Semester	Credit
Psychology 230 Introduction to Psychology	(3-0)	3	Sociology	3
Elective in Physical Education		3	Elective in Physical Ed.	3
Teaching Major		3	Teaching Major	3
Teaching Minor		3	Teaching Minor	3
Education		3	Education	3
Elective		2	Elective	2
		17		17

Senior Year

First Semester	Credit	Second Semester	Credit
Teaching Major	3	Teaching Major	3
Teaching Minor	6	Teaching Minor	6
Education	6	Education	6
	15		15

Hours required for graduation—128.

NOTE:

1. Thirty hours in education and psychology are required for the degree of Bachelor of Science in Education.
2. Students should consult the head of the department of Education and Psychology in order to choose the proper courses for certificate purposes and also for either elementary or secondary school teaching.
3. The courses in education must include at least one course each in methods of teaching, educational psychology, tests and measurements, history or principles of education, and practice teaching.
4. Teaching majors and minors ordinarily require 24 and 18 hours, respectively. Departmental requirements are in some cases higher.
5. Elementary teachers should take Biology 131-2; high school teachers Zoology 235-6.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN EDUCATION

PUBLIC SCHOOL MUSIC MAJOR

For Uniform Freshman Year, See Page 91*

Sophomore Year

First Semester		Credit	Second Semester		Credit
English 231 A Survey of American Literature	(3-0)	3	English 232 The Major English Writers	(3-0)	3
Education 234 Principles of Secondary Education	(3-0)	3	Education 235 High School Methods	(3-0)	3
Government 230 American Government	(3-0)	3	Government 231 American Government	(3-0)	3
Music 221 Solfeggio	(2-0)	2	Music 222 Solfeggio	(2-0)	2
Music 223 Harmony	(2-0)	2	Music 224 Harmony	(2-0)	2
Music 225 Applied Music	(2-0)	2	Music 226 Applied Music	(2-0)	2
Music 217 Voice	(1-0)	1	Music 218 Voice	(1-0)	1
Physical Education, Military Science, or Band 211		1	Physical Education, Military Science, or Band 212		1
		17			17

Junior Year

First Semester		Credit	Second Semester		Credit
Psychology 230 Introduction to Psychology	(3-0)	3	Psychology 333 Measurements in Education	(3-0)	
Subject-matter minor		3	or		
Music 327 Conducting	(2-0)	2	Psychology 431 Mental Testing	(3-0)	3
Music 335 History and Appreciation	(3-0)	3	Subject-matter minor		3
Music 337 Music Education	(3-0)	3	Music 328 Conducting	(2-0)	2
Music 325 Applied Music	(2-0)	2	Music 336 History and Appreciation	(3-0)	3
		16	Music 438 Junior and Senior Methods	(3-0)	3
			Music 326 Applied Music	(2-0)	2
			Band 321 Band Conducting and Methods	(2-0)	2
					18

* In order that the student may secure more work in music in the freshman year. 14 semester hours in music may be taken in lieu of foreign language, mathematics or history.

Class-voice and minor instruments are given without extra tuition. Education and psychology courses should be selected on the advice of the head of the department of Education and Psychology.

Senior Year

First Semester		Credit
Education 331 Principles of Education	(3-0)	
or		
Education 430 Sociological Principles of Education	(3-0)	
or		
Education 431 Education in the United States	(3-0)	3
Psychology 231 Educational Psychology	(3-0)	3
Music 431 Minor Instruments	(3-0)	3
Teaching Minor		3
Music 425 Applied Music	(2-0)	2
Music 413 Chorus	(1-0)	1
		15

Second Semester		Credit
Education 3316 or 3317 Observation and Practice	(3-0)	3
Music 432 Minor Instruments	(3-0)	3
Teaching Minor		6
Music 426 Applied Music	(2-0)	2
Music 414 Chorus	(1-0)	1
		15

Hours required for graduation—130.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN EDUCATION

BAND MUSIC MAJOR

For Uniform Freshman Year, See Page 91*

Sophomore Year

First Semester		Credit
English 231 A Survey of American Literature	(3-0)	3
Band 225 Band	(2-0)	2
Education 234 Principles of Secondary Education	(3-0)	3
Government 230 American Government	(3-0)	3
Music 221 Solfeggio	(2-0)	2
Music 223 Harmony	(2-0)	2
Music 217 Voice	(1-0)	1
Physical Education, Military Science, or Band 211		1
		17

Second Semester		Credit
English 232 The Major English Writers	(3-0)	3
Band 226 Band	(2-0)	2
Education 235 High School Methods	(3-0)	3
Government 231 American Government	(3-0)	3
Music 222 Solfeggio	(2-0)	2
Music 224 Harmony	(2-0)	2
Music 218 Voice	(1-0)	1
Physical Education, Military Science, or Band 212		1
		17

* In order that the student may secure more work in music in the freshman year, 14 semester hours in music may be taken in lieu of foreign language, mathematics or history.

Class-voice and minor instruments are given without extra tuition. Education and psychology courses should be selected on the advice of the head of the department of Education and Psychology.

Junior Year

First Semester		Credit
Band 325	(2-0)	2
Band		
Psychology 230	(3-0)	3
Introduction to Psychology		
Teaching Minor		6
Music 327	(2-0)	2
Conducting		
Electives in Social Science		3
		16

Second Semester		Credit
Band 326	(2-0)	2
Band		
Psychology 333	(3-0)	
Measurements in Education		
or		
Psychology 431	(3-0)	3
Mental Testing		
Teaching Minor		3
Band 321	(2-0)	2
Band Conducting and Methods		
Music 328	(2-0)	2
Conducting		
Electives in Social Science		3
		15

Senior Year

First Semester		Credit
Band 425	(2-0)	2
Band		
Band 421	(2-0)	2
Band Conducting and Methods		
Education 331	(3-0)	
Principles of Education		
or		
Education 430	(3-0)	
Sociological Principles of Education		
or		
Education 431	(3-0)	3
Education in the United States		
Educational Psychology	(3-0)	3
Teaching Minor		3
Music 431	(3-0)	3
Minor Instruments		
		16

Second Semester		Credit
Band 426	(2-0)	2
Band		
Band 422	(2-0)	2
Band Conducting and Methods		
Education 3316 or 3317	(3-0)	3
Observation and Practice Teaching		
Teaching Minor		6
Music 432	(3-0)	3
Minor Instruments		
		16

Hours required for graduation—129.

INFORMATION FOR MAJORS IN THE DIVISION OF ARTS AND SCIENCES

Department of Biology

The department of Biology offers courses for the following groups of students: (1) those working toward the Bachelor of Science or the Bachelor of Arts degree; (2) those classified as pre-medical, pre-dental, pre-pharmacy, or pre-clinical technician or nurses; (3) those working toward conservation, sanitation, or other governmental services; (4) those from other divisions or departments wishing biology courses as a background; and (5) prospective teachers of science courses in high school, or health and hygiene in the grades.

Students majoring in botany may minor in zoology, and vice versa, both in undergraduate and in graduate work. Courses in bacteriology and biology may be counted either as botany or as zoology. Students looking forward to a Master's degree should add enough courses, as electives, in their proposed major and minor subjects to meet the entrance requirements of the division of Graduate Studies.

At least one course in the field is very strongly recommended for all students majoring in botany or zoology. This work may be taken from this institution or at one of the mountain, seashore, or other biological field stations.

Department of Chemistry

The department of Chemistry offers curricula leading to three degrees. The degree of Bachelor of Science in Chemical Engineering is awarded upon the completion of the requirements outlined by the division of Engineering. The degree of Bachelor of Arts or the degree of Bachelor of Science, Chemistry Major, is awarded upon the completion of the requirements for the respective degrees as set forth by the division of Arts and Sciences.

The Degree of Bachelor of Arts. Thirty semester hours of chemistry are required as a major for this degree. Any course offered by this department, unless stated to the contrary in the description of that course, may be counted in the fulfillment of this requirement, provided that all prerequisites of that course have been fulfilled. The student is advised to select his courses in consultation with the head of the department.

The purpose of this curriculum is to give the student a diversified view of the field of chemistry and, at the same time to allow an ample and varied choice of other subjects enabling the student to secure a general education. The nature of the courses in chemistry which must be taken is such, however, that the student is prepared for graduate work should he desire to continue the study of chemistry.

The Degree of Bachelor of Science, Chemistry Major. This curriculum is designed to give the graduate a well-rounded view

of the physical sciences—chemistry, biology, geology, and physics. In addition, the minimum major requirement of 36 semester hours in chemistry will prepare the student for industrial positions in chemical plants and for graduate work in the sciences.

Department of Education and Psychology

The department of Education and Psychology furnishes the professional preparation in education and psychology necessary for the education of teachers, supervisors, and school administrators. Its primary function is to furnish the professional preparation in methods, preparation of materials, classroom management, administration and supervision, and other professional courses necessary for the preparation of teachers, supervisors and administrators.

Each course in the department of Education and Psychology counts as an independent course and may be taken by students majoring in other divisions or departments who desire to prepare themselves as teachers or to satisfy degree requirements.

Courses taken may be used to satisfy requirements for teachers' certificates valid in Texas and in other states. Students desiring to teach in other states should consult the head of the department concerning certificate requirements in those states. Teachers' certificates are secured by compliance with the state school laws.

Department of English

English 131-2 is the required freshman composition course. English 231, A Survey of American Literature, and English 232, The Major English Writers, are required of all sophomores in the divisions of Arts and Sciences, Business Administration, and Home Economics. English 233, Technical Writing, is the required sophomore course in the division of Engineering. English 234, Special Work on Correct Usage, is required of sophomores in the division of Agriculture. English 233 and 234 do not satisfy the sophomore English requirements in the divisions of Arts and Sciences, Business Administration and Home Economics.

In all courses in English, regardless of rank, students are expected to demonstrate an adequate command of correct and effective English. The course grade of a student may be F if he shows a notable deficiency in his use of the language, although otherwise satisfying the course requirements.

Eight advanced courses (24 semester hours above sophomore rank) are required of students who choose English as their major subject. Of this number, English 3312, Advanced Composition, is basic and should be taken in the junior year. Students who select English as their major or minor subject must have their programs approved by the head of the department of English at the time of registration. No grade less than "C—" on an advanced course in English may be counted toward a major or minor in this department. At least two of the advanced courses offered for an Eng-

lish major and at least one of those offered for a minor must be taken in residence in this college.

Students with an English major are strongly urged to pursue work in a foreign language and literature as a minor. Other subjects which may be effectively correlated with an English major are history, speech, philosophy, and journalism. The department of English recommends that its major students elect History 133-4 in their freshman year, instead of History 131-2.

Department of Foreign Languages

The department of Foreign Languages offers instruction in German, French, Latin, and Spanish. Sufficient work is offered for a major in all of these languages except German. Courses leading to the degree of Master of Arts are offered in Spanish.

Students following a major in one foreign language are strongly urged to pursue work in a second foreign language and in English. Other fields which may be effectively combined with a foreign language are speech, social sciences, and journalism.

Students majoring in a foreign language must offer 36 semester hours, if they satisfy the language requirements for a degree in the same language. Students are urged to satisfy their foreign language requirement in another language, however. In this case, 24 semester hours are sufficient for a major.

Those expecting to major in foreign languages should consult with the head of the department of Foreign Languages.

Students wishing to prepare for government service either at home or in foreign fields should consult with the head of the department. In addition to determining languages to be studied, it is necessary to select certain courses in literature, history, government, economics, typing, and shorthand.

Department of Geology

On account of the extensive application of the principles of geology to the practical problems of the petroleum industry, there are many openings in this industry for men trained in geology and related subjects. Much of the advanced work of this department therefore is devoted to preparation for work in the petroleum industry, although the training is sufficiently broad and fundamental to serve for other geological professions such as state and federal surveys and other similar work.

Students who desire to prepare themselves for employment in the geological department of major oil companies, should take the curriculum in Petroleum Geology as outlined in this catalogue.

Students desiring to fulfill the science requirements of the general degrees ,or who wish one or more science courses for cultural purposes will find geology admirably suited for this purpose. Geology is the science of the earth, and as such, is a science with which one comes in daily, intimate, contact throughout life.

Courses numbered 333 and above are primarily for advanced undergraduates. Courses numbered 511 and above for graduate students only.

Department of Government

All students at Texas Technological College take at least one course in government. The department of Government endeavors to give all students a basic understanding of governmental processes and to help in preparing them for responsible citizenship, intelligent voting, and successful leadership in public affairs.

A major containing a well-rounded program is offered in government. It is based on the principles of a liberal education, with emphasis on the theory and practice of governments. Students interested in preparing for government service may take advanced courses in all levels of American Government with emphasis upon the field of their special interest. Courses of study are also provided for those students who wish to enter the foreign service as a career.

The department of Government serves in an advisory capacity for pre-law students. Each student having such interest is guided carefully toward fulfilling the entrance requirements for law school and is given the best possible preparatory background for his future work.

Government 131-2 or Government 230 is required of all students in the college for graduation. Government 231 is recommended to follow Government 230, although in some departments it is not required for graduation.

Department of History and Anthropology

This department offers courses designed to give a knowledge of the cultural aspirations of the past and of man's efforts to care for the material needs of society through certain economic structures and changing political organizations. The origin and development of present-day institutions receive major consideration.

Courses numbered under 300 are introductory and are intended for freshmen and sophomores; courses numbered 300 are advanced European history courses; courses numbered 400 are advanced American history courses; either of the last two series is open to students with junior classification or above. Courses numbered 500 are for graduate students only. Each semester of a continuous advanced or graduate course may be counted as an independent unit.

Students of junior standing, whose major subject is other than history, may, with the permission of the head of the department, elect courses in history without having done the prerequisite work required of students majoring in history.

Students majoring in history and anthropology are required to take 36 semester hours, of which six must be Anthro. 331-2. Twenty-four of the 36 semester hours must be advanced.

Advanced courses are given in alternate years. Because of this, the student with history major should begin planning his advanced courses at the earliest date practicable. Students with history majors should take History 131-2 and History 231-2 before entering advanced courses.

History 131-2 or junior classification is prerequisite for courses in anthropology.

Statement of Prerequisites:

For students majoring in history, History 131-2 and History 231-2 are prerequisite for history courses numbered 300 and above. With the permission of the head of the department, History 133-4 may be substituted for 131-2.

Department of Journalism

The work in journalism is designed to give a thorough training in the technique of journalistic writing and editing, a knowledge of the development of American journalism, and an understanding of those principles which underlie the most approved journalistic practices. One year's experience in reporting is required of all journalism graduates. Students majoring in journalism are required to take typewriting without credit toward a degree during the freshman year, unless they have had a satisfactory course in high school. Courses 231-2, 335, 336-7, 430, and 333 or 434 are required of all those majoring in journalism.

Much practice in news gathering, writing, and editing is given. The college printshop and the student publications are used as laboratories in advertising, make-up, reporting and editing. Assignments are given on the college student publications, the college news service, and the Lubbock *Avalanche-Journal* publications.

Candidates for the degree of Bachelor of Arts in journalism must fulfill all the requirements for graduation from the division of Arts and Sciences, including the prescribed work, the major and minor subjects, and a sufficient number of electives to make a total of 127 hours, with work of sufficient quality to make the necessary grade points. Work of "D" grade will not be accepted for credit on major or minor requirements. Students majoring in journalism are required to complete 36 hours in journalism and 20 hours in sophomore, junior, and senior courses in some of the following subjects: economics, English, government, history, phychology, foreign languages, and sociology. For a minor a minimum of 18 semester hours, at least six of which must be of junior or senior rank, are required. The minor subject must be approved by the head of the department.

Sophomore classification is prerequisite for any course in journalism except Journalism 131-2.

Department of Mathematics

The functions of the department of Mathematics is to provide essential training in the service science which underlies all technical progress and at the same time to foster habits of logical thinking which are basic to a well-rounded education. In this field the student is confronted challengingly with the problem of drawing exact and undebatable conclusions from given premises by use of sound thinking alone. It follows that the successful student of mathematics gains more than technical proficiency

leading to opportunities in education, business, and industry. He gains also in the character elements of confidence and self-reliance, as well as in the cultural accomplishment of precision in thinking, speaking and writing.

The courses in astronomy are designed to impress upon the student a life-long realization of the vastness and majestic orderliness of the universe around him. Since an important element of intellectual maturity is an appreciative (though not necessarily a technical) acquaintance with the broader known aspects of astronomy, it is desirable that every student at least meet the subject in the course of his studies. Known facts and principles are emphasized more than is proficiency with instruments, since the specialist in astronomy should naturally obtain his final training in a large observatory.

The department offers courses which fit into the curricula of the various divisions of the college, with adaptations to meet the special requirements of each.

At least nine semester hours in mathematics courses numbered above 334 are required for admission to candidacy for the Master's degree in this department. It is important that the candidate plan his courses at the beginning of his graduate work. His advisor will aid him in selecting courses and a thesis subject.

Department of Music and Band

Instrumental and voice teachers associated with the college are listed following the description of courses.

The department offers a music major toward the Bachelor of Arts degree and major in public school music and in band music for the degree of Bachelor of Science in Education. The degree of Bachelor of Science in Education is a professional degree which includes observation and practice teaching and entitles the recipient to the State Permanent Certificate. Requirements for graduation may be met in four years without summer school or extension work.

The curriculum for the Bachelor of Arts degree with music major and the general requirements for the Bachelor of Arts degree are given separately on pages 93 and 88. It is suggested that a student with a major in music not undertake to complete the requirements for the Bachelor of Arts degree within four years unless he does additional study during at least one summer session. This is made necessary by the amount of daily practice in applied music. The fourteen hours of freshman music courses referred to on pages 107 and 108 will consist of Music 121-2, Music 123-4, Class Voice 117-8, and Applied Music 125-6. Band majors will substitute Band 125-6 for Applied Music 125-6. The freshman courses on the Bachelor of Arts with music major are Music 121-2, Music 123-4, and Music 125-6.

Primary and elementary teachers of school music who are required to offer six hours of music should enroll in Music 231 and 337 (or other choice with permission). If the student has

had junior and senior high school music or is sufficiently advanced upon an instrument or in voice, he may follow Music 337 after an examination.

For students desiring to offer a minor in music the following courses are suggested: Music 121-2 or 123-4, 335-6; Applied Music 125-6, 225-6; Chorus electives: 313-4, 413-4.

The department does not offer majors in voice and instrumental music, but in lieu grants instrumental and voice diplomas to those students who have accomplished the junior and senior applied courses with distinction and who present junior and senior recitals open to the public. Although this college diploma may embody the necessary credentials for the acquisition of the state instrumental or voice certificate, the former should not be confused with the latter.

Any branch of music may be elected upon recommendation of the head of the department in which the student is majoring. Music 335-6 is the only advanced subject which can be taken without any music prerequisites. This course is open to all students of junior classifications in college.

Courses are listed under five headings: Music, Band, Chorus, Orchestra, and Applied Music.

The holder of the degree of Bachelor of Science in Education with a major in band may offer 12 hours in the following branches as a minor for a degree of Master of Education: Band 521-2, 523-4; Music 335-6, 337, 438; Band 421-2, 425-6; Applied Music 325-6, 425-6, 4215-16, if properly petitioned for in advance and if an additional special problem is done.

All branches listed under applied chorus, orchestra, and band are normally divisible. Hence credit per semester is granted toward a degree for either semester part of the course. Under theory, Music 335 and 336, History and Appreciation, are divisible. Music 431 and 432, Minor Instruments, are divisible. The instrument in question is parenthesized at registration time, thus, 431 (Strings), or 432 (Strings). Other exceptions must first be properly petitioned for by the student to the head of the department concerned, before a final ruling by the dean of the division.

Department of Philosophy and Sociology

The function of philosophy is two-fold. First, it seeks to inquire into life seen as a whole, to determine the purpose of the whole. Second, it seeks to answer scientifically certain questions: what are the methods of correct thinking; what is the nature of knowledge, truth, and certainty; what is the ultimate nature of reality; what is value or goodness; what is the nature of right or proper conduct; what is beauty; what is religion. Philosophical studies should aid the student to develop the habit of thinking critically for himself.

To meet the minimum degree requirements in the department of Philosophy, the student may offer Philosophy 330, 337, or 338—preferably 330.

Students majoring or minoring in philosophy will take Psychology 230 to satisfy the minimum degree requirements. Those majoring in philosophy will take also either Psychology 337, 433, or 434. Government 433-4 may be taken for credit toward a major in philosophy.

Sociology means science of society. It is concerned with the foundations of group life, interrelation between individuals and their groups, kinds of groups, culture and institutions, social changes and social progress, social problems and their causes, effects, and remedies. Courses in sociology are preparatory for students planning to enter the profession of social work.

The following courses given in other departments will be accepted as fullfilling major or minor requirements of students majoring or minoring in sociology, provided they are not accepted to fulfill requirements in other departments: Anthropology 331-2; Philosophy 338; Economics 432; Education 430; Psychology 434; Government 332; Rural Sociology 431, 432, 532; Family Relations 433.

Department of Physical and Health Education for Men

It is the purpose of the department of Physical and Health Education to offer instruction intended to improve the physical fitness of the individual and to contribute to the general aims of education by developing proficiency in activities that promote health and which teach skills, attitudes, knowledge, habits of conduct, and safety practices that function in the lives of individuals and prepare them for successful citizenship.

Every physically fit male student, except those who elect to work in miltary science or band, must complete four one-hour courses in the department of Physical and Health Education. These required courses are Physical Education 113, 114, 213, 214.

If physical defects make it inadvisable for the student to participate in regular physical education work, he may be given corrective work or in extreme cases may be permitted to meet by substitution the total number of hours of practical physical education required. In such case, the student will enroll for Physical Education 3310.

Students wishing to do major or minor work in the department of Physical and Health Education will follow the general requirements for the degree of Bachelor of Science in Education found on page 105.

Details concerning the special certificate required of physical education teachers and coaches are noted under the Department of Education and Psychology.

Required gymnasium apparel may be purchased from the college bookstore upon registration for physical education work. These costumes are suitable for class work, throughout the two years of physical education.

Activities For Men

A. *Intercollegiate Athletics.*

B. *Dual and Individual Sports:* Handball, fencing, tennis, golf, badminton, boxing, wrestling, table tennis, swimming.

C. *Gymnastic Activities:* Individual gymnastics, tumbling.

D. *Team Games:* Volleyball, softball, basketball, speedball, soccer, field hockey, baseball.

E. *Intramural Sports:* Intramural athletics are based on the premise that men enjoy the thrill of participating in competitive games. As only a relatively small number possess the outstanding skill which places them on varsity teams, the majority must find other means to gratify their desire for play; therefore the intramural program has been planned to give each student an opportunity to compete in some sport of his own choosing.

Students engaging in as many as two intramural sports will be given credit for that semester's work in the required physical education courses, provided they are enrolled regularly for this work.

Department of Physical and Health Education for Women

The department of Physical and Health Education for Women offers the following types of instructional work:

1. Two years of required physical education to meet the graduation requirement for all degrees.

2. A curriculum for those desiring to major in physical education.

3. A curriculum for those desiring to major in recreational leadership.

4. The method courses in health and physical education required by the State Department of Education for classroom teachers who are responsible for playground and health activities in public schools. These courses are Physical Education 230 and Physical Education 233.

Every woman student is required to receive credit for four one-hour courses in physical education if her physical condition will permit. If physical defects seem to make it inadvisable for the student to participate in regular physical education work, the student may complete four semesters of Physical Education 2113 or in extreme cases may be permitted to meet by substitution the four semester hours by taking Physical Education 3310.

Students wishing to do major work in physical and health education will follow the special requirements outlined under the degree of Bachelor of Science in Education.

Required gymnasium apparel may be purchased from the college bookstore upon registration for physical education work.

These costumes are suitable for class work throughout the two years of physical education.

Women's Recreation Association. The purpose of this organization is to further the recreational interests and activities of women students.

All unrequired athletic activities are sponsored by the W.R.A. Points are awarded for participation in various sports offered each semester. All women students are eligible for membership in this club.

Women's Physical Education Majors and Minors Club. Membership in this club is open to all physical education majors and minors enrolled in college. This organization was established to promote professional interest in physical education.

Department of Physics

The instructional work in the department of Physics has been organized with the view of attaining the following objectives: (1) to acquaint the student who is pursuing a non-specialized course of study with the place of physics in the modern world and to train him in the scientific methods of work; (2) to provide the basic training in physics for agricultural, engineering, and premedical students; (3) to offer students majoring in chemistry, geology, or biology the advantages of training in general physics as well as in certain specialized courses, bordering on their own fields, which may be of benefit to them; (4) to offer a thorough, well-rounded training to those who may elect physics as their major in a course of study leading to the Bachelor of Science or Bachelor of Arts degree. In this fourth category should be included those students who desire to prepare themselves for teaching positions in secondary schools; positions in the civil service requiring training in physics, scientific work with commercial companies, graduate work in this institution or in other institutions of higher learning.

The department of Physics has for its exclusive use a lecture room with an apparatus room adjoining; four laboratories devoted wholly to the work in general physics; a light laboratory; an electrical measurements laboratory; a modern laboratory; an X-ray laboratory; a bio-physics research laboratory; a photographic darkroom; a shop equipped for making and repairing apparatus. The various laboratories and the apparatus room are equipped with apparatus of modern design and construction. They are supplied with A.C. and D.C. current, water, gas, and compressed air.

Department of Speech

The department provides instruction for students who intend to enter the field of speech as a profession. Speech may be taken as a major or a minor subject for undergraduate work and as a minor for graduate work. Speech courses are open to any student in the college who can meet prerequisite requirements. Students preparing for other professions will find courses in the department

which may help them in their chosen work. One of the aims of the department is to help students prepare themselves to take part in community affairs.

Majors in the department of Speech who are candidates for the degree Bachelor of Arts, must complete graduation requirements for that degree. To fulfill requirements in science, speech majors are required to take Physics 137-8 and Zoology 235-6. Students who wish to major in speech should consult with the head of the department before they register.

The equipment of the department includes a stage and properties for the actual practice of theory. Here various speaking situations are created in order that the student may have practical experience in conducting and taking part in public affairs. A workshop is equipped with tools and materials for constructing stage sets. A radio studio with a local public address unit is used for practice in radio speech. The department has a Presto recorder and a Mirrophone magnetic tape recorder.

A Speech Clinic, open to students and others with defective speech, is conducted by the department one afternoon each week. No college credit is given for clinic work.

Bible and Religious Education

Through the interest and cooperation of the Baptist, Methodist, Church of Christ and Christian churches, certain courses in Bible and Religious Education are offered to students in Texas Technological College. These courses carry college credit, a maximum of 12 semester hours being allowed. Classes are held in suitable classrooms near the college campus. The work is under the regular supervision of the division of Arts and Sciences, subject to all regulations governing all other courses in the college. These courses in Bible are taught by instructors approved by the college but the work is supported entirely by the denominations mentioned.

DIVISION OF BUSINESS ADMINISTRATION

T. C. ROOT, *Acting Dean*

The purpose of the Division of Business Administration is to prepare students for responsible administrative and executive positions in private business or in the business of government. Training is provided also for recognized professional types of employment, such as: accounting, secretarial work, research, and economic consultants in business or government. The requirements for graduation are based upon the belief that the undergraduate training should be broad, cultural and fundamental. Specialization is not allowed until the students have reached junior standing, and in the upper levels the students will not immediately begin narrow specialization. Instead, they will first be required to take certain basic courses designed to give general, historical, industrial, political, and legal background; to provide a knowledge of the chief internal and external functional problems of business administration; and to give training in the use of accounting, statistics, economics and other professional tools.

It should be clearly understood by students who are preparing for business that the division can lay only a foundation for a successful career. The problems of adaptation, policies, techniques, methods and practices of a given business enterprise must be learned on the job and cannot be learned in the classroom. The background of knowledge, theory, professional skill, social contacts, and mental training acquired in the division should accelerate the rate of advancement after leaving the college.

Admission

The completion of sufficient college work to attain sophomore standing is required for admission into the Division of Business Administration. Students who have not reached sophomore standing in college will enroll in the Division of Arts and Sciences.

Degrees Granted

The Division of Business Administration offers two undergraduate and two graduate degrees:

Bachelor of Business Administration. This degree will be awarded to all students who have completed the minimum requirements in terms of semester hours, as follows:

(1)	English	12
(2)	Mathematics 137-8	6
(3)	A laboratory science	6
(4)	History	6
(5)	Government 230-1	6

(6)	Economics 231-2	6
(7)	Introduction to Accounting 244-5	8
(8)	Physical Education, Military Science or Band (a maximum of four 1-hour courses)	4
(9)	The completion of one of the prescribed curricula in the Division of Business Administration, as outlined on the following pages: Accounting, Finance, Management, Marketing, Secretarial Administration, or Commercial Teaching, for a total of 127 semester hours.	

Bachelor of Science. This degree will be awarded to all students who have completed the minimum requirements in terms of semester hours, as follows:

(1)	English	12
(2)	Mathematics 137-8	6
(3)	A laboratory science	6
(4)	History	6
(5)	Government 230-1	6
(6)	Economics 231-2	6
(7)	Introduction to Accounting 244-5	8
(8)	Physical Education, Military Science or Band (a maximum of four 1-hour courses)	4
(9)	The completion of one of these prescribed curricula in the Division of Business Administration, as outlined on the following pages: Economics, International Trade, or Public Administration, for a total of 127 semester hours.	

Master of Business Administration Degree and the *Master of Science Degree* are awarded upon completion of the requirements of the Division of Graduate Studies.

Selection of a Major

Students in the Division of Business Administration will complete the uniform sophomore program as outlined on page 125. At some time before completion of the sophomore year, students will select a major field of study from one of the curricula on pages 125 et seq., and will consult the faculty advisor of the chosen major.

Students are urged to acquire skill in the use of a typewriter early in their college work. Students who expect to major in Secretarial Administration should take typewriting and shorthand in their freshman year in college.

No grade lower than C will be accepted in junior and senior courses in the major subjects.

Accounting

The purpose of the department is to offer training to students who wish to specialize in the field of accounting. The Department of Accounting is arranged in two general fields: business

accounting and public accounting. Elective courses will be suggested by faculty advisors to equip each student according to the specific line of activity he intends to enter within the chosen major.

The courses offered lay a foundation for broadly-trained accountants. Because the curriculum in Business Administration requires a broad knowledge of all forms of business procedure, the prospective accountant has only a limited time for the study of his major during the undergraduate period and will need to continue his preparation for the practice of public accountancy after graduation.

Economics

The purpose of the courses in economics is to provide a general training or background for students in specialized professional or vocational fields and for those desiring a cultural training in the foundations of our economic institutions, ideas, and policies. Specialized curricula are available for those interested in public administration or international trade. Generalized courses of study are provided to meet the need of those interested in a broadened understanding of the organization and practices of private business and its relations to government policy as a basis of further training in particular lines of business activity. All major study programs are flexible enough to permit a wide selection of courses in other departments of the division and college.

Finance

Fundamental courses in the field of banking and finance have been arranged into a major for those students who wish to prepare themselves for the numerous opportunities existing in banks, financial organizations, and in the financial departments of business enterprises. Advisors will assist students to plan their courses to fit the individual for his particular activity.

Management

Management has become an important field of specialization in modern industry. The courses offered in this department provide basic training for those students desiring to enter this comparatively new and growing profession.

Marketing

The major objective of the curriculum in Marketing is primarily to provide professional training for young men and young women who choose to follow careers in the realm of merchandising of goods and or services.

A secondary objective is to offer an opportunity for students of other employments and interests to secure training which will aid them in their respective endeavors.

Students are trained in theoretical and practical methods and techniques of modern merchandising institutions. This includes specific study of such phases as marketing functions, installment-plan selling, retail and wholesale businesses, manufacturers' agents, and other selling agencies, types of other middlemen, commodity and securities exchanges, hedging, legal aspects of marketing, policies, and the relative efficiency of the various methods of marketing.

Attention is given to the structural organization, operation, and place of the organized exchanges and markets in current business. Study is made of the interpretation of market quotations and reports, and in their use by business institutions.

Specialized courses are provided for those interested in merchandising as a career. The student may be advised to take certain courses in other departments when it is believed that those courses will better prepare him for his chosen field of activity.

Secretarial Administration

Students in the department of Secretarial Administration are urged to acquire skills in typewriting and shorthand early in their college work in order that advanced work may be devoted to courses in principles, theory, and application. Those students desiring to major in the department who have not had typewriting must take one unit of high school typewriting in the Extension Division before they will be admitted to the Secretarial Administration department.

The purpose of the work in the department of Secretarial Administration is to provide professional training rather than purely vocational training. Opportunity is provided for acquiring adequate skill in secretarial courses while at the same time obtaining a general college education. Secretarial work should be regarded by ambitious young people more as a means to an end rather than as an end itself. Technical skills are considered a desirable means of entering business, as well as being careers in themselves

CURRICULA FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION AND FOR THE DEGREE OF BACHELOR OF SCIENCE

Uniform Sophomore Year

First Semester		Credit	Second Semester		Credit
Economics 231 Principles of Economics	(3-0)	3	Economics 232 Principles of Economics	(3-0)	3
Accounting 244 Introduction to Accounting	(3-3)	4	Accounting 245 Introduction to Accounting	(3-3)	4
Government 230 American Government	(3-0)	3	Government 231 American Government	(3-0)	3
English 231 A Survey of American Literature	(3-0)	3	English 232 The Major English Writers	(3-0)	3
Elective		3	Elective		3
Physical Education, Band, or Military Science		1	Physical Education, Band, or Military Science		1
		17			17

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

ACCOUNTING MAJOR

See Uniform Sophomore Year Above

Junior Year

First Semester		Credit	Second Semester		Credit
Accounting 334 Intermediate Accounting	(3-0)	3	Accounting 335 Intermediate Accounting	(3-0)	3
Accounting 336 Principles of Cost Accounting	(3-0)	3	Speech 338 Business and Professional Speech	(3-0)	3
Finance 331 Corporation Finance	(3-0)	3	Marketing 332 Principles of Marketing	(3-0)	3
Finance 338 Business Law	(3-0)	3	Finance 339 Business Law	(3-0)	3
Secretarial Admn. 333 Business Correspondence	(3-0)	3	Marketing 346 Statistics	(3-3)	4
		15			16

Senior Year

First Semester		Credit	Second Semester		Credit
Accounting 434 Advanced Accounting	(3-0)	3	Accounting 435 Advanced Accounting	(3-0)	3
Elective Accounting		3	Accounting 437 Principles of Auditing	(3-0)	3
Electives		9	Economics 438 Research in Economics and Business	(2-3)	3
		15	Elective Accounting		3
			Electives		3
					15

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

COMMERCIAL TEACHING MAJOR

For Uniform Sophomore Year See Page 125

Junior Year*

First Semester		Credit	Second Semester		Credit
Education 234 Principles of Secondary Education	(3-0)	3	Education 235 High School Methods	(3-0)	3
Secretarial Admn. 333 Business Correspondence	(3-0)	3	Marketing 346 Statistics	(3-3)	4
Marketing 332 Principles of Marketing	(3-0)	3	Finance 331 Corporation Finance	(3-0)	3
Finance 338 Business Law	(3-0)	3	Marketing 333 Marketing Problems	(3-0)	3
Elective		3	Finance 339 Business Law	(3-0)	3
		15			16

Senior Year

First Semester		Credit	Second Semester		Credit
Psychology 231 Educational Psychology	(3-0)	3	Education 3316 Observation and Practice Teaching	(3-0)	3
Secretarial Admn. 434 Punch Card Machines	(2-4)	3	Secretarial Admn. 432 Methods of Teaching Commercial Subjects	(3-0)	3
Marketing 433 Salesmanship	(3-0)	3	Speech 338 Business and Professional Speech	(3-0)	3
Economics 438 Research in Economics and Business	(2-3)	3	Electives		7
Elective		4			
		16			16

Hours required for graduation——129.

* Secretarial Admn. 114, Typewriting and Secretarial Admn. 235-6, Shorthand, will be completed in the sophomore year.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

FINANCE MAJOR

For Uniform Sophomore Year See Page 125

Junior Year

First Semester		Credit	Second Semester		Credit
Finance 331 Corporation Finance	(3-0)	3	Finance 332 Short-Term Finance	(3-0)	3
Finance 333 Banking Principles	(3-0)	3	Finance 334 Credits and Collections	(3-0)	3
Marketing 346 Statistics	(3-3)	4	Marketing 332 Principles of Marketing	(3-0)	3
Accounting 334 Intermediate Accounting	(3-0)	3	Accounting 335 Intermdiate Accounting	(3-0)	3
Finance 338 Business Law	(3-0)	3	Finance 339 Business Law	(3-0)	3
		16			15

Senior Year

First Semester		Credit	Second Semester		Credit
Finance 431 The Federal Reserve System	(3-0)	3	Finance 434 Investments	(3-0)	3
Secretarial Admn. 333 Business Correspondence	(3-0)	3	Speech 338 Business and Professional Speech	(3-0)	3
Electives		9	Economics 438 Research in Economics and Business	(2-3)	3
		15	Electives		6
					15

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

MANAGEMENT MAJOR

For Uniform Sophomore Year See Page 125

Junior Year

First Semester		Credit	Second Semester		Credit
Industrial Engr. 332 Management	(3-0)	3	Management 331 Industrial Management	(3-0)	3
Economics 336 Labor Problems	(3-0)	3	Marketing 346 Statistics	(3-3)	4
Marketing 332 Principles of Marketing	(3-0)	3	Finance 331 Corporation Finance	(3-0)	3
Finance 338 Business Law	(3-0)	3	Marketing 333 Marketing Problems	(3-0)	3
Elective		3	Finance 339 Business Law	(3-0)	3
		15			16

Senior Year

First Semester		Credit	Second Semester		Credit
Management 431 Office Management	(3-0)	3	Management 432 Personnel Management	(3-0)	3
Economics 438 Research in Economics and Business	(2-3)	3	Management 433 Labor Relations	(3-0)	3
Speech 338 Business and Professional Speech	(3-0)	3	Elective in Economics		3
Elective in Economics		3	Electives		6
Elective		3			15
		15			

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

MARKETING MAJOR

For Uniform Sophomore Year See Page 125

Junior Year

First Semester		Credit	Second Semester		Credit
Marketing 332 Principles of Marketing	(3-0)	3	Marketing 333 Marketing Problems	(3-0)	3
Economics 335 Transportation Economics	(3-0)	3	Secretarial Admn. 333 Business Correspondence	(3-0)	3
Psychology 230 Introduction to Psychology	(3-0)	3	Psychology 338 Psychology Applied to Business	(3-0)	3
Marketing 346 Statistics	(3-3)	4	Finance 331 Corporation Finance	(3-0)	3
Finance 338 Business Law	(3-0)	3	Finance 339 Business Law	(3-0)	3
		16			15

Senior Year

First Semester		Credit	Second Semester		Credit
Marketing 433 Salesmanship	(3-0)	3	Marketing 435 Business Cycles and Forecasts	(3-0)	3
Marketing 436 Retail Store Management	(3-0)	3	Economics 438 Research in Economics and Business	(2-3)	3
Speech 338 Business and Professional Speech	(3-0)	3	Electives		9
Economics 338 Foreign Trade	(3-0)	3			15
Elective		3			
		15			

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

SECRETARIAL ADMINISTRATION MAJOR

For Uniform Sophomore Year See Page 125

Junior Year*

First Semester		Credit	Second Semester		Credit
Secretarial Admn. 321 Office Machines	(0-6)	2	Secretarial Admn. 332 Secretarial Practice	(3-1)	3
Secretarial Admn. 331 Secretarial Practice	(3-1)	3	Marketing 346 Statistics	(3-3)	4
Secretarial Admn. 333 Business Correspondence	(3-0)	3	Finance 339 Business Law	(3-0)	3
Finance 338 Business Law	(3-0)	3	Speech 338 Business and Professional Speech	(3-0)	3
Electives		4	Electives		3
		15			16

Senior Year

First Semester		Credit	Second Semester		Credit
Secretarial Admn. 434 Punch Card Machines	(2-4)	3	Secretarial Admn. 421 Voice Writing and Duplicating	(1-3)	2
Economics 438 Research in Economics and Business	(2-3)	3	Secretarial Admn. 433 Secretarial Problems and Practices	(3-0)	3
Management 431 Office Management	(3-0)	3	Electives		10
Electives		6			15
		15			

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

ECONOMICS MAJOR

For Uniform Sophomore Year See Page 125

Junior Year

First Semester		Credit	Second Semester		Credit
Economics 332 Public Utility Economics	(3-0)	3	Economics 334 Taxation	(3-0)	3
Economics 333 Public Expenditures	(3-0)	3	Finance 331 Corporation Finance	(3-0)	3
Economics 336 Labor Problems	(3-0)	3	Speech 338 Business and Professional Speech	(3-0)	3
Marketing 332 Principles of Marketing	(3-0)	3	Marketing 346 Statistics	(3-3)	4
Finance 338 Business Law	(3-0)	3	Finance 339 Business Law	(3-0)	3
		15			16

* Secretarial Admn. 114, 131, 132, 235, 236 will be completed previous to the junior year.

Senior Year

First Semester	Credit	Second Semester	Credit
Economics 4310 Advanced Economic Principles	(3-0) 3	Economics 433 International Economic Relations	(3-0) 3
Marketing 437 Advanced Business Statistics	(3-0) 3	Economics 436 Development of Economic Doctrines	(3-0) 3
Economics 438 Research in Economics and Business	(2-3) 3	Marketing 435 Business Cycles and Forecasts	(3-0) 3
Economics 437 Current Economic Problems	(3-0) 3	Electives	6
Elective	3		15
	15		

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

INTERNATIONAL TRADE MAJOR

For Uniform Sophomore Year See Page 125

Junior Year

First Semester	Credit	Second Semester	Credit
Economics 335 Transportation Economics	(3-0) 3	Economics 337 Economic Systems	(3-0) 3
Economics 338 Foreign Trade	(3-0) 3	Economics 339 Latin America and the United States	(3-0) 3
Finance 338 Business Law	(3-0) 3	Finance 339 Business Law	(3-0) 3
Marketing 332 Principles of Marketing	(3-0) 3	Government 336 American Diplomacy	(3-0) 3
Marketing 346 Statistics	(3-3) 4	Speech 338 Business and Professional Speech	(3-0) 3
	16		15

Senior Year

First Semester	Credit	Second Semester	Credit
Economics 432 Foreign Market Surveys	(3-0) 3	Economics 433 International Economic Relations	(3-0) 3
Economics 437 Current Economic Problems	(3-0) 3	Government 436 International Law	(3-0) 3
Economics 434 Air Transportation	(3-0) 3	Electives	9
Government 435 International Law	(3-0) 3		15
Government 437 Political Geography	(3-0) 3		
	15		

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

PUBLIC ADMINISTRATION MAJOR

For Uniform Sophomore Year See Page 125

Junior Year

First Semester		Credit	Second Semester		Credit
Economics 333 Public Expenditures	(3-0)	3	Economics 334 Taxation	(3-0)	3
Economics 335 Transportation Economics	(3-0)	3	Marketing 346 Statistics	(3-3)	4
Finance 331 Corporation Finance	(3-0)	3	Marketing 332 Principles of Marketing	(3-0)	3
Finance 338 Business Law	(3-0)	3	Finance 339 Business Law	(3-0)	3
Speech 338 Business and Professional Speech	(3-0)	3	Elective		3
		15			16

Senior Year

First Semester		Credit	Second Semester		Credit
Economics 4310 Advanced Economic Principles	(3-0)	3	Marketing 435 Business Cycles and Forecasts	(3-0)	3
Economics 438 Research in Economics and Business	(2-3)	3	Accounting 432 Governmental Accounting	(3-0)	3
Electives, Economics and Government		6	Electives, Economics and Government		6
Elective		3	Elective		3
		15			15

Hours required for graduation—127.

DIVISION OF ENGINEERING

O. V. ADAMS, *Dean*

The importance of the division of Engineering is stressed in the first section of the bill by which the Thirty-eighth Legislature established this college. It is pointed out that the commercial development of our state depends largely upon the opportunities for students to receive thorough training in engineering and manufacturing fields.

Purpose. The aim and purpose of the division of Engineering is to give students a thorough knowledge of the fundamentals of all engineering work with specilization in one particular line only to the extent that experience appears to demand as a minimum. The course of study is planned with the view of giving the student basic training which he can not get after graduation, leaving a large part of his specialization to his later professional employment. Experience has shown this type of training to produce the most successful engineers.

Engineering has been defined as the "scientific utilization of the forces and materials of nature in the construction, production, and operation of works for the benefit of man." Therefore, the fundamental training of the engineer includes a knowledge of pure science, as well as its application to the various specialized fields. As an aid to the development of a scientific attitude, engineering instruction emphasizes the qualities of honesty, loyalty, thoroughness, and industry and fosters the desire for learning and for a knowledge of the ethics of the profession.

Degrees Granted. The division of Engineering offers the following four-year curricula, each leading to the degree of Bachelor of Science in its respective field:

Chemical Engineering; Civil Engineering; Electrical Engineering; Industrial Engineering; Mechancial Engineering; Petroleum Engineering; Textile Engineering. In the department of Architecture five-year curricula in architecture and commercial art are offered leading to the degrees of Bachelor of Architecture and Bachelor of Commercial Art respectively. For those who desire it, the Bachelor of Arts degree will be conferred upon the completion of the first four years of the prescribed five-year course in commercial art. However, one receiving the Bachelor of Arts degree must do at least one semester or two six weeks summer terms prior to the time when his degree in the five-year curriculum is conferred. The department of Civil Engineering and the department of Geology and Petroleum Engineering are cooperating in offering a five-year curriculum. Upon the successful completion of four years of this curriculum the degree, Bachelor of Science in Petroleum Engineering, Geology Option, will be awarded. Upon the successful completion of the additional courses prescribed for the fifth year the degree, Bachelor of Science in Civil Engineering will be awarded. The work of the first

four years will include the courses shown in the curriculum for Petroleum Engineering, Geology Option, with the following exceptions: Geology 435 and 436 and Civil Engineering 310 and add Civil Engineering 320, 330 and 420.

The fifth year will include: Civil Engineering 335, 431, 432, 433, 434, 439 and 424, 425, 426 or 437, 438.

Field For Graduates. The engineering student upon graduation usually spends a period of time in subordinate positions securing experience and preparing himself for the more important work of the executive, the designer, the consulting engineer, the teacher, or the operator.

Engineering training is recognized as desirable preparation for a commercial career. From 60 to 70 per cent of engineering graduates in the past have eventually held executive positions. Surveys of employment records of engineering graduates disclose the fact that men who have had an engineering education have found their way into nearly every type of vocation. A few of the vocations which the engineering graduate may reasonably expect to enter upon graduation, or after a period of practical experience, have been indicated in the beginning of the departmental descriptions. Attention is called to the fact that in a civilization such as ours where one is constantly in contact with the results of our modern industrial development, no type of education is more suitable than that leading to an engineering degree.

Requirements For Graduation. All four-year students in the division of Engineering, except those in the department of Architecture, are required to take identical work throughout the freshman year. This is done in order that the student, before choosing his professional field, may have the opportunity of becoming familiar with the courses of instruction and the possibilities after graduation in the various fields of engineering.

Freshmen students are required to take engineering orientation which includes lectures and motion picture showings on the scope and opportunities of the various fields of the engineering profession.

Electives in any curriculum must be approved by the head of the department in which the student seeks the degree and by the dean of the division before the student registers for the course. A course regularly approved as an elective normally becomes a part of the student's requirements for graduation for the particular curriculum in which he seeks a degree.

Subjects to absolve extra hours required because of excessive absences or for deficiency in grade points must be approved by the dean before the student registers for the course. No approval will be given to remove a deficiency in grade points until the student has substantially completed his required curriculum. Credit for advanced military science may not be used to absolve extra hours required because of an excessive number of absences.

Physically qualified engineering students desiring to do so may take work in military science. All students are eligible for

the Air Corps and Infantry units. The Corps of Engineers is limited to students of Civil, Electrical, or Mechanical Engineering, and the Signal Corps is limited to students of Electrical or Mechanical Engineering or Electronics.

It is recommended that all students majoring in chemical engineering acquire a reading knowledge of German before graduation.

Professional Degrees. An engineering graduate of Texas Technological College may become a candidate for a professional degree, of which the following are available: Chemical Engineer, Civil Engineer, Electrical Engineer, Geological Engineer, Industrial Engineer, Mechanical Engineer, Textile Engineer.

The requirements for any of these degrees include acceptable professional experience, a thesis, and an examination.

INFORMATION FOR MAJORS IN THE DIVISION OF ENGINEERNG

Department of Architecture

Curricula leading to three degrees are offered by the department of Architecture. A five-year curriculum leads to the degree of Bachelor of Architecture under which the student may select either the design option or construction option. A five-year curriculum is also offered leading to the degree of Bachelor of Commercial Art. The degree of Bachelor of Arts may be conferred upon the completion of the first four years of the prescribed five-year curriculum in Commercial Art.

The functions of the architect today are manifold and highly technical. For that reason the student is allowed to make a choice from the curriculum in Architecture to pursue either design option or construction option after completing a uniform freshman year. As the art of planning is the basis of architecture, the student is given in the Design Option a thorough groundwork in the fundamentals of the profession. After mastering several techniques he learns the good principles of construction and a detailed knowledge of materials, their practical characteristics and the effects which can be obtained from them. The course in architectural design is outlined to develop creative ability in order that the student may think simultaneously in three dimensions visualizing the work in plan, section, and elevation in such a way that the resultant composition is expressive and beautiful. In construction option emphasis is placed upon subjects relating to engineering science. This appeals to the student who has talent for drawing, mathematics, and mechanics. Emphasis thus is made upon methods of construction, surveying, sanitation, heating, lighting, ventilation, and acoustics. He may work toward structural design or any of the following phases of building construction, superintendence, general contracting, and cost estimation.

The curriculum in Commercial Art is planned for the student who desires to enter professions demanding a background of drawing, painting, and art principles. The emphasis is on extensive training and study of theory relating to such work. Courses in freehand drawing, lettering, composition, illustration, and design keep the drawing tools in the student's hands; and the techniques are studied with relation to their use in the printing processes. History of architecture, art, ornament, and furniture are included to widen the background from which the designer may draw inspiration. This course leads the way into countless allied arts professions.

All courses offered by the department are open to both men and women. Those seeking the profession of teaching art in elementary or high schools should confer with the head of the department in regard to the election of required courses in education.

The department of Architecture has an excellent library of 3000 volumes and a collection of 3000 photographs relating to the work. Lecture courses are illustrated with lantern slides. The department sponsors the Texas Technological College Art Institute, the function of which is to bring high-quality lectures and traveling exhibitions of architecture and art to students and people of the community. The Gargoyle Club, open to students in the department, is an educational and social organization whose aim is to intensify interest in the college work and to broaden the cultural background. The department is affiliated with the Beaux Arts Institute of Design, the American Federation of Arts, the College Art Association, and is reinforced with valuable teaching equipment from the Carnegie Foundation.

Work in various architectural design courses may be carried on simultaneously. The normal time required to complete the design courses I, II, III, IV, is four years. Advancement is based upon design points earned. The student must earn 64 points in grade I, 96 points in grade II, 128 points in grade III, and 192 points in grade IV to maintain a C average.

Department of Chemical Engineering

Chemical engineering is recognized today as a distinct branch of engineering. An industrial chemical process in reality consists of a series of unit processes, the proper sequence of which constitute an engineering science.

The chemical engineering curriculum is based upon the belief that a student should secure a thorough fundamental training in both chemistry and engineering. Hence the specialized courses are largely omited. Emphasis, insofar as possible, is placed on both class and laboratory work. In addition to the professional courses, the curriculum emphasizes the importance of a proper training in English, economics, and speech. It is the purpose of this course to train men so that they may develop into executive

superintendents and managers of plants in the field of chemical industry. This curriculum leads to the degree of Bachelor of Science in Chemical Engineering.

Department of Civil Engineering

The curriculum of study outlined under the requirements for the degree of Bachelor of Science in Civil Engineering is designed to prepare the student to enter any of the following fields of endeavor:

1. Highway engineering—the economics, design, construction, maintenance, operation, and methods of financing highways.
2. Structural engineering—the design and construction of fixed structures and their foundations.
3. Hydraulic and sanitary engineering—the design and construction of dams, hydraulic power plants, water supply plants, and sewage disposal systems.
4. Surveying and geodesy—the measurement and platting of portions of the earth's surface and objects on it.

Besides the special fields indicated, the civil engineering curriculum is broad enough to permit a graduate to enter into many other fields open to the technically trained man. Aeronautical structural design may be cited for example.

The curriculum in civil engineering requires much work in English, economics, and the sciences. It affords a liberal education as well as technical training.

Combination Course Petroleum Engineering—Geology Option and Civil Engineering

The department of Civil Engineering and the department of Geology and Petroleum Engineering are cooperating in offering a five-year curriculum. At the successful completion of four years of this curriculum the degree Bachelor of Science in Petroleum Engineering, Geology Option, will be awarded. At the successful completion of the additional courses prescribed for the fifth year the degree Bachelor of Science in Civil Engineering will be awarded.

The work of the first four years will include the courses shown in the curriculum for Petroleum Engineering—Geology Option, with the following exceptions: Geology 435 and 436 and Civil Engineering 310 and add Civil Engineering 320, 330, and 420. The fifth year will include: Civil Engineering 335, 431, 432, 433, 434, 439 and 424, 425, 426 or 437, 438.

Department of Electrical Engineering

Electrical engineering is one of the newest branches of engineering. The branch has developed so rapidly, and the applications of electricity have become so broad, that many subdivisions in electrical engineering now exist, offering opportunity and vocations in a variety of engineering endeavors. Graduates in elec-

trical engineering find employment in such fields as manufacturing, public utilities, business, contracting, sales, research, teaching, design, construction, application, transportation, illumination, and communication.

Specialization in any of these fields usually follows graduation. Some degree of specialization is provided in the senior year by the offer of two options, the Communications Option and the Power Option. The purpose of the course is to give comprehensive training in the principles of electricity required for a thorough understanding of electrical circuits, apparatus, and machinery.

The curriculum has been revised to include instruction in engineering electronics and radio. Laboratories are equipped with the latest types of radio, electronics equipment, and machines. Experimental verification of the theory studied in the classroom is carried out in the laboratory. The curriculum is broadened by the inclusion of courses in chemical, civil, industrial and mechanical engineering, in addition to the courses in electrical engineering.

Special emphasis is placed upon the student's ability to reason logically, to apply mathematics, and to speak and write clear, concise English. To prepare the student for his professional courses, the first two years are devoted largely to a study of mathematics, English, physics, chemistry, and engineering drawing.

Department of Industrial Engineering and Engineering Drawing

The objective of this department is to provide instruction which will prepare the student to enter the industrial field as an industrial engineer and to give all engineering students sound training in engineering drawing.

Industrial Engineering

Industrial engineering is that branch of engineering which specializes in the location, design, construction, operation, and equipment of industrial plants. As a distinct branch of engineering, industrial engineering is among the later branches in which the leading colleges of the country offer a complete curriculum.

The demand for increased, efficient production during the war greatly emphasized the need for persons trained in the field of industrial engineering.

Courses given in industrial engineering are intended to give the student the basic training necessary to enable him to enter the industrial world with a broad foundation on which to specialize in any industry he may choose. Aside from the subjects relating directly to industrial engineering, it is required of the student that he secure a fundamental training in English, economics, and business administration. It is emphasized that the successful industrial engineer is much more than a purely technical man; he must be familiar with the various departments of industry and must recognize that he has an obligation to society in the field

of social, political, and other problems. The curriculum is planned so that the student obtains instruction in the basic branches of engineering, namely: mechanical, electrical, civil, and chemical—in their respective departments. Special efforts is made to furnish an insight into the field of industrial engineering by pictures of the machinery in industrial plants in actual operation; talks by men in industrial work; visits to industrial plants; and a discussion of papers on subjects relating to industrial engineering. The student is taught to choose the most desirable location, type of building and machinery, to determine the most economical and practical arrangement of machinery, and to provide healthful working conditions, safety protection, and the most desirable personnel for a particular plant.

Engineering Drawing

The courses offered in engineering drawing are fundamental for all courses in engineering; also certain courses are given which are in the nature of service courses for the other departments and divisions. These courses aim to prepare the student to use intelligently and skillfully the standard instruments and equipment of a draftsman and a designer. They, furthermore, aim to give him sufficient experience in the execution of drawings so that he can capably fill a position of draftsman upon graduation.

Approved drawing equipment is required for all courses.

Department of Mechanical Engineering

Mechanical engineering is that branch of engineering which deals with the generation, transmission, and utilization of power; the design, construction, operation, and testing of machinery; and the management of shops and factories. The course of study in mechanical engineering is designed to prepare the student for entrance into these fields. The curriculum includes, in addition to the fundamental sciences and the professional courses, a thorough training in the use of English and the foundation courses in economics. The student is given training in the mechanical arts to make him familiar with the use of hand and machine tools and with the methods employed in the machine shop, the pattern shop, the foundry, and the forging and heat treating departments. In the professional subjects by means of lectures, recitations, drawing room and laboratory work, typical mechanical engineering problems are presented and their practical solutions are indicated by the applications of the fundamental laws of physics, chemistry, and mathematics.

Mechanical Engineering—Aeronautical Option is offered for those interested in that work. This curriculum follows the regular mechanical engineering curriculum for the first three years. Graduates from this course are eligible to do graduate work in schools giving advanced degrees in aeronautical engineering or to enter the aeronautical industry.

Electives offered in the senior year may be chosen only with the approval of the department.

Additional courses are offered for those who wish to specialize in shop work.

Department of Petroleum Engineering

The department of Petroleum Engineering in this institution is an outgrowth of the development of courses for the practical application of geology and engineering in the petroleum industry.

Emphasis is placed on fundamentals rather than on a high degree of specialization to the end that the student may be prepared to go forward in whatever line of special endeavor he may be placed when he enters the industry. The curriculum in Petroleum Engineering contains four options, relatively more attention being given to the different lines as indicated by the titles of the options.

(1) *Geology Option.* This option requires a basic knowledge of the science of geology and of engineering principles.

(2) *Geophysics Option.* This option differs from the Geology Option in that more emphasis is placed upon physics and electrical engineering.

(3) *Production Option.* In this option a strong basis of fundamental science, mathematics and engineering, including thermodynamics and fluid mechanics, is required during the first three years as a basis for specialized courses in petroleum engineering in the senior year.

(4) *Natural Gas Option.* The first three years of this option are identical with those of the production option. In the senior year courses pertaining to production, transportation and marketing natural gas are required.

The freshman year is the uniform one required of all engineering students. The sophomore and junior years of the Production Option and Natural Gas Option are identical.

Department of Textile Engineering

The department of Textile Engineering offers thorough training to students who intend entering the textile industry or the technical phases of allied fields, such as dry cleaning, laundering or fabric purchasing for department stores. With its modern equipment and well-arranged classrooms and laboratories, ample opportunities are afforded for both theoretical and practical instruction.

Three optional branches of study are offered the student for specialized work. The entire textile field itself is too broad to be covered in a single course; therefore the division into engineering, chemistry, and design is made. The student may concentrate his study in the field in which he has special aptitude.

The course of freshman study is common to all engineering students, thereby allowing ample time before the final choice of option is made.

The textile instruction consists of lectures, calculations, tests, investigations, and experimentation with the various machines; practical operation of the machines by students; the principles underlying fabric structure; and the elements of woven design. The structure and cost of fabrics are ascertained by work in cloth analysis.

The carding and spinning areas of the textile plant and laboratories have complete equipment required to convert the fiber into the finished yarn. All of the machines are the standard mill sizes and include vertical opener, picker, cards, both roller and revolving flat, comb, drawing frames, roving frames, and long draft spinning frames. The weaving area of the plant is equipped with machinery for the production of almost any type cotton fabric. Upon these machines the students do practical work in the manufacture of many standard fabrics. Wide latitude is given the students in producing fabrics to illustrate different color combinations and weave effects of his own design. The principles of latch needle knitting applicable to the knitting of hose, half hose, and mufflers, and the construction and operation of circular and flat latch needle machines are studied. In the dyeing laboratory instruction, which precedes practical dyeing on the machines, students study the action of the alkalies and acids on various textile fabrics, and the application of dyes to silk, wool, cotton, and rayon. Full details of the processes employed in bleaching cotton yarn and cloth are followed, including water purifications by chemical and mechanical means, with special reference to bleaching and finishing.

The department of Textile Engineering has been designated by the Texas Cotton Research Committee to carry on cooperative research in cotton textiles with that organization.

It is also the policy of the department to encourage cooperative projects with industry, and at the present time both types of projects are in operation. Through such cooperation the physical facilities of the textile plant have been greatly improved. This arrangement affords opportunity for students to observe industrial and institutional research methods, and many of those who show special interest and aptitude in this type of work are able to become engaged in such work even before graduation.

CURRICULA IN THE DIVISION OF ENGINEERING

Uniform Freshman Year

To be used with curricula in Chemical, Civil, Electrical, Industrial, Mechanical, Petroleum. and Textile Engineering.

First Semester		Credit	Second Semester		Credit
English 131 English Composition	(3-0)	3	English 132 English Composition	(3-0)	3
Chemistry 131 General Chemistry	(2-3)	3	Chemistry 132 General Chemistry	(2-3)	3
Mathematics 121 Algebra	(2-0)	2	Mathematics 122 Algebra	(2-0)	2
Mathematics 131 Trigonometry	(3-0)	3	Mathematics 132 Analytics	(3-0)	3
Engr. Drawing 131 Engineering Drawing	(1-6)	3	Engr. Drawing 121 Engineering Drawing	(0-6)	2
Engr. Orientation 111 Engineering Orientation	(2-0)	1	Government 230 American Government	(3-0)	3
Physical Education, Military Science, or Band		1	Physical Education, Military Science, or Band		1
		16			17

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

For Uniform Freshman Year See above

Sophomore Year

First Semester		Credit	Second Semester		Credit
Chemistry 220 Qualitative Analysis	(1-3)	2	Chemistry 242 Inorganic Chemistry	(3-3)	4
Chemistry 331 Quantitative Analysis	(3-6)	3	Chemistry 332 Quantitative Analysis	(3-6)	3
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Mathematics 251 Calculus	(5-0)	5	Civil Engr. 331 Applied Mechanics-Statics	(3-0)	3
English 233 Technical Writing	(3-0)	3	Chemistry 234 Engineering Materials and Calculations	(3-0)	3
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		18			18

The junior and senior years of this curriculum will not be offered in 1947-48. Junior and senior students in 1947-48 will follow the curriculum as published in the 20th or 21st catalogue.

Junior Year

Chemistry 343-4 Organic Chemistry	(3-3)	8
Chemistry 441-2 Physical Chemistry	(3-3)	8
Electrical Engr. 426-7 Elements of Electrical Engineering	(2-0)	4
Electrical Engr. 412-3 Electrical Engr. Laboratory	(0-3)	2
Chemical Engr. 431-2 Principles of Chemical Engr.	(3-0)	6
Chemistry 411-2 Chemistry Seminar	(1-0)	2
Civil Engr. 333 Applied Mechanics-Strength of Materials	(3-0)	3
Industrial Engr. 332 Management—Production Planning and Control	(3-0)	3
		36

Senior Year

Thermodynamics	(3-0)	6
Chemical Engr. Design	(2-6)	4
Organic Unit Processes	(3-0)	3
Advanced Chemical Engr.	(3-0)	3
Distillation and Absorption	(3-0)	3
Unit Operations Laboratory	(0-9)	6
Electives		12
		37

Hours required for graduation—142.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN CIVIL ENGINEERING

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit	Second Semester		Credit
Geology 233 General Geology for Engineers	(2-3)	3	English 233 Technical Writing	(3-0)	3
Civil Engr. 231 Plane Surveying	(2-3)	3	Civil Engr. 232 Plane Surveying	(2-3)	3
Mathematics 251 Calculus	(5-0)	5	Mathematics 233 Calculus Applications	(3-0)	3
Chemistry 220 Qualitative Analysis	(1-3)	2	Engr. Drawing 222 Descriptive Geometry	(1-3)	2
Physics 235 Engineering Physics	(3-0)	3	Civil Engr. 331 Applied Mechanics-Statics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 236 Engineering Physics	(3-0)	3
Physical Education, Military Science, or Band		1	Physics 216 Physical Measurements	(0-3)	1
		18	Physical Education, Military Science, or Band		1
					19

Junior Year

First Semester		Credit	Second Semester		Credit
Civil Engr. 332 Applied Mechanics-Kinematics and Kinetics	(3-0)	3	Civil Engr. 333 Applied Mechanics-Strength of Materials	(3-0)	3
Civil Engr. 320 Structures	(1-3)	2	Civil Engr. 334 Surveying	(2-3)	3
Civil Engr. 335 Highway Engineering	(3-0)	3	Civil Engr. 330 Structures	(3-0)	3
Mechanical Engr. 334 Elementary Thermodynamics	(3-0)	3	Civil Engr. 336 Highway Engineering	(3-0)	3
Bacteriology 321 Bacteriology for Engineers	(1-3)	2	Civil Engr. 311 Highway Laboratory	(0-3)	1
Civil Engr. 420 Hydraulics	(2-0)	2	Mechanical Engr. 335 Heat Engines	(3-0)	3
Civil Engr. 410 Hydraulics Laboratory	(0-3)	1	Speech 338 Business and Professional Speech	(3-0)	3
Civil Engr. 426 Municipal Sanitation	(2-0)	2			
		18			19

Senior Year

First Semester		Credit	Second Semester		Credit
Civil Engr. 431 Reinforced Concrete	(3-0)	3	Civil Engr. 432 Reinforced Concrete	(3-0)	3
Civil Engr. 433 Structures	(3-6)	3	Civil Engr. 434 Structures	(3-0)	3
Civil Engr. 423 Economics of Highway Design	(0-6)	2	Civil Engr. 439 Law and Ethics of Engineering	(3-0)	3
Civil Engr. 424 Materials	(1-3)	2	Civil Engr. 425 Materials	(1-3)	2
Economics 235 Principles of Economics	(3-0)	3	Electrical Engr. 427 Elements of Electrical Engineering	(2-0)	2
Electrical Engr. 426 Elements of Electrical Engineering	(2-0)	2	Electrical Engr. 413 Electrical Engineering Laboratory	(0-3)	1
Electrical Engr. 412 Electrical Engineering Laboratory	(0-3)	1	*Elective A		3
*Elective A		3			17
		19			

Hours required for graduation—143.

*Elective A Choices made from the following are suggested.

Civil Engr. 437 Water Supply and Treatment	(2-3)	3	Civil Engr. 438 Sewerage and Sewage Treatment	(2-3)	3
Accounting 244 Elementary Accounting	(3-3)	4	Accounting 245 Elementary Accounting	(3-3)	4
Finance 338 Business Law	(3-0)	3	Finance 339 Business Law	(3-0)	3
Spanish 131 A Beginning Course in Spanish	(3-0)	3	Spanish 132 A Beginning Course in Spanish	(3-0)	3

Other courses may be chosen subject to approval by head of department and the dean.

Advanced military science may be substituted for Speech 338 and Mechanical Engr. 335 in accordance with catalogue regulations.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit	Second Semester		Credit
Chemistry 220 Qualitative Analysis	(1-3)	2	English 233 Technical Writing	(3-0)	3
Mathematics 251 Calculus	(5-0)	5	Mathematics 233 Calculus Applications	(3-0)	3
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Engineering Drawing 221 Machine Drawing	(0-6)	2	Civil Engineering 331 Applied Mechanics-Statics	(3-0)	3
Electrical Engineering 231 Principles of Electrical Engineering	(3-0)	3	Electrical Engineering 232 Principles of Electrical Engineering	(3-0)	3
Electrical Engineering 221 Electrical Engineering Laboratory	(0-6)	2	Electrical Engineering 222 Electrical Engineering Laboratory	(0-6)	2
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		19			19

Junior Year

First Semester		Credit	Second Semester		Credit
Electrical Engr. 332 Alternating Current Circuits	(3-0)	3	Electrical Engr. 334 Communication Circuits	(3-0)	3
Electrical Engr. 322 Alternating Current Circuits Laboratory	(0-6)	2	Electrical Engr. 324 Communication Circuits Laboratory	(0-6)	2
Civil Engr. 332 Applied Mechanics—Kinematics and Kinetics	(3-0)	3	Electrical Engr. 325 Electronics	(2-0)	2
Mechanical Engr. 334 Elementary Thermodynamics	(3-0)	3	Electrical Engr. 323 Electronics Laboratory	(0-6)	2
Mechanical Engr. 317 Heat Engr. Laboratory	(0-3)	1	Civil Engr. 333 Applied Mechanics—Strength of Materials	(3-0)	3
Mechanical Engr. 313 Machine Shop	(0-3)	1	Mechanical Engr. 335 Heat Engines	(3-0)	3
Mathematics 321 Differential Equations	(2-0)	2	Mechanical Engr. 318 Heat Engr. Laboratory	(0-3)	1
Economics 235 Principles of Economics	(3-0)	3	Mechanical Engr. 314 Machine Shop	(0-3)	1
		18			17

Senior Year

First Semester		Credit	Second Semester		Credit
Electrical Engr. 4312 Electrical Machinery	(3-0)	3	Electrical Engr. 4313 Electrical Machinery	(3-0)	3
Electrical Engr. 4212 Electrical Machinery Laboratory	(1-3)	2	Electrical Engr. 4213 Electrical Machinery Laboratory	(1-3)	2
Electrical Engr. 428 Engineering Electronics	(2-0)	2	Electrical Engr. 429* Engineering Electronics	(2-0)	2
Electrical Engr. 4215 Engineering Electronics Laboratory	(0-6)	2	Electrical Engr. 4216 Engineering Electronics Laboratory	(0-6)	2
Industrial Engr. 332 Management—Production Planning and Control	(3-0)	3	Civil Engr. 439 Law and Ethics in Engr.	(3-0)	3

Communications Option

Electrical Engr. 4310 Radio Engineering	(3-0)	3	Electrical Engr. 4311 Radio Engineering	(3-0)	3
Electrical Engr. 4210 Radio Engineering Laboratory	(0-6)	2	Electrical Engr. 4211 Radio Engineering Laboratory	(0-6)	2
* Electives		2	* Electives		2
		19			19

Power Option

Electrical Engr. 4214 Advanced Circuit Theory	(2-0)	2	Electrical Engr. 433 Transmission	(3-0)	3
Civil Engr. 420 Hydraulics	(2-0)	2	Civil Engr. 310 Testing Laboratory	(0-3)	1
* Electives		3	* Electives		3
		19			19

Hours required for graduation—144.

* Subject to approval by dean of Engineering and head of department.

Advanced military science may be substituted for English 233 and three hours of electives in accordance with catalogue regulations. The substitution may not be made for English 233 unless a B average or better has been made in English 131-2.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit
Engr. Drawing 221 Machine Drawing	(0-6)	2
Psychology 230 Introduction to Psychology	(3-0)	3
Mechanical Engr. 221 Engineering Problems	(1-3)	2
Mathematics 251 Calculus	(5-0)	5
Physics 235 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1
Economics 235 Principles of Economics	(3-0)	3
Physical Education, Military Science or Band		1
		20

Second Semester		Credit
Engr. Drawing 222 Descriptive Geometry	(1-3)	2
Mechanical Engr. 211 Sheet Metal Work	(0-3)	1
Chemistry 220 Qualitative Analysis	(1-3)	2
Mathematics 233 Calculus Applications	(3-0)	3
Civil Engr. 331 Applied Mechanics—Statics	(3-0)	3
Physics 236 Engineering Physics	(3-0)	3
Physics 216 Physical Measurements	(0-3)	1
Accounting 231 Industrial Accounting for Engineers	(3-0)	3
Physical Education, Military Science or Band		1
		19

Junior Year

First Semester		Credit
Engr. Drawing 322 Advanced Machine Drawing	(0-6)	2
Industrial Engr. 316 Personnel Administration	(1-0)	1
Industrial Engr. 332 Management—Production Planning and Control	(3-0)	3
English 233 Technical Writing	(3-0)	3
Industrial Engr. 333 Manufacturing Methods	(3-0)	3
Mechanical Engr. 313 Machine Shop	(0-3)	1
Mechanical Engr. 334 Elementary Thermodynamics	(3-0)	3
Civil Engr. 231 Plane Surveying	(2-3)	3
		19

Second Semester		Credit
Speech 338 Business and Professional Speech	(3-0)	3
Industrial Engr. 331 Time and Motion Study	(2-3)	3
Civil Engr. 333 Applied Mechanics—Strength of Materials	(3-0)	3
Industrial Engr. 336 Tool Design	(1-6)	3
Mechanical Engr. 315 Heat Treating of Steel	(0-3)	1
Mechanical Engr. 316 Welding Practice	(0-3)	1
Mechanical Engr. 335 Heat Engines	(3-0)	3
		17

Senior Year

First Semester		Credit	Second Semester		Credit
Mechanical Engr. 312 Foundry Practice	(0-3)	1	Electrical Engr. 439 Elements of Electrical Engineering	(3-0)	3
Mechanical Engr. 311 Pattern Shop	(0-3)	1	Electrical Engr. 413 Electrical Engr. Laboratory	(0-3)	1
Electrical Engr. 438 Elements of Electrical Engineering	(3-0)	3	Industrial Engr. 431 Purchasing and Industrial Engineering Problems	(2-3)	3
Electrical Engr. 412 Electrical Engr. Laboratory	(0-3)	1	Industrial Engr. 433 Industrial Plant Design	(1-6)	3
Industrial Engr. 432 Industrial Plant Design	(1-6)	3	Industrial Engr. 435 Industrial Safety Engineering	(3-0)	3
Finance 338 Business Law	(3-0)	3	*Elective		3
Industrial Engr. 436 Principles of Engr. Econ.	(3-0)	3			16
*Elective		2			
		17			

Hours required for graduation—141.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING AND MECHANICAL ENGINEERING—AERONAUTICAL OPTION

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit	Second Semester		Credit
Chemistry 220 Qualitative Analysis	(1-3)	2	Mathematics 233 Calculus Applications	(3-0)	3
Mathematics 251 Calculus	(5-0)	5	Physics 236 Engineering Physics	(3-0)	3
Physics 235 Engineering Physics	(3-0)	3	Physics 216 Physical Measurements	(0-3)	1
Physics 215 Physical Measurements	(0-3)	1	Civil Engr. 331 Applied Mechanics—Statics	(3-0)	3
Engr. Drawing 221 Machine Drawing	(0-6)	2	Economics 232 Principles of Economics	(3-0)	3
Economics 231 Principles of Economics	(3-0)	3	Mechanical Engr. 241 Mechanism and Dynamics	(2-6)	4
Mechanical Engr. 221 Engineering Problems	(1-2)	2	Physical Education, Military Science or Band		1
Physical Education, Military Science or Band		1			18
		19			

* Must be in one branch of engineering.

Advanced Military Science may be substituted for Speech 338 in accordance with catalogue regulations.

Junior Year

First Semester		Credit	Second Semester		Credit
Civil Engr. 332 Applied Mechanics—Kinematics and Kinetics	(3-0)	3	English 233 Technical Writing	(3-0)	3
Mechanical Engr. 311 Pattern Shop	(0-3)	1	Civil Engr. 333 Applied Mechanics—Strength of Materials	(3-0)	3
Mechanical Engr. 312 Foundry Practice	(0-3)	1	Civil Engr. 310 Testing Laboratory	(0-3)	1
Mechanical Engr 313 Machine Shop	(0-3)	1	Mechanical Engr. 314 Machine Shop	(0-3)	1
Mechanical Engr. 330 Thermodynamics	(3-0)	3	Mechanical Engr. 315 Heat Treating of Steel	(0-3)	1
Mechanical Engr. 341 Steam Power Plant Engr.	(4-0)	4	Mechanical Engr. 316 Welding Practice	(0-3)	1
Mechanical Engr. 337 Metallurgy	(3-0)	3	Mechanical Engr. 331 Thermodynamics	(3-0)	3
Mathematics 321 Differential Equations	(2-0)	2	Mechanical Engr. 322 Elementary Machine Design	(2-0)	2
		18	Mechanical Engr. 332 Mechanical Measurements and Thermodynamics Laboratory	(0-6)	3
					18

Senior Year

First Semester		Credit	Second Semester		Credit
Electrical Engr. 438 Elements of Electrical Engineering	(3-0)	3	Mechanical Engr. 434 Industrial Engineering	(3-0)	3
Electrical Engr. 412 Electrical Engr. Laboratory	(0-3)	1	Electrical Engr. 439 Elements of Electrical Engineering	(3-0)	3
Mechanical Engr. 436 Machine Design	(0-9)	3	Electrical Engr. 413 Electrical Engr. Laboratory	(0-3)	1
Mechanical Engr. 431 Power Plant Laboratory	(0-6)	3	Mechanical Engr. 437 Machine Design	(3-0)	3
* Electives		7	* Electives		9
		17			19

* Electives may be chosen, under supervision of the department, from the following subjects:

Group A: Mechanical Engineering 423-4, 432, 438-9, 4310-11.

Group B: Civil Engineering 231, 410, 420, 434, 439, 4310-11; Textile Engineering 331-2; Industrial Engineering 331; Engineering Seminar 411-2; Speech 338.

Not more than nine semester hours may be selected from Group B. Advanced military science may be substituted for six hours of Group B electives in accordance with catalogue regulations.

Aeronautical Option

Senior Year

First Semester		Credit	Second Semester		Credit
Electrical Engr. 438 Elements of Electrical Engineering	(3-0)	3	Electrical Engr. 439 Elements of Electrical Engineering	(3-0)	3
Electrical Engr. 412 Electrical Engr. Laboratory	(0-3)	1	Electrical Engr. 413 Electrical Engr. Laboratory	(0-3)	1
Mechanical Engr. 436 Machine Design	(0-9)	3	Mechanical Engr. 437 Machine Design	(3-0)	3
Mechanical Engr. 431 Power Plant Laboratory	(0-6)	3	Mechanical Engr. 424 Internal Combustion Engines	(2-0)	2
Mechanical Engr. 423 Internal Combustion Engines	(2-0)	2	Mechanical Engr. 4311 Aerodynamics	(3-0)	3
Mechanical Engr. 4310 Aerodynamics	(3-0)	3	Civil Engr. 4311 Airplane Structures	(3-0)	3
Civil Engr. 4310 Airplane Structures	(3-0)	3	Mechanical Engr. 434 Industrial Engineering	(3-0)	3
		18			18

Hours required for graduation—142.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN PETROLEUM ENGINEERING

Geology Option

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit	Second Semester		Credit
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Mathematics 251 Calculus	(5-0)	5	Engr. Drawing 222 Descriptive Geometry	(1-3)	2
English 233 Technical Writing	(3-0)	3	Mathematics 233 Calculus Applications	(3-0)	3
Geology 131 General Geology	(3-2)	3	Chemistry 220 Qualitative Analysis	(1-3)	2
Geology 231 Mineralogy	(1-6)	3	Civil Engineering 331 Applied Mechanics—Statics	(3-0)	3
Physical Education, Military Science or Band		1	Geology 132 General Geology	(3-2)	3
		19	Physical Education, Military Science or Band		1
					18

Summer

First Semester	Credit	
Geology 363 Field Geology	6	Geology 363 also offered second term summer school

Junior Year

First Semester		Credit	Second Semester		Credit
Civil Engr. 332 Applied Mechanics—Kinematics and Kinetics	(3-0)	3	Civil Engr. 333 Applied Mechanics—Strength of Materials	(3-0)	3
Economics 231 Principles of Economics	(3-0)	3	Economics 232 Principles of Economics	(3-0)	3
Geology 333 Petrography and Petrology	(1-6)	3	Geology 334 Petrography and Petrology	(1-6)	3
Geology 335 General Paleontology	(2-3)	3	Geology 336 General Paleontology	(2-3)	3
Civil Engr. 231 Plane Surveying	(2-3)	3	Civil Engr. 232 Plane Surveying	(2-3)	3
			Civil Engr. 310 Testing Laboratory	(0-3)	1
		15			16

Senior Year

First Semester		Credit	Second Semester		Credit
Geology 431 Advanced General Geology	(3-0)	3	Geology 432 Advanced General Geology	(3-0)	3
Geology 433 Structural Geology	(3-0)	3	Geology 434 Petroleum Geology	(3-0)	3
Geology 435 Index Fossils	(1-6)	3	Geology 436 Micropaleontology	(1-6)	3
Geology 411 Geology of Texas	(1-0)	1	Geology 412 Geology of Texas	(1-0)	1
Geology 413 Seminar	(1-0)	1	Geology 414 Seminar	(1-0)	1
Civil Engr. 334 Surveying	(2-3)	3	Speech 338 Business and Professional Speech	(3-0)	3
		14	* Elective		3
					17

Hours required for graduation—138.

* Advanced military science may be substituted for Speech 338 and used as elective in accordance with catalogue regulations.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN PETROLEUM ENGINEERING

Geophysics Option

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit	Second Semester		Credit
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Mathematics 251 Calculus	(5-0)	5	Mathematics 233 Calculus Applications	(3-0)	3
Geology 131 General Geology	(3-2)	3	English 233 Technical Writing	(3-0)	3
Electrical Engr. 231 Principles of Electrical Engineering	(3-0)	3	Geology 132 General Geology	(3-2)	3
Electrical Engr. 221 Electrical Engr. Laboratory	(0-6)	2	Geology 231 Mineralogy	(1-6)	3
			Engr. Drawing 222 Descriptive Geometry	(1-3)	2
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		18			19

Summer

First Semester	Credit	
Geology 363 Field Geology	6	Geology 363 also offered second term summer school

Junior Year

First Semester		Credit	Second Semester		Credit
Electrical Engr. 332 Alternating Current Circuits	(3-0)	3	Electrical Engr. 333 Electronics	(3-0)	3
Electrical Engr. 322 Alternating Current Circuits Laboratory	(0-6)	2	Electrical Engr. 323 Electronics Laboratory	(0-6)	2
Geology 333 Petrography and Petrology	(1-6)	3	Geology 334 Petrography and Petrology	(1-6)	3
Geology 335 General Paleontology	(2-3)	3	Geology 336 General Paleontology	(2-3)	3
Physics 333 Electricity and Magnetism	(3-0)	3	Physics 334 Electricity and Magnetism	(3-0)	3
Geology 411 Geology of Texas	(1-0)	1	Geology 412 Geology of Texas	(1-0)	1
		15			15

Senior Year

First Semester		Credit	Second Semester		Credit
Electrical Engr. 4310 Radio Engineering	(3-0)	3	Electrical Engr. 4311 Radio Engineering	(3-0)	3
Electrical Engr. 4210 Radio Engr. Laboratory	(0-6)	2	Electrical Engr. 4211 Radio Engr. Laboratory	(0-6)	2
Geology 431 Advanced General Geology	(3-0)	3	Geology 432 Advanced General Geology	(3-0)	3
Geology 433 Structural Geology	(3-0)	3	Geology 434 Petroleum Geology	(3-0)	3
Geology 435 Index Fossils	(1-6)	3	Geology 436 Micropaleontology	(1-6)	3
Geology 413 Seminar	(1-0)	1	Geology 414 Seminar	(1-0)	1
Geology 427 Geophysics	(1-3)	2	Geology 428 Geophysics	(1-3)	2
		17			17

Hours required for graduation—140.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN PETROLEUM ENGINEERING

Production and Natural Gas Options

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit	Second Semester		Credit
Chemistry of Hydrocarbons	(3-0)	3	Analytical Chemistry	(2-6)	4
Mathematics 251 Calculus	(5-0)	5	Mathematics 233 Calculus Applications	(3-0)	3
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Mechanical Engr. 221 Engineering Problems	(1-2)	2	Civil Engr. 331 Applied Mechanics-Statics	(3-0)	3
Geology 131 General Geology	(3-2)	3	Geology 132 General Geology	(3-2)	3
Physical Education, Military Science, or Band		1	Physical Education, Military Science, or Band		1
		18			18

The junior and senior years of this curriculum will not be offered in 1947-48.

Junior Year

Civil Engr. 332 Applied Mechanics-Kinematics and Kinetics	(3-0)	3
Civil Engr. 333 Applied Mechanics—Strength of Materials	(3-0)	3
Civil Engr. 310 Testing Laboratory	(0-3)	1
Civil Engr. 231 Plane Surveying	(2-3)	3
Thermodynamics for Petroleum Engr.	(3-0)	6
Economics 235 Principles of Economics	(3-0)	3
Physical Chemistry	(3-3)	4
Civil Engr. 420 Hydraulics	(2-0)	2
Civil Engr. 410 Hydraulics Laboratory	(0-3)	1
Fluid Mechanics	(3-0)	3
Speech 338 Business and Professional Speech	(3-0)	3
English 233 Technical Writing	(3-0)	3
Geology 231 Mineralogy	(1-6)	3
		38

Senior Year

Production Option

Geology 413-4 Petroleum Engr. Seminar	(1-0)	2
Geology 433 Structural Geology	(3-0)	3
Geography 434 Petroleum Geology	(3-0)	3
Geology 437-8 Sedimentation	(3-0)	6
Electrical Engr. 426-7 Elements of Electrical Engr.	(2-0)	4
Electrical Engr. 412-3 Electrical Engr. Laboratory	(0-3)	2
Mechanical Engr. 423-4 Internal Combustion Engines	(2-0)	4
Reservoir Engr.	(3-0)	3
Oil Field Economics	(3-0)	3
Oil and Gas Conservation and Law	(3-0)	3
Petroleum Engr. Laboratory	(0-9)	6
		39

Natural Gas Option

Geology 413-4 Petroleum Engr. Seminar	(1-0)	2
Geology 437-8 Sedimentation	(3-0)	6
Electrical Engr. 426-7 Elements of Electrical Engr.	(2-0)	4
Electrical Engr. 412-3 Electrical Engr. Laboratory	(0-3)	2
Mechanical Engr. 423-4 Internal Combustion Engines	(2-0)	4
Oil and Gas Conservation and Law	(3-0)	3
Petroleum Engr. Laboratory	(0-9)	6
Natural Gas and Gasoline	(2-3)	6
Industrial Engr. 332 Management—Production Planning and Control	(3-0)	3
Elective		3
		39

Hours required for graduation—146.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN TEXTILE ENGINEERING

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit	Second Semester		Credit
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Mathematics 251 Calculus	(5-0)	5	Textile Engr. 326 Wool	(2-0)	2
Engr. Drawing 221 Machine Drawing	(0-6)	2	Chemistry 322 Power Plant Chemistry	(1-3)	2
Economics 231 Principles of Economics	(3-0)	3	*Economics 232 Principles of Economics	(3-0)	3
Mechanical Engr. 221 Engineering Problems	(1-2)	2	Civil Engr. 331 Applied Mechanics—Statics	(3-0)	3
Textile Engr. 234 Cotton Classing and Marketing	(2-3)	3	Textile Engr. 235 Textile Fibers and Yarn Preparation	(2-3)	3
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		20			18

Junior Year

First Semester		Credit	Second Semester		Credit
Chemistry 341 Organic Chemistry	(3-3)	4	Mechanical Engr. 318 Heat Engr. Laboratory	(0-3)	1
Civil Engr. 332 Applied Mechanics—Kinematics and Kinetics	(3-0)	3	Civil Engr. 333 Applied Mechanics—Strength of Materials	(3-0)	3
Mechanical Engr. 317 Heat Engr. Laboratory	(0-3)	1	Mechanical Engr. 335 Heat Engines	(3-0)	3
Mechanical Engr. 334 Elementary Thermodynamics	(3-0)	3	Textile Engr. 332 Yarn Manufacture	(2-3)	3
Textile Engr. 331 Yarn Manufacture	(2-3)	3	Textile Engr. 334 Bleaching and Dyeing	(2-3)	3
Textile Engr. 333 Bleaching and Dyeing	(2-3)	3	Textile Engr. 336 Fabric Design and Weaving	(1-6)	3
Textile Engr. 335 Fabric Design and Weaving	(1-6)	3	Industrial Engr. 332 Management—Production Planning and Control	(3-0)	3
		20			19

* Advanced military science may be substituted for Economics 232 and English 233 in accordance with catalogue regulations.

Senior Year

First Semester		Credit	Second Semester		Credit
Electrical Engr. 412 Electrical Engr. Laboratory	(0-3)	1	Electrical Engr. 413 Electrical Engr. Laboratory	(0-3)	1
Electrical Engr. 426 Elements of Electrical Engineering	(2-0)	2	Electrical Engr. 427 Elements of Electrical Engineering	(2-0)	2
Engr. Seminar 411 Seminar	(1-0)	1	Engr. Seminar 412 Seminar	(1-0)	1
Textile Engr. 424 Mill Organization	(2-0)	2	Textile Engr. 437 Cost Engineering	(3-0)	3
Textile Engr. 421 Fabric Analysis, Weaving and Jacquard Design	(1-3)	2	Textile Engr. 422 Fabric Analysis, Weaving and Jacquard Design	(1-3)	2
Textile Engr. 433 Dyeing and Finishing	(2-3)	3	Textile Engr. 434 Dyeing and Finishing	(2-3)	3
Textile Engr. 435 Advanced Yarn Manufacture	(2-3)	3	Textile Engr. 436 Advanced Yarn Manufacture	(1-6)	3
Mechanical Engr. 313 Machine Shop	(0-3)	1	Mechanical Engr. 316 Welding Practice	(0-3)	1
*English 233 Technical Writing	(3-0)	3			
Industrial Engr. 316 Personnel Administration	(1-0)	1			
		19			16

Hours required for graduation—145.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN TEXTILE ENGINEERING

For Uniform Freshman Year See Page 141

Chemistry and Dyeing Option

Sophomore Year

First Semester		Credit	Second Semester		Credit
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Mathematics 251 Calculus	(5-0)	5	Chemistry 242 Inorganic Chemistry	(3-3)	4
Chemistry 220 Qualitative Analysis	(1-3)	2	*Economics 232 Principles of Economics	(3-0)	3
Economics 231 Principles of Economics	(3-0)	3	Civil Engr. 331 Applied Mechanics—Statics	(3-0)	3
Mechanical Engr. 221 Engineering Problems	(1-2)	2	Textile Engr. 326 Wool	(2-0)	2
Textile Engr. 234 Cotton Classing and Marketing	(2-3)	3	Textile Engr. 235 Textile Fibers and Yarn Preparation	(2-3)	3
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		20			20

* Advanced military science may be substituted for Economics 232 and English 233 in accordance with catalogue regulations.

Junior Year

First Semester		Credit
Civil Engr. 332 Applied Mechanics—Kinematics and Kinetics	(3-0)	3
Chemistry 343 Organic Chemistry	(3-3)	4
Chemistry 331 Quantitative Analysis	(3-6)	3
Textile Engr. 331 Yarn Manufacture	(2-3)	3
Textile Engr. 333 Bleaching and Dyeing	(2-3)	3
Textile Engr. 335 Fabric Design and Weaving	(1-6)	3
		19

Second Semester		Credit
Chemistry 344 Organic Chemistry	(3-3)	4
*English 233 Technical Writing	(3-0)	3
Chemistry 332 Quantitative Analysis	(3-6)	3
Textile Engr. 332 Yarn Manufacture	(2-3)	3
Textile Engr. 334 Bleaching and Dyeing	(2-3)	3
Textile Engr. 336 Fabric Design and Weaving	(1-6)	3
		19

Senior Year

First Semester		Credit
Chemistry 443 Industrial Chemistry	(3-3)	4
Engr. Seminar 411 Seminar	(1-0)	1
Textile Engr. 424 Mill Organization	(2-0)	2
Textile Engr. 421 Fabric Analysis, Weaving and Jacquard Design	(1-3)	2
Textile Engr. 433 Dyeing and Finishing	(2-3)	3
Textile Engr. 435 Advanced Yarn Manufacture	(2-3)	3
Mechanical Engr. 313 Machine Shop	(0-3)	1
		16

Second Semester		Credit
Chemistry 434 Organic Preparations	(0-9)	3
Engr. Seminar 412 Seminar	(1-0)	1
Textile Engr. 437 Cost Engineering	(3-0)	3
Textile Engr. 422 Fabric Analysis, Weaving and Jacquard Design	(1-3)	2
Textile Engr. 423 Advanced Dyeing and Color Matching	(0-6)	2
Textile Engr. 434 Dyeing and Finishing	(2-3)	3
Textile Engr. 436 Advanced Yarn Manufacture	(1-6)	3
Mechanical Engr. 316 Welding Practice	(0-3)	1
		18

Hours required for graduation—145.

* Advanced military science may be substituted for Economics 232 and English 233 in accordance with catalogue regulations.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN TEXTILE ENGINEERING

Weaving and Design Option

For Uniform Freshman Year See Page 141

Sophomore Year

First Semester		Credit	Second Semester		Credit
Economics 231 Principles of Economics	(3-0)	3	*Economics 232 Principles of Economics	(3-0)	3
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Mathematics 251 Calculus	(5-0)	5	Mechanical Engr. 221 Engineering Problems	(1-2)	2
Textile Engr. 234 Cotton Classing and Marketing	(2-3)	3	Textile Engr. 235 Textile Fibers and Yarn Preparation	(2-3)	3
Architecture 121 Freehand Drawing	(0-6)	2	Architecture 122 Freehand Drawing	(0-6)	2
Architecture 123 Elements of Composition	(0-6)	2	Architecture 124 Elements of Composition	(0-6)	2
Physical Education, Military Science or Band		1	Civil Engr. 331 Applied Mechanics—Statics	(3-0)	3
		20	Physical Education, Military Science or Band		1
					20

Junior Year

First Semester		Credit	Second Semester		Credit
Civil Engr. 332 Applied Mechanics Kinematics and Kinetics	(3-0)	3	Industrial Engr. 332 Management—Production Planning and Control	(3-0)	3
Chemistry 341 Organic Chemistry	(3-3)	4	Chemistry 322 Power Plant Chemistry	(1-3)	2
Architecture 437 Principles of Drawing, Painting and Theory of Design	(1-6)	3	Architecture 438 Principles of Drawing, Painting and Theory of Design	(1-6)	3
Textile Engr. 335 Fabric Design and Weaving	(1-6)	3	Textile Engr. 336 Fabric Design and Weaving	(1-6)	3
Textile Engr. 331 Yarn Manufacture	(2-3)	3	Textile Engr. 332 Yarn Manufacture	(2-3)	3
Textile Engr. 333 Bleaching and Dyeing	(2-3)	3	Textile Engr. 334 Bleaching and Dyeing	(2-3)	3
		19			17

* Advanced military science may be substituted for Economics 232 and English 233 in accordance with catalogue regulations.

Senior Year

First Semester		Credit	Second Semester		Credit
Architecture 426 Oil Painting or Advanced Water Color	(0-6)	2	Architecture 427 Oil Painting or Advanced Water Color	(0-6)	2
*English 233 Technical Writing	(3-0)	3	Engr. Seminar 412 Seminar	(1-0)	1
Engr. Seminar 411 Seminar	(1-0)	1	Textile Engr. 437 Cost Engineering	(3-0)	3
Textile Engr. 424 Mill Organization	(2-0)	2	Textile Engr. 422 Fabric Analysis, Weaving and Jacquard Design	(1-3)	2
Textile Engr. 421 Fabric Analysis, Weaving and Jacquard Design	(1-3)	2	Textile Engr. 434 Dyeing and Finishing	(2-3)	3
Textile Engr. 433 Dyeing and Finishing	(2-3)	3	Textile Engr. 436 Advanced Yarn Manufacture	(1-6)	3
Textile Engr. 435 Advanced Yarn Manufacture	(2-3)	3	Mechanical Engr. 316 Welding Practice	(0-3)	1
Mechanical Engr. 313 Machine Shop	(0-3)	1	Textile Engr. 326 Wool	(2-0)	2
Industrial Engr. 316 Personnel Administration	(1-0)	1			17
		18			

Hours required for graduation—144.

CURRICULA FOR THE DEGREE BACHELOR OF ARCHITECTURE

Design or Construction Options

Freshman Year

First Semester		Credit	Second Semester		Credit
Architecture 121 Freehand Drawing I	(0-6)	2	Architecture 122 Freehand Drawing II	(0-6)	2
Architecture 125 Shades and Shadows	(0-6)	2	Architecture 126 Perspective	(0-6)	2
Architecture 131 Elements of Architecture	(1-8)	3	Architecture 132 Elements of Architecture	(1-8)	3
English 131 English Composition	(3-0)	3	English 132 English Composition	(3-0)	3
Mathematics 121 Algebra	(2-0)	2	Mathematics 122 Algebra	(2-0)	2
Mathematics 131 Trigonometry	(3-0)	3	Mathematics 132 Analytic Geometry	(3-0)	3
Engr. Orientation 111 Engineering Orientation	(2-0)	1	Physical Education, Military Science or Band		1
Physical Education, Military Science or Band		1			16
		17			

* Advanced military science may be substituted for Economics 232 and English 233 in accordance with catalogue regulations.

Design Option

Sophomore Year

First Semester		Credit	Second Semester		Credit
Architecture 231 Architectural Design I	(0-9)	3	Architecture 232 Architectural Design I	(0-9)	3
Architecture 221 History of Ancient Architecture	(2-0)	2	Architecture 222 History of Medieval Architecture	(2-0)	2
Architecture 224 Freehand Drawing III	(0-6)	2	Architecture 225 Freehand Drawing IV	(0-6)	2
English 231 A Survey of American Literature	(3-0)	3	Civil Engr. Approved Elective		2
French 131 A Beginning Course in French	(3-0)		A Foreign Language, continued		3
or			Physics 132 Elements of College Physics	(2-3)	3
Spanish 131 A Beginning Course in Spanish	(3-0)	3	Physical Education, Military Science or Band		1
Physics 131 Elements of College Physics	(2-3)	3			17
Physical Education, Military Science or Band		1			
		17			

Junior Year

First Semester		Credit	Second Semester		Credit
Architecture 351 Architectural Design II	(0-15)	5	Architecture 352 Architectural Design II	(0-15)	5
Architecture 322 History of Renaissance Architecture	(2-0)	2	Architecture 323 History of American and Modern Architecture	(2-0)	2
Architecture 326 Constructive Anatomy	(0-6)	2	Architecture 327 Life Drawing I	(0-6)	2
Civil Engr. 231 Plane Surveying	(2-3)	3	Electrical Engr. 335 Wiring and Illumination	(3-0)	3
Economics 235 Principles of Economics	(3-0)	3	Speech 338 Business and Professional Speech	(3-0)	3
A Foreign Language begun in sophomore year			A Foreign Language, begun in sophomore year		
or			or		
English 232 The Major English Writers	(3-0)	3	English 3323 Masterpieces of World Literature	(3-0)	3
		18			18

Senior Year

First Semester		Credit	Second Semester		Credit
Architecture 461 Architectural Design III	(0-18)	6	Architecture 462 Architectural Design III	(0-18)	6
Architecture 321 History of Early Civilization and Art	(3-0)	2	Architecture 324 History of Sculpture	(3-0)	2
Architecture 333 Building Construction	(1-6)	3	Architecture 334 Building Construction	(1-6)	3
Architecture 422 Building Materials and Construction	(2-0)	2	Architecture 420 Professional Practice	(2-0)	2
Architecture 423 Life Drawing II	(0-6)	2	Architecture 424 Life Drawing II	(0-6)	2
Civil Engr. 337 Structural Mechanics	(3-0)	3	Civil Engr. 338 Structural Mechanics	(3-0)	3
		18			18

Fifth Year

First Semester		Credit	Second Semester		Credit
Architecture 483 Architectural Design IV	(0-24)	8	Architecture 484 Architectural Design IV	(0-24)	8
Architecture 3216 Clay Modeling	(0-6)	2	Architecture 3217 Clay Modeling	(0-6)	2
Architecture 435 Advanced Architectural Construction	(1-6)	3	Architecture 436 City Planning	(1-6)	3
Government 230 American Government,	(3-0)	3	Civil Engr. 310 Testing Laboratory	(0-3)	1
		16			14

Hours required for graduation—169.

Construction Option

For Uniform Freshman Year See Page 158

Sophomore Year

First Semester		Credit	Second Semester		Credit
Architecture 231 Architectural Design I	(0-9)	3	Architecture 232 Architectural Design I	(0-9)	3
Architecture 221 History of Ancient Architecture	(2-0)	2	Architecture 222 History of Medieval Architecture	(2-0)	2
English 233 Technical Writing	(3-0)	3	Civil Engr. 331 Applied Mechanics—Statics	(3-0)	3
Mathematics 251 Calculus	(5-0)	5	Mathematics 233 Calculus Applications	(3-0)	3
Physics 235 Engineering Physics	(3-0)	3	Physics 236 Engineering Physics	(3-0)	3
Physics 215 Physical Measurements	(0-3)	1	Physics 216 Physical Measurements	(0-3)	1
Physical Education, Military Science or Band		1	Physical Education, Military Science or Band		1
		18			16

Junior Year

First Semester		Credit
Architecture 351 Architectural Design II	(0-15)	5
Architecture 322 History of Renaissance Architecture	(2-0)	2
Civil Engr. 231 Plane Surveying	(2-3)	3
Economics 235 Principles of Economics	(3-0)	3
Civil Engr. 320 Structures	(1-3)	2
Civil Engr. 332 Applied Mechanics—Kinematics and Kinetics	(3-0)	3
		18

Second Semester		Credit
Architecture 352 Architectural Design II	(0-15)	5
Architecture 323 History of American and Modern Architecture	(2-0)	2
Electrical Engr. 335 Wiring and Illumination	(3-0)	3
Speech 338 Business and Professional Speech	(3-0)	3
Civil Engr. 330 Structures	(3-0)	3
Civil Engr. 333 Applied Mechanics—Strength of Materials	(3-0)	3
		19

Senior Year

First Semester		Credit
Architecture 461 Architectural Design III	(0-18)	6
Architecture 333 Building Construction	(1-6)	3
Architecture 422 Building Materials and Construction	(2-0)	2
Civil Engr. 431 Reinforced Concrete	(3-0)	3
Mechanical Engr. 334 Elementary Thermodynamics	(3-0)	3
		17

Second Semester		Credit
Architecture 462 Architectural Design III	(0-18)	6
Architecture 334 Building Construction	(1-6)	3
Architecture 420 Professional Practice	(2-0)	2
Civil Engr. 432 Reinforced Concrete	(3-0)	3
Government 230 American Government	(3-0)	3
		17

Fifth Year

First Semester		Credit
Architecture 435 Advanced Architectural Construction	(1-6)	3
Civil Engr. 433 Structures	(0-9)	3
Civil Engr. 424 Materials	(1-3)	2
Mechanical Engr. 438 Heating, Ventilation and Air Conditioning	(3-0)	3
Approved Electives		4
		15

Second Semester		Credit
Architecture 436 City Planning	(1-6)	3
Civil Engr. 434 Structures	(3-0)	3
Civil Engr. 425 Materials	(1-3)	2
Mechanical Engr. 439 Heating, Ventilation and Air Conditioning	(3-0)	3
Approved Electives		3
		14

Hours required for graduation—167.

CURRICULUM FOR THE DEGREE BACHELOR OF COMMERCIAL ART

Freshman Year

First Semester		Credit	Second Semester		Credit
Architecture 121 Freehand Drawing I	(0-6)	2	Architecture 122 Freehand Drawing II	(0-6)	2
Architecture 123 Elements of Composition I	(0-6)	2	Architecture 124 Elements of Composition I	(0-6)	2
Architecture 133 Commercial Lettering	(0-9)	3	Architecture 125 Shades and Shadows	(0-6)	2
Engr. Drawing 134 Graphic Arts	(1-6)	3	Engr. Drawing 135 Graphic Arts	(1-6)	3
Mathematics 121 Algebra	(2-0)	2	Mathematics 131 Trigonometry	(3-0)	3
English 131 English Composition	(3-0)	3	English 132 English Composition	(3-0)	3
Engr. Orientation 111 Engineering Orientation	(2-0)	1	Physical Education or Band		1
Physical Education or Band		1			16
		17			

Sophomore Year

First Semester		Credit	Second Semester		Credit
Architecture 131 Elements of Architecture	(1-8)	3	Architecture 132 Elements of Architecture	(1-8)	3
Architecture 221 History of Ancient Architecture	(2-0)	2	Architecture 222 History of Medieval Architecture	(2-0)	2
Architecture 224 Freehand Drawing III	(0-6)	2	Architecture 225 Freehand Drawing IV	(0-6)	2
Architecture 235 Elements of Composition II	(1-6)	3	Architecture 236 Elements of Composition II	(1-6)	3
English 231 A Survey of American Literature	(3-0)	3	Architecture 126 Perspective	(0-6)	2
A Foreign Language—French, German or Spanish		3	A Foreign Language—French, German or Spanish		3
Physical Education		1	Physical Education		1
		17			16

Junior Year

First Semester		Credit
Architecture 239 Pottery	(1-6)	3
Architecture 320 History of Ornament and Furniture	(2-0)	2
Architecture 321 History of Early Civilization and Art	(3-0)	2
Architecture 322 History of Renaissance Architecture	(2-0)	2
Architecture 326 Constructive Anatomy	(0-6)	2
Architecture 3210 Commercial Illustration, I	(0-6)	2
A Foreign Language begun in sophomore year or		
English 232 The Major English Writers	(3-0)	3
		16

Second Semester		Credit
Architecture 2310 Pottery	(1-6)	3
Speech 338 Business and Professional Speech	(3-0)	3
Architecture 324 History of Sculpture	(2-0)	2
Economics 235 Principles of Economics	(3-0)	3
Architecture 327 Life Drawing I	(0-6)	2
Architecture 3211 Commercial Illustration I	(0-6)	2
A Foreign Language begun in sophomore year or		
English 3323 Masterpieces of World Literature	(3-0)	3
		18

Senior Year

First Semester		Credit
Architecture 331 Commercial Design, I	(0-9)	3
Architecture 423 Life Drawing, II	(0-6)	2
Architecture 426 Oil Painting or Advanced Water Color	(0-6)	2
Architecture 428 History of Painting	(2-0)	2
Architecture 437 Principles of Drawing and Painting, Theory of Design	(1-6)	3
Government 230 American Government	(3-0)	3
Psychology 230 Introduction to Psychology	(3-0)	3
		18

Second Semester		Credit
Architecture 332 Commercial Design, I	(0-9)	3
Architecture 424 Life Drawing, II	(0-6)	2
Architecture 427 Oil Painting or Advanced Water Color	(0-6)	2
Architecture 429 History of Painting	(2-0)	2
Architecture 438 Principles of Drawing & Painting, Theory of Design	(1-6)	3
Architecture 420 Professional Practice	(2-0)	2
Psychology 338 Psychology Applied to Business	(3-0)	3
		17

Fifth Year

First Semester		Credit
Architecture 4210 Decorative Figure Drawing	(0-6)	2
Architecture 4212 Commercial Illustration, II	(0-6)	2
Architecture 433 Commercial Design, II	(0-9)	3
Journalism 435 Advertising	(3-0)	3
Approved Electives		6
		16

Second Semester		Credit
Architecture 4211 Decorative Figure Drawing	(0-6)	2
Architecture 4213 Commercial Illustration, II	(0-6)	2
Architecture 434 Commercial Design, II	(0-9)	3
Journalism 436 Advertising	(3-0)	3
Approved Electives		6
		16

Hours required for graduation—167.

DIVISION OF HOME ECONOMICS

MARGARET W. WEEKS, *Dean*

The Division of Home Economics consists of the Departments of Applied Arts, Child Development, Clothing and Textiles, Foods and Nutrition, Home Economics Education, Home Management, and Institution Management.

The functions of the division are:

First, to offer a broad educational program based on the needs of women as homemakers, as leaders and as citizens in the modern world;

Second, to offer specialized training in the various professional fields of home economics such as homemaking, home demonstration work, teaching home economics under State and Federal Vocational Education Programs, dietetics, food management in cafeterias and school lunch rooms, home service positions, nursery school positions, occupations in the arts and crafts field and commercial positions in clothing and art;

Third, to give instruction to students registered in other divisions of the college who may elect home economics as a part of a liberal education. (A maximum of 24 semester hours may be used as electives by students majoring in Arts and Sciences and Business Administration.)

Undergraduate Degree. The degree Bachelor of Science in Home Economics is conferred upon students who satisfactorily complete one of the prescribed curricula in the Division of Home Economics as outlined on the following pages. The degree is given with majors in the Departments of Applied Arts, Child Development, Clothing and Textiles, Foods and Nutrition, and Home Economics Education.

Requirements for Graduation. The completion of a curriculum leading to the degree usually requires four years. This time may be shortened by attending the summer sessions.

Each student enrolled in the division will pursue during the first year the uniform freshman curriculum. The choice of the major is not made until the beginning of the sophomore year. This is done in order that the student, before choosing her professional field, may have the opportunity of becoming familiar with the courses of instruction and the possibilities available after graduation in the various fields of home economics. To provide guidance in the selection of her college major, every freshman student is required to schedule Home Economics Orientation which includes lectures and discussions on the opportunities available for home economics graduates.

The standard amount of work for a student registered in the Division of Home Economics is 16 or 17 semester hours each semester. More than 17 semester hours or less than 12 semester

hours cannot be taken without securing the approval of the dean. A written petition is necessary to secure this approval.

Not more than 6 semester hours in Biblical history and literature or in music nor more than 2 semester hours in chorus can be counted toward degree requirements. Electives in any curriculum must be approved by the head of the department in which the student seeks a degree. The approval must be secured in writing and filed with the dean.

Teacher Training in Vocational Home Economics. Home Economics instruction at Texas Technological College has been approved by the Federal and State Boards of Vocational Education. Students interested in securing on graduation the Vocational Certificates of Approval should select the Home Economics Education curriculum. The certificate may be obtained with either the bachelor's or master's degree.

Students transferring to Texas Technological College in their senior year who wish to be recommended for a Vocational Certificate of Approval must include in their requirements for graduation at least 3 semester hours in each of the subject matter departments in the Division of Home Economics. The requirement may be increased on the recommendation of the head of the department concerned.

A Vocational Certificate of Approval is not in lieu of any state certificate but is in addition thereto.

Teachers' Certificate. Teachers' certificates may be secured by students registered in the Division of Home Economics provided a sufficient number of courses in education are included in the curriculum chosen. The courses in education may count as elective subjects.

Master's Degree in Home Economics. The Division of Home Economics offers also the degree of Master of Science with majors in the Departments of Clothing and Textiles, Foods and Nutrition, and Home Economics Education. Minors are offered in the Departments of Applied Arts and Child Development.

For further information regarding graduate work consult the Bulletin on Division of Graduate Studies.

INFORMATION FOR MAJORS IN THE DIVISION OF HOME ECONOMICS

Department of Applied Arts

The Department of Applied Arts aims to develop wise selection, good judgment, and creative ability in the choice and combination of objects of daily use; to promote understanding and appreciation of aesthetic values irrespective of cost; and to afford opportunities for the acquisition of skills and knowledge that will open new fields of activity for the individual and add to the joy of living. The courses are planned to be of value to students majoring in other divisions of the college as well as to

those majoring in home economics. Students majoring in applied arts and interested in teaching should schedule three additional semester hours in the Department of Education and Psychology among their electives. Students should consult the head of the department before registering for advanced courses and electives.

Department of Child Development and Family Relations

The Department of Child Development and Family Relations endeavors, through the understanding of the physical growth and behavior of young children, to build within the student a better understanding of her adjustment; to develop the ability to guide children toward integrated experiences; and to develop an appreciation of wholesome family life through the study of the underlying factors of family relationships.

A nursery school is used as a laboratory for work in child development. While the welfare of the child is always of paramount consideration, the real aim of the nursery school is that of teaching college students.

Dr. M. C. Overton of the Lubbock Memorial Hospital is the medical advisor for the nursery school. Physical examination is given each child at the beginning of the school term, and a nurse from Lubbock Memorial Hospital is in charge of medical inspection of the children each morning.

Department of Clothing and Textiles

The Department of Clothing and Textiles endeavors to train future home-makers in the best known practices of providing garments and fabrics for the family and home; to translate these practices into principles not only for the homemaker but also for teachers of homemaking and for community and government workers in this field; and to provide sufficient background so that by the addition of personal initiative and practical experience, a student may qualify for related commercial, professional, and research positions. Students majoring in this department must consult the head of the department before registering as to selection of advanced courses and electives. Students expecting to teach in non-vocational schools should elect education courses. Students wishing to teach in vocational high schools should not major in this department, but in the department of Home Economics Education.

Department of Foods and Nutrition

The courses in foods and nutrition are planned to meet the needs of those who desire a good foundation in the principles underlying the selection, purchasing, preparation, and use of foods in the proper nutrition of the individual. Students electing the curriculum in foods and nutrition may prepare themselves for homemaking, for appointments in dietetics, teaching of foods and nutrition, social welfare, commercial food service, and research.

Students interested in preparing themselves for institutional positions such as directors of lunch rooms or dietitians in institu-

tions should schedule the institutional management courses among their electives. Students interested in becoming dietitians in hospitals should schedule also Nutrition 431. Following graduation, a graduate course of eight to 12 months should be taken in a hospital approved by the American Dietetic Association.

Students interested in preparing for research should supplement the curriculum with outlined courses in chemistry, physics, and mathematics instead of the indicated electives. Foreign language is advised for those contemplating graduate study. Courses in sociology and psychology are advised for those interested in social welfare work; large quantity cookery and catering for those preparing for commercial foods appointments.

Students should consult the head of the department before registering for advanced courses and electives.

Department of Home Economics Education

(*Vocational Home Economics Teacher Training*)

The curriculum in the Department of Home Economics Education is planned to meet the requirements for the Vocational Certificate of Approval and the permanent special certificate to teach home economics. It also meets the requirements for the six-year high school certificate.

Candidates for a Vocational Certificate of Approval must have had some actual homemaking experience. Plans for this experience should be made early in the course. A statement concerning them must be filed in the office of the dean of home economics at or before the beginning of the senior year.

Department of Home Management

The Department of Home Management aims to give students an appreciation of the value of good management in the various phases of home life, as well as to provide means of developing skill in homemaking activities. The courses are open to students in the college who have completed the prerequisites. Residence in the home management house gives opportunity for securing experiences in the managerial and social problems of homemaking.

Department of Institutional Management

The curriculum in the department of Institutional Management is planned for those students who desire training for such positions as managers of lunchrooms, or dietitians in hospitals or other institutions. The curriculum in foods and nutrition should be followed, the students selecting the Institutional Management option in the junior and senior years.

Preparation for Work with the Extension Service

To prepare for county home demonstration work and other extension activities, students should select either the Home Economics Education or the General Home Economics curriculum and select among their electives not less than 6 semester hours in agriculture subjects.

CURRICULA OFFERED IN THE DIVISION OF HOME ECONOMICS

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

Uniform Freshman Year*

First Semester		Credit	Second Semester		Credit
English 131 English Composition	(3-0)	3	English 132 English Composition	(3-0)	3
Chemistry 131 General Chemistry	(2-3)	3	Chemistry 132 General Chemistry	(2-3)	3
Mathematics 137 Commercial Algebra	(3-0)	3	Child Development 131 Introduction to Child Guidance	(2-3)	3
Applied Arts 131 Design	(2-3)	3	Clothing 132 Basic Clothing Problems	(1-6)	3
Foods 131 Elementary Food Preparation and Serving	(2-3)	3	Elective		3
H. E. Education 111 Orientation for Home Economics students	(2-0)	1	Physical Education 112 Stunts, Games and Sports	(0-2)	1
Physical Education 111 Fundamentals in Gymnastics and Rhythms	(0-2)	1			16
		17			

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

APPLIED ARTS MAJOR

For Uniform Freshman Year See Above

Sophomore Year

First Semester		Credit	Second Semester		Credit
English 231 A Survey of American Literature	(3-0)	3	English 232 The Major English Writers	(3-0)	3
Psychology 231 Educational Psychology	(3-0)	3	Education 234 Principles of Secondary Education	(3-0)	3
Zoology 235 Anatomy, Physiology and Hygiene	(2-3)	3	Zoology 236 Anatomy, Physiology and Hygiene	(2-3)	3
Applied Arts 232 Crafts Design	(1-6)	3	Applied Arts 231 Costume Design	(2-3)	3
Clothing 131 Basic Textiles	(2-3)	3	Applied Arts 233 Textile Design	(1-6)	3
Government 230 American Government	(3-0)	3	Physical Education	(0-2)	1
Physical Education	(0-2)	1			16
		19			

* To be used with all curricula except Pre-Nursing.

Junior Year

First Semester		Credit
Economics 231 Principles of Economics	(3-0)	3
Home Management 332 Home Management	(3-0)	3
Architecture 239 Pottery	(1-6)	3
Elective in Foods and Nutrition		3
*Elective		3
		15

Second Semester		Credit
Sociology 330 Introduction to Sociology or	(3-0)	
Sociology 333 Current Social Problems	(3-0)	3
Bacteriology 231 Bacteriology	(2-3)	3
Applied Arts 234 Minor Crafts	(1-6)	3
Applied Arts 331 Interior Design	(2-3)	3
Elective		3
		15

Senior Year

First Semester		Credit
Family Relations 433 Family Relations	(3-0)	3
Clothing 322 Weaving Crafts	(0-6)	2
Applied Arts 434 Metalwork or	(1-6)	
Applied Arts 435 Jewelry and Lapidary	(1-6)	3
Psychology 331 Child Psychology or	(3-0)	
Psychology 335 Psychology of Adolescence	(3-0)	3
**Electives		6
		17

Second Semester		Credit
Applied Arts 431 Wood	(1-6)	3
H. E. Education 331 Principles of Teaching Home Economics	(3-0)	3
H. E. Education 411 Home Economics Lectures	(1-0)	1
Electives		9
		16

Hours required for graduation—130.

* General Option select Clothing 232; Crafts Option select Physical Education 230.

**General Option select Clothing 333; Crafts Option select Psychology 433 and Physical Education 331.

CURRICULUM FOR THE DEGREE BACHELOR OF SCIENCE IN HOME ECONOMICS

CHILD DEVELOPMENT AND FAMILY RELATIONS MAJOR

For Uniform Freshman Year See Page 169

Sophomore Year

First Semester		Credit	Second Semester		Credit
English 231 A Survey of American Literature	(3-0)	3	English 232 The Major English Writers	(3-0)	3
Zoology 235 Anatomy, Physiology and Hygiene	(2-3)	3	Zoology 236 Anatomy, Physiology and Hygiene	(2-3)	3
Foods 132 Elementary Food Preparation	(2-3)	3	Clothing 131 Basic Textiles	(2-3)	3
Psychology 231 Educational Psychology	(3-0)	3	Child Development 231 Development in Infancy	(3-0)	3
Government 230 American Government	(3-0)	3	Education 234 Principles of Secondary Education	(3-0)	3
Physical Education		1	Physical Education		1
		16			16

Junior Year

First Semester		Credit	Second Semester		Credit
Economics 231 Principles of Economics or	(3-0)		Sociology 330 Introduction to Sociology	(3-0)	3
Agricultural Economics 235 Fundamentals of Economics	(3-0)	3	Family Relations 433 Family Relations	(3-0)	3
Child Development 431 Child Development	(3-0)	3	Nutrition 334 Dietetics	(2-3)	3
Foods 232 Meal Planning and Table Service	(1-6)	3	Psychology 331 Child Psychology	(3-0)	3
Home Management 332 Home Management	(3-0)	3	H. E. Education 331 Principles of Teaching Home Economics	(3-0)	3
Applied Arts 132 Design	(1-6)	3	Elective		3
		15			18

Senior Year

First Semester		Credit	Second Semester		Credit
Phychology 433 Mental Hygiene	(3-0)	3	Applied Arts 331 Interior Design	(2-3)	3
Education 3310 Children's Literature	(3-0)	3	Child Development 435 Student Teaching in Nursery School	(1-6)	3
Child Development 432 Nursery School Education	(2-3)	3	H. E. Education 411 Home Economics Lectures	(1-0)	1
H. E. Education 431 Methods of Teaching Home Economics	(3-0)	3	H. E. Education 412 Supervised Observation in Home Economics	(1-0)	1
Home Management 432 Residence in Home Management House	(0-9)	3	H. E. Education 435 Methods for Adult Leadership	(3-0)	3
		15	Electives		6
					17

Hours required for graduation—130.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

CLOTHING AND TEXTILES MAJOR

For Uniform Freshman Year See Page 169

Sophomore Year

First Semester	Credit	Second Semester	Credit
English 231 (3-0) A Survey of American Literature	3	English 232 (3-0) The Major English Writers	3
Clothing 131 (2-3) Basic Textiles	3	Clothing 232 (1-6) Dressmaking	3
History 131 (3-0) History of Civilization	3	History 132 (3-0) History of Civilization	3
Applied Arts 231 (2-3) Costume Design	3	Government 230 (3-0) American Government	3
Psychology 231 (3-0) Educational Psychology	3	Physical Education	1
Physical Education	1	*Elective	3
	16		16

Junior Year

First Semester	Credit	Second Semester	Credit
Elective in Clothing	2	Elective in Clothing	3
Clothing 333 (1-6) Pattern Designing	3	Elective in Nutrition	3
Applied Arts 331 (2-3) Interior Design	3	Elective in Applied Arts	3
Economics 231 (3-0) Principles of Economics	3	Sociology 330 (3-0) Introduction to Sociology or	
Zoology 235 (2-3) Anatomy, Physiology and Hygiene	3	Sociology 333 (3-0) Current Social Problems	3
Elective	3	Zoology 236 (2-3) Anatomy, Physiology, and Hygiene	3
	17	Elective	3
			18

Senior Year

First Semester	Credit	Second Semester	Credit
Clothing 431 (2-3) Textile Economics	3	H. E. Education 411 (1-0) Home Economics Lectures	1
Elective in Clothing	3	Electives in Clothing	6
Home Management 332 (3-0) Home Management	3	Family Relations 433 (3-0) Family Relations	3
Electives	6	Electives	6
	15		16

Hours required for graduation—131.

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* Electives indicated in this curriculum should be taken in a sequence planned with the department head.
Option for teaching in non-vocational high schools, select Education 234, Home Economics Education 331, 431, 432 and Foods 232.
Option in merchandising select Speech, Journalism, Accounting, Economics, Marketing and Clothing 436.
Option in textile research select Chemistry, Mathematics, Physics, and Clothing 432.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

FOODS AND NUTRITION MAJOR

For Uniform Freshman Year See Page 169

Sophomore Year

First Semester		Credit	Second Semester		Credit
English 231 A Survey of English Literature	(3-0)	3	English 232 The Major English Writers	(3-0)	3
Zoology 235 Anatomy, Physiology and Hygiene	(2-3)	3	Zoology 236 Anatomy, Physiology and Hygiene	(2-3)	3
Chemistry 220 Qualitative Analysis	(1-3)	2	Foods 232 Meal Planning and Table Service	(1-6)	3
Foods 132 Elementary Food Preparation	(2-3)	3	*Education 234 Principles of Secondary Education	(3-0)	3
Psychology 231 Educational Psychology	(3-0)	3	Government 230 American Government	(3-0)	3
Clothing 131 Basic Textiles	(2-3)	3	Physical Education		1
Physical Education		1			16
		18			

Junior Year

First Semester		Credit	Second Semester		Credit
Economics 231 Principles of Economics	(3-0)	3	Sociology 333 Current Social Problems	(3-0)	3
Nutrition 334 Dietitics	(2-3)	3	Foods Elective		3
Bacteriology 231 Bacteriology	(2-3)	3	Applied Arts Elective		3
Chemistry 341 Organic Chemistry	(3-3)	3	Chemistry 342 Physiological Chemistry	(3-3)	4
*Elective		3	Elective		3
		16			16

Senior Year

First Semester		Credit	Second Semester		Credit
Nutrition 432 Nutrition	(2-3)	3	Nutrition 431 Nutrition in Disease	(2-3)	3
Home Management 332 Home Management	(3-0)	3	Home Management Elective		3
Foods and Nutrition Elective		3	Foods 333 Experimental Cookery	(1-6)	3
**Approved Electives		6	H. E. Education 411 Home Economics Lectures	(1-0)	1
		15	**Approved Electives		6
					16

Hours required for graduation—130.

* Nutrition option select Mathematics 138. Institutional Management option select Accounting 244. Commercial Foods Service option select Foods 3310.

**Nutrition option select Chem. 331-2. Institutional Management option select Institutional Management 432, 435, 436, Clothing 431. Commercial Foods Service option select Foods 331, 333; Clothing 431; Home Mgmt. 433.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

GENERAL HOME ECONOMICS MAJOR

For Uniform Freshman Year See Page 169

Sophomore Year

First Semester	Credit	Second Semester	Credit
English 231 (3-0) A Survey of American Literature	3	English 232 (3-0) The Major English Writers	3
Zoology 235 (2-3) Anatomy, Physiology and Hygiene	3	Zoology 236 (2-3) Anatomy, Physiology and Hygiene	3
Psychology 231 (3-0) Educational Psychology	3	Government 230 (3-0) American Government	3
Applied Arts 231 (2-3) Costume Design	3	Clothing 232 (1-6) Dressmaking	
Clothing 131 (2-3) Basic Textiles	3	or	
Physical Education	1	Foods 232 (1-6) Meal Planning and Table Service	3
	16	Foods 132 (2-3) Elementary Food Preparation	3
		Physical Education	1
			16

Junior Year

First Semester	Credit	Second Semester	Credit
Economics 231 (3-0) Principles of Economics		Sociology 330 (3-0) Introduction to Sociology	
or		or	
Agricultural Economics 235 (3-0) Fundamentals of Economics	3	Rural Sociology 432 (3-0) Rural Sociology	3
Chemistry 341 (3-3) Organic Chemistry	4	Clothing 333 (1-6) Pattern Designing	3
or		Nutrition 334 (2-3) Dietetics	3
Bacteriology 231 (2-3) Bacteriology	3	Home Management 432 (0-9) Residence in Home Management House	3
Foods 232 (1-6) Meal Planning and Table Service		Electives	5
or			17
Clothing 232 (1-6) Dressmaking	3		
Home Management 332 (3-0) Home Management	3		
Applied Arts 331 (2-3) Interior Design	3		
	15 or 16		

Senior Year

First Semester		Credit	Second Semester		Credit
Child Development 431	(2-3)	3	Elective, Child Development		3
Child Development					
Electives, Arts & Sciences		6	Electives, Arts & Sciences		6
Clothing 334	(2-3)		Clothing 435	(1-6)	3
Family Clothing Problems			Home Furnishings		
or			H. E. Education 411	(1-0)	1
Clothing 431	(2-3)	3	Home Economics Lectures		
Textile Economics			Elective		3
Electives		5			
		17			16

Hours required for graduation—130.

Electives

Students who wish to prepare themselves for Extension Service work such as county home demonstration agents or assistant agents should choose among their electives:

Foods 331. Food Demonstration.
Foods 335. Food Preservation.
Clothing 322. Weaving Crafts.
Electives in division of Agriculture—at least six semester hours.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

HOME ECONOMICS EDUCATION MAJOR
(Vocational Home Economics Teacher Training)

For Uniform Freshman Year See Page 169

Sophomore Year

First Semester		Credit	Second Semester		Credit
English 231	(3-0)	3	English 232	(3-0)	3
A Survey of American Literature			The Major English Writers		
Zoology 235	(2-3)	3	Zoology 236	(2-3)	3
Anatomy, Physiology and Hygiene			Anatomy, Physiology and Hygiene		
Psychology 231	(3-0)	3	Education 234	(3-0)	3
Educational Psychology			Principles of Secondary Education		
Foods 132	(2-3)	3	Government 230	(3-0)	3
Elementary Food Preparation			American Government		
Applied Arts 231	(2-3)	3	Clothing 232	(1-6)	
Costume Design			Dressmaking		
Clothing 131	(2-3)	3	or		
Basic Textiles			Foods 232	(1-6)	3
Physical Education		1	Meal Planning and Table Service		
		19	Physical Education		1
					16

Junior Year

First Semester		Credit
Economics 231	(3-0)	
Principles of Economics		
or		
Agricultural Economics 235	(3-0)	3
Fundamentals of Economics		
Chemistry 341	(3-3)	4
Organic Chemistry		
Foods 232	(1-6)	
Meal Planning and Table Service		
or		
Clothing 232	(1-6)	3
Dressmaking		
Home Management 332	(3-0)	3
Home Management		
Applied Arts 331	(2-3)	3
Interior Design		
		16

Second Semester		Credit
Sociology 330	(3-0)	
Introduction to Sociology		
or		
Rural Sociology 432	(3-0)	3
Rural Sociology		
Bacteriology 231	(2-3)	3
Bacteriology		
Nutrition 334	(2-3)	3
Dietetics		
H. E. Education 331	(3-0)	3
Principles of Teaching Home Economics		
Elective		3
		15

Senior Year

First Semester		Credit
H. E. Education 431	(3-0)	3
Methods of Teaching Home Economics		
Child Development 431	(2-3)	3
Child Development		
Home Management 432	(0-9)	3
Residence in Home Management House		
Clothing 334	(2-3)	
Family Clothing Problems		
or		
Clothing 431	(2-3)	3
Textile Economics		
H. E. Education 412	(1-0)	1
Supervised Observation in Home Economics		
Electives		5
		18

Second Semester		Credit
H. E. Education 441	(1-9)	4
Student Teaching in Home Economics		
Elective in Child Development or Family Relations		3
Clothing 435	(1-6)	3
Home Furnishings		
H. E. Education 411	(1-0)	1
Home Economics Lectures		
Electives		6
		17

Hours required for graduation—134.

STUDIES PREPARATORY TO NURSING

This curriculum is recommended for students who contemplate the study of nursing as a profession.

CURRICULUM FOR PRE-NURSING STUDENTS

Freshman Year

First Semester		Credit	Second Semester		Credit
English 131 English Composition	(3-0)	3	English 132 English Composition	(3-0)	3
Chemistry 131 General Chemistry	(2-3)	3	Chemistry 132 General Chemistry	(2-3)	3
Foods 131 Elementary Food Preparation and Serving	(2-3)	3	Foods 132 Elementary Food Preparation	(2-3)	3
Mathematics 137 Commercial Algebra	(3-0)	3	Child Development 131 Introduction to Child Guidance	(2-3)	3
Biology		3	Biology		3
H. E. Education 111 Orientation for Home Economics Students	(2-0)	1	Physical Education 112 Stunts, Games, and Sports	(0-2)	1
Physical Education 111 Fundamentals in Gymnastics and Rhythms	(0-2)	1			
		17			16

Sophomore Year

First Semester		Credit	Second Semester		Credit
English 231 A Survey of American Literature	(3-0)	3	English 232 The Major English Writers	(3-0)	3
Government 230 American Government	(3-0)	3	Government 231 American Government	(3-0)	3
Psychology 230 Introduction to Psychology	(3-0)	3	Sociology 330 Introduction to Sociology	(3-0)	3
Chemistry 220 Qualitative Analysis	(1-3)	2	Foods 232 Meal Planning and Table Service	(1-6)	3
History 231 Economic and Political History of the United States	(3-0)	3	History 232 Economic and Political History of the United States.	(3-0)	3
Physical Education	(0-2)	1	Physical Education	(0-2)	1
		15			16

DIVISION OF GRADUATE STUDIES

WILLIAM C. HOLDEN, *Dean*

In 1927, two years after the opening of the college, plans were perfected to promote advanced study and research in those departments of Texas Technological College which were qualified to give graduate work. A committee was appointed from the faculty of the Division of Arts and Sciences to supervise such graduate study within that division. Beginning in 1932, candidates were accepted for the Master of Science degree, and graduate work was placed under the supervision of an enlarged Graduate Committee appointed from the faculty of the college. In 1935, the Division of Graduate Studies was created, and in September, 1937, a dean of the Division of Graduate Studies was appointed. Recognition in November, 1946, of the undergraduate work of the college by the Association of American Universities considerably augments the status of the Division of Graduate Studies.

The Division of Graduate Studies is administered by the dean and the Graduate Committee under authority vested by the Board of Directors. All matters of policy are formulated by the Graduate Committee. The dean of the division, working with the Graduate Committee, coordinates the graduate activities throughout the college, provides regulations for admission to candidacy for graduate degrees, determines the requirements for the various graduate degrees, and recommends the conferring of such degrees. The dean of the Division of Graduate Studies is responsible for the execution of all regulations pertaining to the graduate student, and all matters relating to the graduate work should be addressed to him. However, students should not hesitate to write directly to the head of a department if they have specific questions regarding the work of a department.

Graduate work in Texas Technological College is confined to that which leads to a Master's degree. The college library and laboratories of the various departments provide facilities for graduate work. New reference material is being added regularly to the library, and scientific equipment of the various laboratories of the college is being improved continually.

The following general requirements are applicable to the degrees of Master of Arts, Master of Science, Master of Education, and Master of Business Administration.

Graduate Assistantships and Fellowships

Positions as graduate assistants are provided in some departments. These place the graduate students in direct contact with the best trained men and women on the staff and give opportunity to receive teaching experience.

Graduate fellowships are available from time to time in the Departments of Foods and Nutrition, Child Development and Family Relations, Clothing and Textiles, Home Economics Education, Biology, Chemistry and Chemical Engineering, Economics, Accounting, Education, Geology, Government, Physics, Plant Industry, Animal Husbandry, and Agricultural Education. Applications for these positions should be made to the heads of the departments concerned.

Admission

Students are admitted to the Division of Graduate Studies by the registrar upon the basis of a complete official transcript of undergraduate work.

Registration

The following students come under the supervision of the dean of the Division of Graduate Studies and should report to him for registration:

1. Candidates for the Master's degree.
2. Students who have received a Bachelor's degree from a recognized institution and are not now candidates for a second Bachelor's degree.
3. Students in residence who lack six semester hours or less of having completed the requirements for the Bachelor's degree may, with prior approval of the dean of the division concerned, enroll for courses carrying graduate credit while completing their undergraduate requirements. Although such students are not under his supervision, the dean of the Division of Graduate Studies must approve all courses which the student intends to use for graduate credit. Furthermore, in such cases, if graduate credit is desired for any part of the work carried, the combined load of graduate and undergraduate courses must not exceed fifteen semester hours.

Candidacy for the Master's Degree

A graduate student enrolled in the Division of Graduate Studies does not automatically become a candidate for a Master's degree. To become a candidate the student must complete the following requirements:

1. Acceptance as a candidate by the departments in which the major and minor work are to be performed.

   To be accepted as a candidate by the department the student shall present undergraduate work equivalent to a major in that department or shall have completed a minimum of twelve semester hours of adcanced undergraduate work in the major department together with advanced undergraduate courses in closely allied fields. For a minor subject the student must have completed the equivalent of the minor required for the undergraduate degree in that department or must have completed a minimum of six semester hours in advanced undergraduate courses in such department. If the student cannot meet these requirements or if a period of five years has elapsed since the student received his Bachelor's degree suitable leveling courses may be prescribed

which must be completed without graduate credit before the student is accepted as a candidate for the Master's degree.

An undergraduate record above average is a prerequisite to candidacy. In cases where the grade of B or better has not been received on at least fifty per cent of his undergraduate work, the student may become a candidate for a Master's degree only by satisfactorily completing a preliminary examination over his major and minor fields, as well as over such other work in which he may be deemed deficient.

2. After twelve semester hours of graduate work have been satisfactorily completed, a formal application must be made for admission to candidacy. This application, approved by the heads of major and minor departments, must be submitted to the dean of the Division of Graduate Studies not later than twelve weeks prior to the date on which the degree is to be conferred.

No member of the faculty or staff above the grade of instructor shall be eligible to receive a graduate degree from this college. No member of the faculty or staff shall be eligible to receive a Master's degree in less than three years of nine months each, or the equivalent, and then only in case special arrangements are made.

Requirements for the Master's Degree

Having been accepted as a candidate for the Master's degree, the student must complete the following requirements:

1. Amount of work: The minimum amount of work beyond the Bachelor's degree required for the Master's degree (except the degree of Master of Education) is twenty-seven hours and a thesis, although a department may increase the number of hours required of a particular candidate. Of the required work at least fifteen semester hours and a thesis must be completed in the major subject. At least six of the twenty-seven hours must be in a department other than the major department. Two minors may be chosen, but in no case will less than six hours be accepted towards a minor. The minor, or minors, must be in subject matter other than the major subject.

   Courses open to graduate students for graduate credit are of two levels:

   a. Graduate courses: These courses are open only to graduate students and cannot be used towards the fulfillment of a Bachelor's degree.
   b. Advanced undergraduate courses: These courses are regular junior and senior courses. If such courses, or their equivalents, have not been taken for undergraduate courses, they may be taken for graduate credit, provided such courses have been approved by the Committee on Graduate Work and provided that additional work over and above that required of undergraduate students is completed by the graduate student seeking graduate credit in these courses.

   For the completion of requirements for the major at least nine semester hours must be completed in course of Class a, above.

   Graduate students are limited to a load not exceeding fifteen semester hours for each semester and a load not exceeding six semester hours for each full summer term of six weeks if any portion of such work is to count toward graduate credit. Those who may be employed or otherwise partially engaged are subject to further restrictions as set forth below.

2. Residence Requirements: A minimum of 24 weeks in residence at Texas Technological College is required, and in addition, another

six weeks of work must be accounted for in one of the following ways:

a. As a resident student at Texas Technological College.
b. As a resident student in some other college of equal rank.
c. As a student in extension courses offered by Texas Technological College.

An applicant for the Master's degree must complete all requirements for the degree within three years from the date of his enrollment for graduate study, except that a student in summer school only may have the time extended to five years.

In case a student is employed by the college, or is employed otherwise ,the length of residence for the completion of the work will be increased proportionately.

In case a student is enrolled for the completion of a thesis only, the number of weeks allowed toward the fulfillment of the residence requirement will in no case exceed one semester, regardless of the number of semester or terms required for the completion of the thesis.

3. Non-residence and extension credit: Either of the following methods, or a combination of the two, may be used to account for six hours of graduate credit:
   a. A maximum of six semester hours of graduate work may be accepted from another institution of equal rank if the student was enrolled as a resident student of that institution.
   b. A maximum of six semester hours of graduate work taken through the Division of Extension of Texas Technological College may be used, provided it is given by a qualified member of the faculty at an established extension center or on the campus.

   An additional nine semester hours may be accepted when a department recommends that a student be sent to a particular college for the consummation of particular work. Such work must be outlined and approved by the head of the department and the Committee on Graduate Work before such work is undertaken.

4. Foreign languages: A reading knowledge of a foreign language is required of all candidates for the Master of Arts degree. In certain departments no candidate may receive a Master of Science degree without meeting the specific requirement in foreign language.

5. Thesis: The completion of an acceptable thesis is a requirement of all Masters' degrees, with the exception of certain options allowed for the Master of Education.

   Research leading to the thesis is supervised by an advisory committee appointed at the candidate's request by the dean of the Division of Graduate Studies at the time the student selects his thesis subject. Although the primary supervisory responsibility rests upon the major professor, who will be the chairman of the advisory committee, the candidate should consult freely with the members of the advisory committee from the initiation of his research until the acceptance of his thesis. Each member of the committee may call in the candidate for consultation at any time during the preparation of the thesis. The thesis must be acceptable to all members of the advisory committee, not just to the major professor.

   A complete draft of the thesis shall be prepared in form and manner acceptable to the major professor and the committee as a whole. The candidate must submit his first draft to the committee in ample time for full consideration. Failure to do so shall be considered ground for non-acceptance of the thesis. This complete draft, with the signed approval of the members of the advisory committee, must be submitted to the dean of the Division

of Graduate Studies not later than thirty days prior to Commencement during the regular session, and not later than twenty days prior to the end of the summer session.

At least three copies of the final draft of the thesis must be prepared and final approval thereon indicated by the advisory committee and the dean of the Division of Graduate Studies. These approved copies, together with the deposit for binding, must be submitted to the librarian, who will issue a receipt for the deposit. This receipt must be given to the dean of the Division of Graduate Studies not later than three days prior to the date set for graduation.

Six copies of an abstract of the thesis, suitable for publication and prepared in a form acceptable to the major professor, must be submitted to the dean of the Division of Graduate Studies for approval not later than three days prior to the date set for graduation.

6. Oral Examination: In addition to the regular written examinations required for completion of courses conducted by the departments in which the subjects are taken, all candidates for master's degrees are subject to a general oral examination by a committee appointed for that purpose by the dean of the Division of Graduate Studies. Such oral examination will be given at or near the close of all course work and may cover all or any part of the work of the graduate student, including all work done in extension courses or transferred from another institution. The oral examination may not be taken until the first draft of the thesis is approved. The time and place of the oral examination is fixed by the dean of the Division of Graduate Studies at the request of the candidate.

7. Grades and Credit. No courses will be accepted for graduate credit unless registration for such courses has been approved by the dean of the Division of Graduate Studies. This regulation also applies to students in extension courses. However, extension students will be allowed a period not exceeding two weeks from the first meeting of the class to satisfy these requirements.

   A student must have a B average on all courses counted towards a Master's degree. With the grade point system this is equivalent to 2.00. No grade lower than C can be included. Regulations concerning the grade of "Inc." as set forth in the current catalogue apply to graduate as well as undergraduate students.

8. Government Requirement: The Forty-fifth Legislature, by statute, requires the study of state and federal government as a prerequisite to any degree granted by a state-supported college. Each candidate for a Master's degree should consult with the dean of the Division of Graduate Studies concerning this requirement.

DEGREES

Master of Arts

Prerequisite: a Bachelor of Arts degree or its equivalent. The Master of Arts degree is offered by the following departments: Biology, Chemistry, Education and Psychology, English, Foreign Languages (Spanish), Geology, Government, History and Anthropology, Mathematics, and Physics.

In addition to the departments mentioned above, minors may be taken in French, Journalism, Music, Philosophy and Sociology, Physical and Health Education, and Speech.

Master of Science

Prerequisite: a Bachelor of Science degree or its equivalent. In some departments additional prerequisites are required. The Master of Science degree is offered by the following departments: Accounting and Finance, Agricultural Economics, Agricultural Education, Animal Husbandry, Biology, Chemical Engineering, Chemistry, Clothing and Textiles, Dairy Manufactures, Economics and Management, Foods and Nutrition, Geology, Home Economics Education, Marketing and Salesmanship, Mathematics, Physics, and Plant Industry.

In addition to the departments listed above, minors may be taken in Applied Arts, Architecture and Allied Arts, Child Development and Family Relations, Civil Engineering, Electrical Engineering, Home Management, Industrial Engineering, and Mechaical Engineering.

Master of Education

The degree of Master of Education is designed primarily for teachers and administrators, or those who expect to fill such positions. It is predicated upon the degree of Bachelor of Science in Education or its equivalent which should include thirty semester hours in Education.

All candidates for this degree may select any one of the following plans:

1. Plan I, designated especially for administrators. Required: twenty-seven hours of advanced and graduate courses and a thesis. The courses include nine hours of graduate level courses, three hours in statistics, and three hours in technique of research. The major in education consists of fifteen hours and a thesis, and the minor of twelve hours in a subject-matter department, or six hours in each of two such departments.
2. Plan II, designed especially for high school teachers.
   a Option 1, with thesis. Required: twenty-seven hours of advanced and graduate courses and a thesis. The courses include three hours in the technique of research and at least nine hours at graduate level. As few as twelve hours and as many as twenty-four hours may be in the Department of Education. The remainder may be in a subject-matter field, or in two subject-matter fields. In either case the usual graduate requirements for a minor must be observed. With the consent of the Graduate Committee upon the advice of the departments concerned, the candidate may write his thesis in the subject-matter department.
   b. Option 2, without thesis Forty-two hours required, including thirty hours in advanced and graduate levels. At least nine hours must be at the graduate level. As few as twelve hours and as many as twenty-four may be taken in the Department of Education. The remainder of the thirty hours may be taken in a subject-matter, or minor, department, or in two such departments. Twelve of the forty-two hours may be selected from any department in the college, and may be of any level.
3. Plan III, without thesis, designed especially for elementary teachers. Forty-two hours required, including thirty hours in advanced and graduate level courses. At least nine hours must be at the graduate level. The candidate may elect to take as few as twelve hours or as many as twenty-four hours in the Department of Education. The remainder of the thirty hours may be taken in a

minor department. Twelve of the forty-two hours may be taken in subject-matter courses of any level, directly applicable to the chief interests of the student.

Master of Business Administration

Prerequisite: an undergraduate major in business administration. In the Master of Business Administration degree stress is placed upon professional training rather than advanced theory. A workable knowledge of business statistics and practical experience in some business are desirable prerequisites.

The candidates may choose a major field from the following: accounting, finance, or economics. Certain courses in other departments which may, upon the recommendation of the major professors, be incorporated in the major field include History 535; Government 323, 337, 338, and 438; Agricultural Economics 421; Mechanical Engineering 434; and Clothing and Textiles 431. Other courses in the Division of Graduate Studies may be applied, if approved by the major department.

Professional Degrees in Engineering

An engineering graduate of Texas Technological College may become a candidate for a professional degree of which the following are available: Chemical Engineer; Civil Engineer; Electrical Engineer; Geological Engineer; Industrial Engineer; Mechanical Engineer; Textile Engineer.

The requirements for any of these degrees include acceptable professional experience, a thesis ,and an examination. Professional degrees in engineering will be conferred only on the recommendation of the Committee on Graduate Work and the faculty of the College.

A written application stating the degree desired must be submitted to the Committee on Graduate Work not later than January 1, next preceding the date when the degree is to be conferred. This application shall include (a) a report or outline of the professional work upon which the application is based together with whatever documentary evidence may be considered pertinent, and (b) an outline of the thesis.

The professional work must comprise at least four full years subsequent to graduation, two years of which must have been in positions of responsibility. In order to be accepted by the Committee on Graduate Work, the professional work must have been approved by the head of the department concerned and by the dean of the Division of Engineering.

Before submission to the Committee on Graduate Work, the outline of the thesis must have been approved by the head of the department directly concerned. The thesis must constitute a distinct contribution to engineering, must be of analytical character, and may not be merely a descriptive discussion of an engineering project nor a digest of engineering literature.

Master's degrees in engineering will be accepted in lieu of two years of professional experience, but will not be considered as of responsible charge.

DIVISION OF EXTENSION

J. HOMER MILLIKIN, *Director*

Texas Technological College through the Division of Extension offers approximately two hundred and fifty courses to those who cannot attend the regularly scheduled classes. Correspondence and extension class work offered by the Division of Extension has been approved by the Association of Texas Colleges. The division is a member of the National University Extension Association.

Correspondence Department

Correspondence study courses are available in the following divisions and departments:

Agriculture: agricultural economics, farm management and rural sociology, and animal husbandry.

Arts and Sciences: Bible, biology, education and psychology, English, foreign languages, geography, government, history and anthropology, journalism, mathematics and astronomy, music and band, philosophy and sociology, and physical education.

Business Administration: Accounting and finance, economics and management, marketing and secretarial administration.

The following general regulations govern correspondence courses:

One-fourth of the required work for a bachelor's degree may be done by correspondence study and/or extension class work. A maximum of six hours of the final semester's work required for a Bachelor's degree may be completed by correspondence study provided the work does not constitute a part of the major or minor requirements toward a degree.

No course may be taken by correspondence on which the student has made a grade of F while in residence.

One-half of the work required for a teacher's certificate may be done by correspondence study.

The registration fee of each correspondence course of one semester hour is $5.00; of two semester hours, $10.00; and of three semester hours, $15.00. All fees are payable in advance and are not refunded. A correspondence course may not be exchanged for some other courses nor transferred to another person.

A resident student may begin or continue work in the Division of Extension only with the approval of his dean. Students at other colleges must secure the advance approval of their deans for correspondence or extension class courses, or assume the risk.

Correspondence courses for credit are the equivalent in content of the corresponding residence courses.

College entrance courses are available in the following fields: Agriculture, business, Bible, English, history and social science, mathematics, foreign language, and science.

The enrollment fee for each one-half unit course is $10.00, for each one-unit course, $15.00.

Extension Department

Extension classes will be organized in convenient centers upon request of a sufficient number of students depending upon the distance. Both graduate and undergraduate courses are available. The fee is $5.00 per semester hour. Laboratory fees will be required for courses requiring laboratory work. Enrollment fees are required in advance and are not refunded.

A maximum of six semester hours of extension class credit (whether taken on or off the campus) will be allowed toward a master's degree. One-fourth of the work required for a bachelor's degree may be taken by extension class work and/or correspondence work.

Lecture Department

Speakers for any educational occasion (such as study club programs, or commencement) will be suggested upon request. Travelling expenses and suitable honoraria are customary.

Motion Picture Department

Educational motion pictures (16 mm. silent and sound) are available for use by schools, clubs, and other organizations, at reasonable rental rates.

For further information or bulletins giving details of the service of the Extension Division, please write to the Division of Extension, Texas Technological College, Lubbock, Texas.

DESCRIPTION OF COURSES

Department of Accounting and Finance

PROFESSOR ROOT, PART-TIME PROFESSOR DUPREE. ASSOCIATE PROFESSOR RUSHING. ASSISTANT PROFESSORS TAYLOR, GIBSON, EAVES. PART-TIME LECTURERS CASE, WHITESIDE, WILSON.*

ACCOUNTING

231. Industrial Accounting for Engineers. Cr. 3. II.

Intended for engineers interested in the processes and executive uses of industrial accounting. Offers a foundation in basic accounting principles, a treatment of the essentials of cost accounting theory and practice, and training in managerial aspects of accounting.

244-5. Elementary Accounting. Cr. 4, (3-3). I, II.

Introduction to principles of accounting for corporations, partnerships, and sole proprietorships. The preparation of financial statements and their analysis and interpretations. Accounting for business in general and a foundation for advanced accounting study. (Three two-hour sessions each week.)

334-5. Intermediate Accounting. Cr. 3. I and II.

Prerequisite: Acct. 244-5. Advanced principles of accounting. Emphasis placed on items of balance sheet, profit and loss, and surplus statements. Study of installment sales, comparative statements and their ratios; statements of application of funds, reserves, budgets, and consolidated statements.

336. Principles of Cost Accounting. Cr. 3. I.

Prerequisite: 60 semester hours including Acct. 244-5 and junior classification. Records and reports for the cost department. Methods of allocating overhead costs. Records and principles for handling material, labor, and indirect costs.

430. Income Tax Accounting. Cr. 3. I.

Prerequisite: Acct. 244-5 and junior classification. The Federal Revenue Acts with reference to taxation of the incomes of individuals, corporations and estates. The preparation of tax returns.

431. Advanced Income Tax Accounting. Cr. 3. II.

Prerequisite: Accounting 430. Advanced phases of Income Taxation. Tax Court and Federal Court cases and decisions. Procedure in practicing before the Tax Court. Study and preparation of returns involving gift taxes, estate taxes, inheritance and Social Security taxes.

432. Governmental Accounting. Cr. 3. II.

Prerequisite: 60 semester hours including Acct. 244-5. Application of accounting principles and systems to the requirements of governmental units, municipal, county, state, and federal. Emphasis on budgetary and fund accounts.

434-5. Advanced Accounting. Cr. 3. I and II.

Prerequisite: 90 semester hours including Acct. 244-5, and Acct. 334-5, and junior classification, or consent of instructor. Advanced work in theory and practice. Special accounting aspects of partnerships, ventures, insurance, organizations in financial difficulties, accounting for parent and subsidiaries, foreign exchange, estate accounting, and governmental accounting.

436. Accounting Systems. Cr. 3. II.

Prerequisite: 60 semester hours including Acct. 244-5, and junior classification. Construction of accounting reports, application of principles of system and design to the policies, organization, and operating methods of individual companies. Problems and cases.

437. Principles of Auditing. Cr. 3. II.

Prerequisite: 90 semester hours including Acct. 244-5, Acct. 334-5, and Acct. 336, and senior classification. Auditing procedure, classification of audits, and investigations. Methods of verification of financial statements. Problems and principles of auditing.

531. C.P.A. Problems. Cr. 3. I.

Prerequisite: Graduate standing, Acct. 334-5, or consent of instructor. Solution of problems given on C. P. A. examinations; a review of accounting theory and practice.

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* On leave 1945-1947.

601. Thesis.

Courses in this department which may be taken for graduate credit, in addition to Accounting 531, are: Accounting 336, 430, 431, 432, 434, 435, 436, 437, if properly petitioned for, and provided additional work or an added problem is done in each course.

FINANCE

331. Corporation Finance. Cr. 3. I, II.
Prerequisite: 60 semester hours including Eco. 231-2 and Acct. 244-5, and junior classification. The financial aspects of the modern business corporation; promotion, financial plan; sale of securities; dividend policies; expansion, merger, consolidation; failure and reorganization; public regulation.

332. Short-Term Finance. Cr. 3. II.
Prerequisite: 60 semester hours including Eco. 231-2 and Acct. 244-5, and junior classification. Principles of management of circulating capital; types of credit institutions; commercial banks; finance ccmpanies; acceptances; financial aspects of purchasing and selling goods; the money market; investment of short-term funds; foreign exchange.

333. Banking Principles. Cr. 3. I.
Prerequisite: 60 semester hours including Eco. 231-2 and Acct. 244-5, and junior classification. Practical bank operation; organizing a bank; departmental operations; loan and investment administration; small loan department; examinations; regulation; merger; liquidation; deposit insurance.

334. Credits and Collections. Cr. 3. II.
Prerequisite: 60 semester hours including Eco. 231-2 and Acct. 244-5, and junior classification; types and analyses of financial statements; credit limits; collections procedure; special problems of installment credit; legal remedies of the creditor.

335. Insurance. Cr. 3. I
Prerequisite: Eco. 231-2 and Acct. 244-5. Principles of life, property, and casualty insurance. Organization of carriers, types of policies, premiums, reserves. Business uses of insurance.

338-9. Business Law. Cr. 3. I and II.
(Formerly Business 334-5) Prerequisite: 60 semester hours including six hours of economics. The ordinary rules of business law. The development of our legal system. The law of persons, torts, contract, agency, private property, sales, negotiable instruments, insurance, labor, partnerships and corporations. Stress will be placed upon Texas law where it varies from usual practice.

431. The Federal Reserve System. Cr. 3. I.
Prerequisite: Fin. 333. Organization and development of the Federal Reserve System; open-market transactions; rediscounts; the transit department; fiscal agency operations; examinations; the Board of Governors and its powers; industrial advances; Federal Reserve notes; member bank reserves.

434. Investments. Cr. 3. II.
Prerequisite: Fin. 331. Analysis of investment securities; sources of information; classes of investors; institutional investors; diversification; taxation; supervision of investment; portfolio.

531. Current Financial Problems. Cr. 3. I.
Prerequisite: Graduate standing. Solution and presentation of an approved problem involving individual research work in the field of finance.

601. Thesis.

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: Fin. 331, 332, 334, 335, 431, 434, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series which otherwise carry no graduate credit.

Department of Agricultural Economics

PROFESSOR McBRIDE. ASSOCIATE PROFESSOR HARRISON

AGRICULTURAL ECONOMICS

235. Fundamentals of Economics. Cr. 3. I, II.
Prerequisite: Sophomore standing. Analysis of fundamental economic theories and principles and their applications to modern economic problems. A brief working concept of economic theories and laws to be followed by application to the various vocations.

236. Principles of Marketing Agricultural Products. Cr. 3. I, II.
Prerequisite: Ag. Eco. 235 or its equivalent. Formerly Ag. Eco. 234. The basic economic conditions affecting the marketing of farm products. Analysis of the various agents performing the functions in the purchase, sale and distribution of agricultural products.

322. Marketing Agricultural Products. Cr. 2. II.
Prerequisite: Ag. Eco. 236. Problems and practices involved in the marketing of specific commodities as cotton, wheat, beef, hogs, dairy products, poultry, as especially adapted to the conditions of West Texas.

323. Advanced Agricultural Economics. Cr. 2. I.
Prerequisite: Ag. Eco. 236. Analysis of proportions of factors of production; farm labor and wages; farm credit and rate of interest; rents and profits; landlord-tenant relations; crop estimates and forecasts.

331. Statistical Problems. Cr. 3, (2-3). I, II.
Prerequisite: Junior standing. Six semester hours of mathematics. A survey of the important sources of agricultural statistics. Principles involved in the collection, analysis, presentation, and interpretation of agricultural data. Practice in statistical methods, including sampling, tabulations, averages, dispersion, probability, error, index numbers, trends, cycles, and correlation.

333. Cooperation in Agriculture. Cr. 3. I.
Prerequisite: Ag. Eco. 236. Development, importance and fundamental principles underlying production, purchasing and selling. Pooling systems, membership contracts, and laws affecting cooperative action of rural people. Several field trips to study existing West Texas cooperatives.

*411-2. Agricultural Economics Seminar. Cr. 1. I, II.
Prerequisite: Senior standing, or permission of the instructor. A discussion of current problems in the economics of agriculture. Topics and assigned readings, reports and discussions.

421. Land Economics. Cr. 2. I.
Prerequisite: Junior standing. Land as a factor of production; classification and utilization of land; land income, tenure, calculation, property rights, deeds, credit, taxation.

422. Agricultural Prices and Forecasting. Cr. 2. II.
Prerequisite: Ag. Eco. 331. The application of statistical methods to the refinement and practical use of agricultural prices and forecasting. Original research applied to one agricultural commodity of the student's choice.

431. Livestock Marketing. Cr. 3. I.
Prerequisite: 11 semester hours of agricultural economics including Ag. Eco. 236. Livestock marketing problems. Livestock supply and meat consumption. County dealers, public markets, cooperative associations, auctions, and direct marketing. Transportation, shrinkage, grading, market news, prices, and price differentials.

432. Records. Cr. 3, (2-3). II.
Prerequisite: Ag. Eco. 331. Especial attention given to records and accounts for the dairy manufacturing plants. Records and principles of handling material, labor, and indirect costs of income. Practical problems worked out in laboratory based on methods used by commercial organizations.

*433. Farm Management and Records. Cr. 3, (2-3). I, II.
Prerequisite: Junior standing in agriculture. The organization and management of the individual farm; types and systems of farming; capital requirements; farm machinery and equipment. Factors affecting farm profits, practice in taking farm inventories and making plans for reorganization. Formulation and interpretation of farm records. Field trips to nearby farms.

434. Advanced Farm Management. Cr. 3. II.
Prerequisite: Ag. Eco. 423, senior standing in agriculture. Practices in finance as applied to organizing, administering, and operating farm business. Financial assets of credit extension, selling, and purchasing. Legal problems in farm organization and operations. Contracts, leases, liens, negotiable instruments, and insurance. Farm organization analysis and practices in reorganization.

435. International Agricultural Economics. Cr. 3. II.
Prerequisite: Junior standing, or permission of the dean of the student's major field of study. An interpretative study of the distribution of agricultural supply and demand of the world and the effects upon international and regional production and trade. An economic survey of the conditions under which the world's supplies of agricultural products are obtained; trade routes; trade barriers; centers of trade in agricultural products. Analysis of domestic relationships to world agriculture.

511. Problems. Cr. 1. S.
Prerequisite: Graduate standing; consent of instructor. Investigation and research on problems of special interest to teachers of vocational agriculture. A study of **Agricultural Outlook,** and similar material; seminar discussions, reports, and presentation of papers. Offered at intervals, when demand justifies.

* On petition this one-year course may be subdivided into separate one-semester courses.

531. Problems in Land Use. Cr. 3.
Prerequisite: Ag. Eco. 421, graduate standing, and consent of head of department. Advanced study in the field of land use and the factors affecting land use. Offered at intervals, when demand justifies.

533. Marketing Problems. Cr. 3.
Prerequisite: Ag. Eco. 236 or equivalent, graduate standing and consent of head of department. Advanced study in problems and practices in marketing of agricultural products or of some selected farm product. Offered at intervals, when demand justifies.

534-5. Research in Agricultural Economics. Cr. 3.
Prerequisite: Graduate standing, consent of head of department. Scientific research in the field of agricultural economics, farm management, or rural sociology.

601. Thesis.

RURAL SOCIOLOGY

431. Agricultural Research and Extension and Organization and Methods. Cr. 3, (1-6). I.
Prerequisite: Senior standing in Divisions of Agriculture or Home Economics. The development of research, extension work, and vocational teaching of agriculture and home economics. Methods and problems, programs, programs for research, extension work, and vocational teaching. Development of rural leadership and institutions. A complete survey of a selected county or region will be made in writing by each student.

432. Rural Sociology. Cr. 3. II.
Prerequisite: Junior or senior standing. Rural institutions and how they may be utilized to improve standards of living of rural people. The interrelation of rural and urban interests. Community and personal relations and attitudes. Progressive and disorganizing tendencies as influenced by the economic situation. Rural leadership. Methods of dealing with the problems involved.

532. Current Problems in Rural Sociology. Cr. 3. II.
Prerequisite: R. S. 432, or R. S. 431, graduate standing, and consent of head of department. Research in current labor problems of rural people. Offered at intervals, when demand justifies.

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: Ag. Eco. 322, 323, 331, 333, 411, 412, 421, 422, 431, 433, 434, 435; R. S. 431, 432, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Agricultural Education

PROFESSOR CHAPPELLE. ASSOCIATE PROFESSOR HARGRAVE. ASSISTANT PROFESSOR RYAN.

321. Organization and Administration of Vocational Education in Agriculture. Cr. 2. I, II.
Prerequisite: Ed. 234; junior standing in agriculture. Introduction to the teaching of the all-day, day-unit, part-time, and evening-school classes in the high school. Organization and administration of the high school chapter of Future Farmers of America.

421-2. Practice Teaching. Cr. 2. (1-3) I and II.
Prerequisite: Ag. Ed. 321; senior standing in agriculture. Supervised observation and practice teaching in high school vocational agriculture department approved by the Agricultural Education Department, opportunity for participation in all-day, part-time and evening classes.

423. Problems. Cr. 2. I, II, S.
Prerequisite: Senior or graduate standing and Ag. Ed. 421-2 and Ag. Ed. 431-2. An investigation and study of problems in the field of special interest to the individual students, seminar discussions, reports to the class, research and presentation of a paper. The content of this course will vary from time to time according to demand; may be repeated for credit.

431-2. Agricultural Education. Cr. 3. I and II.
Prerequisite: Ag. Ed. 321, Psy. 231; senior standing in agriculture. Analyzing the vocational agriculture teacher's job. The project method of teaching. The long-time program and annual teaching plan, equipment, reports, daily lesson planning, exhibits and displays.

511. Problems. Cr. 1. S.
Prerequisite: Composition of requirements to teach vocational agriculture under the Smith-Hughes Act. Current problems of the teacher in the field of vocational agriculture. Method of teaching, matters of administration and integration of the vocational agriculture department in the high school. Problems of the all-day, part-time, day-unit, and evening-school classes. This course is designed for teaching on three weeks basis in summer school. May be repeated for credit.

522. Advanced Methods, I. Cr. 2. I, S.
Prerequisite: Graduate standing. Advanced methods of teaching vocational agriculture in all-day classes in the high school.

523. Advanced Methods, II. Cr. 2. II, S.
Prerequisite: Graduate standing. Advanced methods of teaching vocational agriculture in part-time and evening schools.

524. Advanced Methods, III. Cr. 2. II, S.
Prerequisite: Graduate standing. Advanced methods of teaching Future Farmer work.

531. Investigations in the Field of Agricultural Education. Cr. 3. I, S.
Prerequisite: Graduate standing and consent of the head of the department. Investigation of a problem in the field of vocational agriculture of special interest to the student; presentation of a paper. May be repeated for credit.

537. Advanced Methods, IV. Cr. 3. S.
Prerequisite: Graduate standing and consent of the head of the department. Advanced methods in teaching farm shop work to all-day, part-time, and evening classes.

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 321, 421-2, 423, 431-2, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

601. Thesis.

Department of Animal Husbandry

PROFESSORS STANGEL, MOWERY, HARBAUGH, ASSOCIATE PROFESSOR FINE, ASSISTANT PROFESSOR BAUMGARDNER, ASSISTANT PROFESSOR DEVIN.

ANIMAL HUSBANDRY

121. Types and Market Classes, I. Cr. 2, (1-3). I.
Beef and dual-purpose cattle industries. The sheep and goat industries. Description and value of types. Market and market classification. Slaughtering, carcasses, and packing house by-products. Wool and mohair. Scorecard and comparative judging.

122. Types and Market Classes, II. Cr. 2, (1-3). II.
The dairy cattle industry. The hog, horse, and mule industries. Description of types. Milk secretion. Hog slaughtering, carcasses, and packing house by-products. Horse anatomy. Markets and market classes. Scorecard and comparative judging.

231. Breeds of Livestock. Cr. 3. I, II.
Prerequisite: A. H. 121, 122. The development of the breeds of beef cattle, dairy cattle, dual-purpose cattle, hogs, horses, sheep, and goats. Special emphasis upon the work of recent prominent breeders and the merits of individual animals.

311. Animal Nutrition. Cr. 1. II, S.
Prerequisite: Chemistry 341; 60 semester hours in required agriculture curricula. Registration in A. H. 331. Additional instruction in animal nutrition for students majoring in animal husbandry. Parallel registration in A. H. 331 required.

312-3. Advanced Livestock Judging. Cr. 1, (0-3). I, II.
Prerequisite: A. H. 231. Contrasting study and comparative showyard judging and grading of cattle, horses, mules, sheep, and swine. Selection of breeding and market animals. Inspection trips to farm herds, flocks and leading livestock shows.

322. Farm Meats. Cr. 2, (0-6). I, II.
Prerequisite: A. H. 121, 122; 60 semester hours in agriculture curricula. Form, quality, and condition as affecting dressing percentage and quality of carcass. Slaughtering, dressing, cutting, and curing. Uses and market demands. Class limited to 16. Special health certificate required of student.

323. Advanced Dairy Cattle Judging. Cr. 2, (1-3). II
Prerequisite: A. H. 231 and 60 semester hours in agricultural curricula. Major dairy cattle breed characteristics. Showyard classifications. Comparative judging. Field trips to farm herds and dairy cattle shows.

324. Dairy Breeds, Pedigrees and Records, Cr. 2. I
Prerequisite: A. H. 231 and 60 semester hours in agricultural curricula. History, development, foremost breeding establishments, breeders, and individuals. Pedigree compilation and study. Form of production testing.

331. Animal Nutrition and Principles of Feeding. Cr. 3, (2-3). I, II, S.
Prerequisite: Chem. 341. Chemical composition of plants and animals. Digestion and metabolism. Digestibility, energy, and manurial value of feeds. Feeding standards and feeds. Feed requirements and calculation of rations for maintenance, growth, fattening, milk and wool production and work.

334. Wool and Mohair. Cr. 3. (2-3) I.
Wool and Mohair—Production and preparation for market. A study of physical and chemical characteristics; sampling; grading; sorting; scouring.

411. Animal Husbandry Seminar. Cr. 1. II.
Prerequisite: Senior standing in Department of Animal Husbandry. Assigned subjects. Review of recent investigations. Reports and discussions.

417. Livestock Production Practices, I. Cr. 1, (0-3). I.
Prerequisite: A. H. 331. Registration in A. H. 425, 427 or 428. Each student works at and acquires skill in the practical phases of horse, dairy cattle, and swine production as applied to breeding, to feeding, to management, to marketing, and to fitting for sale and show, and treatment for diseases and parasites.

418. Livestock Production Practices, II. Cr. 1, (0-3). II.
Prerequisite: A. H. 331. Registration in A. H. 424 or 426. Each student works at and acquires skill in the practical phases of beef cattle, sheep, and poultry production as applied to breeding, to feeding ,to management, to marketing, and to fitting for sale and show and treatment for diseases and parasites.

4111. Dairy Husbandry Seminar. Cr. 1. II.
Prerequisite: A. H. 428 and 90 semester hours in agricultural curricula. Assigned subjects. Review of recent investigations. Reports and discussions.

421. Purebred Herds and Flocks. Cr. 2, (0-6). I.
Prerequisite: A. H. 321. Blood lines, outstanding individuals, and selection of foundation sires and females. County fair exhibiting and judging.

422. Animal Breeding. Cr. 2. I.
Prerequisite: P. I. 341. Genetics applied to the improvement of farm animals. Fertility and sterility. Systems of breeding.

424. Beef Cattle Production. Cr. 2. II.
Prerequisite: A. H. 331. The beef cattle industry. Breeding, feeding, and marketing. Purebred herd and range management. Cattle ranching. Fitting for show and showing. Disease control.

425. Horse and Mule Production. Cr. 2. I.
Prerequisite: A. H. 331. Review of the horse and mule industry. Breeding, feeding, breaking, training, stabling, harness and harnessing, and shoeing. Fitting for sale and show. Caring for brood mare and foal, stallion and jack. Parasites and diseases. Laboratory practice with farm animals and equipment is done as assigned problems.

426. Sheep and Wool Production. Cr. 2. II.
Prerequisite:A. H. 331. The sheep industry. Adaptation of breeds. Breeding, feeding, shearing, and marketing. Farm flock and range management. Fitting for show and showing. Parasites and diseases. Laboratory practice with farm animals and equipment is done as assigned problems.

427. Swine Production Cr. 2. I.
Prerequisite: A. H. 331. The swine industry. Breeding, feeding, housing, marketing. Fitting for show and showing. Parasites, diseases, and sanitation. Laboratory practice with farm animals and equipment is done as assigned problems.

428. Dairy Cattle Production. Cr. 2. I.
Prerequisite: A. H. 331. The dairy industry. Feeding for growth, maintenance, and milk production. Handling and marketing milk and animals. Dairy barn construction and sanitation. Advanced registry and herd records.

429. Advanced Dairy Cattle Production. Cr. 2. II.
Prerequisite. A. H. 422 and 428. Advanced studies in dairy cattle breeding and nutrition.

438. Range Management. Cr. 3. II.
Prerequisite: Credit for Agron. 437 in preceding semester. Agron 437 and A. H. 438 compose a two-semester course. The relationship of livestock to range management; history, development, and types of ranges; types and breeds of range livestock; the interrelationship between management of the soil and plant growth, and the management of the animals and their requirements.

601. Thesis.

POULTRY HUSBANDRY

131. Farm Poultry. Cr. 3, (2-3). I, II.
The poultry industry. Classes, breeds, and varieties. Judging, culling, breeding, feeding, housing, and marketing. Diseases and sanitation.

324. Advanced Poultry Judging. Cr. 2, (1-3). II.
Prerequisite: P. H. 131. History and characteristics of the standard breeds and varieties of poultry. Scoring and judging of exhibition and utility fowls. Inspection trips to farm flocks and poultry shows.

331. Incubation and Brooding. Cr. 3, (1-6). II.
Prerequisite: P. H. 131. Selection and care of eggs for hatching. Operation of incubator. Removing the hatch. Operation of a brooder for four weeks. Management and feeding of chicks until six weeks of age.

421. Poultry and Turkey Production. Cr. 2. II.
Prerequisite: P. H. 131 and A. H. 331. The poultry industry. Breeding, hatching, brooding, feeding for egg production and market, marketing, and housing. Grades and classes. Disease control, parasites, and sanitation. Laboratory practice with farm poultry and equipment is done as assigned problems.

VETERINARY SCIENCE

331. Anatomy and Physiology. Cr. 3, (2-3). I.
Prerequisite: A. H. 121, 122. The skeletal, muscular, digestive, circulatory, respiratory, and reproductive organs of farm animals. The physiology of the blood lymph, circulatory and respiratory systems; ductless glands, digestion, and organs of elimination.

332. Livestock Diseases and Parasites. Cr. 3. II.
Prerequisite: Vet. 331. The common infectious and non-infectious diseases. Common external and internal parasites. Prevention, treatment, and sanitation.

333. General Veterinary Science. Cr. 3. II.
Prerequisite: 60 semester hours in agricultural curricula. A brief consideration of anatomy and physiology. Livestock sanitation, disease, and parasites. Cannot be counted in fulfilling major requirements in animal husbandry.

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 311, 322, 331, 411, 4111, 424, 425, 426, 427, 428, 429, 438, 441, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series which otherwise carry no graduate credit.

Department of Applied Arts

PROFESSOR POINDEXTER, ASSISTANT PROFESSOR HAWLEY, INSTRUCTOR COLEMAN.

131. Design. Cr. 3, (2-3). I, II.
An introduction to design. Study of the fundamental elements and principles of art. Application to personal and professional problems in everyday life. Study, observation, practice with color, texture, line, form, neutral value, as expressed in actual materials.

133. Design. Cr. 3, (1-6). I, II.
Creative problems in design with emphasis on drawing and composition. Practice in expressing ideas in line, color, texture, and value. Perspective, still life, outdoor sketching.

231. Costume Design. Cr. 3, (2-3). I, II.
Prerequisite: A. Arts 131. Application of design principles to costume planning and selection; analysis of personality and figure differences and the choice of specifically becoming line, color, texture, value. Planned to help the individual student with such problems as the selection and wearing of clothes for becomingness, appropriateness, service and economy.

232. Crafts Design. Cr. 3, (1-6). I, II.
Prerequisite: A. Arts 131 or the equivalent. Practice in bookbinding, leather work, and wood carving. Attention given to adapting these crafts to use in public schools, homes, communities.

233. Textile Design, Cr. 3, (1-6). (formerly 132) I, II.
Prerequisite: A. Arts 131, or previous training satisfactory to the instructor. Application of student's designs in batik, tie-dye, block print, stencil.

234. Minor Crafts. Cr. 3, (1-6). (formerly 432) II.
Prerequisite: A. Arts 131. Planned especially for those majoring in Applied Arts. An introduction to cord knotting, basketry, puppetry, beading, and other so called minor crafts. Emphasis on good design and practical use of native materials.

331. Interior Design. Cr. 3, (2-3). I, II.
Prerequisite: A. Arts 131 and junior standing. An introductory survey of our domestic architecture; house plans with emphasis on utility, convenience, and beauty; application of design principles to selection and arrangement of wall coverings, rugs, furniture, curtains, pictures, and accessories.

336. Advanced Costume Design. Cr. 3, (2-3). II.
Prerequisite: A. Arts 131 or the equivalent and A. Arts 231. Greater emphasis placed on developing technical ability and further practice in creative problems. For those who wish to specialize in some phase of clothing design.

337. Art Appreciation. Cr. 3.
Prerequisite: Not open to freshmen. A survey of certain arts, planned to stimulate interest and understanding of articles in these fields with an effort to establish correct attitudes and set up standards for evaluating objects with reference to beauty, cost, and use.

338. Art Appreciation. Cr. 3. II.
Prerequisite: Not open to freshmen. A study of certain arts not included in A. Arts 337 and selected by the group. Same objectives as those stated for Applied Arts 337.

431. Wood. Cr. 3, (1-6). I.
Prerequisite: A. Arts 131, 232, 233 or the equivalent and junior standing. A study of different woods and their suitability for various projects. Fundamentals of wood carving, construction and finishes. Use and care of wood carving tools.

434. Metal and Plastic. Cr. 3, (1-6). (formerly 332) I.
Prerequisite: A. Arts 131, 232, or 233 or the equivalent. Creative problems executed in metal and plastic. Structural processes: raising, bending, riveting, soldering. Decorative processes: etching, saw-piercing, engraving, inlay. Appreciation for fine design in these crafts developed through study, observation, discussion, and practice.

435. Jewelry and Lapidary. Cr. 3, (1-6). (formerly 333) II.
Prerequisite: A.Arts 131, 232, or 233 or the equivalent. Creative problems. Rings, pins, bracelets, earrings, necklaces executed in brass, copper, silver and gold. Local stones cut and polished.

Department of Architecture

PROFESSORS KLEINSCHMIDT, BRADSHAW. ASSOCIATE PROFESSOR LOCKARD. ASSISTANT PROFESSOR HOUGHTON INSTRUCTOR BAKER

121-2. Freehand Drawing. Cr. 2, (0-6). Each, I and II
Medium—charcoal. Instruction by personal criticism. Basic work for entering students. From the more elementary work in line drawing, the problems advance into full light and shade. Studies from fragments of antique architectural ornament.

123-4. Elements of Composition, II. Cr. 2, (0-6). I and II
Occasional lectures. Theory of space design; underlying principles of line and area composition. Problems under individual criticism.

125. Shades and Shadows. Cr. 2, (0-6). I, II.
Exercises in conventional shades and shadows of common geometrical solids, solids of revolution, and simple architectural members.

126. Perspective. Cr. 2, (0-6). I, II.
Prerequisite: Engr. Dwg. 134 or Arch. 131. Theory of perspective as applied to common geometrical solids and to problems from architectural practice.

131-2. Elements of Architecture. Cr. 3, (0-9). I and II.
Architectural drawing, lettering, and wash rendering in India ink and monotone; elements of architectural design, walls, doors, windows, colonnades, arcades, mouldings, and vaults.

133. Commercial Lettering. Cr. 3, (0-9). I, II.
Basic for the study of various styles of pen and brush lettering. The use of different alphabets and letter forms in poster and card design. Occasional conjunctive problems with Arch. 124

221. History of Ancient Architecture. Cr. 2. I.
Technical history of architecture from dawn of civilization to the end of the Byzantine period. Illustrated lectures. Library research.

222. History of Mediaeval Architecture. Cr. 2. II.
Prerequisite: Arch 221. Technical history of architecture of the Romanesque and Gothic periods. Illustrated lectures. Library research.

224. Freehand Drawing III. Cr. 2, (0-6). I, II.
Prerequisite: Arch. 121-2. Pencil, pen and ink rendering and sketching of architectural ornaments and fragments, and from life and nature.

225. Freehand Drawing IV. Cr. 2, (0-6). I, II.
Prerequisite: Arch. 224. Beginning course in water color painting from life and from nature.

231-2. Architectural Design, Grade I. Cr. 3, (0-9). I and II.
Prerequisite: Arch. 131-2. Long and short problems under individual criticism dealing in general with the elements of plan and elevation. Sketch problems dealing with composition.

235-6. Elements of Composition, II. Cr. 3, (1-6). I and II.
Prerequisite: Arch 123-4. A continuation of Arch 123-4 with more detailed problems in composition.

239-10. Pottery. Cr. 3, (1-6). I and II.
Prerequisite: Arch. 123-4 or equivalent. The technique of making pottery by hand by throwing, or by slip; firing and glazing of pottery of different forms and shapes.

320. History of Ornament and Furniture. Cr. 2. I.
Prerequisite: Arch 323. The study of the development of ornament and furniture from prehistoric through modern times. Illustration by means of lectures and slides, photographs. Library research.

321. History of Early Civilization and Arts. Cr. 2. I.
Prerequisite: Arch. 323. Illustrated lectures dealing with the origins or art and architecture in early civilizations. Three hours a week of library research in anthropology and archaeology as related to the origins of art and architecture.

322. History of Renaissance Architecture. Cr. 2. I.
Prerequisite: Arch 222. Technical history of architecture of the Italian, French, Spanish, English, and German Renaissance. Illustrated lectures. Library research.

323. History of American and Modern Architecture. Cr. 2. II.
Prerequisite: Arch 322. History of American Architecture from colonial times to present day. Modern movements in architecture in Europe. Illustrated lectures. Library research.

324. History of Sculpture. Cr. 2. II.
Prerequisite: Arch 321. Illustrated lectures on the development of sculpture from the Egyptian to the present day. Three hours of library research a week.

326. Constructive Anatomy. Cr. 2, (0-6). I, II.
Prerequisite: Arch 121-2. Medium—charcoal and pencil. A thorough preparatory course to life drawing in the fundamentals of the proportion of the human figure.

327. Life Drawing I. Cr. 2, (0-6). I, II.
Prerequisite: Arch 326. Drawing from the living model in various media. Instruction by personal criticism. Admission to courses in life drawing limited to those students who have satisfactorily completed the preceding courses in freehand drawing or their equivalent.

328-9. Poster Design and Lettering for Public School Teachers. Cr. 2, (0-6). S.
Prerequisite: Junior standing. A course for those who wish to teach integrated art in public schools.

3210-11. Commercial Illustration I. Cr. 2, (0-6). I and II.
Prerequisite: Arch. 124. Illustration as applied to advertising and commercial fields. Drawing and painting in various media for designated processes of reproduction. Analysis of advertising value of drawings and force of designs on subject matter. Problems in design of booklets, posters, illustrations.

3216-17. Clay Modeling. Cr. 2. (0-6). I and II.
Prerequisite: Arch. 121-2. The making of clay models, firing and glazing pottery, plaster casts of simple decorative fragments, and anatomical forms; construction of relief maps.

331-2. Commercial Design I. Cr. 3, (0-9). I and II.
Prerequisite: Arch. 131-2 and 124. Specialized industrial design in a variety of materials; textiles, fixtures, furniture, and utensils; full-sized detail and color rendering.

333-4. Building Construction. Cr. 3, (1-6). I and II.
Prerequisite: Arch. 232. Preparation of working drawings and specifications for suburban houses; drawing complete details for buildings, heating, plumbing, and structural problems.

335-6. History of Art. Cr. 3. S.
Prerequisite: Junior standing. A general survey of the history of Architecture, sculpture, painting, and the minor arts. Course consists of lectures illustrated by means of slides, photographs and facsimile reproductions from the Carnegie Collection and collateral reading. Library research. Open to all students except those majoring in Commercial Art and Architecture, Design Option.

337-8. Public School Art. Cr. 3, (1-6). S.
Prerequisite: Arch. 123-4; or Applied Arts 131-2; or junior standing A course in drawing, composition, and color for those who teach art in public schools, made to apply directly to classroom teaching.

351-2. Architectural Design, Grade II. Cr. 5, (0-15). I and II.
Prerequisite: Arch. 231-2. Long and short problems, under individual criticism, dealing with simple architectural composition. Sketch problems dealing with large architectural composition or decorative detail.

420. Professional Practice. Cr. 2. I.
Prerequisite: Junior standing. Office organization, ethics, professional relations.

422. Building Materials and Construction. Cr. 2. I.
Prerequisite: Arch. 333-4. Introduction to the properties and uses of materials of construction. Occasional visits to buildings under construction.

423-4. Life Drawing II. Cr. 2, (0-6). I and II.
Prerequisite: Arch. 327. Continuation of Arch. 327.

426-7. Oil Painting or Advanced Water Color. Cr. 2, (0-6). I and II.
Prerequisite: Arch 225. Principles of design related to various types of composition, in conjunction with direct study from the human model, still life, or landscape. Problems in oil or water color may take the form of book illustration, painting or mural decoration.

428-9. History of Painting. Cr. 2. I and II.
Prerequisite: Arch 324. Illustrated lectures in the development of painting from the Egyptian period to the present modern day developments. Three hours of library research a week.

4210-11. Decorative Figure Drawing. Cr. 2, (0-6). I and II.
Prerequisite: Arch. 327. The drawing and painting of the draped or costumed figure against backgrounds with accessories planned to emphasize beauty and interest in color.

4212-13. Commercial Illustration, II. Cr. 2, (0-6). I and II.
Prerequisite: Arch. 3210-11. A continuation of Arch. 3210-11 with problems in presentation and studio practice; specialization in illustration with completion of full scale work.

433-4. Commercial Design, II. Cr. 3, (0-9). I and II.
Prerequisite: Arch. 331-2. A continuation of Arch. 331-2 with the execution and supervision of the finished product.

435. Advanced Architectural Construction. Cr. 3, (1-6). I, II.
Prerequisite: Arch 333-4. A continuation of Arch. 333-4 but as applied to office-building type construction with estimating and specification writing.

436. City Planning. Cr. 3, (1-6). II.
Prerequisite: Arch. 435 and registration in Arch 352. The theory and problems of city development, community planning, housing, and their drawn and rendered solutions under individual criticism.

437-8. Principles of Drawing and Painting, and Theory of Design. Cr. 3, (1-6). I and II.
Prerequisite: Arch. 225. Aims to give an understanding and appreciation of the fundamental principles governing good drawing and painting throughout the ages. Lectures with laboratory work. Actual drawing and use of color.

439-10. Methods of Teaching Art Integrated for the Elementary School and the High School. Cr. 3, (1-6). S.
Prerequisite: Arch. 335-6, 337-8, Applied Arts 334, or senior standing. Problems on the methods of presenting the study of art to students of elementary and high school levels.

4311-12. Ceramics. Cr. 3, (1-6). I and II.
Prerequisite: Arch. 239-10 or 3216-17. The development of technique of individual glaze formulas and processes of pottery, terra cotta, and various commercial building products.

461-2. Architectural Design, Grade III. Cr. 6, (0-18). I and II.
Prerequisite: Arch. 351-2. Long, short, and sketch problems under personal criticism with the more complex kinds of architectural compositions.

483-4. Architectural Design, Grade IV. Cr. 8, (0-24). I and II.
Prerequisite: Arch. 461-2. Long, short, and sketch problems under personal criticism with the more complex kinds of architectural compositions, particularly with subjects involving special character and a decorative and imaginative interest.

Engineering Seminar 411-2. Cr. 1. I and II.
Credit for this course may be given as often as successfully repeated. The investigation and study of engineering problems of special interest and value to the students taking the course. Work is in the nature of research. May be taken only with permission of head of the department.

Courses which may be used for graduate credit:
In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 324, 333-4, 420, 423-4, 426-7, 433-4, 436, 439-10, 4311-12, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no credit.

Department of Biology

PROFESSOR STUDHALTER. ASSOCIATE PROFESSOR LANDWER. ASSISTANT PROFESSORS PARKER, SEALEY. INSTRUCTORS CAMP, FOREMAN, HOLMAN, JANSEN, WIDMOYER.

BACTERIOLOGY

231. Bacteriology. Cr. 3, (2-3). I, II.
Open primarily to students of the Divisions of Agriculture or Home Economics during their sophomore or junior year. The morphology and physiology of bacteria with special emphasis on the bacteria and molds of soils and of food and dairy products.

321. Bacteriology for Engineers. Cr. 2, (1-3). I.
Prerequisite: Junior classification in the Division of Engineering. A brief introduction to the structure and functions of the various types of bacteria with special emphasis on their relation to water sanitation and sewage disposal.

331-2. Principles of Bacteriology. Cr. 3, (2-3). I and II.
Prerequisite: 12 semester hours in botany, zoology, chemistry, geology or physics; prerequisite or parallel: Six semester hours in chemistry. The morphology, physiology and classification of bacteria. Bacteria in relation to soils, food and water sanitation, disease, and the problems of immunity.

333. Communicable Diseases. Cr. 3, (3-0). II.
Prerequisite: Three semester hours in bacteriology, junior standing. History, prevalence, etiology, sources and modes of infection, and methods of control of the principal human diseases. Offered in alternate years; offered in 1946-47.

334. Bacteriology of Foods and Food Sanitation. Cr. 3, (2-3). II.
Prerequisite: Three semester hours in bacteriology, junior classification. Bacteria and molds in their relations to food spoilage and food sanitation. Offered in alternate years; not offered in 1946-47.

601. Thesis.

BIOLOGY

131-2. Natural History. Cr. 3, (2-3). I and II.
The natural history of the major groups of plants and animals with emphasis on a general knowledge of the more common forms. The ecological point of view is stressed Field work is featured wherever possible.

231. Heredity. Cr. 3, (3-0). I.
Formely Biol. 331. Prerequisite: Six semester hours in zoology or botany. Principles of heredity with special reference to practical application in human affairs, hereditary mechanisms, problems.

332. Teaching of Biology. Cr. 3, (3-0).
Prerequisite: 12 semester hours in biology, botany, or zoology; or six semester hours in the Department of Biology and six semester hours in chemistry, geology, geography, or physics; and six semester hours in education. Lectures, assigned readings, reports, and laboratory and field problems. May be counted as biology or education. Offered at intervals, when demand justifies.

333. Bio-ecology. Cr. 3, (1-6). I.
Prerequisite: 12 semester hours in zoology, or botany, or six hours of each, or junior classification in the Division of Agriculture. Introduction to the interrelationship of organisms and their environment. Field work, transects, quadrats, elementary population studios, community studies, and the fundamentals of succession. Field trips to nearby points are included at a minimum of cost to the student.

334. Bio-ecology. Cr. 3, (1-6). II.
Prerequisite: Biol. 333. The biotic community; community behavior and adaptations of organisms in communities. Emphasis on grassland biota. Field work, population density determinations, succession and seral determinations. Written reports on field data, conferences, discussions. Field trips to nearby points are included at a minimum of cost to the student.

431. Advanced Heredity. Cr. 3, (1-6).
Prerequisite: Biol. 231; and Zool. 431-2, complete or in parallel. Lectures on the nature of the gene, chromosome mechanics, and population genetics. Critical laboratory experiments on assigned genetical problems. Readings, lectures, discussions Written summaries of experimental data obtained. Offered at intervals, when demand justifies.

432-3. Advanced Bio-ecology. Cr. 3, (1-6). I and II.
Prerequisite: Biol. 333, 334. Critical studies of biotic relationships. Involves the execution by the student of original field problems under direction, and papers written from data obtained. Lectures, discussions, and conferences. Field trips to nearby points are included at a minimum of cost to the student. Offered in alternate years; not offered in 1946-47.

533. Plankton. Cr. 3, (1-6).
Prerequisite: Graduate standing in botany or zoology, including Bot. 233 and Zool. 234. Then collection, preservation, and identification of plankton. Quantitative studies and methods; cyclic variations; economic implications; food chains and food cycles. Offered at intervals, when demand justifies.

601. Thesis.

BOTANY

131-2. Principles of Botany. Cr. 3, (2-3). I and II.
Requires no more than nine hours of student's time. A study of the principles relating to the structure and function of representatives types of the plant kingdom with special emphasis upon seed plants.

232. Taxonomy. Cr. 3, (2-3). II.
Prerequisite: Bot. 131-2. Classification of the seed plants with emphasis on phylogeny.

233. General Morphology. Cr. 3, (2-3). I.
Prerequisite: Six semester hours of botany or six of zoology. Advances in complexity of structure, function, and reproduction in representative members of the various groups in the plant kingdom.

331. Plant Physiology. Cr. 3. (2-3). II.
Prerequisite: 12 semester hours in botany; Chem. 131-2. Absorption, water transport, transpiration, nutrition, photosynthesis, respiration, growth, responses to stimuli. Offered in alternate years: not offered in 1946-47.

335-6. Plant Geography. Cr. 3, (2-3). I and II.
Prerequisite: 12 semester hours in botany; or six semester hours in botany, and six in zoology, geology, geography, agronomy, or horticulture. Geographic distribution of plants; types of vegetation; origin and composition of the flora of North America; some applied problems of plant geography. Field trips to nearby sections of the country are included as feasible and at a minimum of cost to the student. Offered in alternate years; offered in 1946-47.

337. Morphology of Fungi. Cr. 3, (2-3). II.
Prerequisite; 12 semester hours in botany, or six semester hours in botany and six in zoology. Morphology and taxonomy of the fungi as a basis for plant pathology. Offered in alternate years; not offered in 1946-47.

338. Taxonomy of Grasses. Cr. 3, (1-6). I.
Prerequisite: 12 semester hours in botany, including Bot. 232. Classification of grasses with special emphasis on pasture and range plants. Offered in alternate years; not offered in 1946-47.

339. Plant Anatomy. Cr. 3, (2-3). I.
Prerequisite: 12 semester hours in botany. Studies of the tissue systems of vascular plants with emphasis on those of economic importance. Offered in alternate years; not offered in 1946-47.

411. Botany Seminar. Cr. 1. I, II.
Prerequisite: Senior or graduate standing in botany or zoology. Critical reviews of classical and recent literature and reports of original investigation. Alternates with Zool. 411. May be repeated for full credit.

431. Plant Microtechnique. Cr. 3, (1-6). II.
Prerequisite: 18 semester hours in botany, or nine semester hours in botany and nine in zoology, agronomy, or horticulture. Freehand and microtome sections, staining, making permanent slides. Offered in alternate years; offered in 1946-47.

433. Advanced Morphology. Cr. 3, (1-6).
Prerequisite: 18 semester hours in botany, or nine semester hours in botany and nine in agronomy or horticulture. Morphology and taxonomy of one of the following groups: algae, bryophytes, pteridophytes, gymnosperms, seed plants. May be repeated with full credit in any one of the other groups named. Offered at intervals, when demand justifies.

434. Field Botany. Cr. 3, (1-6).
Prerequisite: 18 hours of botany including Bot. 232, or nine hours of botany and nine hours of horticulture or agronomy. A survey of the vegetation of a chosen area with emphasis upon plant types, soil conditions, distribution, etc. The cost of field trips is held to a minimum. May be repeated for full credit.

435. Advanced Taxonomy. Cr. 3, (1-6). I.
Prerequisite: 18 semester hours in botany, including Bot. 232; or nine semester hours in botany, including Bot. 232, and nine in horticulture or agronomy. A critical study of the classification of vascular plants with emphasis on phylogeny. Offered at intervals when demand justifies.

531. Problems. Cr. 3, (1-6).
Prerequisite: Graduate standing in botany. Selected problems in morphology, anatomy, ecology, taxonomy, and possibly others. Laboratory work, readings, and conferences. May be repeated for full credit. Offered at intervals when demand justifies.

534. Advanced Plant Anatomy. Cr. 3, (1-6).
Formerly Bot. 432. Prerequisite: Graduate standing in botany including Bot. 339. Advanced anatomy of the ferns, fern allies, gymnosperms, and flowering plants. Offered at intervals, when demand justifies.

601. Thesis.

ZOOLOGY

131-2. General Zoology. Cr. 3, (2-3). I and II.
Fundamental generalizations, principles governing living matter with relation to individual maintenance. Laboratory study of the morphology, physiology, and adaptation in selected types of the more important phyla; emphasis on the frog. Required of premedical students.

135-6. Human Anatomy and Physiology. Cr. 3, (2-3). I and II.
The elements and fundamental principles of human anatomy and physiology. Open only to nurses in training.

231-2. Comparative Vertebrate Anatomy. Cr. 3, (2-3). I and II.
Prerequisite: Zool. 131-2 or 235-6. The morphology, physiology, adaptation, and embryological origins of the various organ systems or vertebrates; the anatomy of selected forms.

233. Entomology Cr. 3, (1-6). I.
Prerequisite: Zool. 131-2; agriculture students by permission and sophomore classification. Morphology, embryology, taxonomy, and phylogeny of insects.

234. Invertebrate Morphology. Cr. 3, (2-3). II.
Prerequisite: Zool. 131-2, or 235-6 parallel. Morphology, adaptation, phylogeny, and classification of the invertebrate phyla. Offered in alternate years; not offered in 1946-47.

235-6. Anatomy, Physiology, and Hygiene. Cr. 3, (2-3). I and II.

Prerequisite: Sophomore standing. Gross anatomy of the mammalian body including the nervous, skeletal, and other organ systems; the microscopic study of tissues; the various physiological processes; the fundamental principles of hygiene and sanitation; and the fundamentals of heredity and evolution.

331. Animal Histology. Cr. 3, (1-6). I.

Prerequisite: Zool. 231-2 or Nutr. 432. The preparation and study of permanently mounted normal animal tissues.

332. Comparative Vertebrate Embryology. Cr. 3, (1-6) II.

Prerequisite: Zool. 231-2 or Nutr. 432. Comparisons of the embryological development of different vertebrate forms with emphasis on the pig and chick. For majors in zoology, pre-medical students, pre-veterinary students, pre-dental students, and students of nutrition.

333. Parasites of Man. Cr. 3, (2-3).

Prerequisite: Six semester hours in zoology or sophomore rank. Endo- and ectoparasites, their life-histories and host relationships. Offered at intervals, when demand justifies.

411. Zoology Seminar. Cr. 1. I, II.

Prerequisite: 18 hours of zoology. Critical reviews of classical and recent literature, and reports of original investigation. Alternates with Bot. 411. May be repeated for full credit.

431-2. Cytology. Cr. 3, (1-6). I and II.

Prerequisite: 18 semester hours in zoology or in botany, of which six may be taken in parallel. Primarily for students majoring in zoology, or minoring in closely related fields. The principles of cytology, and histological and cytological technique. In addition to lecture and laboratory work, extensive reading and reports are required in current zoological and/or botanical problems as well as in other subjects which furnish the necessary background for the course.

433. Advanced Physiology. Cr. 3, (2-3).

Prerequisite: Any six semester hours of zoology or botany of or above junior class; or Zool. 235-6, Bact. 231, and nine semester hours of nutrition, six of which must be of junior class. Mainly for students majoring in the field of nutrition. The principles of physiology. Offered at intervals, when demand justifies.

434. Field Zoology. Cr. 3, (1-6).

Prerequisite: Six semester hours of zoology or junior rank; Bot. 232, Zool. 233, and agronomy are strongly recommended. Lectures, conferences, written reports based on data collected in the field. Field trips to nearby points are included at a minimum of cost to the student. May be repeated for full credit in different phases of the subject, e. g., mammology and faunistics, and ornithology.

435. Cytology. Cr. 3, (2-3).

Prerequisite: Zool. 331 and 332. The structure and function of cells and tissues; microtechnique, preparation of permanent microscopic slides. (Chiefly for students in the Division of Home Economics majoring in nutrition.) Offered at intervals, when demand justifies.

531. Problems in Zoology. Cr. 3, (1-6).

Prerequisite: Graduate standing in zoology. Individual student research, written papers from data obtained; conferences. May be repeated for full credit in different fields with different problems. Offered at intervals when demand justifies.

601. Thesis.

Courses which may be counted for graduate credit: (1) courses numbered in the 500 series; (2) as minors only (if properly petitioned for and provided additional work or an added problem is done in each course); —Bacteriology 331-2; Botany 331; Zoology 331-2; (3) as majors (if properly petitioned for and provided additional work or an added problem is done in each course)—Biology 431, 432-3; Botany 411, 431, 433, 434, 435; Zoology 411, 431-2, 433, 434, 435.

Department of Chemistry and Chemical Engineering

PROFESSORS GOODWIN, CRAIG. ASSOCIATE PROFESSORS DENNIS, MARSHALL, OBERG, SCHNEIDER, SLAGLE. ASSISTANT PROFESSORS GALBRAITH, SOUTHALL. INSTRUCTORS ALLEN, BAKER, COHEA, MENAUL, STUART.

131-2. General Chemistry. Cr. 3, (2-3). Each, I and II.

Meets twice each week in recitation, once each week in laboratory, and once each week in lecture and requires three hours per week in preparation. Prerequisite to all other courses in chemistry. Metals and non-metals and the underlying principles of chemistry. Together with Chem. 220, this course satisfies pre-medical requirements for general chemistry.

220. Qualitative Analysis. Cr. 2, (1-3). I, II.

Prerequisite: Chem. 131-2, although 132 may be taken parallel. The qualitative separation of basic radicals and simple acidic radicals.

234. Engineering Materials and Calculations. Cr. 3, (3-0). II.

Prerequisite: Sophomore standing in Chemical Engineering. An introduction to the equipment and calculations of chemical engineering. The problems involve material and heat balances.

235. Hydrocarbon Chemistry. Cr. 3. I.

Prerequisite: Chemistry 131-2 and sophomore standing in engineering. The study of hydrocarbons with particular reference to petroleum, natural gas, and synthetic fuels.

242. Inorganic Chemistry. Cr. 4, (3-3). II.

Prerequisite: Chem. 220. Inorganic materials and principles based on inorganic preparations carried out in the laboratory. These preparations may vary from year to year.

246. Analytical Chemistry. Cr. 3, (2-6). II.

Prerequisite: Chemistry 131-2 and sophomore standing in engineering. Analytical methods with particular reference to problems connected with the production, transportation, and storage of petroleum and natural gas.

322. Power Plant Chemistry. Cr. 2, (1-3). II.

Prerequisite: Chem. 131-2. Cannot be counted in fulfilling the major requirements in chemistry. Materials commonly used in a power plant—water and fuels. Practical tests of such materials in the laboratory. For engineers other than chemical engineering students.

331-2. Quantitative Analysis. Cr. 3, (3-6). I and II.

Prerequisite: Chem 131-2, 220, and 242. Chem. 220 and 242 may be taken parallel by chemical engineering students. Gravimetric and volumetric methods of quantitative analysis. Recommended for the development of laboratory technique.. Satisfies pre-medical requirements. Seniors or graduates other than chemistry majors, with B average may take Chem. 332 without having had Chem. 331. Requires no outside preparation.

341. Organic Chemistry. Cr. 4, (3-3). I, II.

Prerequisite: Chem. 131-2. For students in the Division of Agriculture and Home Economics. Does not satisfy pre-medical requirements and cannot be counted in fulfilling the major requirements in chemistry.

342. Physiological Chemistry. Cr. 4, (3-3). II.

Prerequisite: Organic Chemistry, Elementary. For students in the Division of Home Economics and Agriculture. Cannot be used in fulfilling the major requirements in Chemistry. Given at intervals when the demand justifies.

343-4. Organic Chemistry. Cr. 4, (3-3). I and II.

Section I. Industrial Section. Prerequisite: Junior standing in chemistry. The compounds of carbon. Provides a thorough foundation course in organic chemistry for engineers, and candidates for the Bachelor of Science degree.

Section II. Biological Section. Prerequisite: Chem. 131-2 and 220. A similar course to Section I save that emphasis is placed on physiological aspects. Designed for candidates for the Bachelor of Arts degree, for pre-medical students and for those interested in nutrition. Satifies pre-medical requirements. Laboratory work for nutrition students is largely physiological in nature.

411-2. Chemistry Seminar. Cr. 1. I and II.
Required of all candidates for any degree with a chemistry major. Usually reserved for the senior year. Open to juniors with permission of the head of the department. May be counted for credit as often as taken.

431-2. Principles of Chemical Engineering. Cr. 3. I and II.
Prerequisite: A course in calculus and Chem. 441-2. Chem 441-2 may be taken parallel. Flow of fluids; heat transfer; principles of basic unit operations of chemical engineering.

433. Chemical Process Calculations. Cr. 3. II.
Prerequisite: Chem. 431-2 and M. E. 334-5 though the latter may be taken in parallel. A problem course in Industrial Chemistry and Chemical Engineering Thermodynamics.

434. Organic Preparations. Cr. 3, (0-9). II.
Prerequisite: Consent of instructor. The synthesis of organic materials with special attention to technique and yields.

435. Senior Chemistry—Advanced Quantitative Analysis. Cr. 3, (0-9). I.
Prerequisite: Senior standing in chemistry. The analysis of water, foods, feeds, rock, alloys, etc. Materials analyzed vary from year to year.

436. Senior Chemistry—Biological Chemistry. Cr. 3, (2-3). II.
Prerequisite: Senior standing in chemistry. Fundamentals of biological chemistry. Laboratory includes both qualitative and quantitative procedures.

437. Senior Chemistry—Qualitative Microanalysis. Cr. 3, (1-6). I.
Prerequisite: Senior standing in chemistry. Fundamental principles of chemistry microanalysis. Not offered in 1946-47.

438. Senior Chemistry—Advanced Physical Chemistry. Cr. 3. II.
Prerequisite: Senior standing in chemistry. May be taken with Chem. 442. Thermodynamics, solutions, atomic theory and valence, reaction kinetics, and other advanced topics.

441-2. Physical Chemistry. Cr. 4, (3-3). I and II.
Prerequisite: Chem. 220, 242, 331-2, 343-4, five semester hours in calculus, six semester hours in physics, and consent of the instructor; 343-4 may be taken parallel. The modern theories of chemistry and the methods of physico-chemical measurements.

443. Industrial Chemistry. Cr. 4, (3-3). I.
Prerequisite: Chem. 331-2 and 343-4. The application of chemistry to modern industry. The laboratory work includes the practical testing of water and fuels.

446. Advanced Chemical Engineering. Cr. 4, (3-3). II.
Prerequisite or parallel: Chem. 432. The economics of chemical engineering and advanced problems on heat transfer and distillation. Special problems in the laboratory.

537-8. Advanced Work in Specific Fields. Cr. 3-6. I and II.
Prerequisite: Chem. 441-2 and graduate standing. Course and credit depends upon interests of student. All registration must be approved by the head of the department. Offered on demand.

537-8B. Advanced Chemical Engineering. Cr. 3. I and II.
Prerequisite: Chem. 431-2. Emphasis placed on cost calculations in design and operation of basic processes such as distillation, filteration, heat transfer.

537-8C. Advanced Organic Chemistry. Cr. 3, (2-3). I and II.
Prerequisite: Graduate standing. Modern theories of organic chemistry. Laboratory work consists of qualitative and quantitative organic analysis.

537D. Spectrographic Analysis. Cr. 3, (2-3). I.
Prerequisite: Graduate standing, Quantitative spectrographic analysis.

538E. Colloid Chemistry. Cr. 3, (2-3). II.
The theory and application of colloid chemistry.

601. Thesis.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: As minors only—331-2, 343-4; as majors—411-2, 434, 435, 436, 437, 438, 441-2, if properly petitioned for and provided additional work or an added problem is done in each course.

Department of Child Development and Family Relations

PROFESSOR CALLAN. ASSISTANT PROFESSOR BALLOW.

131. Introduction to Child Guidance. Cr. 3, (2-3). I, II.
An elementary understanding of the young child at various levels of development; practical techniques of guidance. Nursery school will be used as a laboratory.

231. Development in Infancy, Cr. 3. II.
Prerequisite or parallel: Zool. 235-6. Psy. 230 or 231. The development of the child during the prenatal period and infancy; physical and psychological factors influencing early growth and development.

431. Child Development. Cr. 3, (2-3). I, II.
Prerequisite: Psy. 230 or 231. The development of learning in young children; emphasis on physical, social, and emotional development. Opportunity for observation and participation in the nursery school.

432. Nursery School Education. Cr. 3, (2-3). II.
Prerequisite: Child Dev. 431; Prerequisite or parallel Nutr. 333 or 334. Deals with the aspects of nursery school administration and organization and methods of teaching the nursery school child. The nursery school will be used as a laboratory.

433. Family Relations. Cr. 3. I.
Prerequisite: Junior standing. The modern family as a social institution; successful living in the present day family.

435. Student Teaching in Nursery School. Cr. 3, (1-6). II.
Prerequisite: Child Dev. 432, Child Dev. 436. At least 102 grade points. Supervised observation and teaching in the nursery schcol.

436. Parent Education. Cr. 3. I.
Prerequisite or parallel; Child Dev. 432. Subject matter and methods of teaching used with parents of nursery school children.

Courses which may be used for graduate credit:

Courses in this department which may be taken for graduate credit are: 432, 433, 435, and 436, if properly petitioned for and provided additional work or an added problem is done in each case.

Department of Civil Engineering

PROFESSORS MURDOUGH, ADAMS, McREE. ASSOCIATE PROFESSOR DECKER. ASSISTANT PROFESSOR WHETSTONE. INSTRUCTOR OVERBY.

231-2. Plane Surveying. Cr. 3, (2-3). I and II.
Prerequisite: Math. 131. The use and adjustment of surveying instruments; plane surveys with transit and tape; profiles and cross sections; computations from field notes; the mathematics of curves as applied to railroads and highways, with field practice; earthworks, mass diagrams.

310. Testing Laboratory. Cr. 1, (0-3). II.
Prerequisite: Registration in C. E. 333 or consent of instructor. Standard tests and reports on steel, iron, and wood specimens; the physical properties of cement and concrete.

311. Highway Laboratory. Cr. 1, (0-3). II.
Prerequisite: C. E. 335. Standard tests of road building materials.

320. Structures. Cr. 2, (1-3). I.
Prerequisite: C. E. 331. Graphic statics, stresses in framed structures by graphical and analytical methods, design of wood roof truss.

330. Structures. Cr. 3. II.
Prerequisite: Registration in C. E. 333. Moment and shear curves; influence lines, stresses in framed structures; moving loads systems; beam design.

331. Applied Mechanics—Statics. Cr. 3. I, II.
Prerequisite: Math 251. Resultants of coplanar and non-coplanar force systems; equilibrium of force systems, friction, centroids, moments of inertia. Slide rule is required.

332. Applied Mechanics—Kinematics and Kinetics. Cr. 3. I.
Prerequisite: C. E. 331. Motion of the particle and of rigid bodies; kinetics of translation, rotation, and plane motion; work, energy; impulse, momentum.

333. Applied Mechanics—Strength of Materials. Cr. 3. II.
Prerequisite: C. E. 331. Stresses and strains in elastic bodies subjected to tension, compression, and shear; bending and torsion; deflection of homogeneous beams; column theory; combined stresses.

334. Surveying. Cr. 3, (2-3). I, II.
Prerequisite: C. E. 231. Topographic mapping, stadia, and plane table; astronomical determination of azimuth, latitude, time, elements of photogrammetry, plane coordinates.

335. Highway Engineering. Cr. 3. I.
Prerequisite: C. E. 232. Fundamentals of highway location, design, construction, and maintenance. Traffic control and traffic regulation.

336. Highway Engineering. Cr. 3. II.
Prerequisite: C. E. 335. History and development of transportation. Highway administration and finance.

337-8. Structural Mechanics. Cr. 3. I and II.
Prerequisite: Math 131. Statics, strength of materials and structural design in steel. For students of architecture, design option, and others who desire a brief and general presentation of the material.

410. Hydraulics Laboratory. Cr. 1, (0-3). I.
Prerequisite: C. E. 420. Laboratory study of principles taught in C. E. 420.

411. Soil Mechanics and Foundations Laboratory. Cr. 1, (0-3). I.
Prerequisite: C. E. 4312, or parallel. Laboratory tests of soil as an engineering material.

420. Hydraulics. Cr. 2. I.
Prerequisite: C. E. 331. Mechanics of water at rest and in motion.

423. Economics of Highway Design. Cr. 2, (0-6). I.
Prerequisite: C. E. 336. Economics of design applied to various highway projects and problems.

424-5. Materials. Cr. 2, (1-3). I and II.
Prerequisite: C. E. 333. Class and laboratory. The properties and tests of materials of engineering.

426. Municipal Sanitation. Cr. 2. I.
Prerequisite: Junior standing or consent of instructor. General principles of sanitation as applied to the community.

431. Reinforced Concrete. Cr. 3. I.
Prerequisite: C. E. 333. Study and application of the theory of reinforced concrete design.

432. Reinforced Concrete. Cr. 3. II.
Prerequisite: C. E. 431. Continuation of C. E. 431.

433. Structures. Cr. 3, (0-9). I.
Prerequisite: C. E. 330, 333. Design and detail of steel structures.

434. Structures. Cr. 3. II.
Prerequisite: C. E. 330, 333, 431. Brief presentation of the theory of statically indeterminate structures.

435. Traffic Safety Education. Cr. 3. S.
Prerequisite: State driver's license and senior standing. Safety education as applied to traffic regulation, traffic control, studies of methods of accident prevention, of automobile operation and automobile safety inspection. Emphasis placed on methods of presentation of material to high school students. May be counted as education. (Education 4310.)

436. Traffic Safety Education. Cr. 3. S.
Prerequisite: C. E. 427, 435, or consent of instructor. Safety education as applied in the study of highways and municipal traffic laws, in the methods of measuring ability to drive an automobile, in the study of the theory of the working mechanism of the automobile. Emphasis will be placed on methods of presenting material to the high school student.

437. Water Supply and Treatment. Cr. 3, (2-3). I.
Prerequisite: C. E. 420. Consumption of water; quality; sources of supply—streams, lakes, impounding reservoirs, wells; design and construction of supply lines and distribution system, water treatment plants.

438. Sewerage and Sewage Treatment. Cr. 3, (2-3). II.
Prerequisite: C. E. 420, C. E. 431. Quantity of sewage—both storm and sanitary; design and construction of sewage systems; sewage treatment and disposal.

439. Law and Ethics in Engineering. Cr. 3. II.
Prerequisite: Senior standing in engineering or approval of head of department. Professional and industrial problems, contracts, specifications, ethics of engineering.

4310-11 Airplane Structures. Cr. 3. I and II.
Prerequisite: C. E. 333. Stress analysis and design of elastic materials as applied to airplane structures.

4312. Soil Mechanics and Foundations. Cr. 3. I.
Prerequisite: C. E. 333. Physical and mechanical properties of soils; theories of stress, settlement, displacement and consolidation; stability of earth masses; structural applications to embankments and retaining walls; bearing capacity and settlement of structures.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 411, 423, 424, 425, 426, 431, 432, 433, 434, 435, 436, 437, 438, 439, 4312, if properly petitioned for an provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Clothing and Textiles

PROFESSOR ERWIN. ASSOCIATE PROFESSOR BUSTER. ASSISTANT PROFESSORS BIBB, KINCHEN, DUGGER,** INSTRUCTOR KEYES.*

131. Basic Textiles. Cr. 3, (2-3). I, II.
Recognizing and solving present problems in selection and maintenance of fabrics, readymade articles of clothing and home furnishings. Emphasis on purchasing problems as: judging fabric quality, evaluating and interpreting consumer terms, labels, advertising, consumer literature; on understanding of labeling laws and rules relating to sale of textiles; and on consumer responsibilities.

132. Basic Clothing Problems. Cr. 3, (1-6). I, II.
Planning a harmonious and economical wardrobe based on self-analysis, personal appearance, purchase and care; and on the use of the machine and commercial patterns. Making a dress and blouse.

134. Sewing Techniques. Cr. 3, (1-6). II.
Prerequisite: Cloth. 132. Practice and drill in hand and machine sewing. Emphasis on machine adjustment, attachments, accuracy, good tailoring, pressing, decorative details and finishes for pockets, collars, plackets, bands. Short cuts and other aids toward speed. Organization of work for both home sewing and group sewing, as in Red Cross.

135. Fashion in Dress. Cr. 3. II.
Developing the ability to assemble garments and accessories suited to the college girl. How to shop for clothes. Alteration of garments. Study of personality and body build as an aid to wearing clothes with style and grace.

232. Dressmaking. Cr. 3, (1-6). I, II.
Prerequisite: Cloth: 131, 132; A. Arts 231. Principles of dressmaking applied to the construction of a coat or suit and a dress, one wool and one silk or rayon. Emphasis on dressmaking techniques and skills. Considerable attention to fitting, pattern alteration, pressing, finishes of self material, and management.

321. Children's Clothing. Cr. 2, (1-3). II.
Prerequisite: Cloth. 131 and 132. Selecting, constructing, and assembling wardrobe suitable for the infant and pre-school child. Consideration of specific situations, different incomes, special needs of children, and the effect of clothing on health and habit formation.

322. Weaving Crafts. Cr. 2, (0-6). I.
Prerequisite or parallel: Cloth. 131, A. Arts 131. Hand weaving. Preparing warp, threading loom, dyeing yarn and other materials. Making luncheon sets, rugs, drapery, upholstery, bags.

331. Tailoring. Cr. 3, (1-6). I.
Prerequisite: Cloth. 232, 333. Techniques of constructing tailored garments; pressing and cleaning. Time and cost studies.

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* On leave 1945-47.
**Appointment for 1946-47.

332. Advanced Dressmaking. Cr. 3, (1-6). II.
Prerequisite: Cloth 232, 333. Construction and designing of garments through the medium of draping with some adaptations from commercial and flat-patterns. Emphasis on absolute perfection of fit and sewing, and the use of unusual and textured materials to give experience in the handling of fabrics and to develop a greater freedom and individuality in making of garments.

333. Pattern Designing. Cr. 3, (1-6). I, II.
Prerequisite: Cloth. 131, 232. Principles of fitting and special needs for common figure difficulties developed. Corrected pattern used as a foundation or master pattern in designing and cutting free-hand patterns. Methods of evolving unusual design through relocation of seams, and darts. Practical methods of designing details in blouses, sleeves, skirts, and collars . For teachers, homemakers, prospective fashion designers.

334. Family Clothing Problems. Cr. 3, (2-3). I, II.
Prerequisite: Clothing 232 and Eco. 231 or 235. Developing a spending pattern to satisfy the needs of the family based on the family income. Solving problems in management met by the homemaker in assembling and maintaining wardrobes consistent with the needs and desires of each age group. Selecting quality grades in relation to use and the amount of money available. Valuation of consumer literature, agencies, labels, legislation and advertising. Emphasis on the selection and care of infants' and children's clothes. Application of modern theories to the construction of a child's garment.

431. Textile Economics. Cr. 3, (2-3). I, II.
Prerequisite: Clothing 131 and Eco. 231 or 235. A study of the range in quality of household textiles as bedding, floor coverings and linens and in clothing as coats, dresses, slips, furs and hosiery. Emphasis on the method of selecting the quality best suited to specific needs. Care and maintenance of household articles and clothing. Interpretation of specifications, standards, labels, trademarks, performance tests, and existing laws concerning the sale of certain commodities. Evaluation of source material aiding in the purchase of textiles and clothing.

432. Advanced Textiles. Cr. 3, (2-3). II.
Prerequisite: Clothing 131, Economics and senior standing in Home Economics. Technical information necessary for thorough knowledge of textile buying. Development of an understanding of the effect of fiber content, construction, and finish on the quality, use, serviceability and cost of fabrics. Reports on recent trends and developments in textiles, on research studies and on specific problems in the field of clothing and textiles. Practice in standard methods of testing textiles.

433. History of Costume. Cr. 3. II.
Prerequisite: Advanced standing and history courses satisfactory to instructor. A study of historic and national costumes with their contribution to the development of dress. Special emphasis on historic and modern fashion influences. Offered in alternate years; offered in 1947-48.

435. Home Furnishings. Cr. 3, (1-6). I, II.
Prerequisite: Senior Standing. Eco. 231, Cloth. 232, and A. Arts 331, or parallel. Purchase, use, care and construction of household linens, curtains, rugs, upholstery, and slip covers. Refinishing furniture.

436. Textile Merchandising. Cr. 3, (2-3). II.
Prerequisite: Junior standing and Cloth. 131. Study of factors influencing values in merchandising that consumers want and retailers look for in buying. Laboratory stresses identification of fibers, fabrics, qualities, and brands of piece goods; care, use, and display of merchandise. Familiarity with technical terms, current fashion trends, standardization of textiles, labels, legislation, and consumer interest. Offered in alternate years; offered in 1947-48.

531. Advanced Garment Fitting. Cr. 3, (1-6). II, S.
Prerequisite: Cloth. 333. Open to graduate students with experience in teaching clothing. Advanced study of pattern making and alteration. Three garments constructed through the second and third fittings, to develop technique, principles, and high standards for fitting. Attention to methods of fitting one's self, restyling old garments, altering ready-to-wear, correcting figure difficulties commonly met in the classroom, and and fitting for style. Consideration of classroom methods of handling these problems. Dressmaking considered wherever related to fitting difficulties. Offered in alternate summers; not offered in summer, 1946.

532-3. Special Problems in Clothing. Cr. 3-6. I, II.
Prerequisite: Graduate standing in clothing and textiles and advanced clothing courses approved by head of department. Study and discussion of current problems in clothing and textiles of importance in the personal and professional advancement of class members. Initiating and carrying through independtent projects in constructing, teaching, purchasing, using or distributing clothing and textiles.

601. Thesis.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 331, 332, 334, 431, 432, 433, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Dairy Manufactures

PROFESSOR RENNER, PROFESSOR HARMON, INSTRUCTOR DENISON

131. Principles of Dairying. Cr. 3, (2-3). I, II.
A general survey of the field of dairying. Composition of milk, milk analysis, manufacture of farm dairy products. Separators and milking machines.

222. The Dairy Industries. Cr. 2. I, II.
Prerequisite: D. M. 131. Development of the dairy industries. Relationship to agriculture. Promotion, policies, regulations.

321. Technical Control of Dairy Products. Cr. 2, (1-3). I.
Prerequisite: D. M. 131, Chem. 132. Chemical and physical tests used in the manufacture of the various dairy products. Laboratory control methods for the dairy plant.

323. Market Grades and Classification of Dairy Products. Cr. 2, (1-3). I, II.
Commercial grades and classification of dairy products. Practice in judging milk, butter, cheese, and ice cream. Student contests.

331-2. Market Milk and Inspection. Cr. 3. I, (3-0) and II, (2-3).
Prerequisite: D. M. 131, Bact. 231, Chem. 132. The fluid-milk industry. Milk and public health. City, state, and federal regulations and ordinances. Production, transportation, handling, retailing, wholesaling of milk; cost studies. Processing. Required field trip in second semester.

333. Domestic Dairying. Cr. 3, (2-3). S.
Production and uses of milk for the home. Food value of dairy products, home manufacture of dairy products. Emphasis on quality dairy products. Scoring of milk butter, cheese, and ice cream. For home economics students. Given at intervals on demand.

334. Fundamentals of Dairy Science. Cr. 3, (2-3). I.
Prerequisite: D. M. 131; Chem. 220, 341. A study of the chemical and physical principles which are of basic importance in the manufacture of dairy products.

335. Dairy Bacteriology. Cr. 3, (2-3). II.
Prerequisite: D. M. 131, Bact. 231. Types of bacteria present in milk and milk products. Methods of control.

336. Food Industries. Cr. 3. I.
Prerequisite: 60 semester hours in agriculture curricula. A study of the growth and development of the various types of food processing industries in the United State, types and classes of food products processed, personnel requirements, pure food requirements, economic aspects of combination food processing plants.

337. Technical Dairy Problems. Cr. 3. II.
Prerequisite: Eight semester hours in the Department of Dairy Manufactures and 60 semester hours in agricultural curricula. A study of the application of the physical principles of heat and power to operation of dairy plant equipment. Practical design of dairy plants, construction materials, dairy refrigeration, water problems, steam and water fittings, plumbing, sewage disposal, and steam boilers.

411. Dairy Seminar. Cr. 1. II.
Prerequisite: Senior standing in the Department of Dairy Manufactures. A review of scientific literature. Papers and reports. Class discussion.

412. Starters and Cultured Milk. Cr. 1, (0-3). I.
Prerequisite: D. M. 335. A study of the bacteriology of starters and the technique of preparing cultures for use in various dairy manufacturing operations. As taught, usually necessitates that only a part of semester be used.

420. Dairy Products Merchandising. Cr. 2. I.
Prerequisite: 60 semester hours in agricultural curricula. Special practices, organization, ethics, and methods of merchandising dairy products.

421. Creamery Organization and Control. Cr. 2. II.
Prerequisite: 60 semester hours in agricultural curricula. The organization and control of the dairy plant from a business standpoint. Labor control. Duties of plant manager, and relationship of manager to the business. Required field trip.

422. Dairy Technology. Cr. 2. II.
Prerequisite: D. M. 131, Bact. 231, Chem. 341. The manufacture of condensed milk and milk powder, malted milk, milk casein, commercial buttermilk, and whey. Supplemented by field trips.

431. Cheese Making. Cr. 3, (2-3). I.
Prerequisite: D. M. 131, Bact. 231, Chem. 341. Classification of foreign and domestic varieties of plain and fancy cheese. Manufacture of soft cheese and the more common varieties of semi-hard and hard cheeses. Required field trip.

432. Dairy Industry Problems. Cr. 3.

Prerequisite: 21 hours in the Department of Dairy Manufactures and consent of head of department. Investigation of special problems in the field of dairy industry in which the student has a special interest. Offered at intervals, when demand justifies.

433. Ice Cream Making. Cr. 3, (2-3). II.

Prerequisite: D. M. 131, Bact. 231, Chem. 341. History and development of the ice cream industry. Ice cream ingredients, standardization and calculation of mixes. Processing . Cost studies. Supplemented by field trips.

435. Dairy and Food Inspection. Cr. 3, (2-3). II.

Prerequisite: Chem. 341, or equivalent, Bact. 335, or equivalent. A study of local state and federal dairy and food regulations; methods used in the inspection of food products in the field and laboratory; analysis of dairy and food products. Required field trip.

436. Food Beverages. Cr. 3, (2-3). II.

Prerequisite: D. M. 335 or equivalent, Chem. 341. A study of the preparation and sales of food beverages, fruit juices, carbonated drinks, milk drinks, and other food beverage, flavoring materials, forumlae, standards, and methods of laboratory control.

437-8. Food Processing. Cr. 3, (2-3). I and II.

Prerequisite: D. M. 335, Chem. 341 or the equivalent, D. M. 336. A study of factory methods used in the processing of fruits, vegetables, cereals, meat products, salad dressings, and sandwich spreads. The canning, preserving, drying, and freezing of food products, U. S. food standards and market grades for the various food products. Plant equipment and arrangement, laboratory control measures. Required field trip second semester.

441. Butter Making. Cr. 4, (2-6). I.

Prerequisite: D. M. 131, Bact. 231, Chem. 341. History of the butter industry. Manufacture of sweet and sour cream butter; neutralization; cream ripening; butter defects. Actual plant practice in the manufacture of butter.

512. Advanced Dairy Products Quality Control. Cr. 1. S.

Prerequisite: Graduate standing in agriculture. Judging quality in dairy products and discussion of problems relative to quality control especially milk, cream, butter, cheese, and ice cream.

531-2. Dairy Manufactures Research. Cr. 3, (0-9) . I and II.

Prerequisite: Graduate standing in agriculture and consent of the head of the department. Scientific research in one of the following fields in the dairy industry: market milk, butter, cheese, ice cream, dairy bacteriology, condensed milk, or milk powder.

533-4. Dairy Manufacturing Problems. Cr. 3, (0-9). I and II.

Prerequisite: Graduate standing in agriculture and consent of the head of the department. Selection of a problem in dairy manufacturing industries, outlining of problem, review of available literature, securing data, and compilation of results.

601. Thesis.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 331-2, 333, 334, 335, 411, 412, 420, 421, 422, 431, 433, 435, 436, 437-8, 441, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Economics and Management

PROFESSOR WIESEN. ASSOCIATE PROFESSORS ANDERSON, MIZE. ASSISTANT PROFESSOR HARDING

ECONOMICS

231-2. Principles of Economics. Cr. 3. I, II.

Prerequisite: 30 semester hours. Modern economic society and modern economic problems. Forms of business organizations, prices, money, banking, transportation, taxation, interest, profits, labor problems, proposed economic reforms.

235. Principles of Economics. Cr. 3. I, II.
Prerequisite: 30 semester hours. The same general subject matter as 231-2 condensed into one semester.

332. Public Utility Economics. Cr. 3. I.
Prerequisite: 60 semester hours including Eco. 231-2. Principles and problems of public utilities, financing, ownership, and public relations. Problems of valuation, rate of return, and rate structures. Regulation versus government ownership.

333. Public Expenditures. Cr. 3. I.
Prerequisite: 60 semester hours including Eco. 231-2. Analysis of the economic aspects of government finance; principles, policies, and problems of public expenditures, national, state, and local. Public borrowing, debts, and financial administration. Special attention to present-day problems.

334. Taxation. Cr. 3. II.
Prerequisite: 60 semester hours including Eco. 231-2. Federal, state, and local taxation. The history, development, and present status—with emphasis on sales, income, property, inheritance, and business taxes. Special studies devoted to Texas tax problems.

335. Transportation Economics. Cr. 3. I.
Prerequisite: 60 semester hours including Eco. 231-2. Development of the transportation system; rivers, canals, toll-roads, railroads, highways, air. Government regulation of transportation agencies. Rate making valuation, financing, consolidations. Present tendencies.

336. Labor Problems. Cr. 3.
Prerequisite: 60 semester hours including Eco. 231-2. A study of major labor problems and measures designed to meet them. Particular emphasis on the Social Security Movement and labor organizations, development, aims, and general structures.

337. Economic Systems. Cr. 3. II.
Prerequisite: 60 semester hours including Eco. 231-2. A survey of the control of economic institutions for the welfare of the general community. The main principles of a planned economy and existing economic systems.

338. Foreign Trade. Cr. 3. I.
Prerequisite: 60 semester hours including Eco. 231-2. Principles of international trade; balance of payments; trade policies and agreements; international market studies.

339. Latin America and the United States. Cr. 3. II.
Prerequisite: 60 semester hours including Eco. 231-2. A study of the economics of Latin American countries and their economic relations with the United States.

432. Foreign Market Surveys. Cr. 3. I.
Prerequisite: 60 semester hours including Eco. 231-2. Intensive study of foreign markets which are of particular significance to the United States.

433. International Economic Relations. Cr. 3. II.
Prerequisite: 90 semester hours including 12 hours in economics. Comparison of domestic and international economic relations. Political obstacles to international trade. The tariff and commercial treaties. International monetary problems. Financing foreign trade. Foreign loans.

434. Air Transportation. Cr. 3. I.
Prerequisite: 60 semester hours including six hours of economic principles and Mkt. 332. A course devoted exclusively to air transportation, including economic characteristics of the air transportation industry, regulation, types of service, rates for persons and property, labor relations, and its development.

436. Development of Economic Doctrines. Cr. 3. II.
Prerequisite: 60 semester hours including Eco. 231-2. The evolution of economic thought. A study of the basis, nature, and effects of economic doctrines from ancient times through the modern period.

437. Current Economic Problems. Cr. 3. I.
Prerequisite: 60 semester hours including Eco. 231-2. Fundamental problems of economic life today and proposed solutions. A critical examination of the present economic policies of government and industry. Individual research encouraged.

438. Research in Economics and Business. Cr. 3. (2-3). I, II.
(Formerly Business 438) Prerequisite: 90 semester hours, including three hours of statistics. Research methods used in the field. A definite problem will be undertaken for actual experience on the part of students.

4310. Advanced Economic Principles. Cr. 3. I.
Prerequisite: 90 semester hours including 12 hours in economics. An analysis of contemporary economic principles and thought concerning the production and distribution of goods and services. A thorough examination of the fundamental laws of economics as applied to present-day problems and conditions.

531. Economic Research. Cr. 3. I.
Prerequisite: Graduate standing. Solution and presentation of an approved problem involving individual research in the field of economics and business.

Courses which may be used for graduate credit are:
In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: Eco. 332, 333, 334, 335, 336, 337, 338, 433, 434, 436, 437, 4310; if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

MANAGEMENT

331. Industrial Management. Cr. 3. II.
Prerequisite: 60 semester hours including Eco. 231-2. The executive problems of production, types of executive controls, scientific management, buildings, layouts, control of operations, wage systems, personnel, standardization, budgets.

431. Office Management. Cr. 3. I.
Prerequisite: 60 semester hours including Sec. 122 and six hours in economics. Standards of office practice, wage payment plans, technique of office methods, selection and training of employees, office planning, duties and responsibilities of office manager.

432. Personnel Management. Cr. 3.
Prerequisite: 60 semester hours including Economics 231-2. Principles and problems of personnel administration; employee selection, development, placement, service-rating, promotion and transfer. Problems of working hours, wage plans and policies, and labor turnover. Employee counseling, records, and services.

433. Labor Relations. Cr. 3.
Prerequisite: 60 semester hours including Economics 231-2. A study of the problems of labor relations with particular emphasis on labor legislation. Special attention to current labor issues and developments in labor relations.

Courses which may be used for graduate credit are Mgt. 331, 432, 433.

Department of Education and Psychology

PROFESSORS GARLIN, BARNETT, JACKSON, GORDON.
ASSOCIATE PROFESSORS COOPER, DYSART, SHAVER, TRUE.

EDUCATION

125. Penmanship. Cr. 2. S.
Comparison of cursive and manuscript writing in the elementary grades.

131. Introduction to Education. Cr. 3. I, II, S.
Brief survey of the general field of education with particular reference to the origin and development of present-day practices in the public schools.

138. Career Guidance in Education. Cr. 3. I, II, S.
Evaluation of traits conducive to successful teaching; social and economic status of teachers; overview of the work of teachers; chance for employment in teaching. In addition to the usual classwork, this course employs considerable counseling of students.

234. Principles of Secondary Education. Cr. 3. I, II, S.
Prerequisite: Sophomore classification. Basic principles underlying secondary education, including the high school as a social institution and the physical and mental characteristics of the scondary school pupil.

235. High School Methods. Cr. 3. I, II, S.
Prerequisite: Sophomore classification. Methods of teaching used in the modern secondary school, including the planning of instruction, directing study, and the evaluation of instruction.

236. Basic Skills in the Elementary Grades. Cr. 3. I, S.
Prerequisite: Sophomore classification. Psychological methods and techniques of drill involved in modern curricula with application to arithmetic, writing, and spelling.

237. The Language Arts. Cr. 3. II, S.
Prerequisite: Sophomore classification. Methods, activity, and materials to be used in the teaching of the language arts in the elementary grades with special reference to reading, and oral and written composition.

238. Materials and Methods in the Social Studies in the Elementary Grades. Cr. 3. II, S.
Prerequisite: Sophomore classification. Suggested principles, procedures, and materials of instruction to be used in developing social, economic, and geographical concepts and relationships, which are based on an elementary school level.

314. Reading Clinic. Cr. 1. S.
Prerequisite: 12 hours in education and psychology and junior classification. Techniques involved in diagnosing pupil's reading activities. Credit must be received in an advanced course in reading before graduate credit will be given for this course.

321. Principles of Education. Cr. 2. S.
Prerequisite: 12 hours in education and psychology and junior classification. Brief survey of the general principles involved in the process of education. Credit may not also be received for Ed. 331.

322. Problems in Secondary Education. Cr. 2. S.
Prerequisite: 12 hours in education and phychology and junior classification. Selected problems in secondary education, including both administration and method. Credit may not also be received for Ed. 332.

324. Basic Principles of Method. Cr. 2. S.
Prerequisite: 12 hours in education and psychology and junior classification. A study of the current methods of school instruction. A brief analysis of the different elements of method and a synthesis of their relationships.

325. The Junior High School. Cr. 2. S.
Prerequisite: 12 hours in education and junior classification. Brief survey of the origin, functions, organization, and curriculum of the junior high school. Credit may not also be received for Ed. 335.

326. Educational and Vocational Guidance. Cr. 2. S.
Prerequisite: 12 hours in education and psychology and junior classification. Survey of principles and methods of educational, professional, and vocational guidance. Guidance for college students, and also for students of junior and senior-high school rank. Credit may not also be received for Ed. 336.

3210. Children's Literature. Cr. 2. S.
Prerequisite: 12 hours in education and psychology and junior classification. A survey of recent trends in literature for children in the elementary grades with special emphasis upon the works of living authors. Credit may not also be received for Ed. 3310.

3211. Remedial Reading in the Elementary School. Cr. 2. S.
Prerequisite: 12 hours in education and psychology and junior classification. Causes and analysis of reading difficulties; remedial programs and improvement records.

3214. Duties of School Principals. Cr. 2. S.
Prerequisite: 12 hourse in education and junior classification. Survey of the major duties of the principal in administrating a school. Designed to meet the needs of both secondary and elementary school principals. Credit may not also be received for Ed. 3314.

331. Principles of Education. Cr. 3. I.
Prerequisite: 12 hours in education and psychology and junior classification. Educational theory stressing the principles involved in the processes of education. Special attention to the biological, psychological, sociological, and historical bases of education and their application to educational practice. Credit may not also be received for Ed. 321.

332. Problems in Secondary Education. Cr. 3. II.
Prerequisite: 12 hours in education, including three hours in secondary education and junior classification. Problems covering the various phases of secondary education, including both administration and method. Credit may not also be received for Ed. 322.

333. Education of Exceptional Children. Cr. 3.
Prerequisite: 12 hours in education and psychology and junior classification. A survey course in the education of exceptional children, covering the history of the movement to educate the exceptional child, the facilities, materials and methods available for teaching such children, and the adjustment of instruction to the child with a special difficulty or need.

335. The Junior High School. Cr. 3. I, S.
Prerequisite: 12 hours in education and junior classification. The function of the junior high school; curricula and programs of study; discipline and social activites; homogeneous grouping; articulation with the elementary school and the senior high school. Credit may not also be received for Ed. 325.

336. Educational and Vocational Guidance. Cr. 3. S.
Prerequisite: 12 hours in education and psychology and junior classification. For superintendents, principals, and teachers who feel the need for instruction in methods of educational, professional, and vocational guidance. Guidance for college students, and also for students of junior and senior high school rank. Credit may not also be received for Ed. 326.

338. Every Teacher's Problems. Cr. 3. I.
Prerequisite: 12 hours in education and junior classification. Professional and personal problems of the teacher, and guiding principles for their solution. Designed to meet the needs of administrators, elementary and secondary school teachers.

3310. Children's Literature. Cr. 3. I, S.
Prerequisite: 12 hourse in education and psychology and junior classification. Introduction to literature, both new and old, prose and poetry, for children under twelve, including standards for judging and criteria for selecting books for different age and interest levels. Credit may not also be received for Ed. 3210.

3314. Duties of School Principals. Cr. 3. S.
Prerequisite: 12 hours in education and junior classification. The organization and operation of a school building unit, dealing with the various duites of the principal in administering a school. Designed to meet the needs of both secondary and elementary school principals. Credit may not also be received for Ed. 3214.

3315. Visual-Audio Aids in Education. Cr. 3. II, S.
Prerequisite: 12 hours in education and junior classification. Equipment and techniques for teaching different subjects in the public schools by the use of visual-audio aids; meaning of visual-audio education; different types of visual-audio aids. Covers both the administration and technique of visual-audio aids, on both the secondary and elementary levels.

3316. Observation and Practice. Cr. 3. I, II, S.
Prerequisite: 12 hours in education and junior classification. Principles of teaching, observation of class work, construction of lesson plans, and teaching under supervision in the Lubbock public schools. Relates largely to junior and senior high school teaching.

3317. Observation and Practice. Cr. 3. I, II, S.
Prerequisite: Nine hours credit in the specific field concerned. For primary and elementary school teachers.

420. Sociological Principles of Education. Cr. 2. S.
Prerequisite: 12 hours in education and junior classification. The consideration of community, county, and state backgrounds in public education. Credit may not also be received for Ed. 430.

421. Education in the United States. Cr. 2. S.
Prerequisite: 18 hours in education including six hours of advanced courses. Educational history, theory, and practice in the United States; the origin and development of public elementary and secondary education. Credit may not also be received for Ed. 431.

422. Public School Administration. Cr. 2. S.
Prerequisite: 18 hours in education including six hours of advanced courses. The fundamental principles of school administration Credit may not also be received for Ed. 432.

423. Public School Relations. Cr. 2. S.
Prerequisite: 18 hours in education including six hours of advanced courses. Organization of the program, media of approach to the public, and appraisal of the program. Credit may not also be received for Ed. 433.

424. Supervision of Instruction. Cr. 2. S.
Prerequisite: 18 hours in education including six hours of advanced courses. Emphasis on the technique of supervision, covering supervisory practice on both the secondary and elementary levels. Credit may not also be received for Ed. 434.

425. Co-Curricular Activities. Cr. 2. S.
Prerequisite: 12 hours in education and junior classification. A study of co-curricular activities in both the secondary and elementary schools.

4212. Evaluation of Secondary Schools. Cr. 2. S.
Prerequisite: 18 semester hours in education and psychology. A survey course in high school evaluation criteria. Special treatment of the Alpha, Beta, and Gamma scales. Instructions and suggestions for visiting committees. The technique of plotting percentile scales into educational temperatures.

4213. Evaluation of Elementary Schools. Cr. 2. S.
Prerequisite: 18 hours in education including six hours of advanced courses. History of efforts to evaluate the elementary school; current procedures in evaluation with special reference to criteria of evaluation now being developed.

4215. Remedial Reading in the Secondary School. Cr. 2. S.
Prerequisite: 18 hours in education and psychology. Brief survey of the causes and treatment of reading difficulties in the secondary school.

430. Sociological Principles of Education. Cr. 3. II, S.
Prerequisite: 12 hours in education and junior classification. A detailed comparision of the fields of psychology and sociology in the relation to the principles and processes of public elementary and secondary education. The consideration of community backgrounds of education. Credit may not also be received for Ed. 420.

431. Education in the United States. Cr. 3. I, S.
Prerequisite: 18 hours in education including six hours of advanced courses. Education; history, theory, and practice in the United States. The period of transplantation; the period of transition; the period of National development; the period of reorganization; and the period of revitalization. Credit may not also be received for Ed. 421.

432. Public School Administration. Cr. 3. II.
Prerequisite: 18 hours in education including six hours of advanced courses. Problems that confront the superintendent or principal, such as classification and grading, arranging courses of study, selection and improvement of the teaching staff; relations with teachers, school board, and general public. Credit may not also be received for Ed. 422.

433. Public School Relations. Cr. 3. I.
Prerequisite: 18 hours in education including six hours of advanced courses. Definitions, aims, and underlying principles of school interpretation; organization of the program, media of approach to the public, and appraisal of the program. Credit may not also be received for Ed. 423.

434. Supervision of Instruction. Cr. 3. II.
Prerequisite: 18 hours in education including six hours of advanced courses. Principles, organization, and techniques of supervising instruction. Covers supervisory practice on both the secondary and elementary levels. Credit may not also be received for Ed. 424.

439. Unit Teaching. Cr. 3. II.
Prerequisite: 18 hours in education including six hours of advanced courses. Unit theory and technique; suggestive plans for constructing activity units; application of the unit method of learning and teaching; presentation of three activity units by each student.

4311. Problems of the Elementary Curriculum. Cr. 3. I.
Prerequisite: 18 hours in education and psychology, including nine hours in elementary education. The fundamental philosophy and psychological principles of curriculum construction and reorganization; scope of curriculum; community relations and child inventories: selection of experiences and activities; methods of evaluating progress; materials and bibliographies.

4316. Workshop in Curriculum and Instruction. Cr. 3. S.
Prerequisite: 12 hours in education and junior classification. For experienced teachers, elementary and secondary, (1) to study intensively problems arising from actual classroom experiences; (2) to cooperate with other students in solving such problems, collecting materials, and developing teaching techniques for practical classroom application. Additional work in this field is offered in Education 4317.

4317. Workshop in Curriculum and Instruction. Cr. 3. S.
Prerequisite: 12 hours in education and junior classification. For experienced teachers, elementary and secondary, (1) to study intensively problems arising from actual classroom experiences; (2) to cooperate with other students in solving such problems, collecting materials, and developing teaching techniques for practical classroom application. Additional work in this field is offered in Education 4316.

531. Educational Research. Cr. 3. I, S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education. Techniques used in scientific investigations to discover, define, analyze, and organize problems in education and psychology; samples of published research; projects in applying techniques; mechanics of research.

532. Philosophy of Education. Cr. 3. S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education. Analysis of major social philosophies; their sources and their application to the field of education.

533. The Activity Program in the Elementary School. Cr. 3. I, S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education. Theory and practice of the activity program based on a study of current literature (research, experimentation, and observation) in the elementary field; a survey of some one phase of the work to be prepared by the student.

534. Modern Tendencies in Education. Cr. 3. II, S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education. A discussion of current educational doctrines and trends, in the light of their origins and present functions.

535. Business Administration of Schools. Cr. 3. S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education. A study of the business administration of a school system. Field trip included.

536. Educational Statistics. Cr. 3. II, S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education. Analysis of statistical procedures in the treatment and organization of educational and psychological data; practice in the application of procedures.

537. Student Counseling. Cr. 3. S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education, including Ed. 336, or its equivalent. An advanced course in counseling secondary school students. A study of clinical techniques, personality problems, educational and occupational orientation, and other problems incident to effective counseling.

538. Adult Education. Cr. 3. II, S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education. A study of the nature, origin, extent, significance, organization and technique of adult education.

539. Seminar. Cr. 3. S.
Prerequisite: Graduate classification and 12 hours of advanced courses in education. Assignments, readings, reports, and discussions of recent educational problems. Covers problems of administration as well as of method.

601. Thesis.

PSYCHOLOGY

230. Introduction to Psychology. Cr. 3. I, II, S.
Prerequisite: Sophomore classification. Introduction to the study of mental processes. Lectures, recitations, and demonstrations illustrating the principles of general psychology.

231. Educational Psychology. Cr. 3. I, II, S.
Prerequisite: Sophomore classification. The principles of psychology and their application to education with emphasis upon the mental processes involved in the study of the various school subjects. The native responses of the child and their modification by education; the different types of learning; methods of memorizing; transfer of training and fatigue.

232. Psychology of Modern Elementary Education. Cr. 3. II.
Prerequisite: Sophomore classification. Psychological principles applied to educational methods and to problems of childhood at the elementary school level; directed observation of the elementary school child both in and out of school.

323. Measurements in Education. Cr. 2. S.
Prerequisite: 12 hours in education and psychology and junior classification. Topics: giving and scoring standardized tests in connection with the freshman testing program or other school situations; interpreting test scores; classifying and evaluating instruments of measurement; characteristics of a good examination; surveying achievement in the usual school subjects with use of standardized and teacher-made tests. For both high school and elementary teachers. Credit may not also be received for Psy. 333.

331. Child Psychology. Cr. 3. II, S.
Prerequisite: 12 hours in education and psychology, including Psy. 230 or 231 and junior classification. A study of child development from birth to early adolescence, including heredity and environmental factors as they affect total child growth; social adjustment and personality; individual surveys of specific phases of problems of early developments.

333. Measurements in Education. Cr. 3. I, S.
Prerequisite: 12 hours in education and psychology, including Psy. 230 or 231 and junior classification. Topics: giving and scoring standardized tests in connection with the freshman testing program or other school situations; interpreting test scores; classifying and evaluating instruments of measurement; characteristics of a good examination; surveying achievement in the usual subjects with use of standardized and teacher-made tests; special achievement and diagnostic testing in the subjects in which the student is specializing. For both high school and elementary teachers. Credit may not be received for Psy. 323.

335. Psychology of Adolescence. Cr. 3. I, II, S.
Prerequisite: 12 hours in education and psychology and junior classification. Analysis of the physical, emotional, mental, social, moral, and religious changes natural to adolescence; problems of abnormal development.

338. Psychology Applied to Business. Cr. 3. II.
Prerequisite: Three hours of psychology and junior classification. Psychology applied to advertising, salesmanship, employment, and industry.

421. Mental Testing. Cr. 2. S.
Prerequisite: 12 hours in education and psychology, including Psy. 230 or 231 and junior classification. Nature of intelligence; mental abnormality; sources of mental defects; normal intelligence; historical development of group intelligence tests; factors conditioning intelligence test results; the use of intelligence tests in the elementary school, the high school, and the college. Credit may not also be received for Psy .431.

423. Mental Hygiene. Cr. 2. S.
Prerequisite: Psy. 230 or equivalent and junior classification. The genesis of adequate personality. Lectures, discussions and case studies. Topics: habits of adjustment, constructive emotional attitudes and control; sources of resolutions, personal conflict, principles of mental health. Credit may not also be received for Psy. 433.

424. Social Psychology. Cr. 2. S.
Prerequisite: Psy. 230 and senior classification. Fundamental psychological principles as they apply to the problems of the group; motivation of social behavior; development of social and anti-social attitudes; individual and class differences, regional and racial characteristics. Credit may not also be received for Psy. 434.

431. Mental Testing. Cr. 3. II, S.
Prerequisite: 12 hours in education and psychology, including Psy. 230 or 231 and junior classification. Nature of intelligence, mental abnormality; sources of mental defects; normal intelligence; historical development of group intelligence tests; factors conditioning intelligence test results; the use of intelligence tests in the elementary school, the high school, and the college. Practice in individual testing by the Binet method is required. Credit may not also be received for Psy. 421.

433. Mental Hygiene. Cr. 3. I.
Prerequisite: Psy. 230 or equivalent and junior classification. The genesis of adequate personality. Lectures, discussions, case studies, and term paper. Topics: habit of adjustment, constructive emotional attitudes and control; sources of resolutions, personal conflict, principles of mental health. Credit may not also be received for Psy. 423.

434. Social Psychology. Cr. 3. II.
Prerequisite: Psy. 230 and senior classification. Fundamental psychological principles as they apply to the problems of the group; motivation of social behavior; development of social and anti-social attitudes; individual and class differences, regional and racial characteristics. Survey of experimental work and reports on current problems. Credit may not also be received for Psy. 424.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series courses in this department which may be taken for graduate credit are: Ed. 314, 321, 322, 324, 325, 326, 3210, 3211, 3214, 331, 332, 333, 335, 336, 338, 3310, 3314, 3315, 420, 421, 422, 423, 424, 425, 4212, 4215, 430, 431, 432, 433, 434, 439, 4311, 4316, 4317; Psy. 323, 331, 333, 335, 421, 423, 424, 431, 433, 434, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Electrical Engineering

PROFESSOR BULLEN. ASSOCIATE PROFESSORS HOUSTON, BENNETT. INSTRUCTORS C. J. LEE, R. F. LEE.

221-2. Electrical Engineering Laboratory. Cr. 2, (0-6). I and II.
Prerequisite: Registration in E. E. 231-2. A laboratory course to accompany E. E. 231-2. Three hours per week is assembled and three hours nonassembled.

231-2. Principles of Electrical Engineering. Cr. 3. I and II.
Prerequisite: Parallel enrollment in calculus. Lectures, recitations, and problems on the fundamental principles of electric, magnetic, and dielectric circuits. Magnetic properties of iron and steel. Induced and generated electromotive forces. Forces on conductors. Electric and magnetic fields. Conduction in solids and liquids.

233, Elements of Radio. Cr. 3, (2-3). I and II.
Prerequisite: Math. 121 or 130, 131. A fundamental course in radio to furnish the background of basic principles for more advanced work. Open to any college student. This is not a required course and can be given only on the basis of sufficient registration.

234. Elements of Radio. Cr. 3, (2-3). I and II.
Prerequisite: E. E. 233 or consent of instructor. Application of the basic principles covered in E. E. 233 to circuits, including rectifiers, oscillators, modulators, amplifiers, receivers, transmitters, etc. Open to any college student. This is not a required course and can be given only on the basis of sufficient registration.

322. Alternating Current Circuits Laboratory. Cr. 2, (0-6). I.
Prerequisite: Registration in E. E. 332. A laboratory course to accompany E. E. 332. Three hours per week of the laboratory is assembled and three hours nonassembled.

323. Electronics Laboratory. Cr. 2, (0-6). II.
Prerequisite: Registration in E. E. 325. A laboratory course to accompany E. E. 325. A laboratory study of the operating characteristics of representative types of modern vacuum tubes, both radio and industrial types. Three hours per week of the laboratory is assembled and three hours nonassembled.

324. Communication Circuits Laboratory. Cr. 2, (0-6). II.
Prerequisite: Registration in E. E. 334. A laboratory course to accompany E. E. 334. Three hours per week of the laboratory is assembled and three hours nonassembled.

325. Electronics. Cr. 3. II.
Prerequisite: E. E. 332. Basic theory underlying the operation of representative types of modern vacuum tubes. Consideration is given to both radio and industrial types of tubes.

332. Alternating Current Circuits. Cr. 3. I.
Prerequisite: E. E. 231-2. Lectures, recitations and problems dealing with the fundamental principles of alternating current circuits.

334. Communication Circuits. Cr. 3. I.
Prerequisite: E. E. 332. Lectures, recitations and problems dealing with telephone communication. Includes transmission theory, electric networks, filters, loading coils, repeaters, and carrier systems.

335. Wiring and Illumination. Cr. 3. II.
Prerequisite: Math. 132, six semester hours of physics. Standard methods of wiring circuits; the general theory and modern methods of illumination. For architectural engineering students. Offered in alternate years. Offered in 1947-48.

336. Illumination. Cr. 3, (2-3). II.
Prerequisite: Junior standing or consent of instructor. Fundamental principles and modern practice of illumination. Offered in alternate years when demand justifies.

410. Current Electrical Engineering. Cr. 1. I.
Prerequisite: Senior standing. Class discussion of current developments in the field of electrical engineering.

412-3. Electrical Engineering Laboratory. Cr. 1, (0-3). I and II.
Prerequisite: Registration in E. E. 426-7 or 438-9. For civil, chemical, industrial mechanical, and textile engineering students.

426-7. Elements of Electrical Engineering. Cr. 2. I and II.
Prerequisite: Phys. 235, Math 251. Recitations and problems dealing with the elementary principles of direct and alternating current circuits and machinery. For civil, chemical, and textile engineering students.

428-9. Engineering Electronics. Cr. 2. I and II.
Prerequisite: E. E. 325, 333. Registration in E. E. 4215-16. A study of basic principles and engineering applications of electronic apparatus. A representative cross-section of electronic apparatus is available for theoretical study and laboratory testing. Emphasis is placed on theory and basic principles of operation.

4210-11. Radio Engineering Laboratory. Cr. 2, (0-6). I and II.
Prerequisite: E. E. 325. Registration in E. E. 4310-11. A laboratory course to accompany E. E. 4310-11. Three hours per week of the laboratory is assembled and three hours nonassembled.

4212-13. Electrical Machinery Laboratory. Cr. 2, (1-3). I and II.
Prerequisite: Registration in E. E. 4312-13. A laboratory course to accompany E. E. 4312-13. Machines are operated and tested in the laboratory and results compared with theoretical characteristics previously derived.

4214. Advanced Circuit Theory. Cr. 2. I.
Prerequisite: E. E. 332. Involves a study of non-sinusoidal wave analysis and complex circuit calculations. Symmetrical components are introduced in connection with polyphase transformers and machinery. Transient phenomena as applied to switching and commutation is considered.

4215-16. Engineering Electronic Laboratory. Cr. 2, (0-6). I and II.
Prerequisite: Registration in E. E. 428-9. A laboratory course to accompany E. E. 428-9. Representative types of electronic tube circuits and apparatus are studied and tested in the laboratory, giving weighted consideration to both basic principles of operation and current industrial applications. Three hours per week of the laboratory is assembled and three hours nonassembled.

433. Transmission. Cr. 3. II.

Prerequisite: Registration in E. E. 4312-13. Theory and problems involved in the transmission of electrical energy.

435. Advanced Illumination. Cr. 3.

Prerequisite: E. E. 335 or E. E. 336, or consent of instructor. Quantitative and qualitative considerations in interior lighting design. Mathematical treatment of illumination determinations. Economic considerations in light production. Offered when demand justifies.

438-9. Elements of Electrical Engineering. Cr. 3. I and II.

Prerequisite: Phys. 235, Math. 251. Recitations and problems dealing with the principles of direct and alternating current circuits and machinery. For industrial and mechanical engineering students.

4310-11. Radio Engineering. Cr. 3. I and II.

Prerequisite: E. E. 333. A course considering theory, design, and service of radio equipment of all types extending from broadcast frequencies to the ultra-highs. Maxwells' equations presented early in the second semester to form a sound basis for comprehensive study of ultra-high frequency phenomena.

4312-13. Electrical Machinery. Cr. 3. I and II.

Prerequisite: E. E. 332. Theory and operation of power machinery. Includes transformers, d. c. machines, synchronous alternators, induction motors and converters. Theoretical calculations of operating characteristics are derived by equivalent circuit solutions and graphical construction.

411-2. Engineering Seminar. Cr. 1, (0-3). I and II.

Credit for this course may be given as often as successfully repeated. The investigation and study of engineering problems of special interest and value to the students taking the course. Work is of the nature of research. May be taken only with permission of head of the departemnt.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: Electrical Engineering majors may use E. E. 336, 410, 4210-11, 4214, 433, 435, 4310-11 and Engineering Seminar 411-2, provided these courses have not been used as electives or required courses for undergraduate credit. In addition E. E. 322, 323, 324, 332, 325, 334, 336, 410, 4210-11, 4212-13, 4214, 4215-16, 433, 435, 4310-11, 4312-13 may be used by students majoring in other departments, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series which otherwise carries no graduate credit.

Engineering Orientation

111. Engineering Orientation. Cr. 1, (2-0). I, II.

Relationship of student to college; development of correct study habits; study and preparation of time and expense budgets; lectures by heads of engineering departmnts; moving pictures showing phases of work in the various engineering departments. Required of all freshman Engineering students during their first semester. One hour of preparation a week required.

Department of English

PROFESSORS ALLEN, CUNNINGHAM, DOAK, MILLS, SMALLWOOD, STROUT. ASSOCIATE PROFESSORS CAMP, GILL, GUNN, MURPHY, TEAGUE. ASSISTANT PROFESSORS CARTER, SCOTT. INSTRUCTORS COBB, GREEN, HARRISON, LEWIS, MILES, NALL, PHELPS, POLK**, THOMPSON, WELLS, WEST, WILSON*

131-2. English Composition. Cr. 3. Each, I and II.

Prerequisite for all other courses in English. Essentials of correctness and effectiveness in general writing. Text studies, lectures, readings, themes, tests, and conferences.

231. A Survey of American Literature. Cr. 3. Each, I and II.

American literature from the beginnings to the present.

* On leave 1946-47.

**Resigned.

232. The Major English Writers. Cr. 3. Each, I and II.
Selections from the works of the chief English writers.
English 231 and 232 are prerequisites for all advanced courses in English.

233. Technical Writing. Cr. 3. Each, I, II.
Required of sophomore engineering students. Essentials of correctness and effectiveness in technical writing. Regular themes. Long term report. Some readings in standard English and American literature.

234. Special Work on Correct Usage. Cr. 3. Each, I, II.
Required of sophomores in the Division of Agriculture. Themes, reports, and much practical experience in writing.

Statement of Prerequisites

The foundation courses of the first two years, English 131-2 and English 231-2 or their equivalent, are the general prerequisites for the courses which follow.

330. Chaucer. Cr. 3. I.
Selected works of Geoffrey Chaucer, with special consideration of his art in relation to the art and life of the fourteenth century.

332. History of the English Language. Cr. 3. II.
A study of the principal changes which the English language has undergone from the beginnings to the present and the relation of these changes to the cultural development of the English-speaking people.

333. American Prose. Cr. 3. II.
Selections of literary significance from the prose works of Byrd, Franklin, Paine, Washington, Trumbull, Irving, Emerson, Thoreau, Channing, Alcott, Lowell, Parkman, Lincoln, Mark Twain, Howells, Burroughs, Wilson, Adams, Santayana, and others.

336. The Augustan Age. Cr. 3. II.
English literature from 1660 to 1780, exclusive of the drama and the novel. Selected works of Dryden, Bunyan, Pepys, Defoe, Addison, Steele, Pope, Swift, Johnson, and others.

338. American Poetry. Cr. 3. I.
Selections from the works of Freneau, Bryant, Whittier, Emerson, Poe, Longfellow, Lowell, Holmes, Whitman, Lanier, Dickinson, and others.

3310. The Teaching of English in the Secondary School. Cr. 3. S.
Prerequisite. 18 semester hours in English; Education 234-5; Psychology 335. In exceptional instances, Psychology 335 may be taken parallel with English 3310 or in the semester following. Problems of teaching English in secondary schools; effective methods; material and equipment; classroom observation and demonstration. May be counted as English or as Education by English majors. Required of students choosing English as their teaching major for the B. S. in Education.

3312. Advanced Composition. Cr. 3. I.
A review of the principles making for correctness and effectiveness in writing, with some practice in literary interpretation. Primarily for English majors or minors and prospective teachers.

3315. The Short Story. Cr. 3. I.
Samplings of the work of outstanding writers, together with a study of patterns and some attention to the writing of the short story.

3316. The American Novel. Cr. 3. I.
Lectures on the development of the American novel from Brockden Brown to the present. Selected novels of James, Howells, Garland, Wharton, Lewis, Peterkin, Tarkington, Hergesheimer, Ferber, Cather, and Dreiser.

3317. The English Novel from Lyly to Scott. Cr. 3. II.
Lectures on the development of the English novel. Representative examples of Elizabethan fiction and the novels of Defoe, Richardson, Fielding, Smollett, Sterne, Jane Austen, and Scott.

3318. English and Foreign Fiction from 1825 to 1910. Cr. 3. I.
Representative novels of Dickens, Thackeray, the Brontes, Hardy, Meredith, Balzac, Flaubert, Zola, Tolstoy, Dostoevski, and Turgenev.

3320. American Drama. Cr. 3. I.
Representative plays of Godfrey, Tyler, Dunlap, Boucicault, Howard, Belasco, Thomas, Fitch, O'Neill, Kaufman, Rice, Anderson, and others. Considerable emphasis on the contemporary period.

3322. Modern British and American Poetry. Cr. 3. II.
The major poets and poetic movements from Hardy and Robinson to the present.

3323. Masterpieces of World Literature. Cr. 3. I.
A study in English of some of the great books of the western world. Selections from the Homeric poems, the Greek dramatists, Vergil, Dante, Petrarch, Boccaccio, Shakespeare, Cervantes, Moliere, and the Bible.

431. Restoration and Eighteenth Century Drama. Cr. 3. II.
Representative plays of Dryden, Otway, Congreve, Farquhar, Goldsmith, and Sheridan. Sentimental comedy, bourgeois tragedy, comedy of manners, ballad opera, and other dramatic types.

432. Shakespeare. Cr. 3. I.
A close reading of the following plays: **The Comedy of Errors, Richard II, The First Part of Henry IV, Romeo and Juliet, The Merchant of Venice, Much Ado About Nothing, Hamlet, Macbeth, Anthony and Cleopatra,** and **The Tempest.** The reading will be supplemented by phonographic recordings of certain plays.

433. Shakespeare. Cr. 3. II.
A closer reading of the following plays: **The Two Gentlemen of Verona, Richard III, Henry V, Julius Caesar, As You Like It, Twelfth Night, Measure for Measure, Othello, King Lear,** and **The Winter's Tale.** The reading will be supplemented by phonographic recordings of certain plays.

434. Milton and His Age. Cr. 3. I.
The social, political, and religious conditions in the time of Milton. A careful reading of Milton's life and early poems and an intensive study of **Paradise Lost, Paradise Regained,** and **Samson Agonistes.**

435. English Romanticism. Cr. 3. I.
Selections from the works of the Pre-Romanticists. The poetry and poetic principles of Wordsworth and Coleridge.

436. The Later Romantic Poets. Cr. 3. II.
Selections from the poetry of Scott, Byron, Shelley and Keats; biography and background.

437. English Drama from the Beginnings to 1642. Cr. 3. II.
The development of tragedy, comedy, and chronicle history from the early types of drama in England. Representative plays of Lyly, Kyd, Marlowe, Dekker, Heywood, Jonson, Beaumont and Fletcher, Webster, Ford, and others.

438. Nineteenth Century English Prose. Cr. 3. I.
Selections from the chief Romantic and Victorian prose writers, with special emphasis on Lamb, Hazlitt, DeQuincey, Carlyle, Arnold, and Stevenson.

4310. The Major Victorian Poets. Cr. 3. I.
Selections from the poetry of Tennyson, Robert Browning, Elizabeth Barrett Browning, Arnold, Dante, Gabriel Rossetti, Christina Rossetti, Morris, Swinburne and Meredith.

4313. Literary Biography. Cr. 3. II.
The biographical works of Cellini, Boswell, Franklin, Southey, Lockhart, Gosse, Strachey, and Bradford, as they reflect the social, and political conditions, the art, the science, and the literature of their times.

4315. Spenser and His Age. Cr. 3. II.
The Elizabethan lyric and narrative poets and prose writers: More, Marlowe, Bacon, Sidney, Spenser, Shakespeare, Daniel, Drayton, Donne, Campion, Jonson, and others.

4316. The Structure of the Novel. Cr. 3. II.
Lectures on the principles of craftmanship which make for effective fiction. Reading from a selected list of novels.

4317. Modern European Drama. Cr. 3. II.
Representative plays of such writers as Ibsen, Strindberg, Tolstoy, Chekhov, Hauptmann, Wedekind, Becque, Hervieu, Maeterlinck, Galsworthy, Barrie, and Shaw. Some consideration to more recent dramatists.

4319. Studies in Shakespeare. Cr. 3. S.
Prerequisite: Consent of the head of the department. The nature and content of the course will vary to meet the nneeds of the students enrolled. It may be repeated for credit.

533. Elizabethan Drama. Cr. 3 II.

534. Old English. Cr. 3. I.

536. Outline of American Literary History: 1608 to the Present. Cr. 3. II.

537. Spenser. Cr. 3. II.

538. Studies in the English Romantic Poets. Cr. 3. II.

539. American Critical Theories. Cr. 3. I.

5311. Literary Criticism. Cr. 3. II.

601. Thesis.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, the following English courses may be taken for graduate credit if they are properly petitioned for and if additional work is done in each: 330, 332, 333, 336, 338, 3312, 3315, 3316, 3317, 3318, 3320, 3322, 431, 432, 433, 434, 435, 436, 437, 438, 4310, 4313, 4315, 4316, 4317, 4319.

Department of Foods and Nutrition

PROFESSORS MICHIE, WEEKS. ASSOCIATE PROFESSORS TWYFORD*, LAMB. ASSISTANT PROFESSORS BUTTRILL, WOOD. INSTRUCTORS HATTOX, WALLACE.*

FOODS AND COOKERY

131. Elementary Food Preparation and Serving. Cr. 3, (2-3). I, II.
The fundamental principles of cookery with an introduction to the planning and serving of meals in the home; a study of food production, management factors and other consumer problems as related to food.

132. Elementary Food Preparation. Cr. 3, (2-3). I, II.
The scientific principles underlying food preparation; problems of buying, phases of production and manufacture as they relate to the cooking of foods. Some experimental work included.

134. Principles of Food Preparation and Selection. Cr. 3, (1-6). I.
Prerequisite or parallel: Chem. 131-2. The scientific principles underlying food preparation, related problems in food economics, phases of production and manufacture influencing food selection, and the nutrition principles essential to menu planning. Especially offered for students who have had three years of high school home economics and for other mature students.

135. Food Preparation and Selection (for Nurses.) Cr. 3, (2-3). I, II.
The fundamental principles of food preparation, selection and service with emphasis on the nutritive value of foods. The course is based on normal family meals with applications to the needs of nursing.

232. Meal Planning and Table Service. Cr. 3, (1-6). I, II.
Prerequisite: Foods 132 or 134. The planning and service of suppers, luncheons, dinners, buffet meals, and afternoon teas. Food combinations in relation to the nutritive and the aesthetic aspects of menu planning. Computation of costs of meals, and compilation of food budgets. Economics of food purchasing.

233. Food Selection and Serving. Cr. 3, (2-3). I.
A study of food in relation to health. Food budgets and economics of food purchasing. The planning, preparation, and serving of meals in the home including meals for special occasions as buffet suppers, afternoon teas, and picnic lunches. Open to men and women not registered as regular home economics students.

331. Food Demonstration. Cr. 3, (2-3). I.
Prerequisite: Foods 232, Nutrition 334. Procedure in demonstrating before audiences of different sorts. Especially for prospective teachers and home demonstration agents.

332. Food Purchasing. Cr. 3, (2-3). I.
Prerequisite: Foods 232, Nutrition 334. Food purchasing with emphasis on the relation of the producer to the consumer, on food legislation, and on methods of reducing food costs. Visits to local markets. Economy of time, labor, money, and equipment.

333. Experimental Cookery. Cr. 3, (1-6). II.
Prerequisite: Foods 232, Nutrition 334, and junior standing in foods and nutrition. Experimental work in the field of cookery. Factors influencing food preparation. Testing recipes, developing proportions for new recipes.

335. Food Preservation. Cr. 3, (1-6). II.
Prerequisite: Junior or senior standing in Dept. of Foods and Nutrition. Adaptation of newer methods of food preservation to modern science. Intensive practice in canning, preserving, and pickling meats, fruits, vegetables. Especially for home demonstration agents and vocational home economics teachers.

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* On leave 1945-47.

433. Advanced Food Preparation and Serving. Cr. 3, (1-6). II.
Prerequisite: Foods 232, 332, Nutrition 334, and senior standing; open to juniors upon recommendation of head of department. Experience in preparation of unusual types of foods and meals for special occasions. Designed to develop a more cosmopolitan attitude toward food. Opportunity is given for practice in preparing and serving groups with ordinary home and laboratory equipment.

531. Research Methods in Cookery. Cr. 3 (1-6) S.
Prerequisite: Foods 333 and graduate standing. A study of some problems of food preparation and their solution. Laboratory experience in solving current problems in food preparation methods: egg and milk cookery, emulsions, jellies, preparation and freezing of foods, batters, and doughs, fats and oils, meats, special problems.

NUTRITION AND DIETETICS

333. Elementary Nutrition and Food Selection. Cr. 3. II.
Prerequisite: Sophomore standing or above. Fundamental principles of nutrition and the relation of food selection to health. Emphasis is placed on the planning of dietaries to meet the individual requirement and the selection of foods from the standpoint of economics and physical efficiency. Open to men and women not registered in the Department of Foods and Nutrition.

334. Dietetics. Cr. 3, (2-3). I, II.
Prerequisite: Foods 131-2, Chem. 131-2, Zool. 235-6. The essentials of an adequate diet. The food requirements of persons of different ages and the nutritive values of common food materials. Experimental work with laboratory animals.

431. Nutrition in Disease. Cr. 3, (2-3). II.
Prerequisite: Nutrition 432 or parallel. Adaptations of diet to disorders of nutrition. Specific diseases, the prevention and care of which are largely influenced by diet.

432. Nutrition. Cr. 3, (2-3). I, II.
Prerequisite: Nutrition 334 and Chem. 341 or 343-4. Nutritive requirements from infancy to old age. Emphasis upon the functions of the nutrients and their relation to the chemistry and physiology of living tissues.

433. Nutrition of Children. Cr. 3, (2-3). I.
Prerequisite: Nutrition 334. A study of the principles of child nutrition; the methods of judging nutrition; the causes and effects of malnutrition; the responsibility of the home, the school, and the community for the improvement of the nutritional status of children. Field work dealing with problems of child nutrition is required.

531. Techniques of Nutrition Research. Cr. 3 (1-6) I.
Prerequisite: Nutrition 432 and graduate standing. Training in methods of research in nutrition; food analysis, dietary studies, bioassay methods.

532. Studies in Energy Metabolism. Cr. 3 (1-6). II.
Prerequisite: Nutrition 432 and graduate standing. Principles and techniques involved in studies of energy metabolism; practice in determining basal metabolism, computing the results and presenting the findings; experience in the determination of energy value of foods.

533. Readings in Nutrition. Cr. 3. II.
Prerequisite: Nutrition 432 and graduate standing. A critical study of the recent literature in the field of nutrition. Preparation and presentation of reports on selected topics. The purpose of the course is to acquaint students with recent researches in nutrition. May be repeated for full credit. Offered in alternate years.

601. Thesis.

Courses which may be used for graduate credit:
In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: Nutrition 431, 432, 433; Foods 331, 335, 433, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Foreign Languages

PROFESSORS QUALIA, GORDON. ASSOCIATE PROFESSORS HENNINGER, HAMILTON. ASSISTANT PROFESSORS STREHLI, HAMLETT. INSTRUCTORS TUCKER, SMITH, WITTE

FRENCH

131-2. A Beginning Course in French. Cr. 3. I and II.
Grammar, reading, and oral practice.

231-2. A Reading Course in French. Cr. 3. I and II.
Prerequisite: French 131-2, or two units of high school French.

331-2. A Rapid Reading Course. Cr. 3. I and II.
Prerequisite: French 231-2 or equivalent. For third-year science students and others who wish to acquire facility and ease in reading modern French. Enough grammar and composition to build a solid foundation.

431-2. The Modern Drama. Cr. 3. I and II.
Prerequisite: French 331-2 or its equivalent. The drama from 1636 to 1900. Offered in alternate years; not offered in 1945-46.

433-4. The Literature of the Nineteenth Century. Cr. 3. I and II.
Prerequisite: French 331 or its equivalent. A study of the prose and poetry of the nineteenth centry, exclusive of the drama. Offered in alternate years; offered in 1945-46.

435-6. Readings in French Literature. Cr. 3.
Formerly French 531-2. Prerequisite: French 331-2 or the equivalent. Directed study with individual conferences and written reports to enable students majoring in French to investigate those periods of French literature not treated in other courses. Required of students majoring in French.

GERMAN

131-2. A Beginning Course in German. Cr. 3. I and II.
Grammar, reading, and oral practice.

231-2. A Reading Course in German. Cr. 3. I and II.
Prerequisite: German 131-2, or two units of high school German or the equivalent. Reading of standard literary texts. Grammar review with oral and written practice.

233-4. Scientific German. Cr. 3. I and II.
Prerequisite: German 131-2, or two units of high school German or the equivalent. The reading of specially prepared scientific texts in German with grammar review to assist in the interpretations. For pre-medical and science students in general.

331-2. A Rapid Reading Course in German. Cr. 3. I and II.
Prerequisite: German 131-2 and 231-2 or 233-4, or the equivalent.

GREEK

131-2. A Beginning Course in Greek. Cr. 3. I and II.
Forms, word formation, the fundamentals of syntax, and easy reading.

LATIN

A student credited with four admission units in Latin should take Latin 331-2. Such a student on completing the work of 331-2 with an average of B, will be given degree credit for four semester hours in addition to the value of Latin 331-2, in case the total number of his admission credits is at least sixteen; for two semester hours, if the total is fifteen and a half.

Students taking Latin 133 may, by special arrangement with the department, use this course in partially satisfying the degree requirequirements in foreign languages.

131-2. A Beginning Course in Latin. Cr. 3. I and II.
Forms, word formation, the fundamentals of syntax, and easy reading. Especially recommended for students preparing for law or medicine, as well as those electing Latin for degree requirements.

133. Latin Terminology. Cr. 3. I.
Practical Latin especially for students majoring in scientific or professional courses who have had no Latin. The minimum essentials of Latin grammar; emphasis on word analysis by study of root words, prefixes, and suffixes. Word lists, charts, and myths relating to special subjects.

231-2. Reading and Composition. Cr. 3. I and II.
Prerequisite: Latin 131-2 or two units of high school Latin. Selections from Caesar, Cicero, and Virgil. A review of Latin grammar; informal instruction in mythology and antiquities.

331-2. Virgil's *Aeneid,* Introduction to Horace, Cicero's *De Senectute,* The *Phormio* of Terence. Cr. 3. I and II.
Formerly Latin 233-4. Prerequisite: Latin 231-2 or four units of high school Latin.

431-2. Senior Reading. Cr. 3. I and II.
Formerly Latin 331-2. Prerequisite: Latin 331-2. Medieval Latin. A survey of Ovid's works with emphasis on the **Metamorphosis.** Offered in alternate years: offered in 1945-46.

433-4. Advanced Reading. Cr. 3. I and II.
Formerly Latin 333-4. Prerequisite to be determined by the instructor. Offered at intervals, when demand justifies.

PORTUGUESE

131-2. A Beginning Course in Portuguese. Cr. 3. I and II.
Grammar, reading, and oral practice.

231-2. Portuguese Grammar, Reading, Composition, and Conversation. Cr. 3. I and II.
Prerequisite: Portuguese 131-2. Grammar, reading, composition and conversation, taught by reference to the history, geography, culture and economic conditions of Portuguese-speaking countries with special references to Brazil.

SPANISH

131-2. A Beginning Course in Spanish. Cr. 3. I and II.
Grammar, reading, and conversation.

231-2. Grammar, Reading, Composition, and Conversation. Cr. 3. I and II.
Prerequisite: Spanish 131-2, or two units of high school Spanish.

331-2. Contemporary Literature. Cr. 3. I and II.
Prerequisite: Spanish 231-2, or three or four units of high school Spanish. Spanish literature from the beginning of the Romantic movement to the present. Reading of representative novels, dramas, and lyrics. Collateral readings and composition based on readings. Conducted chiefly in Spanish. Spanish 331-2 and Spanish 333-4 may not both be counted toward a degree.

333-4. Introduction to Latin-American Life and Literature. Cr. 3. I and II.
Prerequisite: Spanish 231-2, or three or four units of high school Spanish. The history, geography, literature, customs, and economic conditions of Spanish-American countries. Conducted in Spanish. Spanish 331-2 and Spanish 333-4 may not both be counted toward a degree.

431-2. The Modern Novel. Cr. 3. I and II.
Prerequisite: Spanish 331-2 or its equivalent. Certain nineteenth century novels representing the various tendencies and regions. Lectures. Written reports. Conducted chiefly in Spanish. Offered in alternate years; not offered in 1945-46.

433-4. The Modern Drama. Cr. 3. I and II.
Prerequisite: Spanish 331-2 or its equivalent. The drama from the Romantic movement to the present. Conducted chiefly in Spanish. Offered in alternate years; offered in 1945-46.

435. Teachers' Course in Methods of Teaching Spanish. Cr. 3. S.
Prerequisite: Spanish 331-2 and six semester hours of education. Preparation for teaching Spanish in high school. Scientific and practical methods with as much practice work as possible. Required of those preparing to teach Spanish.

436-7. Advanced Grammar, Composition, and Style. Cr. 3. S.
Prerequisite: Spanish 331-2, or its equivalent. Recommended for those who intend to teach Spanish.

438. The Drama before Lope de Vega. Cr. 3.
Prerequisite: Spanish 331-2 or the equivalent. The development of drama in Spain from medieval times to Lope; emphasis on the immediate predecessors of Lope. Offered at intervals, when demand justifies.

4310-11. Spanish Civilization. Cr. 3. S.
Prerequisite: Spanish 331-2 or the equivalent. An outline study of the various phases of Hispanic civilization: history, arts, language, literature. Offered at intervals, when demand justifies.

4312-13. The Prose of the Golden Age. Cr. 3. I and II.
Formerly Spanish 531-2. Prerequisite: Spanish 331-2. The important prose writers from 1499 to 1650. Reading of representative works, lectures, collateral reading, and reports. Conducted chiefly in Spanish. Offered in alternate years; not offered in 1945-46.

4314-15. The Drama of the Golden Age. Cr. 3. I and II.
Formerly Spanish 533-4. Prerequisite: Spanish 331-2 or its equivalent. The drama of the seventeenth century. Reading of representative plays, lectures, discussion, collateral reading and reports. Conducted chiefly in Spanish. Offered in alternate years, offered in 1945-46.

4316-17. A Survey of Spanish Literature. Cr. 3. I and II.
Formerly Spanish 535-6. Prerequisite: Spanish 331-2. The history of Spanish literature from the twelfth to the nineteenth century. Emphasis upon the principal movements and the works of outstanding writers. Readings, lectures, and written reports. Conducted chiefly in Spanish. Especially recommended for students who expect to teach Spanish. Required of all candidates for the Master of Arts degree with Spanish major.

4318. Contemporary Drama. Cr. 3. S.
Formerly Spanish 537. Prerequisite: Spanish 331-2 or the equivalent. Intensive study of some representative dramas of living authors and rapid reading of others. Written reports. Offered at intervals, when demand justifies.

4320. Contemporary Spanish Novel. Cr. 3.
Formerly Spanish 539. Prerequisite: Spanish 331-2 or the equivalent. Intensive study of some representative novels of living authors and rapid reading of others. Written reports. Offered at intervals, when demand justifies.

4324. Readings in Latin-American Literature. Cr. 3.
Prerequisite: Spanish 333-4 or its equivalent. Lectures, collateral readings, reports. Conducted mainly in Spanish. Offered at intervals, when demand justifies.

4325. Readings in Latin-American Literature. Cr. 3.
Prerequisite: Spanish 333-4 or its equivalent. Lectures collateral readings, reports. Conducted mainly in Spanish. Offered at intervals, when demand justifies.

5312-13. Studies in Spanish and Spanish-American Literature. Cr. 3-6.
Formerly Spanish 5310-11. Prerequisite: The consent of the head of the department. The nature and content of this course will vary to meet the needs of the individual student. Credit given as often as course is repeated.

Courses which may be used for graduate credit:

601. Thesis.

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: Spanish 431-2, 433-4, 435, 436-7, 438, 4310-11, 4312-13, 4314-15, 4316-17, 4318, 4320, 4324-25; French 431-2, 433-4, 435-6, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Geology

PROFESSORS PATTON, VISITING PROFESSOR TOLMACHOFF.
ASSOCIATE PROFESSORS GLOCK, ROBINSON, SIDWELL.
INSTRUCTOR LANGSTON

131-2. General Geology. Cr. 3, (3-2). I and II.
Physical and historical geology. Present day geologic processes followed by applications for these principles to the interpretation of the geologic record. A foundation course for further work in geology. May also serve for cultural purposes.

231. Mineralogy. Cr. 3, (1-6). I, II.
Prerequisite or parallel: Geol. 131-2, Chem. 131-2. Principles of crystallography; methods of identification of minerals; blowpipe analysis; occurrence and properties of minerals.

233. General Geology for Engineers. Cr. 3, (2-3). I.
Similar to Geol. 131-2 but a shorter course adapted to the special needs of engineering students other than petroleum engineering students; especially for students in civil engineering.

234. Elementary Structural Geology: Structures of the Earth's Crust. Cr. 3. II.
Prerequisite: Geol. 131-2, 231. A classification and description of surface and near surface structures, especially those of sedimentary and igneous rock.

312. Silver Prospecting. Cr. I. II.
The characteristics features of silver veins with special reference to their identification in the field. A study of field laboratory methods of determining silver minerals and estimating the worth of the ore is included. Offered in alternate years; not offered in 1947-48.

314. Gold Prospecting. Cr. I. II.
The occurence and association of gold ores with a statement of field methods used in the search for gold. A study of laboratory methods which may be adapted to field conditions and used in determining gold bearing rock and its value is included. Offered in alternate years. offered in 1947-48.

333-4. Petrography and Petrology. Cr. 3, (1-6). I and II.
Prerequisite: Geol. 131-2, 231. Study and classification of rocks without the use of the microscope. Methods of optical mineralogy in identifying rock-forming minerals by means of the petrographic microscope. Study and identification, by use of the petrographic microscope, of the mineral grains commonly occuring in sediments. Study of rocks in thin section under the microscope; methods of quantitative mineralogical classification of rocks.

335-6. General Paleontology. Cr. 3, (2-3). I and II.
Prerequisite: Geol. 131-2, junior standing. The detailed structure, basis of classification and geologic history of the various groups of invertebrates. The vertebrates and plants studied similarly but less comprehensively.

337. Determinative Mineralogy. Cr. 3. (0-9). II.
Prerequisite: Geol. 231, Chem. 131-2. The recognition of many mineral species by simple physical tests and a detailed examination of a few rare minerals using accurate physical and blowpipe analysis methods.

363. Field Geology. Cr. 6. S
Prerequisite: Geol. 131-2. Principles of stratigraphy, structural geology, and methods of geological surveys. Given in the field. For further details, see special announcements of the Department of Geology. Required of all majors in the department.

411-2. Geology of Texas. Cr. 1. I and II.
Prerequisite: Twelve semester hours in geology. Physical and historical geology of Texas.

413-4. Seminar. Cr. 1. I and II.
Prerequisite: Junior or senior standing. Assigned readings, reports, and discussions of current geological problems.

431. Geomorphic and Dynamic Geology. Cr. 3, (2-3). I.
A study and analysis of land forms and of the processes responsible for them.

432. Stratigraphic and Historical Geology. Cr. 3, (2-3). II.
Evolution of the North American Continent with emphasis on stratigraphy and life succession.

433. Structural Geology. Cr. 3. I.
Prerequisite: Geol. 333-4, 335-6. Deformation and structure of rocks with special emphasis on the relation of these to economic problems.

434. Petroleum Geology. Cr. 3. II.
Prerequisite: Geol. 433. Problems of the origin and accumulation of oil deposits; assembling and interpretation of data bearing on problems peculiar to certain fields. For students expecting to engage in the exploration and development of oil fields.

435. Index Fossils. Cr. 3, (1-6). I.
Prerequisite: Geol. 335-6. The stratigraphy and different horizon markers of the different systems with practice in making and identifying field collections.

436. Micropaleontology. Cr. 3, (1-6). II.
Prerequisite: Geol. 335-6. Foraminifera and other microfossils of the oil bearing strata of Texas; methods of collection and preparation.

*437-8. Sedimentation. Cr. 3. I and II.
Prerequisite: 24 semester hours in geology, including Geol. 333-4. Advanced investigation. The processes and results of sedimentation; analytic laboratory work in sediments. Special attention to subsurface methods. Occasional laboratory exercises substituted for lectures.

4310-11. Vertebrate Paleontology. Cr. 3. I and II.
Prerequisite: 12 hours of geology or 12 hours of geology and anthropology. History of the vertebrates with special emphasis upon (a) the early reptiles; (b) the mammals; (c) the relationship of vertebrate history to earth history as a whole.

4312-13. Sedimentation for Petroleum Engineers. Cr. 3. I and II.
Prerequisite: Senior standing in Petroleum Engineering. Study of sedimentation as applied to problems of petroleum engineering.

511-2. Research Methods. Cr. 1. I, II.
Prerequisite: Graduate standing in geology and consent of head of the department. Methods of outline and attack; reconnaissance of the problem; main objective; tangential objectives; nature of evidence; states of knowledge; permissable conclusions. The preparations of effective reports and the technique of publication. Analysis of selected scientific articles. Practical experience with chosen problems.

531-2. Advanced Sedimentation. Cr. 3. I and II.
Prerequisite: Graduate standing in geology and consent of head of the department. Individual investigation to determine the characteristics of sediments in the different environments; emphasis on relation of disastrophism and climate on origin of sediments. Offered in alternate years. Offered in 1947-48.

*Geology 437-8 may be substituted for 435 and 436 with permission of head of department.

533-4. Structure of Oil and Gas Reservoirs. Cr. 3. I and II.
Prerequisite: Graduate standing 'n geology and consent of head of the department. One hour conference each week and six hours of library work. Detailed examination of the form and cause of selected productive structures. With the facts derived from published reports of field studies, the student will be encouraged to set up many hypotheses and to select those of greatest value. Offered in alternate years; not offered in 1947-48.

535-6. Advanced Work in Specific Fields. Cr. 3-6. I, II.
Prerequisite: Graduate standing in geology and consent of head of the department. Course and credit depend upon preparation and need of the student and the work done. Each course taken under these numbers will regularly carry a sub-title describing the course.

5311. Paleoclimatology. Cr. 3. I.
Prerequisite: Graduate standing in geology and consent of head of the department. Distribution of climate on the earth. The evidences of climate in land forms, sediments, plants, and animals. Application to geologic history. Offered in alternatte years; offered in 1946-47. Not offered in 1947-48.

5312. Paleoecology. Cr. 3. II.
Prerequisite: Graduate standing in geology and consent of head of the department. A treatment of the fundamental factors of climate, physiography, soils, and ocean currents. A consideration of plant distribution and resume of geologic history of land plants. Especial emphasis on tree growth and ecologic factors controlling it; tree rings, tree growth, chronology, and climate. Offered in alternate years; offered in 1946-47. Not offered in 1947-48.

5313-14. Stratigraphy of the United States. Cr. 3. I and II.
Prerequisite: Graduate standing in geology and consent of head of the department. A survey of formations of economic importance in the United States with study of the principles of correlation and their application. Offered in alternate years. Not offered in 1947-48.

5315. Principles of Paleoecology. Cr. 3. I.
The factors of climate, physiography, soils, and ocean currents. Especial emphasis on tree growth and forest distribution in relation to ecologic factors and geologic history.

5316. Research in Paleoecology, Paleoclimatology, or Tree Rings. Cr. 3. II.
Investigation of individual problems such as the effect of climate, or other factors, on land forms, sediments, plants, and animals. Emphasis upon tree rings, tree growth, chronology, and climate. If the problem merits further work, it may be continued under Geol. 535.

601. Thesis.

GEOGRAPHY

231-2. Principles of Geography. Cr. 3. I, II.
Geographic factors especially as they affect the activities of man. Special emphasis upon relief, climate industries, communication, and political conditions. Fulfills a social science requirement. Not accepted in fulfillment of science requirements. Accepted in fulfillment of social science requirements.

Department of Government

PROFESSORS DAVIS, JACKSON. INSTRUCTORS KENNEDY, MACK, McDONALD. PART-TIME INSTRUCTORS BASS, BRUMMETT, DENTON, ELLIS.

131. American Government, National. Cr. 3. I, II.
A fundamental course. The constitution, principles, organizations, and actual working of the national government. Emphasis upon the duties and obligations of citizenship.

132. American Government, State. Cr. 3. I, II.
The constitution and framework of the government of Texas; comparison with other state governments.

230. American Government, Organization. Cr. 3. I, II.
A study of the constitutions and organization of the governments of the United States and the states in general, with special emphasis on the government of Texas. Emphasis upon fundamental principles of these governments: citizenship, its rights and obligations; the relationships between national and state governments; and the relation of citizens to their governments. Required of students whose divisions require only three hours of government.

231. American Government, Functions. Cr. 3. I, II.
A study of the functions and services of the governments of the United States and the states in general, with special emphasis on the government of Texas. This course will follow the work given in the first semester and will be taken by students who take six hours in Government.

232. Modern Government. Cr. 3. II.
Prerequisite: Sophomore standing. A comparative study and analysis of the constitutional organization of the governments of England, France, Switzerland, Germany, Russia, and other states to be selected.

315-6. Contemporary Problems. Cr. 1. I and II.
Prerequisite: Junior classification. Given in conjunction with 325-6 at times to permit students to earn three hours credit.

325-6. Contemporary Problems. Cr. 2.
Prerequisite: Six semester hours in American Government. A lecture course in the modern trends of government, dealing with the solution of the current problems of the individual and society through governmental processes.

330. Advanced American State Government. Cr. 3.
Prerequisite: Six semester hours in American Government. National-state relations, trends and problems; old and new relationships among the states; problems and trends in revising and amending constitutions; problems of the legislature, legislative and councils, direct legislation; state revenues, expenditures, debts and surpluses: state judicial systems.

331. Local Government. Cr. 3.
Prerequisite: Six semester hours in American Government. The machinery of city and county government; the forms—both new and old—of municipal government; interdepartmental relations and the relation of local government to state.

332. Local Administration. Cr. 3.
Prerequisite: Six semester hours in American Government. The chief problems of present day local administration; special stress placed upon administration of Texas cities and counties.

333. American Political Parties, Party Development. Cr. 3.
Prerequisite: Six semester hours in American Government. The origin and development of political parties in the United States.

334. American Political Parties, Party Analysis. Cr. 3.
Prerequisite: Six semester hours in American Government. Party functions, organization, finance, campaign methods and elections.

335. American Foreign Relations. Cr. 3.
Prerequisite: Six semester hours in American Government. The control and conduct of the relations of the United States with the outside world.

336. American Diplomacy. Cr. 3.
Prerequisite: Six semester hours in American Government. Foreign policies of the United States. Topical treatment.

337. Public Administration, Organization. Cr. 3.
Prerequisite: Six semester hours in American Government. Principles of administrative organization; structure of all units of government; powers, duties and responsibilities of officers; administrative reorganization.

338. Public Administration, Procedure. Cr. 3.
Prerequisite: Six semester hours in American Government. Problems of national state, and local units of government, including cost of government, budgeting, accounting and reporting, purchase and supply, personnel, promotion and demotion, removal and retirement.

3311. Political Institutions. Cr. 3.
Formerly 231. Prerequisite: Six semester hours in American Government. The origin, development, and functions of political institutions in connection with consideration of political theories.

3312. Government and Labor. Cr. 3. I, II, S.
Prerequisite: Six semester hours in American Government. The role of government in the field of labor. Legislative, administrative and judicial policies relating to labor problems and labor management disputes.

431-2. American Constitutional Law. Cr. 3. I and II.
Prerequisite: Six semester hours in American Government or American History. Interpretation of the Constitution of the United States based principally upon Supreme Court decisions. The leading cases in American constitutional law analyzed.

433. European Political Ideas. Cr. 3.
Prerequisite: Six semester hours in American Government. A study of the political ideas expressed by the greatest thinkers from ancient time to the present, with emphasis upon reading from the classics.

434. American Political Ideas. Cr. 3.
Prerequisite: Six semester hours in American Government. The lives and ideas of leading political thinkers of the United States from the colonial period to the present.

435-6. International Law. Cr. 3.
Prerequisite: Six semester hours in American Government or in history. The fundamental principles of international law with special emphasis upon American interpretations and American contributions to the growth of the law.

437. Political Geography. Cr. 3. I.
Prerequisite: Six semester hours in American Government or American History. Geographic factors in political problems and in the development of political institutions; the main problems of politics in their relation to world geography.

438. World Politics. Cr. 3. II.
Prerequisite: Six semester hours in American Government or in history. Problems and issue which have arisen in the family of nations; organizations and efforts to cope with these problems; the principles of international conduct.

531. Seminar.
Prerequisite: Senior or graduate standing. For individual student needs. Readings, research, reports and discussions in particular assigned fields. May be repeated in different fields of study.

532. Reading and Research.
Prerequisite: Graduate standing. For individual student needs. The number of semester hours credit determined by the amount, nature, and character of work done. May be repeated in different fields of study.

535. The Technique of Research. Cr. 3.
Prerequisite: Graduate standing. Bibliography, sources, methods of gathering material, evaluation, elimination, assimilation, organization, and composition. Lectures, projects, and readings.

601. Thesis.

Courses which may be used for graduate credit:
In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 325, 326, 330, 331, 332, 333, 334, 335, 336, 337, 338, 3311, 3312, 431, 432, 433, 434, 435, 436, 437, 438, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of History and Anthropology

PROFESSORS HOLDEN, EAVES, KINCHEN, McKAY. ASSOCIATE PROFESSOR WALLACE. INSTRUCTOR PEARCE. LECTURER KAMMERDIENER.*

HISTORY

131-2. History of Civilization, Cr. 3. Each, I and II.
The rise of civilization in Egypt, Babylonia, and Crete; its expansion to Western Europe, through Greece and Rome; ancient religions and the beginning of Christianity; the medieval church; feudalism; the crusades; the Renaissance; the Protestant revolt; the rise of the modern state; the industrial revolution; the World War. First semester, prior to 1350 A. D., second semester, since 1350 A. D.

133-4. Economic and Political History of England. Cr. 3. Each, I and II.
The economic, legal, and cultural development of the English people. Open to all students but required for pre-law majors. First semester, prior to 1603; second semester, since 1603.

231-2. Economic and Political History of the United States. Cr. 3. Each, I and II.
Prerequisite: For pre-law and English majors, 133-4; for history majors, either 131-2 or 133-4. Discovery, colonization, colonial institutions, the Revolution, the Confederation, the Constitution, growth of nationalism; slavery, expansion, sectionalism; Civil War, Reconstruction, new industrial and social problems, domestic and foreign problems of modern America. First semester, to 1865; second semester, 1865 to the present.

330. Teaching History in High Schools. Cr. 3. S.
Prerequisite: 12 semester hours in history. Modern technique of teaching history in junior and senior high schools. Credited as either history or education. Offered in alternate summers.

331-2. History of Europe Through the Renaissance. Cr. 3. I and II.
Prerequisite: Hist. 131-2 and junior standing. Greek civilization, Roman civilization, and the Renaissance; the background of modern European civilization.

* On leave 1946-47.

333-4. Modern Europe, 1492-1870. Cr. 3. I and II.
The Reformation; the development of nationalism and enlightened despotism; the French Revolution and Napoleon; the Metternich system and the Revolution years of 1830 and 1848; the unification of Italy and the unification of Germany.

336-7. Tudor and Stuart England. Cr. 3. I and II.
The establishment of a strong monarchy; the break with the Roman church; the rise of English sea power; the contest between king and Parliament; civil war; the Commonwealth and the Restoration; supremacy of Parliament and England's early colonial policies.

338-9. Eighteenth and Nineteenth Century England. Cr. 3. I and II.
The rise of the cabinet; the fight for colonial supremacy; Whig versus Tory; the industrial revolution; the Napoleonic contest; the reformers in agriculture; the Irish question; the development of the British Commonwealth of Nations.

3311. The Canadian Dominion. Cr. 3. S.
A study of the evolution of the Dominion of Canada, from early beginnings to present times, and the relationship of Canada to the other autonomous states within the British Empire. Offered in alternate summers.

3313-14. Contemporary Europe, 1870-1936. Cr. 3. I and II.
International, nationalistic, and imperialistic trends in Great Britain, Germany, France, Russia, and Italy; the World War, its aftermath, and present-day Europe. Offered in alternate years.

3315. Japan and China. Cr. 3. II, S.
The social, economic, and political background for Japan's imperialistic policy toward China. Offered in alternate summers.

3316. British Empire. Cr. 3. II, S.
A study of the evolution of the British Empire, and its recent transformation in the present Commonwealth of British Nations. Special attention will be given to Canada and its relations with other autonomous states within the Empire.

3317. The Contemporary European War. Cr. 3. S.
The social, economic, and political background of the war of 1939, and its important developments. Offered in alternate summers.

3319. Twentieth Century Britain. Cr. 3. S.
Prerequisite: Twelve semester hours of history, junior classification. The leading developments in Great Britain and Ireland since 1900. Special attention given to political and social reform, education, and the labor movement. Offered in alternate summers.

430. English Colonial America. Cr. 3. S.
English explorations and early efforts at settlement; colonial beginnings in the South and in New England; the development of American institutions and culture; the rise of economic problems and distinct colonial institutions. Offered in alternate summers.

431-2. History of Latin America. Cr. 3. I and II.
Exploration, colonization, revolution, political development, social and economic problems, and Pan-American relations.

433-4. The American Revolution and Early Constitutional Development. Cr. 3. I and II.
The causes and progress of the American Revolution; French aid; the Loyalists; English sentiment; finances; the Peace Treaty of 1783; the Confederation; formation and adoption of th Constitution; governmental organization; adoption of the early amendments. Offered in alternate years.

435. Anglo-American Diplomacy. Cr. 3. S.
Formerly "History of American Diplomacy." Prerequisite: Twelve semester hours of history, junior classification. Diplomatic relations of the United States with the British Empire from independence to the present time. Offered in alternate summers.

436-7. History of the United States, 1789-1837. Cr. 3. I and II.
The federalist and republican periods; second war with Great Britain; the rise of nationalism and the Jacksonian era. Offered in alternate years.

438-9. History of Texas. Cr. 3. I and II.
Exploration, colonization, revolution, the republic, statehood, expansion of the frontier across West Texas, and modern social and economic problems. Offered in alternate years.

4310. Expansion of the United States. Cr. 3. S.
A detailed study of the Peace Treaty of 1783; the purchase of Louisiana; acquisition of Florida; annexation of Texas; the Oregon controversy; the Mexican cession; the Gadsden Treaty; the purchase of Alaska; the acquisition of our insular possessions. Offered in alternate summers.

4311-12. The Civil War and Reconstruction. Cr. 3. I and II.
Economic, political, and social history of slavery in the United States; the old South; secession; the economic problems of the Civil War; the South after the war; reconstruction policies; radical rule and its overthrow; the disputed presidential election of 1876-77. Offered in alternate years.

4313-14. The United States Since the Civil War. Cr. 3. I and II.
Economic and social adjustments after the Civil War the increase in manufacturing and creation of new industries; big business; tariff; Spanish-American War; Progressivism; the World War. Offered in alternate years.

4315. Constitutional Development in Texas . Cr. 3. S.
Constitution of the Republic of Texas; early statehood; the Civil War decade; formation and adoption of the Constitution of 1876; amendments and present tendencies. Offered in alternate summers.

4316-17. The United States Since the World War. Cr. 3. I and II.
Post-war readjustments; return of the Republicans; economic policies, agriculture; life in the 1920's; the New Deal and its record; life in the 1930's. Offered in alternate years.

4319. Latin American Diplomacy. Cr. 3. II.
Prerequisite; Twelve semester hours in history, junior classification. Diplomatic relations of the United States with Latin-American nations from their independence to the present time. Offered in alternate summers.

4320. Social History of Texas, 1821-1860. Cr. 3. S.
Prerequisite: Hist. 131-2 and Hist. 231-2. Amusements, architecture, religion, transportation, immigration, journalism, dueling, temperance and literature of the colonial period, the republic and early statehood. Given in alternate summers.

4321. Recent History of Texas. Cr. 3. S.
Prerequisite: Twelve semester hours in history, junior classification. The economic, social and political history of Texas since 1900. The settlement of Western and Southern Texas; political trends; development of industry and transportation; the economic depression, relief, and security; education and agencies for social progress; recent political development.

530. Seminar in History. Cr. 3. I, II, S.
Prerequisite: Graduate standing. Credit given as often as the course is repeated.

535. The Technique of Research. Cr. 3. I, S.
Prerequisite: Graduate standing. Bibliography, sources, methods of gathering material, evaluation, elimination, assimilation, organization, and composition. Lectures, projects, and readings. Required of graduate students majoring in history.

601. Thesis.

ANTHROPOLOGY

331-2. Anthropology. Cr. 3. I and II.
Prerequisite: Hist. 131-2 and junior standing. Development of man from his orgin; races; special reference to pre-historic races of North and Central America.

334-5. The American Indian. Cr. 3. I and II.
Formerly Anthro. 334. Prerequisite; Hist. 131-2. Customs, institutions, and contributions of the native races of America; their relations with the Anglo-Americans historically traced.

336-7. Mexican Archaeology. Cr. 3. S.
Prerequisite: Permission of the instructor. A field course in Old Mexico. Lectures, reading, research, excavation, and visits to archaeological ruins in the vicinity of Mexico City.

431-2. Field and Museum Technique. Cr. 3. I and II.
Prerequisite: Permission of the instructor.

433-4. Southwestern Archaeology. Cr. 3. S.
Prerequisite: Permission of the instructor. A field course. Lectures, research, and excavation.

531-2. Seminar in Anthropology. Cr. 3. I and II.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: Hist. 331-2, 333-4, 336-7, 338-9, 3311, 3313-14, 3315, 3316, 3317, 3319, 430, 431-2, 433-4, 435, 436-7, 438-9, 4310, 4311-12, 4313-14, 4315, 4316-17, 4319, 4320, 4321; Anthro 334-5, 336-7, 431-2, 433-4, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Home Economics Education

PROFESSOR JOHNSON. ASSOCIATE PROFESSORS CLEWELL, GRAVES. ASSISTANT PROFESSOR NESBITT. INSTRUCTOR DUKE*

111. Orientation for Home Economics Students. Cr. 1. I, II.
The basic course for all future courses in the Division of Home Economics. The units offered include: (a) the relationship of the student with her college; (b) the development of right habits of study; (c) student budgets of time and money; (d) fundamental vocational guidance and counseling. Required of all freshman home economics students.

331. Principles of Teaching Home Economics. Cr. 3. I, II.
Prerequisite: Junior standing in H. E. and Education 234 or parallel. An introduction to teaching Home Economics; professional development; principles of learning; methods and techniques in preparation of various types of lessons; collection and organization of teaching materials; the enriched program and its relation to the community. Opportunities to visit selected home economics classes.

332. Methods of Teaching Home Care of the Sick and Home Safety. Cr. 3. S.
Prerequisite: Junior standing, H. E. Ed. 331. Formerly Home Management 323. Designed to help teachers meet the need for units in home care of the sick, home safety and common home health emergencies.

411. Home Economics Lectures. Cr. 1. II.
Prerequisite: Senior standing in home economics. Reports and discussions on assigned topics based on recent literature and research. Occupational guidance. Aspects of professional improvement.

412. Supervised Observation in Home Economics. Cr. 1. I, II.
Prerequisite: 90 hours in home economics curricula. Guided observation of high school teaching as a basis for understanding the application of educational principles to homemaking instruction. Observation and evaluation of methods used in classroom teaching.

431. Methods of Teaching Home Economics. Cr. 3. I, II.
Prerequisite: Ed. 234, H. E. Education 331, senior standing. Philosophy of homemaking education; homemaking education provided by the National Vocational Acts; the vocational homemaking program in Texas; current influences and needs; the relation to the entire school program and community; home experiences; summer program. Equipment, arrangement, business management, records and reports. Evaluation. Visiting of selected types of home economics classes.

432. Problems in Teaching Clothing. Cr. 3. II.
Prerequisite or parallel: H. E. Ed. 431; Cloth. 334 or 431; senior standing. Methods used in teaching clothing. Demonstrations and projects. Preparation of illustrative material, scales, exhibits.

434. Methods of Teaching Art in the Homemaking Curriculum. Cr. 3. S.
Prerequisite: H. E. Ed. 431. Methods of incorporating the teaching and application of art into the high school homemaking program.

435. Methods for Adult Leadership. Cr. 3. II.
Prerequisite: Senior standing; H. E. Ed. 331, 431. A survey of community programs for home and family life education. A study of the promotion and organization of programs in homemaking for adults and out-of-school groups. Emphasis on techniques and problems with observation and participation in typical programs.

441. Student Teaching in Home Economics. Cr. 4, (1-9). I, II.
Prerequisite: H. E. Ed. 431; Nutrition 334; Cloth. 232. Supervised observation and teaching in the local public high school, together with supervised observation and participation of other phases of the vocational homemaking, programs.

532. The Development of the Homemaking Program. Cr. 3. S, II.
Prerequisite: Graduate standing. Philosophy and development of the home economics movement; the curriculum; major trends in the field; evaluation and use of home economics literature; administrative problems involved in developing the program.

534. Techniques of Research. Cr. 3. I, II.
Prerequisite: Graduate standing and consent of the head of the department. Registration in this course enables the graduate student to carry on such research as will qualify for a required Master's thesis.

* On Leave 1946-47.

536. Problems. Cr. 3. S.
Prerequisite: Graduate standing: H. E. Ed. 431 and H. E. Ed. 441. Study and discussion of problems in the field of special interest to the individual student and class. The content will vary with the needs and interests of the group.

537. Techniques of Supervision. Cr. 3. S.
Prerequisite: Graduate standing. Responsibilities and techniques of supervision. With special reference to democratic procedures in an educational program. This course is designed for teachers with successful experience in the field of home economics who are preparing for the responsibilities of various types of supervision. Field contacts with various types of programs.
Objectives, techniques, and organization of supervised teaching programs and of State supervision.

601. Thesis.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 432, 434, 435, 441, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 400 series, which otherwise carry no graduate credit.

Department of Home Management

PROFESSOR WEEKS. ASSISTANT PROFESSOR DREW.

332. Home Management. Cr. 3. I, II.
Prerequisite: Junior or senior standing in home economics. Organization of household activities to save time and energy; management of family finances, budgets, and accounts; the philosophy of home making.

422. House Care and Management. Cr. 2, (1-3). I, II.
Prerequisite: H. Mgt. 332. Parallel: H. Mgt. 432. Problems relating to the physical care of the house, including cleaning, laundry, storage, home safety, operation and maintenance.

432. Residence in Home Management House. Cr. 3. I, II.
Prerequisite: H. Mgt. 332, twelve hours in Dept. of Foods and Nutrition. Parallel: H. Mgt. 422. Living in Home Management House for six weeks under supervision. Food preparation and service, housekeeping, household finances, hospitality, and group relationship studied and put into practice. Students pay a fixed sum for room and board.

433. Housing and Household Equipment. Cr. 3, (2-3). II.
Prerequisite: Home Mgt. 332 and senior standing. A study of housing conditions as they affect health, social life, and financial status of the family; community organization promoting better living. Selection, operation, and care of equipment. Various household problems.

434. Consumer Problems. Cr. 3. II.
Prerequisite: Three to six semester hours in economics, senior standing. A survey of the forces which today affect consumer choices. Development of practical principles for better buying and use of household commodities. Evaluation of agencies concerned with this movement. Recent finding in consumer income and consumer purchasing studies applied to every day living.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 433, 434, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Industrial Engineering and Engineering Drawing

PROFESSOR ST. CLAIR. ASSOCIATE PROFESSORS PERRYMAN, PENICK. ASSISTANT PROFESSOR ATKINSON. INSTRUCTOR JENKINS.

INDUSTRIAL ENGINEERING

316. Personnel Administration. Cr. 1. I.
Prerequisite: Junior standing: Relation of capital and labor; relation of various departments of an industrial organization; relation of foreman, workmen, planning division.

331. Time and Motion Study. Cr. 3, (2-3). II.
Prerequisite: Junior standing or permission of head of department. Methods of taking and analyzing time and motion studies; setting of standard times; calculation of wage incentives; analysis of studies of representative processes. Technique of stop watch studies—allowances—fatigue—problems.

332. Management—Production Planning and Control. Cr. 3. I, II.
Prerequisite: Junior standing. Basic principles of management. Standard methods of planning, scheduling, and controlling processes in modern industrial plants. Machine capacity analysis. Typical production problems.

333. Manufacturing Methods. Cr. 3. I.
Prerequisite: Junior standing in Engineering. Methods of manufarture used in various industries such as paper, Portland cement, steel and iron, sulphur, automobiles, airplanes, petroleum, meat packing, etc. Study of types of machines, character of buildings. Brief history of each industry up to most modern methods, also nature of working conditions, hazards, annual value of product. Centers of each industry.

336. Tool Design. Cr. 3, (1-6). II.
Prerequisite: Junior standing in Engineering and at least parallel registration in C. E. 333, and 7 hours credit in Engineering Drawing. Study of types and characteristics of tools best suited for work in different metals. Speeds most satisfactory for various metals—depth of cuts. Tools for various types of machines and jobs will be designed—jigs, fixtures, dies, gages, etc.

421-2. Chemical Plant Design. Cr. 2, (0-6). I and II.
Prerequisite: Engr. Dwg. 121. Concurrent with or following Chem. 431-2 and C. E. 333. Chemical engineering equipment and its arrangement in various types of chemical plants. Drawings, calculations, and sketches used to solve assigned problems in design of machinery and apparatus, selection and specification of equipment, and layout of chemical plants.

431. Purchasing and Industrial Engineering Problems. Cr. 3, (2-3). II.
Prerequisite: Senior standing in Engineering. General methods of purchasing; specifications; quotations; relation of price and quality; source of supply. Problems involving operating efficiencies and minimum production costs. Maintenance of industrial plants and equipments. Special industrial engineering problems.

432-3. Industrial Plant Design. Cr. 3, (1-6). I and II.
Prerequisite: Senior standing in industrial engineering. In the form of a seminar. A complete industrial plant will be designed, covering location, capacity, material routing, type of buildings, machinery, shipping, sanitary and safety working condition.

435. Industrial Safety Engineering. Cr. 3. II.
Prerequisite: Senior standing in Engineering, or experience in industry covering at least six months. History of safety movement especially as applied to industry. Cost of accidents; methods of teaching and enforcing safety; fundamentals of machine guarding; safety organization; accident rates; accident investigations and reports; protective equipment; fire protection; health hazards; first aid. Reports required from students on hazards.

436. Principles of Engineering Economics. Cr. 3. I.
Formerly 423. Prerequisite: Three hours principles or fundamentals of economics. Available means from which to judge the trend of business as indicated by government reports; planning economy studies to solve engineering problems; interest—the time element in economy techniques for economy studies; getting results from economy studies; problems in application of principles of engineering economy.

ENGINEERING DRAWING

111. Engineering Drawing. Cr. 1, (0-3). S.
This course is for students who have completed only two semester hours of engineering drawing in a junior college, or other college where the course content has been equivalent to only two semester hours of Engr. Drawing 131. Course content will cover those subjects ordinarily not covered in his previous work.

121. Engineering Drawing. Cr. 2, (0-6). I, II.
(Formerly 133) Prerequisite: Engr. Dwg. 131, or equivalent. Intersections, developments, dimensioning, slant lettering, oblique drawings, elementary working drawings.

131. Engineering Drawing. Cr. 3, (1-6). I, II.
(Formerly 132) The essentials of drafting, including freehand sketching, use of instruments, vertical lettering, engineering geometry, orthographic projection, sections, isometric drawing. In lecture, problems are given in solid geometry.

134-5. Graphic Arts. Cr. 3, (1-6). I and II.
The use of instruments, lettering, architectural geometry, geometry in design, orthographic projection, sections, auxiliary views, the meaning of "scale," dimensioning, elementary application of graphic arts, intersections, developments, mechanical pictorial methods, working drawings.

221. Machine Drawing. Cr. 2, (0-6). I, II.
Prerequisite: Engr. Dwg. 121, or the equivalent. The application of the graphic language to engineering purposes; engineering sketches, machine fastenings, conventional practice, machine details, detail and assembly drawings.

222. Descriptive Geometry. Cr. 2, (1-3). I, II.
Prerequisite: Engr. Dwg. 131, or the equivalent. Theory of engineering drawing which provides training in exact thinking. Point, line, and plane problems, tangent planes, intersections and developments, single and double curved surfaces, and warped surfaces; practical problems.

223. Agricultural Drawing. Cr. 2, (0-6). II.
Not open to freshmen. Orthographic projection, lettering, graphic charts, freehand sketching, and the reading of drawings related to agriculture and agricultural engineering.

322. Advanced Machine Drawing. Cr. 2, (0-6). I.
Prerequisite: Engr. Dwg. 221 and 222. Training in making drawing of more complicated machines than is given in the freshman and sophomore years. Practice in making mechanical drawing of a quality expected of a draftsman by industrial concerns.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: Ind. Engr. 333, 336, 421-2, 432-3, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Institutional Management

PROFESSOR CRADDOCK. ASSISTANT PROFESSOR WOOD.*

431. Catering. Cr. 3, (1-6). II.
Formerly Foods 431. Prerequisite: Junior or senior standing and completion of foods courses satisfactory to instructor. Consideration of food service to the public as a possible profession. Food preparation and service for special occasions.

432. Large Quantity Cookery. Cr. 3, (1-6). I.
Prerequisite: Foods 232 and junior standing. A study of menu making, preparation of food in large quantity cookery, and practical experience in food purchasing.

435. Organization and Administration. Cr. 3, (1-6). I.
Prerequisite: Foods 232 and Institutional Management 432. A study of organization and administrative problems such as time study, employer-employee relationship, budget making, and other factors leading to the establishment of standards for effective management of institutions.

Department of Journalism

PROFESSOR HORNE. ASSISTANT PROFESSOR SCHOOLEY. INSTRUCTOR WATSON.

131. Printing. Cr. 3. I.
Elementary hand composition, imposition, and study of good workmanship; technical terms employed in the printing industry; printing plant procedures.

132. Printing. Cr. 3. II.
Prerequisite: Journ. 131. Advanced composition and imposition; study of printing materials; cost-finding; shop management. Particular attention given problems involved in the operation of a weekly newspaper plant.

231-2. Newspaper Reporting and Writing. Cr. 3. I and II.
An introduction to journalism; the problems and methods of gathering and writing news. Practice assignments in class.

330. Typography. Cr. 3. I.
Mechanics of printing and publishing; choice of type and its arrangement; engravings; the assembling of engravings and type; the make-up of newspaper, magazine, and book pages; and the typography of advertisements. Harmonious relationship between type, paper, ink, and engravings. Plates and plate making, duplicating processes and presses.

331. Special Feature Articles. Cr. 3. I.
The feature article, with regard to field, subject material, appeal and purpose, type and style. Special emphasis to news features.

* On leave 1946-47.

332. Magazine Article Writing. Cr. 3.
Technique and procedure in writing for current magazines; what to write about; where and how to get facts and how to arrange them; preparation of the whole article; study of markets.

333. Problems of the Community Newspaper. Cr. 3. II.
Problems of the weekly and small daily newspaper; organization, sources of income and expenditure, advertising and circulation, news services, salaries and wages, unions, publishers' associations, and general business problems.

335. History of American Journalism. Cr. 3. I.
The origin and growth of the American newspaper from the colonial sheet to the metropolitan journal of today; biographical study of American journalists; individual study and research.

336-7. Advanced Reporting. Cr. 3, (1-6). I and II.
Consideration of news, news sources, news value, newspaper style, and the writing of various types of news stories. Assignments on the College newspaper and the **Avalanche-Journal** publications.

338-9. News Editing. Cr. 3. I and II.
A laboratory course in newspaper desk work, including copyreading, the writing of headlines, and make-up. Desk assignments on the **Toreador**, College newspaper, and Lubbock **Avalanche-Journal**. Copy of the various press associations will be available for class use.

3310. Home Economics Journalism. Cr. 3. I.
Prerequisite: Junior standing. Writing for and editing of home economics bulletins, magazines, trade publications, and women's pages. Designed to cover all phases of journalistic writing in the home economics field.

3311. Agricultural Journalism. Cr. 3. II.
Prerequisite: Junior standing. Designed for agricultural students interested in agricultural writing. Principles of news writing as applied to agriculture will be studied with practice in gathering material and writing news and feature stories for the daily, weekly, and agricultural press. The farm audience, farm problems, and special lectures on modern agriculture will be included.

3312. Basic Photography. Cr. 3, (1-6). I.
History of photography. Lecture and laboratory course covering the fundamentals of photographic processing, including developing, printing and enlargement. Introduction to news and feature pictures and the use of the press camera.

3313. Press Photography. Cr. 3, (1-6). II.
Varied assignments of picture coverage, stressing staff photography work. Lecture and laboratory course covering picture processing and technical training in the use of the press cameras.

3314. Advanced Press Photography. Cr. 3, (1-6). I.
Reportorial duties with the camera for newspaper and magazine publication. Study of picture markets and practice and study in picture editing. Prerequisite Jour. 3312 and Jour. 3313.

3315. Advanced Press Photography. Cr. 3, (1-6). II.
Advertising and layout studied in connection with photography. Editing news and feature pictures. Prerequisite nine hours of photography.

430. Principles of Journalism. Cr. 3. II.
Prerequisite: Senior standing in journalism. The freedom of the press, the ethics of magazine and newspaper publication, the relation of the press to society, and the law of libel.

431. Critical Writing. Cr. 3. I.
Journalistic criticism, including painting, music, plays and motion pictures, literature, and other forms of art. For students seeking general culture as well as for those preparing for newspaper department work. Offered in alternate years; offered in 1946-47.

432. High School Publications. Cr. 3. S.
Prerequisite: Senior standing in journalism. The problems confronted by a publications supervisor in organizing and maintaining high school newspapers and yearbooks, functions of high school publications, organization and training of the staff, and editorial and business problems.

434. Editorial Writing. Cr. 3. I.
Prerequisite: Senior standing in journalism. Theory and practice of editorial writing; the types of editorials; a study of contemporary editorials with analysis of style, content, and purpose; technique and much practice.

435-6. Advertising. Cr. 3. I and II.
Prerequisite: Journ. 330, six semester hours of economics. The principles of advertising and its relation to business activity. Research, campaigns, media, appropriations, rate structure, advertising services, records, copy. Layouts and the problems of typographical reproduction. (Candidates for the BBA degree may receive credit for 435 as an elective in commerce without the prerequisite.)

English 3315. The Contemporary Short Story.
(May be counted as a course in journalism. For description, see **Department of English.**)

Courses in this department which may be taken for graduate credit are: 331, 332, 430, 432, 434, 435-6, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Marketing and Secretarial Administration

ASSOCIATE PROFESSORS TERRELL, GOLDEN. ASSISTANT PROFESSOR LEIFESTE. INSTRUCTORS HENDERSON, MAUZEY, QUICKSALL, WILSON.

MARKETING

332. Principles of Marketing. Cr. 3. I, II.
Prerequisite: 60 semester hours including Eco. 231-2. Marketing structures and agencies. Types of middlemen and marketing institutions. Current marketing practices. Distribution of raw materials and finished products.

333. Marketing Problems. Cr. 3. II.
Prerequisite: Mkt. 332. Actual marketing cases and problems. Marketing costs, analysis of operating statements, production policy, brand policy, various channels of distribution, sales promotion, sales policies, price determination, price policies, and operating control will be studied.

346. Statistics. Cr. 4, (3-3). I, II.
(Formerly Statistics 346) Prerequisite: 60 semester hours including six hours of mathematics. Sources of business statistics with a survey of methods of their collection, analysis, presentation, and interpretation. Includes methods of sampling, construction of graphs, uses of averages, dispersion, index numbers, correlation, probability, estimates, and their use in business institutions and by business people.

431. Commodity Marketing. Cr. 3. I.
Prerequisite: Mkt. 332. A specialized study of problems involved in marketing commodities of the student's choice.

432. Economics of Advertising. Cr. 3. II.
Prerequisite: Mkt. 332. A study of advertising from the point of view of the needs of businessmen. The course is designed to acquaint students in business with the tools and techniques of advertising and the use of advertising as a selling force. This includes a study of the media available, the publicity budget and the relation of the publicity department to other departments of the business, also the techniques of testing and measurement for the purpose of elimination of waste and increase of profits.

433. Salesmanship. Cr. 3. I.
Prerequisite: Mkt. 332. Practices involved in selling goods and services. Stress will be placed upon principles involved in selling other than over the counter. Methods used by salesmen.

435. Business Cycles and Forecasts. Cr. 3. II.
Prerequisite: 60 semester hours including three hours of methods of statistics and six hours of economic principles. Economic theories of cycles. Their cause and proposed remedies. An examination of forecasting services available and technique employed by them. Problems in specific commodities and securities.

436. Retail Store Management. Cr. 3. I.
Prerequisite: Mkt. 332. Store location, layout, fixtures; store organization; intrepreting customer demand; purchasing, receiving, checking, marketing merchandise; store control; merchandising arithmetic; sales promotion, advertising, and publicity; employee relations and the credit department.

437. Advanced Business Statistics. Cr. 3. II.
(Formerly Statistics 437). Prerequisite: Sixty semester hours including three hours of statistics. Further training in statistical methods and their uses in business institutions. A more extended study of some phases including sampling, averages, dispersion, index numbers, linear and non-linear correlation, multiple and partial correlation, estimates, variance, and their use in business forecasting.

531. Research in Marketing. Cr. 3. I.
Prerequisite: Graduate standing and twelve hours of undergraduate work in marketing. The student will select a subject for personal study and will present an acceptable term paper.

Courses which may be taken for graduate credit are Mkt. 332, 333, 346, 431, 433, 435, 437, 531, provided additional work or an added problem is done in each course numbered in the 300 or 400 series.

SECRETARIAL ADMINISTRATION

113. Intermediate Typewriting. Cr. 1 (0-5). I, II.

For those who have had one year of typing in high school or its equivalent. Combined class and laboratory work. Composition of business letters, typing of business letters, tabulating of materials, typing of manuscripts. Typewriter service, $4. Five hours including machine work. Required of all students majoring in secretarial administration and commercial teaching.

114. Advanced Typewriting. Cr. 1 (0-5). I, II.

For those who have had Sect. 113 or its equivalent. Training is given in the preparation of stencils, business forms, advanced personal work, developing speed. Required of all students majoring in secretarial administration and commercial teaching. Typewriter service, $4. Five hours including machine work.

131-2. Elementary Shorthand. Cr. 3. I, II.

Beginning course covering reading, penmanship, and simple transcription of shorthand. Credit not given for 131 unless 132 completed. No student should attempt the study of shorthand who has difficulty in English. No student will be given credit for Sec. 131 who has had one year of shorthand.

235, 236. Intermediate Shorthand. Cr. 3 (3-1). I, II.

Prerequisite: Sect. 131-2 or equivalent, Sect. 113. Emphasis placed on increased accuracy and speed in reading and writing shorthand. Introduction to typewriter transcription. Requires one extra schedule hour each week for machine transcription practice.

321. Office Machines. Cr. 2 (0-6). I, II

Prerequisite: Sixty semester hours. Special emphasis on ten-key, full key, and electric adding machines; comptometers, crank driven and electric calculators. Recommended for all students majoring in the Business Administration Division. Machine service, $4.

331, 332. Secretarial Practice. Cr. 3. 3. (3-1). I, II.

Prerequisite: Sect. 114 and Sect. 236. Advanced dictation, training in office duties. To train students to systematize and supervise secretarial activities. Primarily for majors in secretarial administration and commercial teachers. Course 332 is designed to prepare students to qualify for positions under Civil Service examinations. One hour each week for machine transcription practice.

333. Business Correspondence. Cr. 3. I, II.

Prerequisite: Eng. 131-2, 231-2, sixty semester hours. Lectures, reading and practice. Study of characteristics of general business correspondence. Types of letters common to a wide variety of business concerns are discussed. Technique of credit letters, collection letters, adjustment letters, sales letters, and the writing problems of students discussed in personal conferences.

421. Voice Writing and Duplicating. Cr. 2 (1-3). I, II.

Prerequisite: 90 semester hours including Sect. 114 and Sect. 236. Instruction and practice in the operation of voice machines, including duplicating equipment such as the mimeoscope, mimeograph, direct and gelatin process Ditto machines. Intended for students majoring in Secretarial Administration. Machine service, $4.

432. Methods of Teaching Commercial Subjects in High School. Cr. 3. II.

(Formerly Business 432). Prerequisite: Senior classification in the department and six hours of secondary education. Aims and objectives, selection and organization of subject matter, methods of presentation, and curriculum development most suitable for teaching commercial subjects in high school. May be used as credit in education toward a teacher's certificate.

433. Secretarial Problems and Practices. Cr. 3. II.

Prerequisite: Sect. 331-2. Responsibilities and duties of various types of secretaries. Training in applying for jobs, advancement, and personality development. A minimum of 75 hours will be spent with an approved office or business concern.

434. Punch Card Machines. Cr. 3 (2-4). I, II.

Prerequisites: Sixty semester hours, including Accounting 244-5. Principles of Accounting Machine Methods, tabulating machine cards; practice in the operation of the following: punch, verifier, sorter, plugboard, and 405 non-net tabulating machine.

Department of Mathematics

PROFESSORS MICHIE, WHYBURN, SPARKS, UNDERWOOD, HAZLEWOOD, THOMPSON. ASSOCIATE PROFESSOR HEINEMAN. ASSISTANT PROFESSORS MAY, WOODWARD, GRANT. INSTRUCTORS BOWMAN, PARKER, BAILEY, ROWLAND, FRAZINE, HOLLAND.

MATHEMATICS

121-2. Algebra. Cr. 2. I and II.
Prerequisite: Two units of high school algebra, review of high school algebra; quadratic equations; variation; progression; binominal theorem; graphs; complex numbers; theory of equations; logarithms; determinants.

***130. Algebra. Cr. 3.** I, II.
Prerequisite: One unit of high school algebra and one unit of plane geometry. Review of high school algebra, quadratic equations, variation, progressions, graphs, bionomial theorem.

131. Trigonometry. Cr. 3. I, II.
Prerequisite: One unit of high school algebra, one unit of plane geometry, and Math 121, or 130, or concurrent registration in Math. 121. Trigonometric functions, identities; circular measure; logarithms; solutions of triangles.

132. Analytic Geometry. Cr. 3. I, II.
Prerequisite: Math. 121 or 130 and 131. The straight line and conic sections; transformation of coordinates; polar coordinates; parametric equations, traces of quadratic surfaces.

137-8. Mathematics of Finance. Cr. 3. I, II.
Prerequisite: One unit of high school algebra. Review of high school algebra, simple equations, exponents, quadratics, progressions, graphs, logarithms, simple interest and discount, compound interest and compound discount, annuities, amortization, depreciation, sinking funds, evaluation of bonds, and introduction to statistical method.

233. Calculus Applications. Cr. 3. I, II.
Prerequisite: Math 251, or 336. Volumes; centroids, moment of inertia; pressure; work; partial differentiation; series; multiple integrals; indeterminant forms.

235-6. Analytic Geometry. Cr. 3. I, II.
Prerequisite: Math. 121 or 130, and 131. The straight line; the conic sections; transformation of coordinates; polar coordinates; parametric equations; higher plane curves; the elements of solid analytic geometry. A more complete course than Math 132.

238. Statistics. Cr. 3. II.
Prerequisite: Math. 130 or Math 137. Collection and tabulation of data, bar charts, line graphs, sampling, averages, dispersion, correlation, index numbers, normal curve, probability, estimation, and application to economic problems.

251. Calculus. Cr. 5. I, II.
Prerequisite: Math. 122 and 132. Differentiation; maxima and minima; rates; curvature; formal integration; areas and volumes.

321. Differential Equations. Cr. 2. I.
Prerequisite: Math. 251. Methods for the solution of elementary types of differential equations, with application. For engineers.

333-4. Advanced Algebra. Cr. 3. I, II.
Prerequisite: Math. 132 or 236. Number systems; advanced treatment of ratio and proportion, variation, inequalities, equations, determinants, and systems of equation; mathematical induction; complex numbers; functions; progressions; binomial and multinomial expansions; series; permutations; combinations and probability.

335-6. Differential and Integral Calculus. Cr. 3. I, II, S.
Prerequisite: Math 132. Differentiation, maxima and minima, rates, curvature, formal integration, definite integrals, areas, lengths, volumes.

432. Differential Equations. Cr. 3. II.
Prerequisite: Math 336. Solutions of differential equations, with geometric and physical applications.

433. Theory of Equations. Cr. 3. I.
Prerequisite: Math 336. Complex numbers; rational integral equations; symmetric functions; determinants; systems of linear equations.

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* Credit will be given for Math. 130 or Math. 137, but not for both.

434-5. Advanced Calculus. Cr. 3. II.
Prerequisite: Math 336. Continuity; multiple integration; indeterminate forms; series; partial differentiation; line, surface and space integrals, elements of the calculus of variation and of elliptic integrals.

437. Higher Geometry. Cr. 3. I.
Prerequisite: Math 132 or 236. Directed segments and angles; similitude; inversion; geometry of the triangle; quadrilateral, and circle. Recommended for teachers of geometry in high schools.

438. Solid Analytic Geometry. Cr. 3. II.
Prerequisite: Math. 132 or 236, and the consent of the instructor. Direction angles and cosines; the equations of space curves, planes, lines, and surfaces.

439. Vector Analysis. Cr. 3. II.
Prerequisite: Math. 335. Scalar and vector products, divergent, gradient, curl, applications.

5312-13. Functions of a Complex Variable. Cr. 3. I, II.
Prerequisite: Math. 434-5. Algebra of complex numbers and their geometric representations; conformal mapping; power series and properties of analytic functions; differentiation and integration; special definite integrals and infinite products.

533. Advanced Topics in Analysis. Cr. 3. I, II.
Prerequisite: Graduate standing and consent of instructor. Boundary value problems and related topics.

534. Synthetic Projective Geometry. Cr. 3. I.
Prerequisite: Consent of the instructor. Fundamental theorems of projective geometry treated synthetically. Exercises.

535 Analytic Projective Geometry. Cr. 3. II.
Prerequisite: Consent of the instructor. Analytic treatment of the projective properties of the straight line and the conic sections.

538. Theory of Numbers. Cr. 3. I.
Prerequisite: Consent of instructor. Congruences, quadratic residues and reciprocity law, quadratic forms.

601. Thesis.

ASTRONOMY

111. Survey of Astronomy. Cr. 1. I, II.
Prerequisite: College standing. The main features of the known universe and the principles involved in their discovery. A non-mathematical survey recommended for all students except those planning to take Ast. 231-2.

231-2. General Astronomy. I, II.
Prerequisite: Math. 130 or 121, and 131, with a grade of C or better, or with the consent of the instructor. The solar, stellar, and galactic systems, studied with attentions to technical details.

In addition to courses numbered in the 500 series those numbered in the 400 series may be used for graduate credit provided the latter have been approved by the committee on graduate work, and provided further that other conditions imposed by this committee are met.

Department of Mechanical Engineering

PROFESSORS GODEKE, POWERS, KIPP. ASSOCIATE PROFESSOR HARDGRAVE. ASSISTANT PROFESSORS NEWELL, MASON, WILLIAMS.

211. Sheet Metal Work. Cr. 1. (0-3). II.
Prerequisite: Registration in Engr. Dwg. 121. The fundamental operations of sheet metal work developing patterns and laying out work; hand and machine operations; rolling, forming, crimping, wiring, seaming, grooving, cutting, turning, bending, riveting; soldering of brass, copper, tin, galvanized iron, and steel.

221. Engineering Problems. Cr. 2, (1-2). I.
Prerequisite: Registration in Math 251. Study and practice of slide rule operations. Application of dimensional analysis, mechanics, pressure measurement, and perfect gas laws to elementary engineering problems. Curve drawing and presentation of engineering computations.

241. Mechanism and Dynamics. Cr. 4, (2-6). II.
Prerequisite: Eng. Dwg. 121, registration in C. E. 331, M. E. 221. Study of the functions, geometrical properties, and relative motions of common mechanisms. Graphical analysis of displacements, velocities, accelerations, static forces, and dynamic forces in common machines.

243. Pre-Flight Aeronautics. Cr. 4.
Prerequisite: Math 121 (or 130), Math. 131, Phys. 131. Ground school instruction covering the essentials for Pre-Flight Aeronautics in secondary schools and for pilots licenses. Course includes: Civil Air Regulations, General Servicing and Operation of Aircraft, Practical Air Navigation, and Meteorology. Studies are made of air traffic regulations, aircraft engines, parachutes, aircraft instruments, and the educational significance of pre-flight aeronautics in high schools. No credit will be allowed toward an engineering degree.

311. Pattern Shop. Cr. 1, (0-3). I.
Prerequisite: Engr. Dwg. 121. Methods and principles of pattern making; various woods, tools, and machines used. Shrinkage, glue joints, core boxes. Various constructions such as one piece patterns, laminated, segmental, and stave construction, end and cross lap, dado, and rabbet joints. Individual instruction in the use of machine and hand tools.

312. Foundry Practice. Cr. 1, (0-3). I.
Prerequisite: Registration in M. E. 311. Foundry materials and products; bench, floor and pit molding; mixing, melting, and pouring of ferrous and non-ferrous metals; small foundry layout; making and testing or dry sand cores; green sand testing; microscopic examination and physical testing of non--ferrous metals; various methods of cleaning castings.

313. Machine Shop. Cr. 1, (0-3). I.
Prerequisite: Engr. Dwg. 121. The various types of lathes, planers, millers, cutting tools, drills, reamers, abrasives, grinding machines, turret lathes, gear cutting machines, automatic screw machines, gauges, and inspection as applied to shop work. Bench work, such as chipping, filing, tapping, reaming, and fitting.

314. Machine Shop. Cr. 1, (0-3). II.
Prerequisite: M. E. 313. A continuation of M. E. 313. Standardization; routing of materials; die casting; press metals and presses; cutting fluids. Each student given advanced operations on machines, such as taper turning, internal and external threading, grinding, shaping, milling machine, calculations, and operations.

315. Heat Treating of Steel. Cr. 1, (0-3). II.
Laboratory work in the heat treating of plain carbon and alloy steels. Carburizing, cyaniding, nitriding, hardening, tempering, normalizing, annealing; various methods of forging, welding, and rolling steel and wrought iron; destruction tests and microscopic examination of heat-treated steels; heat-treating furnaces and materials used; thermit welding and its application.

316. Welding Practice. Cr. 1, (0-3). II.
Welding practice; electric arc, resistance, oxy-acetylene, and thermit welding, application of welding in construction of machines and structural steel; repairing of machine parts; care and operation of oxy-acetylene and arc welding equipment; butt, lap, and tee welding; welding methods; pipe cutting and welding; welding of various metals.

317-8. Heat Engineering Laboratory. Cr. 1, (0-3). I and II.
Prerequisite: Registration in M. E. 334-5. Mechanical measurements, heat transmissions, and heat transfer equipment. Tests of power plant equipment, internal combustion engines, pumps, blowers, and air equipment. For chemical, electrical, and textile engineering students.

322. Elementary Machine Design. Cr. 2, (2-0). II.
Prerequisite: M. E. 241 or C. E. 332, registration in C. E. 333. Friction and lubrication. Elementary stress analysis and functions of bearings, brakes, clutches, shafting, fastenings, gearing, springs, colums. Energy loads, balancing of machinery.

330-1. Thermodynamics. Cr. 3. I and II.
Prerequisite: Phys. 236, Math. 251, M. E. 221. Thermodynamic principles governing the action of steam engines and turbines, internal combustion engines, air compressors, and refrigeration machines. Properties of air, steam, ammonia, gaseous mixtures, and other heat media. Problems. For mechanical engineering students.

332. Mechanical Measurements and Thermodynamics Laboratory. Cr. 3, (0-6). II.
Prerequisite: M. E. 330 and 341. Correlation of the parts of various kinds of heat engines and of methods and instruments used in mechanical engineering measurements. Methods of calibrating various instruments. Applications of properties of steam, flow of liquids, heat transmission. Simple tests of power plant equipment. Outside work required For mechanical engineering students.

333. Kinematics of Machinery. Cr. 3, (2-3). II.
Prerequisite: Engr. Dwg. 121, M. E. 221, C. E. 332. Kinematics and dynamics for non-mechanical engineering students. Motions of fundamental parts of machinery, such as link work, cams, gears, and flexible connections. Static and inertia forces analysis and balancing. Graphic treatment used when possible. For textile and electrical engineering students. Given only when sufficient demand exists.

334. Elementary Thermodynamics. Cr. 3. I.
Prerequisite: Phys. 236, Math. 251. The theory of heat as applied to heat power machines. Properties of air, steam and other heat media, gas laws, reversibility, cycles and processes, refrigeration, flow in nozzels, mixtures of vapors and gases. For architectural, chemical, civil, electrical, industrial, and textile engineering students.

335. Heat Engines. Cr. 3. II.
Prerequisite: M. E. 334. Application of the principles of thermodynamics to power generating equipment. Steam engines, boilers, air compressors, refrigeration machines, internal combustion, auxiliary equipment. For chemical, civil, electrical, industrial, and textile engineering studentes.

337. Metallurgy. Cr. 3.
Prerequisite: Chem. 220. The manufacture of iron, steel and nonferrous metals. Extraction of metals from their ores. Blast furnaces, open hearth, Bessemer, and crucible methods. Refining. Ferrous and non-ferrous alloys and their properties. Metallography and effect of heat treating.

341. Steam Power Plant Engineering. Cr. 4. I.
Prerequisite: Registration in M. E. 330. Equipment of a modern steam power plant including boilers, economizers, superheaters, air preheaters, pumps, feed water heaters, draft producing equipment, coal handling machinery, boiler room accessories, engines, turbines, condensers, pipe layouts, combustion of fuels, heat balance calculations.

423-4. Internal Combustion Engines. Cr. 2, (2-0). I and II.
Prerequisite: M. E. 331 or 335. Ideal and actual cycles, combustion, detonation, fuels, mixture requirements, and performance of spark ignition and compression-ignition engines. Gas turbine cycles and performance.

431. Power Plant Laboratory. Cr. 3, (0-6). I.
Prerequisite: M. E. 332. Continuation of tests on steam power plant equipment; turbines, fans, pumps. Tests on internal combustion engines using various fuels. Tests on refrigeration equipment. The analysis of data and their proper presentation in the form of an engineering report. Outside work required. For mechanical engineering students.

432. Power Plant Design. Cr. 3. II.
Prerequisite: M. E. 341 or 335. The design of a modern power plant to meet a given situation. Load curves. Selection for location. Choice of equipment for most economical service. Layout of plant for the best operating conditions. Power costs.

434. Industrial Engineering. Cr. 3. I.
Prerequisite: Eco. 232. The modern industrial system and the application of scientific knowledge to the management of industry, standardization, time studies, personnel relations. Plant layout, planning, scheduling, and inspection. Safety engineering. Engineering contracts.

436. Machine Design. Cr. 3, (0-9). I.
Prerequisite: M. E. 322, 337, Eng. Dwg. 221. Complete code design of welded and riveted vessel. Complete design of one or more additional machines. Lectures on theory pertinent to the design problems.

437. Machine Design. Cr. 3, (3-0). II.
Prerequisite: M. E. 436, Math 321. Introductory course in mechanical vibrations. Free and forced vibrations without damping, damped vibrations, systems with several degrees of freedom, vibration isolation and absorption, equivalent systems.

438-9. Heating, Ventilation and Air Conditioning. Cr. 3. I and II.
Prerequisite: M. E. 331 or 334, C. E. 332. Thermodynamics of air-steam mixtures, heating and cooling calculations, design of elementary heating systems, vapor refrigeration, air conditioning calculations, flow of gases, fan theory and performance, ventilation requirements and distributing systems, theory and application of air conveying and dust removal, as applied to various types of buildings and industries.

4310. Aerodynamics. Cr. 3, (3-0). I.
Prerequisite: M. E. 331 or 334, Math 321. Airfoil theory, airplane performance, longitudinal stability, wing air-load analysis.

4311. Aerodynamics. Cr. 3, (3-0). II.
Prerequisite: M. E. 4310; registration in M. E. 424. Propeller theory, performance, and load analysis. Rotary wing theory, jet propulsion.

Engineering Seminar 411-2. Cr. 1. I and II.
Credit for this course may be given as often as successfully repeated. The investigation and study of engineering problems of special interest and value to the students taking the course. Work is of the nature of research. May be taken only with permission of head of the department.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 322, 330-1, 423-4, 432, 438, 439, 4310, 4311, and Engineering Seminar 411-2, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Military Science and Tactics (R.O.T.C.)

PROFESSOR ADAMS, LT. COLONEL, CORPS OF ENGINEERS. ASSISTANT PROFESSORS RIORDAN, LT. COLONEL, AIR CORPS; GOODMAN, MAJOR, SIGNAL CORPS; SMITH, CAPTAIN, AIR CORPS; MALLARD, FIRST LIEUTENANT, AIR CORPS. ASSISTANT INSTRUCTORS FISHER, MASTER SERGEANT; BEHRENS, MASTER SERGEANT; TANNER, MASTER SERGEANT; BROOKS, MASTER SERGEANT; REAGAN, STAFF SERGEANT; MORGAN, STAFF SERGEANT.

111. First Year Elementary. Cr. 1. I.

Prerequisites: Physical and mental qualifications prescribed by the War Department. The National Defense Act; regulations, history, and organization of ROTC; ROTC in national defense. Military discipline, courtesy and customs; school of the soldier with and without arms. Care and cleaning and operation of cal. .22 and cal. .30 M1 rifles; marksmanship training and small bore firing. Personal and sex hygiene, sanitation, and first aid. Analysis, presentation, and discussion of world news.

112. First Year Elementary. Cr. 1. II.

Prerequisite: MS 111. School of the soldier with arms, inspections and ceremonies, military discipline. Care, cleaning and functioning of U. S. carbine, cal. .30 and automatic pistol, cal. .45. Maps and aerial photographs, signs and symbols, grid systems, declination, azimuth, and contours. Company, battalion, and U. S. Army organization. Student analysis and discussion of current world military situations.

211. Second Year Elementary. Cr. 1. I.

Prerequisites: MS 111-112. Leadership and conduct of officers; school of the soldier with and without arms; military courtesy. Physical development methods, instruction and testing. Military law, articles of war, courts-martial, and trial procedure. Evolution of small arms, artillery and airplanes; fortifications and defense. Analysis and discussion of important world news items affecting the world military situation.

212. Second Year Elementary. Cr. 1. II.

Prerequisites: MS 111-112. Development of leadership; school of the soldier with arms; parades, reviews and inspections. Campaigns of famous military leaders and important wars; psychology, science, and industry in war; future developments in warfare. Military administration. Map and aerial photo reading; stereovision; field navigation. The world military situation.

331. First Year Advanced (Corps of Engineers). Cr. 3. I.

Prerequisite: MS 212 or one year active service with the armed forces. Military leadership, psychology, and personnel management. Leadership, drill, and exercise of command. Military problems of the United States. Military law and boards. Tactics and technique of the Corps of Engineers consisting of: bridge design and classification, Engineer combat principles, Engineer reconnaissance, military roads, organization of Engineer units, Engineers in the military team.

332. First Year Advanced (Corps of Engineers). Cr. 3. II.

Prerequisite: MS 331. Military leadership, psychology, and personnel management. Leadership, drill, and exercise of command. Military problems of the United States. Occupied territories. Tactics and techniques of the Corps of Engineers consisting of: camouflage, explosives and demolitions, job management, military sketching, organization of the ground and field fortifications.

333. First Year Advanced (Signal Corps). Cr. 3. I.

Prerequisite: MS 212 or one year active service with the armed forces. Military leadership, psychology, and personnel management. Leadership, drill, and exercise of command. Military problems of the United States. Military law and boards. Tactics and techniques of the Signal Corps consisting of: signal communication for all arms and services, organization and missions of the Signal Corps, message center and signal center procedure, communication security, Signal Corps photographs.

334. First Year Advanced (Signal Corps). Cr. II.

Prerequisite: MS 333. Military leadership, psychology, and personnel management. Leadership, drill, and exercise of command. Military problems of the United States. Occupied territories. Tactics and techniques of the Signal Corps consisting of: organization of the Infantry Division and its signal and communication components, field wire communication fundamentals, field radio communication fundamentals, the place of the Signal Corps in the military team.

335. First Year Advanced (Air Forces). Cr. 3. I.

Prerequisite: MS 212 or one year active service with the armed forces. Military leadership, psychology, and personnel management. Leadership, drill, and exercise of command. Military problems of the United States. Military law and boards. Tactics and techniques of the AAF consisting of: history of the AAF, organization of the AAF, administration and personnel management, AAF training, AAF inspection system, AAF statistical control methods, chemical warfare.

337. First Year Advanced (Infantry). Cr. 3. I.
Prerequisite: MS 212 or one year active service with the Armed Forces. (1) Military leadership, psychology and personnel management. (2) Leadership, drill and exercise of command. (3) Military problems of the United States. (4) Military law and boards. (5) Tactics and Techniques of the Infantry.

338. First Year Advanced (Infantry). Cr. 3. II.
Prerequisite: MS 337. (1) Military leadership, psychology, and personnel management. (2) Leadership, drill, and exercise of command. (3) Military problems of the United States. (4) Occupied Territories. (5) Tactics and Techniques of the Infanrty.

336. First Year Advanced (Air Forces). Cr. 3. II.
Prerequisite: MS 335. Military leadership, psychology, and personnel management. Leadership, drill, and exercise of command. Military problems of the United States. Occupied territories. Tactics and techniques of the AAF consisting of: Air Intelligence and combat orders, AAF supply, transportation, navigation, aeronautics, camouflage, communications and guided missiles.

431. Second Year Advanced (Corps of Engineers). Cr. 3. I.
Prerequisite: MS 332. Command and staff: Military teaching methods. Psychological warfare. Leadership, drill, and exercise of command. Tactics and techniques of the Corps of Engineers consisting of: Engineer combat principles, Engineer reconnaissance, Engineer estimates and orders, river-crossing operation, and water supply.

432. Second Year Advanced (Corps of Engineers). Cr. 3. II.
Prerequisite: MS 431. Geographical foundations of national power. Combined and joint operations. Military mobilization and demobilization. Leadership, drill, and exercise of command. Tactics and techniques of the Corps of Engineers consisting of: airborne and amphibious operations, construction and utilities, Engineer signal communications, Engineer supply.

433. Second Year Advanced (Signal Corps). Cr. 3. I.
Prerequisite: MS 334. Command and staff. Military training methods. Psychological warfare. Leadership, drill, and exercise of command. Tactics and techniques of the Signal Corps consisting of: wire communication: material; radio communication: materiel.

434. Second Year Advanced (Signal Corps). Cr. 3. II.
Prerequisite: MS 433. Geographical foundations of national power. Combined and joint operations. Military mobilization and demobilization. Leadership, drill, and exercise of command. Tactics and techniques of the Signal Corps consisting of: applied Signal communication (division), Signal supply and repair, higher echelon Signal communication and equipment.

435. Second Year Advanced (Air Forces). Cr. 3. I.
Prerequisite: MS 336. Command and staff. Military teaching methods. Psychological warfare. Leadership, drill, and exercise of command. One of four specialized Air Force subjects on which 45 semester hours of classroom work is to be spent. The four subjects include: AAF administration and supply, AAF statistical control systems, AAF transportation, aircraft maintenance engineering.

436. Second Year Advanced (Air Forces). Cr. 3. II.
Prerequisite: MS 435. Geographical foundations of national power. Combined and joint operations. Military mobilization and demobilization. Leadership, drill, and exercise of command. 45 semester hours of subject selected in MS 435.

Department of Music

PROFESSORS BLITZ, WILEY. PART-TIME INSTRUCTOR SHORT.

MUSIC

Theory

117-8. Voice. Cr. 1. I and II.
Posture: breath control; voice placement; physical development; vocalization. Taught in small groups.

121-2. Solfeggio. Cr. 2. I and II.
Sight singing with letter names. Scales—major, minor, mixed and chromatic. Intervals—consonant, dissonant, attractive, mixed. Time beating (first step in conducting,) Binary, ternary, bino-ternary, terno-ternary, composite, solmization. Melodies in bass and treble clef, hymns. national folk songs, leading to special textbooks on applied solfeggio. Ear training and dictation. Musical mnemonics by Dessirier. Training in ensemble. Coordination of Solfeggio and instrument.

123-4. Harmony. Cr. 2. I and II.
Consonant harmony. Common chords. Triads found in five types of scales. Figuration of chords. Analysis of chords. Four part harmony. Movements and motion, enchainment chords. Progressions, modulations. inversions. Fundamental harmony, harmonization of melodies, figuration of basses.

217-8. Voice. Cr. 1. I and II.

Continuation of physical development, vocalization, repertoire.

221-2. Solfeggio. Cr. 2. I and II.

The science of quint relation, ladder of the fifths, conception of M. A. Barbereau, Paris, 1847. Solmization with changes of clefs. Ear training and dictation. First approach to conducting. Choral training. Coordination of Solfeggio and instrument.

223-4. Harmony. Cr. 2. I and II.

The dominant seventh and inversions. Secondary sevenths and inversions. Other chords of the sevenths. The harmonization of melodies and the figuration of basses. The realization of exercises either at the piano, in solfeggio, or reproduced from memory.

231. Music Education. Cr. 3. II.

Prerequisite sophomore standing. Methods course. The ways and means of teaching music to school children. Fundamentals of music appreciation; rudiments of music; concentration upon primary grades; study of state-adopted textbooks in primary music. Music in the rural school.

327-8. Conducting. (Methods Course). Cr. 2. I and II.

Prerequisite: 221-2. Elements of counterpoint. Score reading. Choir directing. Diction and interpretation. Instrumental transportations and substitutions. Theoretical knowledge of the instruments of the orchestra from the conductor's point of view. Methods of teaching chorus and orchestra groups. Deciphering instrumental charts.

335, 336 History and Appreciation. Cr. 3. I and II.

Prerequisite: Junior standing. The study of musical literature covering the various periods from the pre-classis to the modern. Acquainting the student with salient facts of music history and teaching him how to listen to music, what to listen for, and what reaction to expect. Study of opera by radio and phonography.

337. Music Education. Cr. 3. I.

Admission after examination. Methods for elementary grades. The materials and methods of teaching music to school children; the pedagogy of music, embracing the principles required for scientific music foundation; the qualifications necessary to student and teacher; group activities; music appreciation; study of state adopted textbooks; primary music education. Seminar course.

431, 432. Minor Instruments. Cr. 3. I and II.

Prerequisite: The equivalent of two semester hours of playing experience on minor instruments. Instruments other than the student's major instrument. Scales, arpeggios, studies, and repertoire.

438. Junior and Senior Methods. (Methodology). Cr. 3. II.

Prerequisite: Music 327-8, 337. The technique of teaching vocal, instrumental music, group activities; chorus and ensemble work; music appreciation; and theory as it relates to junior and senior high school pupils.

Chorus

113-4. Freshman Chorus. Cr. 1. I and II.

213-4. Sophomore Chorus. Cr. 1. I and II.

313-4. Junior Chorus. Cr. 1. I and II.

413-4. Senior Chorus. Cr. 1. I and II.

4113-4. Cr. 1. I and II.

Formerly 413-4B. Additional senior work.

Orchestra

115-6. Freshman Orchestra. Cr. 1. I and II.

215-6. Sophomore Orchestra, Cr. 1. I and II.

315-6. Junior Orchestra. Cr. 1. I and II.

415-6. Senior Orchestra. Cr. 1. I and II.

4115-6. Cr. 1. I and II.

Formerly 415B-6B. Additional senior work.

Applied Music

The outline of courses in applied music here listed permits variations according to the individual needs and objectives of the student. Students are required to take two lessons per week and to practice twelve hours per week.

All applied music students, regardless of classification, are required to attend the Applied Music Demonstration Group which meets two hours each week. This is a quasi-lab wherein music literature of various periods is performed by students. This group is supervised by the head of the department. No extra tuition is charged for this class. Exemption from this group is granted only when the equivalent of the course is supervised by a college music faculty member.

Music 115, 116. Freshman. Cr. 1. I, II, S.
Music 215, 216. Sophomore. Cr. 1. I, II, S.
Music 315, 316. Junior. Cr. 1. I, II, S.
Music 415, 416. Senior. Cr. 1. I, II, S.

Private instruction, two half-hour lessons per week. Preparation five hours per week. Approximately one half of the music literature described under the two hour accredited applied music branches is expected to be covered.

Piano

Pianists, insufficiently advanced to follow the subsequent outline of courses, are recommended to subscribe for keyboard instead of piano.

125-6. Cr. 2. I and II.
Czerny; Burgmiller; Heller; Bach, Mendelssohn; ensemble.

225-6. Cr. 2. I and II.
Czerny; Kullak Octave studies; Heller; Bach—two part inventions; Mendelssohn ensemble playing.

325-6. Cr. 2. I and II.
Cramer; Kullack Octave studies; Bach—Three part inventions; Chopin Etudes; ensemble playing.

3215-6. Cr. 2. I and II.
Additional junior work.

425-6. Cr. 2. I and II.
Clementi, Bach—Well Tempered Clavichord; Chopin Etudes; ensembles playing. Public recital.

4215-16. Cr. 2. I and II.
Formerly 425B-6B. Additional senior work.

Voice

125-6. Cr. 2. I and II.
Fundamentals of voice production; modern songs.

225-6. Cr. 2. I and II.
Continuation of fundamentals; standard book studies; classic songs.

325-6. Cr. 2. I and I.
Continuation of fundamentals; arpeggios and chromatic scales. Operatic selections, modern songs.

3215-16. Cr. 2. I and II.
Additional junior work.

425-6. Cr. 2. I and II.
Selected studies in interpretation of classical modern songs; recitatives and arias. Public recital.

4215-16. Cr. 2. I and II.
Formerly 425B-6B. Additional senior work.

Violin

125-6. Cr. 2. I and II.
Franz Wolfhart—last part of Book II, Book III, Flesch Scale Studies; Mazas—Book I. De Beriot and Alard Methods.

225-6. Cr. 2. I and II.
Mazas—Book II: Sevcik (double stopping and preparatory); trill studies; Flesch—scale studies and shifting exercises; compositions by classic composers.

325-6. Cr. 2. I and II.
Kreutzer Etudes; beginning of Fiorillo Bowing Studies; De Beriot Concerto No. VII; selected repertoire.

3215-16. Cr. 2. I and I.
Additional junior work.

425-6. Cr. 2. I and II.
Kreutzer and Fiorillo, continued; Rhode caprices; concertos of De Beriot, Bruch; Bach Sonatas; selected repertoire, classic and modern, for recital.

4215-16. Cr. 2. I and II.
Formerly 425-B-6B. Additional senior work.

Viola

(Only freshman and sophomore courses offered.)

125-6. Cr. 2. I and II.
Method. Gavalline-Guida and Richard Huffman and repertoire (for both years).

225-6. Cr. 2. I and II.
Continuation of freshman year.

Bass

(Only freshman and sophomore courses offered.)

125-6. Cr. 2. I and II.
Methods of Simanda and orchestra repertoire.

225-6. Cr. 2. I and II.
Continuation of first year.

Cello

125-6. Cr. 2. I and II.
Method of Lee, Part I.

225-6. Cr. 2. I and II.
Method of Lee, Parts I and II; repertoire.

325-6. Cr. 2. I and II.
Dotzauer Thumb Position, Repertoire, Carl Schroder.

3215-16. Cr. 2. I and II.
Additional work.

425-6. Cr. 2. I and II.
Studies by Duport, Romberg Concertos, modern concert repertoire.

4215-16. Cr. 2. I and II.
Formerly 425-B-6B. Additional senior work.

Pipe Organ

125-6. Cr. 2.
Prerequisite: Two years of solfeggio. Two years of harmony. Two years of piano. Manuel technique, Pedal technique. Manual studies. Studies for manuals and pedals. Chorales. Repertoire.

225-6. Cr. 2.
Bach Chorale Preludes. Eight Little Preludes and Fugues. Lithurgical repertoire.

Reed Instruments

125-6. Cr. 2. I and II.

225-6. Cr. 2. I and II.

325-6. Cr. 2. I and II.

3215-16. Cr. 2. I and II.
Additional junior work.

425-6. Cr. 2. I and II.

4215-16. Cr. 2. I and II.
Formerly 425B-6B Additional senior work.

Brass Instruments

125-6. Cr. 2. I and II.

225-6. Cr. 2. I and II.

325-6. Cr. 2. I and II.

3215-16. Cr. 2. I and II.
Additional junior work.

425-6. Cr. 2. I and II.

4215-16. Cr. 2. I and II.
Formerly 425B-6B. Additional senior work.

Band

Students desiring to major or minor in band music should follow the schedule of courses outlined for the degree of Bachelor of Science in Education.

Since a great majority of the students who play in the band will major in some other branch of the College, it is suggested that these students register for the one-hour band courses. This work may be counted as elective credit on the Bachelor of Arts degree, or the freshman and sophomore years may be substituted for the required physical education. A maximum of eight hours of music may be counted as elective credit on the Bachelor of Arts degree.

Full Band

111-2. Freshman. Cr. 1. I and II.

211-2. Sophomore. Cr. 1. I and II.

311-2. Junior. Cr. 1. I and II.

411-2. Senior. Cr. 1. I and II.

Objectives—popular concerts, classical concerts, parades, and campus activities. These various levels, meeting at the same time, are differentiated by the placement of the players in the band sections and the attendant rsponsibilities of the positions assigned. Five one-hour meetings per week which include lecture, rehearsal, and preparation periods.

Military Band

Part of R.O.T.C. training. For particulars, inquire of the officer in command.

Band Music Major

125-6. Freshman. Cr. 2. I and II.

225-6. Sophomore. Cr. 2. I and II.

325-6. Junior. Cr. 2. I and II.

425-6. Senior. Cr. 2. I and II.

Required courses for a band major on the degree of B. S. in Education. Admission based upon the candidate's school record and music background. Besides following the requirements of the full band, the applicant must devote the equivalent of five hours per week to sectional rehearsing, supervision, conducting, making a total of ten hours per week. Band majors are expected to make appearances as soloists, to direct the full band in public, to teach band instruments, and to demonstrate a wide and practical knowledge of band music literature and history.

431, 432. Senior Music. (Minor Instruments). Cr. 3. I and II.

Listed on the Band Curriculum of B. S. in Education. The term "minor instruments" signifies a secondary instrument, another instrument besides the one upon which the player has attained the greater skill. Band majors are required to understand and be able to teach the technique of all the principal band instruments and to have an elementary acquaintance with bowed instruments. Courses in minor instruments are also offered in summer and listed under Band 115 et seq.

BAND

115, 116. Freshman. Cr. 1. I, II, S.

215, 216. Sophomore. Cr. 1. I, II, S.

315, 316. Junior. Cr. 1. I, II, S.

415, 416. Senior. Cr. 1. I, II, S.

Minor instruments offered as one-hour courses, three of which are equivalent to Music 431 or 432. Description given under Music 431, 432.

321. Junior Band Conducting and Methods. Cr. 2. I.
Prerequisite: Music 221-2. Posture technique of the baton; fundamental principles in obtaining tone balance, color, shading, etc. Program building, and practical application of the conducting of smaller concert numbers. Methods of teaching band instruments and groups.

421-2. Senior Band Conducting and Methods. Cr. 2. I and II.
Advanced study in the art of conducting. The reading of band partiture and piano scores. The directing of band accompaniments and the study of advanced concert forms. Methods of teaching band instruments and groups. Comparative study of standard methods of teaching.

4215-16. Senior. Cr. 2. I, II, S.
Formerly 431B-2B. Additional senior work.

521. Band Conducting for Graduate Students. Cr. 2. S.
Study and performance of composer's works of all periods. A public performance of a designated composition of the larger forms will be required. Original arrangements are expected from the student.

522. Band Conducting for Graduate Students. Cr. 2. S.
The same description as 521, but offering a larger repertoire.

523. Symphonies. Cr. 2. S.
The conducting of symphonic works of Beethoven, Dvorak, Tschaikowsky, and other masters.

524. Symphonies and Symphonic Poems. Cr. 2. S.
The same description as 523, but offering a larger repertoire and additional work.

MUSIC FEES FOR PRIVATE INSTRUCTION*

The following fees are not covered by college tuition. They are payable to the teacher in advance or one-half in advance and the remainder at mid-semester.

		Two Lessons Per Week	One Lesson Per Week
J. P. Blitz	Cello and Violin	Terms on	Application
Mrs. Myrtle Dunn Short	Piano	54.00	27.00
	Voice	54.00	27.00
Mrs. E. F. George	Piano	36.00	22.50
Miss Margaret Huff	Organ	54.00	27.50
	Piano	45.00	22.50
	Voice	45.00	22.50
Mrs. Carl Scoggin	Voice	45.00	22.50
D. O. Wiley	Violin	54.00	27.00
Mrs. Cecil Conaway Meskimen	Piano	45.00	22.50
Mrs. Mamie I. Neal	Pipe Organ	54.00	27.50
Miss Virginia Bell Gamble	Piano	50.00	25.00
Miss Imogene Webster	Piano	50.00	25.00
	Organ	50.00	25.00
Elton Plowman	Voice	54.00	27.00

Piano rental payable at the college.

One hour per day per semester	5.00
Each additional hour	2.50

Orchestra instruments—Inquire of head of department.

Band instruments—Inquire of band director.

Department of Petroleum Engineering

PROFESSOR PATTON

331. Drilling and Development. Cr. 3, (3-0).
Prerequisite: Geology 131-2, Chemistry 131-2, and 60 semester hours in the petroleum engineering curriculum. Exploration methods; standard and rotary drilling and completion methods; oil field hydrology; core analysis. Problems.

* Accredited if enrolled through the music demonstration group. Applied music credit cannot be given unless the student subscribes for two private lessons per week. The one lesson per week price is listed for the information of those students working toward applied music credit.

333. Production Engineering. Cr. 3, (3-0).
Prerequisite: Math. 233, and Petr. Engineering 331. Laws of fluid flow; reservoir hydrodynamics; study of flowing, air-gas lift, and pumping wells. Problems.

411. Seminar. Cr. 1, (1-0).
Prerequisite: Senior standing. Assigned readings, reports, and discussion of current problems in petroleum and natural gas engineering.

421. Oil Field Testing Methods. Cr. 2, (0-6).
Prerequisite: Petroleum Engineering 333 and registration in Petroleum Engineering 432. Theory and practical application in the laboratory of tests used in oil field practice.

432. Advanced Petroleum Engineering. Cr. 3, (3-0).
Prerequisite: Petroleum Engineering 333. A continuation of Petroleum Engineering 333; secondary methods of recovery; field storage; transportation; oil field management. Problems.

433. Special Problems in Petroleum Production. Cr. 3, (2-3).
Prerequisite: Petroleum Engineering 432, Civil Engineering 332, and 333, and Mechanical Engineering 334-5. Special problems in selection of equipment for oil industry, including determination of power requirements, choice of materials, and cost estimates.

434. Natural Gas Engineering. Cr. 3, (2-3).
Prerequisite: Petroleum Engineering 333 and Mechanical Engineering 334 and 335. Methods of production, metering, transportation and testing of natural gas. Problems.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: 411, 421, 432, 433, and 434, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Philosophy and Sociology

ASSISTANT PROFESSOR LITTLE, INSTRUCTOR SMITH.

PHILOSOPHY

230. Introduction to Philosophy. Cr. 3. I, II.
The fundamental problems involved in the interpretation of the nature of knowledge, reality, and value.

238. Ethics. Cr. 3. II.
Problems of individual and social conduct; the bearing of ethical principles upon everyday life.

332. History of Philosophy. Cr. 3. II.
The principal philosophical systems developed by the great philosophers of the world.

337. Logic. Cr. 3. II.
Introduction to deductive and inductive methods; practice in detection of fallacies.

431. Aesthetics. Cr. 3. I.
Prerequisite: Senior standing or permission of the instructor. Interpretations of the nature of beauty. Analysis of the aesthetic experience. Characteristics of art objects. Application of principles to music, poetry, prose literature, painting, sculpture, and architecture.

436. Philosophy of Religion. Cr. 3. II.
Prerequisite: Senior standing or permission of the instructor. A search for the essence of religion by means of a survey of historical and contemporary religious movements; Brahmanism, Buddhism, Confucianism, Judaism, Greek Polytheism, Catholic and Protestant Christianity, and Humanism.

438. Seminar in Philosophical Problems. Cr. 3. I, II.
Prerequisite: Senior standing and major or minor in philosophy. For philosophy students whose needs are not satisfied by other courses offered. Reading on selected topics, reports, conferences, and examinations.

SOCIOLOGY

230. Introduction to Sociology. Cr. 3. I, II.
The underlying principles of social science.

331. Social Pathology. Cr. 3. II.
A study of the major maladjustments in society.

332. Marriage. Cr. 3. II.
Prerequisite: Junior classification or consent of instructor. What marriage is, purposes of marriage, mate-selection and factors involved in predicting probable success or failure in marriage, courtship problems, marriage adjustment problems, future of the family.

333. Current Social Problems. Cr. 3. I, II.
Survey of problems pertaining to adjustment to external nature, population, distribution of wealth and income, health and physical welfare, race, immigration, the family and war.

336. Social Life and Culture of Mexico. Cr. 3. I.
Prerequisite: Junior standing and a course in sociology or consent of instructor. Comparison of United States and Mexican institutions and social problems. Readings, lectures, and reports.

433. Criminology. Cr. 3. II.
Prerequisite: Senior standing or permission of instructor. A study of the causes and remedies of delinquency and crime.

438. Seminar in Social Problems. Cr. 3. I.
Prerequisite: Senior standing and major or minor in sociology. Advised observation and independent research in sociological problems of the community.

Courses which may be used for graduate credit: Philosophy 431, 436, 438; Sociology 433, 438; Psychology 434; Rural Sociology 431, 432, 532; Govt. 433, 434; Economics 432, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Physical and Health Education for Men

PROFESSOR JENNINGS. ASSOCIATE PROFESSORS HUFFMAN, ROBISON. ASSISTANT PROFESSOR NICHOLS.**

113. Physical Education. Cr. 1, (0-2).
Health material, athletic games, calisthenics, intramural sports. Required of all freshmen.

114. Physical Education. Cr. 1, (0-2).
Athletic games, handball, basketball, playground baseball, intramural sports. Required of all freshmen.

213. Physical Education. Cr. 1, (0-2).
Athletic games, tennis, golf, swimming, soccer, speedball, fencing. Required of all sophomores.

214. Physical Education. Cr. 1, (0-2).
Athletic games, swimming, handball, track and field, golf, tennis, intramural sports. Required of all sophomores.

231. Theory and Practice of Individual Sports. Cr. 3, (3-3).
Meets three hours each week in lecture and three in laboratory and requires three hours per week preparation. Course is designed to develop skills and thoroughly acquaint students with a number of physical activities practical for use in physical education programs in junior and senior high schools, college, and community recreation programs.

232. Theory and Practice of Team Sports. Cr. 3. (3-3)
Meets three hours each week in lecture and three hours in laboratory and requires three hours per week preparation. Course is designed to teach games practical for use in physical education programs in junior and senior high schools, colleges, and community recreation. Games included are: six-man football, soccer, touch-football, speedball, field hockey, volley ball, playground baseball, contests, and relays.

*3310. Personal Health. Cr. 3.
Hygienic principles of health as related to individual health problems. A study of personal health, normal body functions, and the predisposing and actual causes of disease. Consideration of health conservation and the prevention of disease in the family as related to individual and community health.

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* Resigned.

3311. Methods of Teaching Physical Education in High School. Cr. 3.
Prerequisite: Six semester hours in physical education and six hours in education. Aims and methods of teaching physical education in high schools.

*3312. Safety and First Aid. Cr. 3.
A study of safety and first aid. Also prevention and care of injuries common to athletic and physical education activities.

431. Theory and Practice of Coaching. Cr. 3.
Football and baseball. Offensive and defensive tactics, discussions of various systems, and techniques commonly used. A course designed for those who plan to teach and coach major sports.

432. Theory and Practice of Coaching. Cr. 3.
Basketball, track and field, Continuation of P. E. 431.

*437. Tests and Measurements in Physical Education. Cr. 3.
A study of the practical application of typical capacity and achievement tests now in use in the field of health and physical education for the purpose of classification and measurement of school progress. A critical study of various specific tests and types of tests. (Not offered in 1947-48)

*438. Problems in Curriculum Construction in Physical Education. Cr. 3.
Problems in the selection and organization of health and physical activities used at various school levels. Essential steps in the organization of content material and class procedure to insure systematic progress. (Not offered in 1947-48)

*439. Community Recreation. Cr. 3.
Prerequisite: 60 hours credit and 12 hours of physical education in addition to that required of all freshmen and sophomores. The development and administration of reaction for community groups. (Not offered in 1947-48)

Courses which may be used for graduate credit:

Courses in this department which may be taken for graduate credit are: 434, 435, 436, 437, 438, 439, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Physical and Health Education for Women

PROFESSOR LANGFORD. ASSISTANT PROFESSOR RAINEY. INSTRUCTORS HILL, PEACOCK.

111. Fundamentals in Gymnastics and Rhythms. Cr. 1. (0-2).
Exercises for coordinations and posture, free rhythmic steps, and movements.

112. Stunts, Games, and Sports. Cr. 1. (0-2)
Simple stunts and games. Development in fundamental skills and team play in major sports.

210. Clogging. Cr. 1. (0-2)
Clog, character and tap dancing. For beginning and advanced students.

211. Riding. Cr. 1. (0-2)
Instruction and practice in horseback riding. For beginning and advanced students.

212. Tennis. Cr. 1. (0-2)
Technique and practice in tennis. For beginning and advanced students.

215. Basketball and Fieldball. Cr. 1. (0-2)
Technique and practice in basketball and fieldball.

216. Soccer and Speedball. Cr. 1. (0-2)
Technique and practice in fundamental skills and team play of soccer and speedball.

217. Folk Dancing. Cr. 1. (0-2)
Fundamental steps and rhythms used in folk dances.

218. Volleyball and Softball. Cr. 1. (0-2).
Fundamental skills and team play in volleyball and softball.

*Open to both men and women.

219. Tumbling. Cr. 1. (0-2)
Stunts and pyramid building.

2110. Archery and Table Tennis. Cr. 1. (0-2).
Instruction and practice in archery and table tennis.

2111. Golf. Cr. 1. (0-2)
Technique and practice in golf.

2112. Swimming. Cr. 1. (0-2)
Technique of the various strokes in swimming. For beginning and advanced students.

2113. Individual Gymnastics. Cr. 1. (0-2).
For students not physically able to participate in regular physical education classes.

2114. Field Hockey. Cr. 1. (0-2)
Fundamental skills and team play in hockey.

2115. Badminton. Cr. 1. (0-2).
Instruction and practice in the fundamentals of badminton.

***2116. Social Dancing. Cr. 1. (0-2).**
Fundamentals of social dance movements.

***230. Principles of Health Education. Cr. 3.**
Health education programs in elementary and high schools. Hygiene and first aid material.

233. Methods in Physical Education for the Elementary School Teacher. Cr. 3.
A method and content course dealing with the theory and practice of physical education for the classroom teacher in the elementary school.

239. Coaching Basketball and Other Team Sports. Cr. 3.
Similar to 338-9. Credit will not be allowed for this course if 338-9 is taken. The teaching technique of basketball, volleyball, tennis, soccer, baseball, and related team sports. (Designed for coaches who are not majoring in physical education.)

***331. Recreational Methods. Cr. 3.**
Group and unorganized games; highly organized games and sports. The games taught are suitable for schools, playground, and social recreation.

***332. Physiology of Exercise. Cr. 3.**
Prerequisite: Zool. 235-6. The benefits and results of exercise.

333-4. Methods in Elementary Physical Education. Cr. 3.
Methods of teaching physical education in elementary schools; the work most adaptable to each grade.

335-6. Methods in Secondary Physical Education. Cr. 3.
Methods of teaching physical education in secondary schools; health examination and preparation of a complete program of physical education for secondary schools.

***337. History of Physical Education. Cr. 3.**
History of physical education, with particular attention to recent literature.

338-9. Technique of Sports. Cr. 3.
Instruction in technique and rules with demonstrations and actual playing of various sports. Baseball, tennis, volleyball, soccer, basketball, speedball, and fieldball.

***3310. Personal Health. Cr. 3.**
Hygienic principles of health as related to individual problems. A study of personal health, normal body functions, and the predisposing and actual causes of disease. Consideration of health conservation and the prevention of disease in the family as related to individual and community health.

***3312. Safety and First Aid. Cr. 3.**
A study of safety and first aid. Also prevention and care of injuries common to athletic and physical education activities.

433. Teaching of Rhythmical Activities. Cr. 3.
Formerly 338. Principles and procedures of teaching the various types of dancing; training in recognition and use of dance rhythm; correlation of music and dance through its various stages; recognition, interpretation, and composition of rhythmic and step patterns.

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* Open to both men and women.

*434. Principles of Physical Education. Cr. 3.
Formerly 339. Principles of physical education from the standpoint of the physical education teacher or administrator.

*435. Modern Trends in Physical Education. Cr. 3.
For teachers, supervisors, and administrators. Programs, requirements, accrediting, costumes, tests, athletic associations, equipment, and other current problems.

*436. Physical Examination in Physical Education. Cr. 3.
Prerequisite: Zool. 235-6. Organization and technique of examinations and measurement. The significance of health examinations in the detection of various physical defects and the methods of recording findings. Practical experience in the various methods of examining, measuring, and grading posture.

Courses in this department which may be taken for graduate credit are: 434, 435; 436, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Physics

PROFESSOR SCHMIDT. ASSISTANT PROFESSORS DAY, CROSS. INSTRUCTOR STEFFY. LECTURERS ELLIOTT, BRADFORD.

131-2. Elements of College Physics. Cr. 3, (2-3). I and II.
A general survey of the entire field of physics; mechanics, heat, magnetism and electricity, sound and light. Important physical principles illustrated by classroom demonstration. Greater emphasis placed on the descriptive presentation of the subject matter than on the solution of problems. Primarily for students in the Divisions of Arts and Sciences, Agriculture, Home Economics, and Business Administration.

137-8. Physical Basis of Speech and Music. Cr. 3, (2-3). I and II.
A general course in physics with special application to speech, music, and stage production. The subject of sound greatly enlarged; detailed treatment of the acoustics of music, musical instruments, speech sounds, vocal and auditory mechanisms, and auditoriums; selected topics in electricity and light such as are of value in the study and use of stage equipment in dramatic performances. The method of presentation is mainly by demonstrations and lectures. For students majoring in speech and music.

141-2. General Physics. Cr. 3. (3-3). I and II.
Prerequisite: Two units high school algebra and one unit high school plane geometry or Math. 130. A general course in physics for students majoring in physics and designed to meet pre-medical requirements but may be taken by others.

215-6. Physical Measurements .Cr. 1, (0-3). I and II.
Must be taken parallel with Phys. 235-6 (215 with 235; 216 with 236). The object of this course is for students to verify personally the fundamental laws of physical phenomena and to cultivate the ability and habit of making accurate observation. Required of sophomore engineering students.

235-6. Engineering Physics. Cr. 3. I and II.
Prerequisite: One year of high school or elementary college physics; parallel enrollment in calculus. Mechanics, heat, electricity and magnetism, sound and light. Special emphasis is placed on the engineering aspects and applications of the subject matter. Required of sophomore engineering students. See Phys. 215-6.

312-3. Modern Physics Laboratory. Cr. 1, (0-3). I and II.
Prerequisite: Parallel enrollment in Phys. 337-8. Experimental study of the phenomena presented in Phys. 337 and 338. Credit will be given for one or both semesters.

331. Light. Cr. 3, (2-3). I.
Prerequisite: Phys. 131-2 and junior standing. The fundamentals of geometrical and physical optics: optical instruments and the reflection, refraction, dispersion, interference, diffraction, and polarization of light.

332. Heat. Cr. 3. II.
Prerequisite: Phys. 131-2 and calculus. Thermometry; expansion, calorimetry; transference of heat; change of state; heat properties of gases and vapors; first and second law of thermodynamics; adiabatic and isothermal transformations; entropy.

333-4. Electricity and Magnetism. Cr. 3. I and II.
Prerequisite: Six hours of physics and integral calculus. A mathematical treatment of the theory and application of electricity and magnetism. Electrostatics, magnetistatics, direct current circuits, alternating current circuits, electromagnetics, transient currents.

335. Physical Meteorology. Cr. 3. II.
Prerequisite: Six hours of college physics. Physics of the air, thermo-dynamics of the atmosphere, elements of air mass analysis, clouds, meteorological instruments, and introduction to weather forecasting.

*Open to both men and women.

337. Introduction to Modern Physics. Cr. 3. I.
Prerequisite: Six hours of physics and six hours of mathematics. Modern concepts of the nature and properties of matter and energy. Theory and applications of electromagnetic waves and the particles of modern physics.

338. Introduction to Modern Physics. Cr. 3. II.
Prerequisite: Six hours of physics and six hours of mathematics. Bohr and Sommerfeld theory of the atom, atomic and molecular spectra, kinetic theory of gases, radiation, special relativity, radioactivity, nuclear theory.

411-2. Physics Seminar. Cr. 1. I and II.
Prerequisite: Twelve hours of physics, calculus. Weekly reports by students and members of the staff on recent contributions in the field of physics appearing in scientific periodicals. Offered as an inducement to students to keep abreast of current advances in the field of physics. Offered in alternate years.

413-4. Physics Seminar. Cr. 1. I and II.
Prerequisite: Twelve hours of physics, calculus. Similar to Physics 411-2. Offered in alternate years.

415-6. Special Projects. Cr. 1, (0-3). I and II.
Prerequisite: Sixteen hours of physics. Individual student study of theoretical or experimental projects in physics under the guidance of a member of the staff. An outline of the proposed project must have been accepted by the head of the department before registering in this course.

423-4. Electrical Measurements. Cr. 2, (0-6). I and II.
Prerequisite: Phys. 131-2 and integral calculus. Methods, instruments, and principles relating to measuring resistance, capacitance, inductance, and magnetism by direct and alternating currents. Vacuum tubes and photoelectricity. Calibration of electrical meters.

431. Advanced Light. Cr. 3, (2-3). II.
Prerequisite: Physics 331 and calculus. Extension of the theory of optical systems; theory of aberrations; optical instrument design; survey of physiological optics; principles of photography; illumination.

437-8. Introduction to Theoretical Physics. Cr. 3. I and II.
Prerequisite: Twelve hours of physics, calculus. Treatment of general physics principles in which the fundamental laws, both classical and modern, are formulated mathematically for rigorous study. The course content will be adjusted each year to include topics of special benefit to the student.

531-2. Theoretical Physics. Cr. 3. I and II.
Prerequisite: Graduate standing, Phys. 437-8, differential equations and advanced calculus. Advanced mathematical analysis of classical physics, general relativity.

533-4. Mathematical Theory of Light. Cr. 3. I and II.
Prerequisite: Graduate standing, Phys. 437-8, differential equations and advanced calculus. Electromagnetic field theory, electron theory.

535-6. Theoretical Mechanics. Cr. 3. I and II.
Prerequisite: Graduate standing, Phys. 437-8, differential equations and advanced calculus. Advanced mathematical treatment of the entire field of mechanics.

537-8. Introduction to Atomic Spectra. Cr. 3. I and II.
Prerequisite: Graduate standing, Phys. 337-8, calculus. Atomic spectra based on the vector model of the atom. Fine and hyperfine structures of multi-valence systems. Introduction to quantum theory, the Bohr atom, Schrodinger wave equation.

601. Thesis.

In addition to all courses numbered in the 500 series courses in this department which may be taken for graduate credit are: 312-3, 331, 332, 333-4, 337-8, 411-2, 413-4, 415-6, 423-4, 431, 437-8, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Plant Industry

PROFESSORS YOUNG, LEIDIGH, YOCUM. ASSISTANT PROFESSORS MADER, AYERS. INSTRUCTOR WILLIAMS

PLANT INDUSTRY

321. Apiculture. Cr. 2, (1-3). II
Prerequisite: Junior standing. Introduction to practical beekeeping. Best practices in vogue among beekeepers. Emphasis on value of bees in production of horticultural and agronomic crops.

331. Plant Insects and Diseases and Their Control. Cr. 3. I and II.
Prerequisite: Junior standing in agriculture or biology. The most important fruit, vegetable, and crop insects and diseases—and their control. Sprays, methods of spraying, and spray calendars.

332. Forestry. Cr. 3.
Prerequisite: Bot. 131-2, Agron. 131, 221, Hort. 131, and a minimum of sixty semester hours in agriculture curricula. Economic and social importance of the forest. Forest policy. Identification of trees; nursery practice; planting, thinning, improvement cuttings, local uses. Applications to southwestern United States as to water, soil, and range conservation; relation to animal industry, wildlife and recreation. Offered on demand.

333. Functions of Horticultural and Agronomic Crop Plants. Cr. 3. II.
Prerequisite: Hort. 131 and 231. Agron. 131, 221, and junior standing. The behavior growth processes, temperature relations, moisture relations, drought resistance, nutrition and food reserves, pollination, fertilization, and fruit setting, and permanent effects resulting from insect and fungi invasion of horticultural and agronomic crop plants.

341. Principles of Genetics. Cr. 4, (3-3). I and II.
Prerequisite: For agriculture students, Bot. 131-2, Ag. Eco. 331; for non-agriculture students, Math. 131. Heredity and variation in both plants and animals. History. The chromosome theory in higher animals, poultry, and insects. Biometry as applied to genetic data stressing economic plants and animals. The laboratory work may be modified for non-agriculture students.

411. Plant Industry Seminar. Cr. 1. II.
Prerequisite: Senior standing in Drpartment of Plant Industry. Assigned readings. Current advances and thought. Informal discussions, oral reports, and papers.

421. Plant Industry Problems. Cr. 2. I, II.
Prerequisite: Open to students having satisfactory scholastic records. An investigation of a problem in the field of special interest to the individual student concerned. Preparation of a research paper or a final examination.

431. Advanced Plant Breeding and Improvement. Cr. 3. II.
Prerequisite: P. I. 341 and two advanced courses in the deaprtmnet. Practical application of plant genetics in the breeding and improvement of plants. Research methods. The seed or the plant propagation farm.

432. Plant Industry Problems. Cr. 3. I, II.
Prerequisite: Open to all students having satisfactory scholastic records. An investigation of a problem in the field of special interest to the individual student concerned.

441. Plant Production. Cr. 4, (3-3) I, S.
A modified course composed of applied production of fiber and grain crops applicable to Texas, including problems in seed and feed production with special emphasis on needs of vocational agriculture teachers, county agents, etc.

512-3-4. Graduate Seminar. Cr. 1, 2, or 3. I, II, S.
Prerequisite: Graduate standing in agriculture or equivalent. Review and discussion of current literature in the field.

531-2-3. Plant Industry Problems. Cr. 3, 6 or 9. I, II, or S.
Prerequisite: Graduate standing and consent of major professor and head of department.

Credit to vary depending upon problem outlined. The work will consist of an outline of a specific problem in line with the major interest of the student and dealing with a phase of specialized study not included in regular course work.

535. Research Methods. Cr. 3. I.
Prerequisite: Graduate standing in agriculture or equivalent. Project outlines, research administration, research organization, fellowships, research budgets, thesis organization and writing, research foundations.

601. Thesis.

AGRONOMY

131. The Fundamentals of Crop Production. Cr. 3, (2-3). I, II.
A survey course. The importance and value of crops, their classification, identification, distribution, production, grading, and use. Tillage and elementary soils. Diseases and pests.

221. Soils. Cr. 2. I, II.
Prerequisite: Agron. 131, Chem. 131. Origin, formation, classification of soils. Physical, chemical, and biological requirements. Organic matter, moisture, productiveness, adaptation to use, and maintenance of soil fertility.

311. Soils Laboratory. Cr. 1, (0-3). I, II.
Prerequisite or parallel: Agron. 221. A laboratory and field study of soil-forming materials, soils texture, mechanical analysis, moisture relationships, classification, profile identification, organic matter, identification, field surveying, mapping, and determination of plant food availability in soils.

323. Principles of Crop Judging and Grain Grading. Cr. 2, (0-6). II.
Prerequisite: Agron. 131 and 221. The principles and factors determining the quality and value of seeds, grains, and crop products, farm and commercial consideration. Practice in identification, grading, judging, and testing.

331. Forage and Pasture Crops. Cr. 3, (2-3). I, II.
Prerequisite: Agron. 131 and six semester hours of botany. The production, harvesting, storage, and uses of forage crops, green manure, cover crops, hay, and pasture crops. Identification of seeds and plants. Classification, life history, and economic value of adapted pasture plants. Injurious plants and their control. Pasture conservation, revegetation, and management.

332. Grain Crops. Cr. 3, (2-3). I.
Prerequisite: Agron. 131 and six semester hours of botany. The production, harvesting, storage, grading, and use of grain crops. Adaptation, identification, and general improvement.

333. Range Plants. Cr. 3, (2-3). I.
Prerequisite or parallel: Agron. 331, Bot. 333 or equivalent. The economic value of range grasses, non-grasseous forage plants and poisonous plants. Identification, habitat, palatability, and regions of growth.

421. Cotton and Other Fiber Crops. Cr. 2. II.
Prerequisite: Junior standing in agronomy or approval of instructor. Culture and classification of cotton. Improvement of varieties. Diseases and insect pests of cotton. World cotton production.

422. Soil Management. Cr. 2. I.
Prerequisite: Agron. 221, 331, and registration in Ag. Engr. 411 or 432. Soil moisture conservation, run-off prevention, control of soil erosion, terracing, and supplemental water supply. Permanent farming under the conditions of light or wide seasonal variations of rainfall.

423. Soil Management. Cr. 2. II.
Prerequisite: Agron. 221, 331, 422, and registration in Ag. Engr. 412. Advanced soil conditions and plant growth. The nature and sources of plant nutrients, their liberation and conservation. Use of supplements and fertilizers. Irrigation and drainage.

424. Advanced Crop Judging and Grain Grading. Cr. 2, (0-6). I.
Prerequisite: Agron. 323, 331, 332. Special work in identification, judging, testing, grading, and market standards for grain crops, hay crops, and general farm crops. Inspection trips to grain exchange, shows, fair exhibits, and contests.

434. Soil Conservation and Land Use Planning. Cr. 3, (2-3). I, II, or S.
Prerequisite: Agron. 221, 331, or equivalents. A study of types of erosion, their causes and controls. Inspection trips to soil conservation projects and experiment stations in this region. Subject matter includes work and methods used in Soil Conservation Service. Land use planning and conservation management. Use of native and cultivated plants to conserve soil and maintain and conserve desirable wild life.

435. Soil Morphology and Genesis. Cr. 3, (2-3). I, II, or S.
Prerequisite: Senior classification in agriculture; Agron. 131, 221, and 331 or equivalent. The origin and classification of soils of the world and particularly of the United States.

436. Soil Chemistry. Cr. 3, (2-3). I, II, or S.
Prerequisite: Chem. 220, 341, Agron. 422 or equivalents. Chemistry of the soil as affected by cultivation, crop rotation, fertilizers, and moisture relationships.

437. Range Management. Cr. 3, (2-3) I.
Prerequisite: Senior classification in agriculture, Agron. 331, A. H. 331, Agron. 332. The agronomic management problems concerned in the protection and use of plants and soils under range conditions. Ecology, soil relationships, moisture conservation, revegetation, forage value and yields of permanent, temporary and supplemental pasture and range plants. With A. H. 438, composes a two-semester course, requires credit in A. H. 438 in following semester.

439. Soil Microbiology. Cr. 3. (2-3). I, II, or S.
Prerequisite: Bact. 231, Chem. 220 and 341, Agron. 422, or equivalents. The plant and animal forms of micro-organisms in the soil with particular emphasis upon the functions of the soil bacteria and their influence upon the decomposition of organic matter and soil fertility in general.

511-2-3. Grain Judging. Cr. 1, (0-3). I, II, or S.
Prerequisite: Graduate standing or a degree in agriculture. A study in the technique of judging, grading, identification, and selection of grains, seeds, and hay. All three courses must be taken and completed before credit will be given in any one of the three. Not open to students doing major work in agronomy.

601. Thesis.

HORTICULTURE

131. Principles of Horticulture and Plant Propagation. Cr. 3, (2-3). I, and II.
Fundamental principles and practices of orcharding, gardening; propagation by seeds, cuttings, division, budding, and grafting.

231. Vegetable Gardening. Cr. 3, (2-3). I, II.
Prerequisite: Hort. 131. The basic principles of market gardening and truck farming. Planning, planting, and caring for the home garden.

322. Landscape Appreciation. Cr. 2.
Prerequisite: Junior standing. History of gardening. Basic principles of landscape design for city and farm homes. Practice work on landscape problems. The principal trees and shrubs.

331. Trees and Shrubs. Cr. 3. I.
Prerequisite: Junior standing. Identification characteristics, and use of shrubs, deciduous and evergreen trees of economic and ornamental importance. Offered in alternate years; offered in 1946-47.

332. Annuals and Perennials. Cr. 3. II.
Prerequisite: Junior standing. Identification, characteristics, culture, and uses of annuals, perennials, bulbous crops, and outdoor roses. Offered in alternate years; not offered in 1946-47.

333. Fruit Culture. Cr. 3, (2-3). I.
Prerequisite: Hort. 131, junior standing in agriculture. Principles of fruit production; particularly, the home orchard. Tree fruits, grapes, and small fruits. Climatic, soil, and water requirements. Varieties and cultural practices. Offered in alternate years; not offered in 1946-47.

334-5. Principles of Floriculture. Cr. 3, (2-3). I and II.
Prerequisite: Hort. 131, junior standing. Greenhouse construction, heating, and management. Culture of special greenhouse crops. Retail mangement, flower arrangement and nursery management. Offered in alternate years; offered in 1946-47.

336-7. Landscape Design. Cr. 3, (1-6). I and II.
Prerequisite: Engr. Dwg. 223, Arch. 121, and 2216, junior standing. Principles of landscape design, the city home, country estates, gardens, small city parks, and playgrounds.

421. Citriculture. Cr. 2. I.
Prerequisite: Junior standing. Commercial production of citrus fruits, adaptation, soil requirements, temperature, orchard heating, and irrigation. Offered in alternate years. not offered in 1946-47.

431-2. Advanced Pomolgy. Cr. 3. I and II.
Prerequisite: Hort. 333, or registration in Hort. 433. The principles underlying fruit production. Temperature, moisture, irrigation, nutrition, fruit setting of pomological fruits Offered in alternate years; offered in 1946-47.

433. Systematic Pomology. Cr. 3, (2-3). I.
Prerequisite: Hort. 333, or registration in Hort. 431. Nomenclature, variety, description, classification, climatic and regional adaptation. Practice in describing and identifying varieties of fruits. Offered in alternate years; offered in 1946-47.

AGRICULTURAL ENGINEERING

321-2. Farm Shop. Cr. 2, (1-3). I and II.
Prerequisite: Junior standing. Care, fitting, and use of tools. Woodwork as affects farm problems. Construction of structures. Minor repair work for farm machinery and engines. Farm sheet metal, forging, pipe fitting, concrete, electric wiring, painting, and rope work.

323. Farm Machinery. Cr. 2, (1-3). I.
Prerequisite: Junior standing. Construction, care, operation, and repair of the different types of farm machinery.

331-2. Farm Power. Cr. 3, (2-3). I and II.
Prerequisite: Junior standing. The fundamental principles of operation of the gasoline engine as a source of farm stationary power, its operation, care and repair. Use of wind power, care and repair of wind engines. Operation, care, and repair of modern farm tractors. Use of electricity for stationary power, care of electric motors, methods of generating electricity for domestic use.

411. Soil Management Laboratory. Cr. 1, (0-3). I.
Prerequisite: Registration in Agron. 422. Terrace location, design, and construction for soil erosion control and moisture conservation. Design and construction of structures for terrace outlet and gulley control. Inspection trips to experiment stations and demonstration areas.

412. Soil Management Laboratory. Cr. 1, (0-3). II.
Prerequisite: Registration in Agron. 423. Design and lay-out of ditches and systems for irrigation or drainage. Tile drainage. Use of explosives. Measurements of water. Methods of applying water to land. Irrigation equipment and power requirements.

431. Farm Buildings. Cr. 3. II.
Prerequisite: Senior standing. Farm building objectives, location for efficient operation and sanitation. Materials of construction, dimensions, and floor plans .

432. Land Mapping and Measurement. Cr. 3, (1-6). I.
Prerequisite: Math. 130-131, Agron. 311 and 331. Study and construction of plane table and topographic maps and the interpretation of aerial maps with special application to field and range lands.

433. Advanced Farm Shop. Cr. 3, (1-6). I, II, S.
Prerequisite: Ag. Engr. 321, 322 or equivalent and 90 credit hours in agricultural curricula. Hot and cold metal work, arc and torch welding on farm machines; power tool use. Principles and practices in construction of electric appliances for the farm, concrete structures, septic tanks, chutes and trailers.

434. Advanced Farm Machinery. Cr. 3, (1-6). I, II, S.
Prerequisite: Ag. Engr. 321, 322 or equivalent and 90 credit hours in agricultural curricula. Types, uses and servicing, adjusting and repairing internal combustion engines with emphasis on farm tractors. Factors for calculating and reducing farm power and machinery costs. Adjusting and repairing field machines, much practice, cause and effect.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses in this department which may be taken for graduate credit are: P. I. 431, 432; Agron. 333, 421, 422, 423, 434, 435, 436, 437, 439; Hort. 431-2, 433; Ag. Engr. 411, 412, 432, 433, 434, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series which otherwise carry no graduate credit.

Department of Speech

PROFESSOR PENDLETON. INSTRUCTORS BURSON, UPSHAW.

A SPEECH CLINIC, open to students and other with defective speech, is conducted by the department one afternoon each week. No college credit is given for clinic work.

131. Fundamentals of Speech. Cr. 3. I, II.
Training in the basic principles of speech, with emphasis upon the original speech.

132. Public Speaking. Cr. 3. II.
Prerequisite: Speech 131. Continuation of fundamentals with emphasis on speeches directed toward specific purposes.

231. Principles of Acting. Cr. 3, (2-3). I.
Brief survey of the nature of drama and developments in the art of acting. Understanding and execution of the fundamentals of stage action. Analysis of line reading. Attack on the problems of characterization, including make-up. Material for illustrative exercises chosen from classical and current plays.

232. Play Production. Cr. 3, (2-3). II.
Prerequisite: Speech 231. Analysis of the problems of the director. Explanation of the structure of the theatre building and of backstage organization. Experience in work on various aspects of production, including scenery, properties, costuming, and lighting. Production of one-act plays as final project.

233. Voice and Diction. Cr. 3. I, II.
Analysis of the characteristics of good voice and speech usage. Structure and functioning of the speech mechanism. Discussion of the use of phonetics in study of pronunciation and the elements of various dialects. Practical exercises in developing adequate voice and speech control.

235. Argumentation and Debate. Cr. 3. I.
Prerequisite: Govt. 131-2 or 230-1, or parallel enrollment in government. Class discussion and debate upon questions of present-day interest. Emphasis on analysis and the use of evidence. Open to freshmen with permission of head of department.

236. Argumentation and Debate. Cr. 3. II.
Prerequisite: Speech 235. A study of the types of argument, fallacies, and the use of refutation and rebuttal. Briefing debate propositions. Both Speech 235 and 236 are required for speech majors.

335. Radio Speech. Cr. 3, (2-3). I, II.
Prerequisite: Six semester hours of speech, or by permission of head of department. A study of the background of radio broadcasting and speech in radio broadcasting. Announcing, the radio speech, interviews, and discussions.

336. Radio Program Production. Cr. 3, (2-3). II.
Prerequisite: Speech 335. Studio organization. Planning and production of programs.

338. Business and Professional Speech. Cr. 3. I, II.
Formerly Speech 331 and Speech 337. Prerequisite: Sophomore classification. Basic principles of speech applied to the speech needs of the professional man and woman. Practice in the construction and delivery of the various types of speeches and in group conference and discussion. For majors in the divisions of Agriculture, Commerce, Engineering, and Home Economics.

423. Advanced Stage Directing. Cr. 2, (1-3). I.
Prerequisite: Speech 231, 232. Discussions of the problems of the director with practical work in the staging of plays for public presentation.

432. Speech Correction. Cr. 3. I.
Prerequisite: Junior classification. Study of the nature and development of speech, including the structure of the speech mechanism and the science of phonetics. Recognition and diagnosis of speech defects and the defective speech personality.

433. Speech Correction. Cr. 3. II.
Prerequisite: Speech 432. Methods and treatment procedures in handling the common types of speech defects. Emphasis on treating defects of articulation. Both speech 432 and 433 are required for speech majors.

434. Speech Seminar. Cr. 3. I, II.
Prerequisite: Eighteen semester hours in speech. Sources and methods of finding material. Evaluation, assimilation, and organization of material.

435. Interpretative Reading. Cr. 3. II.
Prerequisite: Junior classification and eighteen semester hours of English. Students are advised to take Speech 233 before entering this class. Consideration of the problems of transferring meaning from the printed page to the listening audience. Discussion of the types of literature for oral interpretation. Practice in the interpretative reading of prose and poetry.

436. Radio Program-Planning, Direction, and Production. Cr. 3, (2-3). II.
Prerequisite: Speech 336. Program planning and production.

439. The Teaching of Speech. Cr. 3. II.
Prerequisite: Twenty semester hours in speech; twelve semester hours in education. Methods of teaching speech. Review of all phases of speech. A survey of the texts in speech; emphasis on making syllabi. Formerly, Speech 431.

Courses in this department which may be taken for graduate credit are: 423, 432-3, 434, 435, 439, if properly petitioned for and provided additional work or an added problem is done in each course numbered in the 300 or 400 series, which otherwise carry no graduate credit.

Department of Textile Engineering

PROFESSOR PARSONS. INSTRUCTORS CRADDOCK, KELLEY

231. Textile Fibers and Fabrics. Cr. 3, (2-3). I.
Fiber study, yarns, fabric design, and weaving. Fabrics, selection, and maintenance. Selection and proper use of textile material. Open to all students. Offered on sufficient demand.

234. Cotton Classing and Marketing. Cr. 3, (2-3). I.
The grading, stapling, and marketing of cotton from the producer to the spinner.

235. Textile Fibers and Yarn Preparation. Cr. 3, (2-3). II.
Textile fibers other than cotton, such as silk, wool, mohair, rayon, etc. Their physical and chemical properties and preparation for yarn manufacture.

326. Wool. Cr. 2, (2-0) II.
A study of wool as a finished product of the ranch and its commercial value as determined by its use as a textile raw material. It includes a study of the chemical and physical structure of the wool fiber, grading, sorting, scouring, and manufacturing into yarns and fabric.

331-2. Yarn Manufacture. Cr. 3, (2-3). I and II.
Prerequisite: T. E. 235. The principles of cotton yarn manufacturing, and the practical operation of opening, cleaning, picking, carding, drawing, and roving processes. The calculations involved with drafting, speeds, production, and power transmission through the various processes.

333-4. Bleaching and Dyeing. Cr. 3, (2-3). I and II.
Prerequisite: Registration in Chem. 343 or Chem. 341. The chemistry and practice of bleaching and dying animal, vegetable, and synthetic fibers in the principal forms—raw material, yarn, and fabric.

335-6. Fabric Design and Weaving. Cr. 3, (1-6). I and II.
Prerequisite: T. E. 235. Lectures and practical work in the structure and manufacture of the simpler types of fabrics. Plain and dobby looms with special regard to the mechanical principles involved.

421-2. Fabric Analysis Weaving and Jacquard Design Cr. 2, (1-3). I and II.
Prerequisite: T. E. 335-6. Analyzation of fabric construction. Advanced work in design of fancy woven fabrics. A continuation of the mechanics and operation of the various looms.

423. Advanced Dyeing and Color Matching. Cr. 2, (0-6). II.
Prerequisite: T. E. 331-2, 335-6, and registration in T. E. 435. The student designs the plant and machinery layout of a mill to manufacture a given quality of a textile product. Lectures are given on duties of operating executives and technical staffs.

424. Mill Organization. Cr. 2. I.
Prerequisite: T. E. 433 and registration in T. E. 434. Advanced dyeing and color matching to specifications on yarns and fabrics.

433-4. Dyeing and Finishing. Cr. 3, (2-3). I and II.
Prerequisite: T. E. 333-4. Practical application of the principles taught in T. E. 333-4; a study of rayon technology; and a study of the various finishing processes as applied to textile fabrics.

435. Advanced Yarn Manufacture. Cr. 3, (2-3). I
Prerequisite: T. E. 331-2. The principles of cotton spinning, spooling, winding, twisting, and warping, and the practical operations of the equipment involved.

436. Advanced Yarn Manufacture. Cr. 3, (1-6). II.
Prerequisite: T. E. 435. Methods of testing yarn and fabric quality, and the performance of an experimental or manufacturing project.

437. Cost Engineering. Cr. 3. II.
Prerequisite: T. E. 424. The first semester problem of T. E. 424 is used as a basis for setting up a cost system. A thorough study is made of predictions of costs for use in price setting.

Engineering Seminar 411-2. Cr. 1. I and II.
Credit for this course may be given as often as successfully repeated. The investigation and study of engineering problems of special interest and value to the students taking the course. Work is of the nature of research. May be taken only with permission of head of the department. Offered only to students of senior standing.

Courses in Bible and Religious Education

MR. CECIL RAYMOND MATTHEWS,
Northwest Texas Conference of the Methodist Church
MR. DEARL DALTON RICHARDSON, Disciples of Christ.
MR. CARL SPAIN, Churches of Christ.
TO BE SUPPLIED, Baptist General Convention of Texas.

131. Survey of the Old Testament. Cr. 3.

A survey of the content of the Old Testament in relation to the history of the Hebrews and their religious outlook on life.

132. Survey of the New Testament. Cr. 3.

A survey of the content of the New Testament in relation to its historical background and basic Christian teachings.

232. Contemporary Religious Problems. Cr. 3. II.

An inquiry into the problems of modern youth and the sharing of present religious thinking and past religious experience in facing these problems.

233. Studies in the Old Testament. Cr. 3. I.

Studies in the Old Testament: The divisions and books of the Old Testament are studied from the viewpoint of the unfolding of God's plan of redemption. God's dealing with men and nations are emphasized.

234. Studies in the New Testament. Cr. 3. II.

Studies in the New Testament. The Life of Christ recorded in the Synoptic Gospels and the deity of Christ set forth in the Gospel of John are studied. The Acts and the Epistles are considered in relationship to the coming of Jesus and the establishment of New Testament churches.

336. History of Christian Thought. Cr. 3. I, II.

Prerequisite: Bible 132. A study of significant developments in the thinking of Christians since the first Century pertaining to God, Christ, Holy Spirit, salvation, inspiration, man, and the church.

337. The Life of Christ. Cr. 3. I.

Prerequisite: Bible 131-132 or 233-234.

The Life of Christ: An historical study of the life, ministry, teachings of Jesus is pursued by means of a "Harmony of the Gospels." Each student will submit a term paper on a personally chosen topic relating to the Life of Christ.

338. The Spread of Christianity. Cr. 3. II.

The Spread of Christianity: The book of Acts is studied in its harmonic connection with the Epistles. The missionary program and message is traced through the historical records of the New Testament. A term paper on some phase of the Bible teaching on world missions will be submitted by each student.

431. The Prophets. Cr. 3. I.

Prerequisite: Junior classification. A careful study of the major prophets, their place in history, and their message.

432. The Teachings of Jesus. Cr. 3. II.

Prerequisite: Junior Classification. A study of the life, techings, and significance of Jesus as revealed in the Gospels.

433. Christian Evidences. Cr. 3. I, II.

Prerequisite: Bible 131-2. or 337-8. A survey of the entire field of Christian evidences with special emphasis on the credentials of Christ as constituting the heart of Christian evidences. In the fall semester emphasis will also be given to the Scripture Text and Canon.

434. Comparative Religion. Cr. 3. II.

Prerequisite: Bible 432 or 132. This course includes a study of the origin and fruits of the chief world religions (Confusianism, Buddhism, Toaism, Hinduism, Mohammedanism, Zoroastrianism.)

ENROLLMENT

Enrollment for the Long Session, 1946-47

	Freshmen	Sophomores	Juniors	Seniors	Graduates	Totals
Agriculture	417	137	81	98	10	743
Arts and Sciences	807	458	281	183	71	1800
Business Administration	563	236	170	113	7	1089
Engineering	1037	518	242	206	—	2003
Home Economics	208	104	82	55	11	460
Totals	3032	1453	856	655	99	6095

Total Men Students—4455 Total Women Students—1640

Enrollment for the Summer Session, 1946

	Freshmen	Sophomores	Juniors	Seniors	Graduates	Totals
Agriculture	112	54	58	54	19	297
Arts and Sciences	230	228	214	180	102	954
Business Administration	143	116	88	63	11	421
Engineering	373	189	122	93	2	779
Home Economics	83	32	55	45	4	219
Totals	941	619	537	435	138	2670

Total Men Students—1837 Total Women Students—833

EXTENSION

Individual Enrollments in extension classes	840
Individual Enrollments in correspondence courses	1785
Total enrollment, June 1, 1946 to June 1, 1947	2625

Attendance 1925-1947

Year	Long Session	Summer Session	Extension	Totals
1925-26	1043	336		1379
1926-27	1535	677		2212
1927-28	1682	965	386	3033
1928-29	2088	1298	820	4206
1929-30	2353	1316	1098	4767
1930-31	2319	1556	1227	5102
1931-32	2155	1606	1011	4772
1932-33	2332	1288	833	4453
1933-34	2361	1970	1236	5567
1934-35	2684	1956	1403	6043
1935-36	2748	1678	1522	5948
1936-37	3010	1695	1255	5960
1937-38	3494	1839	1067	6400
1938-39	3896	1932	1137	6965
1939-40	4246	1800	1198	7244
1940-41	4076	1522	1063	6661
1941-42	3824	1653	1050	6527
1942-43	3079	1140	1273	5492
1943-44	1928	1060	1354	4342
1944-45	2222	1060	2084	5366
1945-46	3744	2670	1791	8205
1946-47	6095	—		

DEGREES CONFERRED 1927-1946

Division of Agriculture

	Conferred in 1946 Men	Women	Totals Both	1927-47
Bachelor of Science in Agriculture	24	—	24	621
Master of Science	1	—	1	34
Total for Division of Agriculture	25	—	25	655

Division of Arts and Sciences

Bachelor of Arts	16	63	79	2371
Bachelor of Science	6	2	8	139
Bachelor of Science in Education	10	34	44	746
Master of Arts	2	1	3	439
Master of Education	8	2	10	63
Master of Science	—	—	—	29
Master of Science in Education	—	—	—	1
Total for Division of Arts and Sciences	42	102	144	3788

Division of Business Administration

Bachelor of Business Administration	21	33	54	734
Bachelor of Science	1	—	1	1
Master of Business Administration	—	—	—	10
Total for Division of Business Administration	22	33	55	745

Division of Engineering

Bachelor of Architecture	2	—	2	18
Bachelor of Arts	2	5	7	57
Bachelor of Commercial Art	—	—	—	4
Bachelor of Science in Architectural Engineering	—	—	—	32
Bachelor of Science in Chemical Engineering	4	—	4	109
Bachelor of Science in Civil Engineering	4	—	4	129
Bachelor of Science in Electrical Engineering	6	—	6	168
Bachelor of Science in Geological Engineering	—	—	—	23
Bachelor of Science in Industrial Education	—	—	—	1
Bachelor of Science in Industrial Engineering	1	—	1	19
Bachelor of Science in Mechanical Engineering	3	—	3	151
Bachelor of Science in Petroleum Engineering	3	—	3	80
Bachelor of Science in Textile Engineering	—	—	—	56
Bachelor of Science in Textiles	—	—	—	19
Master of Science	—	—	—	11
Total for Division of Engineering	25	5	30	877

Division of Home Economics

Bachelor of Science in Home Economics	—	36	36	749
Master of Science	—	1	1	11
Total for Division of Home Economics	—	37	37	76(

Honorary Degrees

Doctor of Laws	—	—	—	6
Doctor of Science	—	—	—	1
Total Honorary Degrees	—	—	—	7
TOTAL DEGREES CONFERRED BY COLLEGE	**114**	**177**	**291**	**6832**

SUMMARY OF DEGREES CONFERRED 1927-46

Total Bachelors Degrees Conferred	6227	Total Men Receiving Degrees	3447
Total Masters Degrees Conferred	598	Total Women Receiving Degrees	3385
Total Doctors Degrees Conferred	7		
Total—	6832		

APPENDIX

TEXAS TECHNOLOGICAL COLLEGE — ESTABLISHING AND PROVIDING FOR THE LOCATION THEREOF.

S. B. No. 103 Chapter 20 (page 32)

GENERAL LAWS OF THE STATE OF TEXAS Passed by the THIRTY-EIGHTH LEGISLATURE at the REGULAR SESSION.

An act to establish a State College in Texas, west of the ninety-eighth (98th) meridian and north of the twenty-ninth (29th) parallel, to be known as the Texas Technological College; providing for the location of such college; its government; the control of its finances; defining its leading objects and prescribing generally the nature and scope of instruction to be given; conferring upon the Board of Directors of said college the rights of eminent domain; making the necessary appropriations for the purchase of land, the location, establishing, and maintenance of said college and declaring an emergency.
Be it enacted by the Legislature of the State of Texas

Section 1. There shall be established in the state a college for white students, to be known as the Texas Technological College, said college to be located north of the twenty-ninth (29th) parallel, and west of the ninety-eighth (98th) meridian and shall be a co-educational college giving thorough instruction in technology and textile engineering from which a student may reach the highest degree of education along the lines of manufacturing cotton, wool, leather, and other raw materials produced in Texas, including all branches of textile engineering, the chemistry of materials, the technique of weaving, dyeing, tanning, and the doing of any and all other things necessary for the manufacture of raw materials into finished products; and said college shall also have complete courses in arts and sciences, physical, social, political, pure and applied, such as are taught in colleges of the first class leading to the degrees of Bachelor of Science, Bachelor of Arts, Bachelor of Literature, Bachelor of Technology, and any and all other degrees given by colleges of the first class; said college being designated to elevate the ideals, enrich the lives and increase the capacity of the people for democratic self-government and particularly to give instruction in technological, manufacturing, and agricultural pursuits, and domestic husbandry and home economics, so that the boys and girls of this state may attain the highest usefulness and greatest happiness and in so doing may prepare themselves for producing from the State its greatest possible wealth.

Sec. 2. The government, control, and direction of the policies of said Technological College shall be vested in a board of nine (9) directors to be appointed by the Governor, who shall hold office for a period of six (6) years, said board of nine (9) directors to be so divided that the terms of three (3) directors shall expire every two years and it shall be the duty of the Governor, in making the appointment of the first board of directors, to indicate in his appointment the name of the director whose term shall expire in two (2) years, the name of the director whose term shall expire in four (4) years, and the name of the director whose term shall expire in six (6) years; all of said directors to hold their office until their successors are qualified, unless a removal is made by the governor for inefficiency or inattention to their duties as members of such board.

The board of directors of the Texas Technological College shall provide a president therefor, who shall devote his entire time to the executive management of said school and who shall be directly accountable to the Board of Directors for the conduct thereof.

Sec. 3. In addition to the courses provided in technology and textile engineering, the said Texas Technological College shall offer the usual college courses given in standard senior colleges of the first class, and shall be empowered to confer appropriate degrees to be determined by the Board of Directors and shall offer four-year courses, two-year courses, or short-term courses in farm and ranch husbandry and economics and the chemistry of soils and the adaptation of farm crops to the peculiar soil, climate and condition of that portion of the State in which the college is located, and such other courses and degrees as the board of directors may see fit to provide as a means of supplying the educational facilities necessary for this section of the State, and it shall be the duty of the board of directors to furnish such assistance to the faculty and students of said college as will enable them to do original research work and to apply the latest and most approved method of manufacturing and, in general, to afford the facilities of the college for the purpose of originating, developing, supporting, and maintaining all of these agencies (physical, mental and moral) for the development of physical, mental and moral welfare of the students who attend the college and for the further purpose of developing the material resources of the State to their highest point of value and usefulness by teaching the arts of commerce and manufacturing. All male students attending this college shall be required to receive such instruction in military science and tactics as the board of directors may prescribe which shall, at all times, comply in full with the requirements of the United States Government now given as prerequisite to any aid extended by the Government of the United States to State institutions of this character and all such white male students shall, during their attendance at such college, be subject to such military discipline and control as the board of directors shall prescribe.

Sec. 4. The chairman of the State Board of Control and the State Superintendent of Public Instruction, the President of the University of Texas, the President of the College of Industrial Arts of Texas, and the President of the Agricultural and Mechanical College of Texas shall constitute a board charged with the responsibility for the location of the Texas Technological College, a majority of whom shall be authorized to act un-

der the terms of this bill in the location of said school; said board being restricted in the choice of location to the area mentioned in section 1 of this act and as soon after the passage and approval of this act as practical, said locating board shall make careful investigation of proposed sites for the said institution. Consideration shall be given to climatic conditions, supply of water, accessibility and such other matters as may appropriately enter into the selection of the desireable location of an instiution of this knd. It is further provided that the said locating board shall not be influenced to any degree in the determination of its selection of a location by offers and promises of bonuses and gifts, directly or indirectly, to the State of Texas, as a consideration for the location of said college at any particular place, but a primary consideration which shall outweight all others in the minds of the members of the locating board, shall be to locate this college where it can, in the future, render the greatest service to the State and to the section of the United States for which it is especially intended; but this is not to be interpreted to mean that the Board of Directors shall not have authority to accept gifts of land, money for student loans, permanent improvement or any other objects of value when tendered for the purpose of more completely carrying out the purpose of this act; said gifts to be made after said school is located and established and if a suitable location for said college is offered by any city or community. The lands bought shall be so located that the administration building will be within convenient distance to the residence section of the town where located, or the place where the students reside.

Sec. 5. The said locating board shall have authority to select approximately two thousand (2,000) acres of land for the site of said college and agree with the owner or owners thereof upon the price to be paid therefor, which said agreement shall be reduced to writing and by the said locating board signed and delivered to the board of directors herein provided for, who shall thereupon have full authority to contract for the purchase of said land for said purpose, and upon the apprval of the title thereto by the Attorney General of the State of Texas, to pay for said land and any improvements thereon in any sum not to exceed one hundred and fifty thousand ($150,000) dollars.

Sec. 6. It is further provided that, when said locating board has selected a site for said college, it shall be the duty of said board to make a full and complete report of all details connected with the selection of the site for the said college to the Governor of the State of Texas. The filing of this report with the Secretary of State shall legally constitute the establishing of the college.

Sec. 7. The Board of Directors of the said Texas Technological College is hereby vested with the powers of eminent domain to acquire for the use of said college such land as may be necessary for the purpose of carrying out its purposes by condemnation proceedings such as are now provided for railroad companies under the laws of the State of Texas.

Sec. 8. There is hereby appropriated from the general revenue of the State, not otherwise appropriated, the following sums, or so much thereof as may be necessary.

1. Twenty-five hundred ($2,500) dollars of the available revenue of the State, or so much thereof as may be necessary, to become available upon the passage and approval of this act, for the purpose of paying the expenses of the locating board in determining the location of said institution.

2. One hundred and fifty thousand ($150,000) dollars of the available revenues of this State, or so much thereof as may be necessary, to become available September 1, 1923, for the purchase of the necessary lands for the location and establishment of said school, and any portion of which amount is not used for the purchase of lands shall be available fr the purposes provided in the following sections thereof.

3. Five hundred thousand ($500,000) dollars for the fiscal year ending August 31, 1924, for the purpose of providing necessary utilities, machinery, permanent improvements, equipment, and buildings for said college.

4. Three hundred and fifty thousand ($350,000) for the fiscal year ending August 31, 1925, for the purpose of providing necessary utilities, machinery, permanent improvements, equipment, and buildings for said college; and

5. In the event any portion of the sums hereby appropriated should not be used for and during the year for which they are hereby appropriated, such sums shall become available for the succeeding year, for the purpose herein provided, and for no other.

Sec. 9. The fact that Texas is producing annually millions of dollars worth of raw materials, which are being shipped to distant factories to be made into finished products, together with the fact that Texas has no adequate institutions for teaching technology and the art of textile manufacturing and the fact that the needs of that portion of the State where this college shall be located are inadequately supplied with educational institutions, create an emergency and an imperative public necessity for this act to take effect at once and for the suspension of the constitutional rule requiring bills to be read on three several days, it is therefore enacted that said rule be suspended and this act take effect and be in force on and after its passage.

SUMMER SESSION

The summer session of Texas Technological College is an integral part of the school year. Divided into two six-week terms, the session will begin soon after June 1 and will close toward the latter part of August. Students may attend for either six- week term or for the entire session.

The purpose of the summer school is to furnish opportunity for make up work and to accelerate the normal four-year program for those interested. The summer session staff is composed of regular faculty members and the entire plant and physical property of the college is at the disposal of summer school students to the extent needed. The summer session is of special interest to public school teachers and administrators. Opportunity will be given for meeting the requirements of teacher's certificates and for renewing certificates.

RESEARCH

The legislative act creating Texas Technological College recognized the necessity of research in all branches of academic training. The act also pointed out the responsibility of the college for the industrial development, through research, of the State but with particular reference to the resources of the western portion of the State.

In furtherance of this same belief the legislatures have appropriated annually since 1941 the sum of $50,000.00 to aid research in all phases of college work. Additional funds have been appropriated for the particular study of cotton and it is anticipated that this study will be broadened to include other textiles, agricultural products, and mineral resources.

It is the policy of the college to use such funds as may be allocated to it to further research by co-operative work with industry. Several such projects are underway and numerous others are in prospect. It is believed that by such co-operative work the greatest benefit will accrue to the State by the development of both the producer of the raw materials and the processers of those materials.

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