

Bulletin Of

TEXAS TECHNOLOGICAL COLLEGE

VOL. XXIV.

AUGUST, 1948

NO. 4

**TWENTY-THIRD
ANNUAL CATALOG**

With Announcements for 1948-49



TEXAS TECHNOLOGICAL COLLEGE
LUBBOCK, TEXAS

Issued in February, April, June, August, October and December of each year by the Texas Technological College of Lubbock, Texas. Entered as second-class matter, December 24, 1924 at post office, at Lubbock, Texas, under the act of August 24, 1912.

1948

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COLLEGE CALENDAR FOR 1948-1949

Twenty-Fourth Annual Session

First Semester

1948

- Sept. 13. Monday, 10 A. M. General faculty meeting.
- Sept. 13. Monday. Dormitories open. First meal at noon.
- Sept. 13. Monday, 1:30 P. M. All entering freshmen report to college gymnasium.
- Sept. 13-15. Monday-Wednesday. Freshmen counseling program.
- Sept. 15. Wednesday. Preregistration consultations for all students.
- Sept. 16, 17, 18. Thursday, Friday, Saturday. Registration for fall semester.
- Sept. 20. Monday, 8 A. M. Classes begin.
- Sept. 21. Tuesday, 5 P. M. Late registration fee will be charged after that time.
- Sept. 24. Friday. Last day a student may register for the first semester.
- Sept. 24. Friday. All-Church Night—Lubbock churches.
- Sept. 25. Saturday. Last day to add courses.
- Sept. 29. Wednesday, 10-12 A. M. Student convocation. Election of class officers for the year.
- Oct. 9. Saturday. Last day for filing with academic dean request to make up examinations missed and postponed or to remove conditions incurred during the preceding spring semester.
- Oct. 18. Monday. Progress reports on freshmen due in Registrar's Office at 5 P. M.
- Oct. 23. Saturday. Date for taking examinations petitioned for on Oct. 9.
- Oct. 23. Saturday. Last day on which petition may be filed to drop a course without grade penalty.
- Oct. 30. Saturday. Annual Homecoming.
- Nov. 1-4. Monday-Thursday. Religious Emphasis Week.
- Nov. 20. Saturday, 5 P. M. Mid-semester reports due in Registrar's Office.
- Nov. 25, 26, 27. Thursday, Friday, Saturday. Thanksgiving holidays.
- Dec. 21. Tuesday, 10 P. M. Classes dismissed for Christmas holidays.

1949

- Jan. 3. Monday, 8 A. M. Classes resumed after Christmas holidays.
- Jan. 14-20. Friday-Thursday. Week of restricted social activities.
- Jan. 21-27. Friday-Thursday. Final examinations first semester.
- Jan. 28. Friday. Students without room reservations for the spring semester must vacate dormitory rooms not later than that date.
- Jan. 31. Monday, 8 A. M. First semester ends.

Second Semester

1949

- Jan. 31. Monday, 8 A. M. Second semester begins. New occupants may enter dormitories.
- Jan. 31. Monday. Entering freshmen assemble in Aggie Memorial Auditorium, 8 A. M.
- Feb. 1, 2, 3. Tuesday, Wednesday, Thursday. Registration for spring semester.
- Feb. 4. Friday, 8 A. M. Classes begin.
- Feb. 5. Saturday, 12 M. Late registration fee charged after that date.
- Feb. 9. Wednesday. Last day a student may register in the second semester.
- Feb. 11. Friday. All-Church night—Lubbock churches.
- Feb. 12. Saturday. Last day to add courses in second semester.
- Mar. 4. Friday. Progress reports on all freshmen due in Registrar's Office at 5 P. M.
- Mar. 7-10. Monday-Thursday. Willson lectures.
- Mar. 10. Thursday. Last day on which petition may be filed to drop a course without grade penalty.
- Apr. 8. Friday. Mid-semester reports due in Registrar's Office 5 P. M.
- Apr. 14. Thursday, 10 P. M. Easter vacation begins.
- Apr. 19. Tuesday, 8 A. M. Easter vacation ends and classes begin.
- May 1. Sunday. Parent's Day. All-College Recognition Day.
- May 7. Saturday. Last day for submission of first draft of thesis for Master's Degree for June graduates.
- May 19-25. Thursday-Wednesday. Week of restricted social activities.
- May 26-June 1. Thursday-Wednesday. Final examinations second semester.
- June 3. Friday. Last day for submission of thesis for binding (graduate students).
- June 4. Saturday, 10 A. M. Meeting of deans and department heads.
- June 5. Sunday, 8 P. M. Baccalaureate sermon.
- June 6. Monday, 8 P. M. Commencement. Long session ends.
- June 8. Wednesday. Summer session begins.

BOARD OF DIRECTORS

CHARLES C. THOMPSON, *Chairman* Colorado City

MARK MCGEE, *Vice-Chairman* Fort Worth

CHANSLOE 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

Academic Year 1947-48

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
Offices, 217, 219 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.

LEWIS NORTON JONES, B. S., M. A., *Assistant Dean of Men*
Office, 109 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
Dormitory Administration Building.

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, 102 Extension 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.

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- 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*

FACULTY COUNCIL

Explanations of Symbols

* Fall Semester, 1947-48.

** Spring Semester, 1947-48.

† Resigned.

‡ On leave.

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

BYRON ROBERT ABERNETHY, B. A., M. A., Ph. D., *Associate Professor of Government.*

JAMES FOOTE ADAMS, *Instructor in Government.*

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.*

VIVIAN JOHNSON ADAMS, B. S., M. A., *Professor and Head Department of Home Economics Education.*

BEATRICE WITTE ALEXANDER, B. A., M. A., *Instructor in Foreign Languages.*

THEODORE WALTER ALEXANDER, B. S., M. S., *Instructor in Foreign Languages.*

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

LOUISE CRAWFORD ALLEN, B. A., M. A., *Assistant Professor of Journalism.*

**EMMET DOUGLAS ANDERSON, B. S., *Lecturer in Civil Engineering.*

†GLENNIS ANDERSON, B. A., *Instructor in Architecture.*

HUGH ALLEN ANDERSON, B. A., M. A., *Coordinator of Veterans Affairs and Associate Professor of Economics and Management.*

MARGARET BRASHEARS ATKINSON, B. S., *Assistant Professor of Engineering Drawing.*

CECIL IRVY AYERS, B. S., M. S., *Assistant Professor of Agronomy.*

MARGUERITE SIVELS BAILEY, B. S., M. A., *Instructor in Mathematics.*

HATTIE CHARLOTTE BALLOW, B. S., M. S., *Assistant Professor of Child Development.*

ALBERT BARNETT, B. S., M. A., Ph. D., *Professor of Education and Psychology.*

ROY BYRN BASS, B. A., LL. B., *Part-time Lecturer in Finance and Government.*

JOHN HENRY BAUMGARDNER, B. S., M. S., *Assistant Professor of Animal Husbandry.*

LEROY EDWARD BEHRENS, Master Sergeant, United States Air Force, *Assistant Air ROTC Instructor.*

• ETHEL JANE BEITLER, B. S., M. Ed., *Assistant Professor of Applied Arts.*

BYRON JIRDEN BENNETT, B. S., *Associate Professor of Electrical Engineering.*

LUCY RICHARDSON BIBB, B. S., M. S., *Assistant Professor of Clothing and Textiles.*

JUANITA BLACK, B. S., *Instructor in Architecture.*

**LOTUS BERRY BLACKWELL, B. A., *Instructor in Marketing and Secretarial Administration.*

JULIEN PAUL BLITZ, Laureate cum Laude, Royal Government Conservatory, Ghent, Belgium; D. Music, *Professor and Head Department of Music.*

**ADRIAN C. W. BOWDEN, B. S., *Part-time Lecturer in Civil Engineering.*

JOHN ROSS BRADFORD, B. S., *Lecturer in Physics.*

WELDON LEROY BRADSHAW, B. S. in Arch., *Professor of Architectural Engineering.*

WOODROW WILSON BROOKS, Master Sergeant, United States Army, *Assistant ROTC Instructor.*

*DUDLEY KENWOOD BRUMMETT, *Part-time Lecturer in Government.*

MATTIE LOU BRYANT, B. S., *Instructor in Chemistry.*

CHARLES VICTOR BULLEN, B. S. in E. E., M. S. in E. E., *Professor and Head Department of Electrical Engineering.*

LAWRENCE ORR BUNTON, *Lecturer in Textile Engineering.*

NAUD BURNETT, B. S., *Instructor in Plant Industry.*

EDNA WALKER BUSTER, B. S., M. A., *Associate Professor of Clothing and Textiles.*

HARRISON BUTTERWORTH, B. A., M. A., *Instructor in English.*

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SANNIE CALLAN, B. S., M. A., *Professor and Head Department of Child Development.*

EARL D. CAMP, B. S., M. S., *Instructor in Botany.*

TRUMAN WILDES CAMP, B. A., Ph. D., *Associate Professor and Chairman Department of English.*

JOE THOMAS CARDWELL, B. S., *Instructor in Dairy Manufactures.*

MARVIN WARLICK CARR, B. A., LL. B., *Part-time Lecturer in Accounting and Finance.*

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BILLIE JONES CASKEY, B. S., *Instructor in Child Development.*

- RAY LEON CHAPPELLE, B. S., M. S., *Professor and Head Department of Agricultural Education.*
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- VERNON THOMAS CLOVER, B. S., M. S., Ph. D., *Associate Professor of Economics.*
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- POLLY IMOGENE COOK, B. A., *Instructor in Biology.*
- LEWIS BRISCOE COOPER, B. S., M. A., Ph. D., *Associate Professor of Education and Psychology.*
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- WILLIAM LOUIS CURIK, B. S., Major, United States Air Force, *Assistant Professor of Military Science and Tactics.*
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- JOE DENNIS, B. A., M. A., Ph. D., *Professor of Chemistry.*
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- LOLA MARIE DREW, B. S., M. A., *Assistant Professor of Home Management.*
- **WILLIAM LYON DUCKER, B. S., *Professor and Head Department of Petroleum Engineering.*
- GEORGE DUPREE, LL. B., *Part-time Professor of Business Law.*
- BONNIE KATHERINE DYSART, B. S., M. A., *Associate Professor of Education and Psychology.*
- CHARLES DUDLEY EAVES, B. A., M. A., Ph. D., *Professor of History.*
- LUTA PELHAM EAVES, B. B. A., M. B. A., *Assistant Professor of Accounting and Finance.*

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- JOHN MCCOY GOODMAN, B. B. A., Major, Signal Corps, United States Army, *Assistant Professor of Military Science and Tactics.*
- ROBERT CABANISS GOODWIN, B. A., M. A., Ph. D., *Dean of Arts and Sciences, Professor and Head Department of Chemistry and Chemical Engineering.*
- JAMES MARCUS GORDON, B. A., M. A., LL. D., *Professor of Foreign Languages.*
- HERBERT WALDO GRANT, B. A., M. A., *Assistant Professor of Mathematics.*
- MARTHA ELLEN GRAVES, B. S., M. S., *Associate Professor of Home Economics Education.*
- LOLA BETH GREEN, B. A., M. A., *Instructor in English.*
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- WILLIS BERNARD GUNN, B. A., *Instructor in Biology.*
- JOE LEON HADDON, B. S., *Lecturer in Music.*
- THOMAS EARLE HAMILTON, B. A., M. A., Ph. D., *Associate Professor of Spanish.*
- GEORGE RANDOLPH HAMLETT, B. A., M. A., *Assistant Professor of Foreign Languages.*

* Deceased, March 15, 1948.

- FRED GEORGE HARBAUGH, B. S., D. V. M., *Professor of Animal Husbandry and Veterinarian.*
- CARLTON EUGENE HARDEY, B. A., *Instructor in Chemistry.*
- JOHN COYNE HARDGRAVE, *Associate Professor of Mechanical Engineering.*
- JAMES FENTON HARDING, B. S. in C. E., M. S. in C. E., *Associate Professor of Civil Engineering.*
- JOHN ELZIE HARDING, B. A., M. A., *Assistant Professor of Economics and Management.*
- LEVI MARLIN HARGRAVE, B. S., M. S., *Associate Professor of Agricultural Education.*
- LAURENCE GEORGE HARMON, B. S., M. S., *Professor and Acting Chairman Department of Dairy Manufactures.*
- MARIE DAWKINS HARRISON, B. A., M. A., *Instructor in English.*
- BEULAH FAY HATTOX, B. S., M. S., *Instructor in Foods and Nutrition.*
- ELIZABETH EMMA HAWLEY, B. A., M. A., *Assistant Professor of Applied Arts.*
- EMMETT ALLEN HAZLEWOOD, B. S., M. A., Ph. D., *Professor of Mathematics.*
- ELLIS RICHARD HEINEMAN, B. A., M. A., *Professor of Mathematics.*
- MARGARET MONROE HENDERSON, B. B. A., *Instructor in Secretarial Administration.*
- CARL HENNINGER, B. A., M. A., *Associate Professor of German.*
- MARY FRANCIS HILL, B. A., M. A., *Instructor in Physical Education for Women.*
- WILLIAM CURRY HOLDEN, B. A., M. A., Ph. D., *Dean of Graduate Studies, Professor and Head Department of History and Anthropology.*
- MARY BELLE HOLLAND, B. A., M. A., *Instructor in Mathematics.*
- LETA JANE HOLMAN, B. S., *Instructor in Biology.*
- CECIL HORNE, B. A., *Professor and Head Department of Journalism.*
- EDNA NAWANNA HOUGHTON, B. S. in A. E., *Assistant Professor of Architecture.*
- CHARLES ERNEST HOUSTON, B. S. in E. E., M. A., *Associate Professor of Electrical Engineering.*
- CHESTER BURL HUBBARD, B. S., *Instructor in Economics and Management.*
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- J. W. JACKSON, B. A., M. A., *Professor of Government.*
- LEONARD LEROY JANSEN, B. S., *Instructor in Biology.*
- WILLIAM LOYD JENKINS, B. S. in I. E., *Instructor in Engineering Drawing.*
- WILLIAM MORLEY JENNINGS, B. S., *Professor and Head Department of Physical Education for Men, Director of Athletics.*

PHILIP JOHNSON, B. S., *Instructor in Petroleum Engineering.*

**MEDA JOHNSTON, B. S., *Instructor in Architecture.*

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

SUSIE NORMAN, KAMMERDIENER, B. A., M. A., *Instructor in Mathematics.*

GLENNA FAYE BAILEY KEESEE, B. S., *Lecturer in Geology.*

CHARLES EMERY KILPATRICK, Master Sergeant, United States Army, *Assistant ROTC Instructor.*

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

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.*

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 FREDERIC 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., M. S., *Instructor in Geology.*

WOODROW WILSON LAUDERDALE, B. S., *Instructor in Mechanical Engineering.*

CECIL JIM 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.*

ARCHIE LEROY LEONARD, B. S., M. S., *Associate Professor of Agricultural Economics.*

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

EDWARD ELLSWORTH LINDSAY, First Lieutenant, Corps of Engineers, United States Army, *Assistant Professor of Military Science and Tactics.*

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

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.*

LILLIAN ETTA MCGLOTHLIN, B. A., M. A., *Instructor in Mathematics.*

MARION MCGUIRE, A. B., M. A., *Assistant Professor of Speech.*

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

WILL LOVING MCLENDON, B. S., M. A., *Instructor in Foreign Languages.*

- CLARA MUELLER MCPHERSON, B. S., M. S., *Instructor in Foods and Nutrition.*
- 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.*
- HAROLD VINCENT MAIXNER, B. S., Lt. Colonel, Infantry, United States Army, *Assistant Professor of Military Science and Tactics.*
- THURSTON NATHANIEL MALLARD, B. S., First Lieutenant, United States Air Force, *Assistant Professor of Military Science and Tactics.*
- DON A. MARSHALL, B. S., M. S., Ph. D., *Associate Professor of Agricultural Economics.*
- §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 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., Ph. D., *Associate Professor of Economics and Management.*
- TIPP MOONEY, JR., B. S., *Assistant Football Coach.*
- JOHN ODELL MORGAN, B. A., *Head Football Coach.*
- THOMAS ORLANDO MORGAN, Staff Sergeant, United States Army, *Assistant ROTC Instructor.*
- G. B. MORRIS, B. A., *Assistant Professor of Physical Education for Men.*
- JOE FRANKLIN MOUNSEY, Master 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.

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

COLEMAN ART O'BRIEN, B. S., M. S., Assistant Professor of Animal Husbandry.

**JAMES LOUIS ODLE, B. S., Lecturer in Civil Engineering.

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

ROBERT PARKER, B. A., M. A., Assistant Professor of Mathematics.

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.

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., Professor of Engineering Drawing.

EMMA SUE PHELPS, B. A., M. A., Instructor in Speech.

GEORGE REX PHILBRICK, B. S., Lecturer in Physical Education for Men.

ALTA ELLEN PLEMONS, B. S., Instructor in Chemistry.

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

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

MARY MONTGOMERY PRITCHETT, B. S., M. A., Assistant Professor of Foods and Nutrition.

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.

WILLIAM FRANCIS RAFFANIELLO, B. A., M. A., Instructor in English.

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

FLOYD LEON REYNOLDS, B. A., M. A., Assistant Professor of Foreign Languages.

ROBERT POLK RIORDAN, B. A., Lt. Colonel, United States Air Force, Professor of Military Science and Tactics for Air.

*VIRGINIA BOWMAN ROBERTS, B. A., M. A., Instructor in Mathematics.

- WILBUR IRVIN ROBINSON, B. S., M. S., Ph. D., *Associate Professor of Geology.*
- POLK ROBISON, B. A., *Associate Professor of Physical Education for Men.*
- KATE ELLEN ROGERS, B. A., M. A., *Instructor in Applied Arts.*
- 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.*
- LESLIE JOE ROPER, Master Sergeant, United States Army, *Assistant ROTC Instructor.*
- 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.*
- ROSALYN BASS SASSER, B. A., *Instructor in Architecture.*
- 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.*
- JESSE Q. SEALEY, B. A., M. A., *Assistant Professor of Biology.*
- STUART FREDERIC SHAFTER, B. T., *Assistant Professor of Textile Engineering.*
- JAMES THOMAS SHAVER, B. S., M. A., *Associate Professor of Education.*
- MYRTLE DUNN SHORT, B. Mus., *Part-time Instructor in Music.*
- RAYMOND GILBERT SIDWELL, B. A., M. A., Ph. D., *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 Sociology.*
- WILLIE EDITH SMITH, B. S., M. S., *Part-time Instructor in Institutional Management.*
- 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.*
- THOMAS WALTON SPURGIN, B. A., Major, United States Air Force, *Assistant Professor of Military Science and Tactics.*
- 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 JACK STEFFY, B. of M. E., *Lecturer in Physics.*
- TOM BASIL STENIS, B. S., in E. E., M. S., in E. E., *Assistant Professor of Electrical Engineering.*
- ALFRED BELL STREHLI, B. A., B. S., M. A., *Assistant Professor of Spanish.*
- JOHN LEE STRIBLING, JR., B. S., *Instructor in Electrical Engineering.*
- 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 Air Force, *Assistant Air ROTC Instructor.*
- CECIL DEWIE TAYLOR, First Sergeant, United States Air Force, *Assistant Instructor.*
- HASKELL GRANT TAYLOR, B. B. A., M. A., *Associate 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.*
- EDISON HUXLEY THOMAS, B. A., M. B. A., *Instructor in Mathematics.*
- EARL L. THOMPSON, B. A., M. A., Ph. D., *Professor of Mathematics.*
- FRANCES VIRGINIA THOMPSON, B. A., *Instructor in English.*
- NAOMI THOMPSON, B. S., M. Ed., *Instructor in Mathematics.*
- WILLIAM HARRY TINNEY, B. S., M. S., *Part-time Lecturer in Dairy Manufactures.*
- ANNA LILLIAN TROTTER, B. A., *Part-time Instructor in Music.*
- 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.*
- **JAMES WILLIAM TURNBOW, B. S., *Part-time Lecturer in Civil Engineering.*
- §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., *Lecturer in Speech.*
- IDA STEVENSON VERNON, B. A., M. A., Ph. D., *Lecturer in History.*
- ERNEST WALLACE, B. S., M. A., Ph. D., *Professor of History and Assistant Dean of Arts and Sciences.*
- DOROTHY JANE WATSON, B. A., *Instructor in Journalism.*

- MARGARET WATSON WEEKS, B. S., M. S., *Dean of Home Economics, Professor of Foods and Nutrition, and Head Department of Home Management.*
- GRACE PLEASANT WELLBORN, B. A., B. S., M. A., *Instructor in English.*
- MARY ALMA WELLS, B. A., M. A., *Instructor in English.*
- GEORGE ARTHUR WHETSTONE, B. S., M. S., Ph. D., *Assistant Professor of Civil Engineering.*
- WILLIAM E. WHITTINGTON, JR., B. B. A., M. B. A., *Assistant Professor of 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., D. 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.*
- HORACE EUGENE WOODWARD, B. A., M. A., *Assistant Professor of Mathematics.*
- *MARTHA LOU WORK, B. A., *Instructor in Chemistry.*
- GEORGIA ELLEN WRIGHT, B. S., M. S., *Instructor in Clothing and Textiles.*
- **EARL OTTO WUKASCH, B. S., M. S., *Assistant Professor of Electrical Engineering.*
- RAY JAMES YANTIS, B. S., *Captain, Infantry, United States Army, Assistant Professor of Military Science and Tactics.*
- WARREN WATSON YOCUM, B. S., M. A., Ph. D., *Professor of Horticulture.*
- ARTHUR WESLEY YOUNG, B. S., M. S., Ph. D., *Professor of Agronomy and Head Department of Plant Industry.*

STAFFS IN SPECIAL DEPARTMENTS

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.*

VESTER EUGENE WOLBER, B. A., Th. M., *Biblical Literature, under the auspices of the Baptist General Convention of Texas.*

Applied Music

JULIEN PAUL BLITZ, D. Mus., *Cello.*

VIRGINIA GAMBLE CASEY, 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.*

FRANCIS WESTBROOK SHAFTER, B. S., *Piano and Voice.*

MYRTLE DUNN SHORT, B. Mus., *Voice and Piano.*

LEWIS L. STOELZING, B. Mus., *Violin.*

IMOGENE WEBSTER, B. S., *Piano and Organ.*

DEWEY O. WILEY, B. Mus., D. Mus., *Violin.*

Library

AUGUSTINE SMITH GAYLORD, JR., B. A., *Certificate of Librarianship, Librarian.*

LULU STINE, B. A., M. A., *Assistant Librarian.*

SIBYL ANNE PIRTLE, B. S., B. L. S., *Circulation Librarian.*

MARGARET SUNSHINE IRBY, B. A., *Reference Librarian.*

DOROTHY BEATRICE YOUNG, B. A., B. A. in L. S., *Assistant Reference Librarian.*

VIVIAN LYNN DOBBS, B. A., B. A., in L. S., *Documents Librarian.*

CATHERINE PATTERSON, B. A., in L. S., *Order Librarian.*

PAULINE FREDERIC BAIN, B. A., B. S. in L. S., *Readers' Adviser.*

Student Health Service

EMBREE R. ROSE, B. A., M. A., M. D., *College Physician.*

FREDA FUNK, R. N., *Supervising Nurse.*

DORIS CREAGER, R. N., *Nurse.*

LOLETHA KOOB, R. N., *Nurse.*

MARJORIE TACKETT, R. N., *Nurse.*

FLORENCE CRAWLEY, R. N., *Nurse.*

ELIZABETH BROOKS, R. N., *Nurse.*

ANNA BAKER MAY, *Dietitian.*

JOHN T. MILLER, JR., *Part-time Medical Technician.*

OTHER EMPLOYEES

ROBERT CHARLES BLON, B. B. A., *Assistant in the President's Office.*

SETH THOMAS CUMMINGS, *Purchasing Agent.*

JOHN EHLE BOWDEN, *Auditor.*

VIRGINIA TINER SNELLING, B. A., *Assistant Auditor.*

HUBERT LEE BURGESS, *Part-time Bookkeeper-Cashier.*

FLOSSIE BURKHOLDER, B. A., *Cashier.*

WAYNE KITTLEY, B. A., *Superintendent of Tech Press.*

WILLIAM CONNER COLE, B. B. A., *Manager of College Bookstore.*

JOHN PHILLIP SMITH, B. S., *Assistant to Director of Farms.*

JEAN AYRES JENKINS, B. A., *Secretary to Placement Service.*

FRANCIS WAYNE BEARDEN, B. S., *Student Housing, Employment, and Activity Assistant.*

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 200 miles from the northern line of the Panhandle and 400 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 60,000. 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 Sept. 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 (1944-1948).

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 a degree, Bachelor of Business Administration, and the graduate degrees, Master of Arts, Master of Science, and Master of Education.

Accreditation

Texas Technological College is on the approved list of the Association of American Universities, and is a member of the Southern Association of Colleges and Secondary Schools.

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 was 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 \$6,000,000.

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.

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 semi-weekly newspaper, *The Toreador*; college catalog 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 classrooms, laboratories, seminar rooms, offices and an auditorium for the Division of Agriculture.

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.

Extension Building, erected in 1939, and remodeled in 1947, contains offices for the Division of Extension, including correspondence and home study courses, off campus class extension centers and the rental and distribution of educational motion picture films. An auditorium is equipped for showing films to classes and interested groups.

Speech Building, erected in 1927 and remodelled in 1948, contains offices and classrooms for the Department of Speech. An auditorium for dramatics and a broadcasting booth for radio speech are provided.

Power Plant, erected in 1925 and enlarged in 1931 and 1948, supplies heat, water and power for the campus.

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.

Dairy Manufactures Building, erected in 1942, and known as the College Creamery, serves as a complete manufacturing and processing plant for the production and sale of dairy products.

Agricultural Engineering Building, erected in 1948, provides classrooms, laboratories, and offices for the study of metal work, woodwork, farm machinery, farm motors, rural electrification and tractors.

Farm Machinery Building, erected in 1934, is provided with tools and equipment to repair and rebuild farm machinery.

Meats Laboratory, erected in 1937 and enlarged in 1938, contains facilities for slaughtering and dressing animals and for cutting and preserving meat.

Farm Buildings, erected at intervals since the establishment of the college, include a dairy barn, erected in 1925 and equipped in 1948 with a combine milking unit, a beef cattle barn erected in 1948, an artificial dairy cattle breeding unit erected in 1948, miscellaneous barns, shelters and corrals for beef and dairy cattle, horses, hogs and sheep, a poultry unit of 20 acres, ten of which are complete with housing and fencing, and homes for livestock herdsman.

Dormitory Administration Building, erected in 1941, houses the business offices of the dormitory systems.

War Surplus Emergency Buildings, located on the campus in 1946, under a grant by the Federal Government, have been remodeled and adapted for use as emergency classrooms, laboratories, infirmary and student recreation center. Thirty-four such buildings have tended to relieve the crowded conditions of the post-war period.

Jones Stadium, erected in 1947, and named in honor of Clifford B. and Audrey Jones, has a seating capacity of 16,500.

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.

Residence Halls

Jim West 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, and named in memory of the late Mrs. F. N. Drane, former member of the Board of Directors, has individualized and modern furnishings and accommodations for 320 women.

Women's Dormitory System No. 3, erected in 1947, consists of two dormitories for women. Each has a separate dining room with meals prepared in a common kitchen. Designed and constructed for comfort and convenience, the buildings have a capacity of 720 women.

Men's Dormitory System No. 3, erected in 1948, will be occupied for the first time in the fall semester 1948. The buildings are modeled after those of Women's Dormitory No. 3, and have accommodations for 720 men.

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.

Library

The Library, erected in 1937, is equipped with modern facilities. The main loan desk and reserve book room are located on the second floor. The reference department, serials department (handling all current periodicals, government documents, etc.), and the general reading room are located on the first 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 110,000, exclusive of government documents and bound periodicals. This represents books and other materials specifically acquired to serve the various departments of the college. The main collection of books and documents is now housed in a modern steel stack installation which has a capacity of 220,000 volumes. Individual study carrels for research workers are available in the stacks.

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 materials 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. These materials form the nucleus of the recently established Southwest collection which is housed in the history room located on the first floor of the Library. Access to this collection is through the reference department.

The Library is specifically designed to serve the faculty, students, and employees of the college. Use may also be made of the Library's facilities by citizens of the State of Texas. Information as to the rules governing such special use of the Library may be obtained from the head of the circulation department or the secretary to the Librarian.

Library hours are: 8 A. M. to 10 P. M., Monday through Friday; 8 A. M. to 5 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 show-place, 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 catalog 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 admission.

A former commissioned officer will receive credit for 12 semester hours in advanced military science. These may be used as elective credits so far as such electives are appropriate to a given curriculum.

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 2 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 4 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.

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.

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 Sept. 1 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 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 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 Agri-
 culture
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 of-
fered 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, or Home Economics who is able to present a certificate of high school graduation with 15 units 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 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, 4 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 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 79). 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 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. Applicants 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 catalog requirements for graduation in his chosen curriculum, and must complete a minimum of 30 semester hours in residence in this college. Those 30 hours must include a minimum of 6 semester hours in the major subject. This may be increased to 10 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 permissible 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.

Admission of Graduate Students. All correspondence regarding admission to the Division of Graduate Studies should be directed to the Registrar. An applicant for admission must hold a Bachelor's Degree from a recognized college or university and a complete transcript of record will be necessary before admission. In case of insufficient undergraduate preparation the Dean of the Graduate Division may direct the applicant in the choice of undergraduate levelling courses.

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 semester 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 that he is above average in his ability 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 re-

quirement. 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 31.

EXPENSES

The question of expense while attending college is of importance to every student. In a student body of nearly 7,000 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. 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. 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.

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 per year, payable \$15 per semester. This fee covers recreational activities, health and infirmary serv-

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

ice (see Health Service, page 39), student publications and admission to intercollegiate athletic contests.

Breakage Deposit. Each student enrolled in the college must make a breakage deposit of \$7. This deposit is subject to charges for property loss or damages or breakage or violation of rules in library or laboratories. If the charges incurred for any semester reduce the deposit by fifty percent, the student, upon notice from the Auditor, will be required to restore the deposit to its original amount by paying the charges at once. This deposit, less charges, will be returned to the student at the termination of his career here as a student.

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.

Laboratory Fees. For all courses in which the combined credit of lecture and laboratory is from 1 to 3 semester hours, a laboratory fee of \$1 is charged for each semester. For courses in which the semester credit is 4 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.

Students enrolled for typewriting will be charged a typewriter rental fee of \$4 per semester.

Tuition for Nonresident Students. Each nonresident student* is required to pay a nonresident tuition fee of \$150 per semester or \$300 for the nine-month session. For the nonresident student enrolled in the long session for less than 12 semester hours,

Definition of Residence

- * 1. A nonresident student is hereby defined to be a student of less than 21 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 12 months immediately preceding the date of registration; or a student of 21 years of age or over who resides out of the state or who has not been a resident of the state 12 months subsequent to his twenty-first birthday and for the 12 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 12 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 the nonresident fee.

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 per semester.

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.

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 10 days after the student withdraws from the college during the semester, or at least 10 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

tion 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 12 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.

of entering college, the following estimates are offered:

Fall Semester

Tuition	\$25.00
Health and Activity Fee	15.00
Breakage Deposit	7.00
Books and Incidentals	20.00
First payment of room and board in the college dormitory.....	36.00
TOTAL (estimated)	\$103.00

Spring Semester

Tuition	\$25.00
Health and Activity Fee	15.00
Breakage Deposit (new student)	7.00
Books and Incidentals	20.00
First payment of room and board in the college dormitory.....	60.00
TOTAL (estimated)	\$127.00

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	7.00	—
Books and Incidentals	20.00	20.00
Room and Board in College Dormitory	256.00	252.00
TOTAL (estimated)	\$323.00	\$312.00

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 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.

Flight Training. Students enrolling for Eco. 233, Flight Training, will be charged a special fee as follows: ground school instruction, 70 cents per hour; dual instruction \$11 per hour; and solo practice, \$8 per hour.

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 below are subject to change without notice prior to registration date and with 10 days notice thereafter. It is hoped that the following prices will provide for dormitory service and bond liquidation during the 1948-49 year.

Charges for room and board and supervision in college dormitories will be \$508 per nine-month period for the regular double rooms occupied by two students as approved by the Board of Directors. The payments will be as follows:

September	\$36.00	February	\$60.00
October	60.00	March	60.00
November	60.00	April	60.00
December	40.00	May	60.00
January	60.00	June	12.00

Students wishing to do so may room three in a room at a monthly reduction of \$3.

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

Student Health Service

Each student currently enrolled in the college is entitled to the medical services given in the out-patient clinic and to admission to the Infirmary within its maximum capacity of 20 beds. The out-patient clinic is open during the day to students in need of consultation and treatment by the College Physician and nurses on the Health Service staff. Students judged to be in need of infirmary care by the College Physician may be admitted to the Infirmary where they are under the constant supervision of a registered nurse and the College Physician. Under the present plan, no charge is made for infirmary care up to a maximum of seven days in each semester; a minimum fee to cover the cost of food, drugs, and supplies is charged the student for each additional day in the Infirmary. In case the Infirmary is filled to capacity, the college is not under obligation to provide students with hospital service elsewhere.

Students who become acutely ill or are injured when the out-patient clinic is closed may receive emergency treatment by reporting to the nurse on duty in the Infirmary which is open day and night. The Infirmary nurse cannot give routine clinical treatments and students are urged to come to the out-patient service during the regular clinic hours, except in cases of emergency.

The Health Service is staffed and equipped for treating the acute illnesses and minor injuries which commonly occur while the student is in residence at the college. It is not organized, however, to provide for the care of students requiring the services of specialists or treatment in a general hospital. Every effort will be made to notify the parents, guardian or nearest relative when a patient is believed to be threatened with a serious illness or is believed to be in need of an emergency surgical operation. The service will provide such cases with emergency treatment and assist as far as it can by arranging for the patient to be transferred to the general hospital of the patient's choice.

The college cannot assume the responsibility for the continued medical care of students suffering from chronic diseases such as epilepsy, heart disease, severe asthma, rheumatic fever, diabetes, nephritis, peptic ulcer, etc. It advises that such students make arrangements to be under the supervision of a private physician as soon as they arrive in Lubbock. The College Physician will be glad to recommend competent doctors and specialists to those students who are in need of special care and who are unacquainted with the physicians in Lubbock.

The Health Service physician and nurses are not at liberty to make calls outside the service or to treat students in their rooms or homes where the facilities for proper treatment are usually inadequate. Students when ill should report immediately to the Health Service where they will be under the supervision of those especially trained for the care of illness.

It is the aim of the Health Service to screen out all students

who have communicable diseases and to control such diseases on the campus. Students may be required to have a chest x-ray and skin tests before registration. The college requires that all students with communicable diseases be isolated until the danger of transmission has passed. Students are expected to obey the laws of the sanitary code of the city and state and the college physician may recommend the dismissal of any student who refuses medical advice or who willfully exposes his associates to a contagious disease.

The Health Service strives to prevent illness and accordingly is most willing to immunize students against small-pox, typhoid fever, diphtheria, tetanus, and influenza.

The college is not responsible for the care of students during vacation periods and the Health Service will be closed during the time the college dormitories are closed. Special arrangements will be made for the continued care of students who were sick before the vacation period began.

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 1 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 12 semester hours of work and who have ranked in the upper 5 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 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 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. 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 Tenth Street, Lubbock, Texas.

The City Federation Loan Fund. This loan fund was estab-

lished 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 Head of Department of Dairy Manufactures.

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.

Robert K. Allen Loan Fund. This fund was established in 1946 by Mr. Robert K. Allen, an alumnus of the College, and loans are available to students of the Division of Agriculture. Applications should be made to the Dean of Agriculture.

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 Seventeenth 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 25 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 50 per cent for the first semester and 50 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.

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 transferable. 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.

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.

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 semester.

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

Mr. and Mrs. Hiram Parks Scholarships. Through the generosity of Mr. and Mrs. Hiram 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.

Texas Technological College Foreign Student Scholarships. Texas Technological College recognizes that friendly relations among the nations of the world are greatly desired, and that the knowledge of the customs, ideas, and ideals of other nations tends to encourage mutual respect and understanding. Consequently, believing that by extending the facilities of the higher institutions of this country to students of other nations, a mutual respect and understanding of the people of this country and of other nations will be fostered, the Board of Directors has made available five scholarships of \$100. each per semester beginning with the academic year 1947-48. These scholarships may be used for tuition only. The applicant must have previously attended Texas Technological College a minimum of one semester and must have established a grade point average of 1.5, which average he must maintain if the scholarship is renewed. The scholarship must be renewed by application each year.

Applications for these scholarships should be made to the Committee on Scholarships and Awards.

Clarence Malone Soil and Water Conservation Scholarship. Mr. Clarence Malone of Houston in 1947 made available to Texas Technological College the sum of \$500 for promoting the study of soil conservation. The scholarship will extend over a period of two years and will be paid on a monthly basis. It is open to junior, senior, and graduate students. Correspondence concerning this scholarship should be addressed to the Dean of Agriculture.

William L. Ellwood Fellowship. This fellowship consists of the income from \$10,000, established in 1943 by Mrs. F. H. Chappell, New London, Conn., and Mrs. Harriett E. Kenney, Somerville, Conn., 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 De-

partment 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.

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.

The Borden Company Foundation Scholarship in Agriculture. The Borden Company Foundation, in a desire to stimulate and recognize scholastic achievement by undergraduate students of agriculture, has established an annual scholarship of \$300. 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 Global Corporation Agricultural Scholarship. 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 scholarship 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 11 semester hours in agronomy prior to Sept. 1 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.

The Robert B. Price Dairy Production Scholarships. Mr. Robert B. Price of El Paso, Texas, because of his interest in dairy production, established four \$100 scholarships to be awarded annually as follows:

(1) To the freshman student majoring in animal husbandry or dairy manufactures who completes a minimum of 18 semester hours in the fall semester with the highest scholastic average;

(2) the sophomore student majoring in animal husbandry or dairy manufactures having the highest scholastic average; (3) the junior student majoring in animal husbandry with a dairy husbandry option having the highest scholastic average; and (4) the senior student majoring in animal husbandry with a dairy husbandry option having the highest scholastic average. The scholarships are awarded in the fall for the long semester, except the freshman which is awarded about March 1. The awards may be withheld whenever conditions are inappropriate.

These awards will be made upon recommendation of the Dean of Agriculture.

The Block and Bridle Scholarships. The Block and Bridle Club of Texas Technological College has made available to the college the income from a special trust fund for scholarships to be awarded annually to senior and graduate students majoring in animal husbandry. The recipient of either must have and must maintain not less than a 2.00 grade average, and is ineligible for any other similar scholarship during the same academic year. For further information, inquire of the Head of the Department of Animal Husbandry.

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.

Elsie M. Adams Memorial Scholarship in Textile Engineering. A \$200 scholarship to be awarded for 1948-49 to the sophomore student in textile engineering with the highest standing in the entire work of the freshman year. Correspondence concerning this scholarship should be addressed to the Head of the Department of Textile Engineering.

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 scholarship 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 this scholarship should be addressed to the Dean of Home Economics.

Lubbock Panhellenic Society Scholarship. 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.

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.

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.

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.

C. N. Hilton Scholarships. Mr. C. N. Hilton, president of Hilton Hotels, Incorporated, has made available to the students in business administration four scholarships of \$100, to be awarded annually to the freshman, sophomore, junior, and senior student in that division with the highest scholastic average. The freshman award will be made to the student who has done his work in this college and has completed one semester of sophomore work in the Division of Business Administration with the highest scholastic average at the end of his freshman year. The senior will receive the award on the basis of his scholastic record during the last semester as a junior and the first semester as a senior. Payments, other than the senior award, will be made during the following long session provided the recipient is regularly enrolled. A recipient of the Hilton Scholarship shall not be eligible for any other similar award. Correspondence concerning these scholarships should be addressed to the Dean of Business Administration.

Business and Professional Women's Club Scholarship. The sum of \$50 will be awarded annually to the outstanding junior girl majoring in business administration. Correspondence concerning this scholarship should be addressed to the Dean of Business Administration.

The Lubbock Chapter of the National Secretaries Association Scholarship. The sum of \$50 will be awarded to the outstanding junior girl majoring in secretarial administration during the 1948-49 school year. Correspondence concerning this award should be addressed to the Head of the Department of Secretarial Administration.

Awards

The following awards are offered annually:

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

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.

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.

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

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 the 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.

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.

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 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.

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.

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 these offices.

Dean of Women

The Dean of Women is chairman of the Social Activities Committee and a member of the Student Welfare Committee.

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 adviser 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 mem-

ber 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; 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 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. During the period of suspension, a student is not eligible to attend college functions of social or other nature. In no case will fees be remitted to students suspended by college authorities.

A student suspended for disciplinary reasons, or dropped from the 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 re-admission before he may again 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.

Regulations Regarding the Dormitories

The college has eight large modern dormitories which have a capacity of 2720 students. The buildings are fire proof in construction, well furnished, and fully equipped with modern facilities for furnishing meals. The buildings have recreation rooms for the social life of students. In order that the college may properly care for the student life, the following regulations have been adopted concerning occupancy of 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 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., Friday, Jan. 28.

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 addressed to Miss Mozelle Craddock, Di-

rector of the Dormitory Systems, Texas Technological College, Lubbock, Texas. Each application must be accompanied by a deposit of \$5. 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 Aug. 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 18 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 the college and by his house-mother.

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 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 the college 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 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. 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 these offices.

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.

When desirable, the student is referred to the Dean of Women or to the Dean of Men or to advisers, 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 18 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, intercollegiate 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 24 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 extraordinary 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, the grade of W 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 30 semester hours.

Sophomore: A regularly enrolled student who has completed a minimum of 30 hours and 30 grade points.

Junior: A regularly enrolled student who has completed not less than 60 semester hours, with 60 grade points.

Senior: A regularly enrolled student who has completed not less than 90 semester hours, including four semesters of required physical education or military science, with 90 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 3 hours for one semester or 6 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 18 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

The number of semester hours which may be carried by a student is regulated by his academic dean. The scholastic standing of the student and the amount and character of outside work are the primary factors considered by the dean. A student who has demonstrated his ability will be allowed a heavier load. Conversely, a student of low scholastic standing will have his load decreased. In general a student whose outside duties demand as much as three hours per day will not be allowed to carry more than 12 semester hours.

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 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 and sectionalized 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 handing in papers, taking part in class discussions, in lab-

oratory 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 with their numerical equivalent are: A, 90-100; B, 80-90; C, 70-80; D, 60-70; Inc., Incomplete; W, withdrawal from the course; F, failure.

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 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 de-

iciency 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 via the dean 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

A student who withdraws from a course or from college within 5 weeks from the beginning of either semester, or an equivalent time in summer school, in a manner prescribed by college regulations receives a grade of W and his name and grade will be entered on the final grade 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 Required

Physical education is a required course for all freshmen and sophomores, both men and women. Four semesters of physical education constitute part of the requirements for all degrees unless one of the following conditions prevail:

1. When approved by the dean, band may be substituted for physical education.
2. Military science, the basic course, may be taken in place of physical education by any qualified male student. Once entered upon, the satisfactory completion of this basic course, two years, becomes a requirement for graduation, unless specifically excused by the Professor of

Military Science and Tactics.

3. Veterans of World War II may receive credit for this required work on time spent in military service according to regulations as set forth on page 28.
4. A student may be excused from physical education upon recommendation of a physician and a student over 25 years of age may of his own volition prefer not to take physical education. In either case, 3 semester hours, preferably Physical Education 3310, must be completed by the student.

Scholarship Probation

- A. The following types of students shall be on scholarship probation:
 1. The student who makes passing grades in 6 hours but fails to pass in 10 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 15 hours and who fails more than one course which carries 3 or more hours credit, provided 6 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 12 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 scholarship probation who fails to pass in 10 hours in that semester or two-thirds of his work in a 12-week summer session will not be

allowed to re-enter college, except that the failure of one course carrying 3 or more hours credit in the long session shall not cause him to be dropped. He shall, however, be registered on scholarship probation.

7. A student on probation may be dropped at mid-semester at request of his dean if he is not passing in 10 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 10 semester hours in a given semester or two-thirds of a regular load in a 12-week summer session. Scholarship probation may not be removed by attendance at another college.

Six Hour Rule

A student who fails to pass in 6 hours of resident work in any semester or 4 hours in a 12-week 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 6 hours, he may enroll if he passes in all his work.

Readmission of Students Who Have Been Dropped

A person dropped under the 6-hour 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.

Freshman Progress Reports

All failing and unsatisfactory students in freshman classes are reported at the end of four weeks in each semester. Any entering freshman who is not passing in 9 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 9 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 in 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.

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 organi-

zation, 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 12 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.

Eligibility for Intercollegiate Athletics

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

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

*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.

in this college of at least two long session semesters, five summer session terms, or one long session semester and two summer session terms, and must complete in residence a minimum of 30 semester hours of work counting toward a degree. At least 24 of the last 30 semester hours offered for the undergraduate degree must be taken in this college. A maximum of 6 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 curriculum requirements will be found in the appropriate divisions of the catalogs 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 colleges in Texas after Sept. 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 catalog.

5. No second Bachelor's Degree will be conferred until the candidate has completed at least 24 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

*A candidate who is completing degree requirements by correspondence courses during the spring semester must file a statement with the dean of his division by April 15 stating his intention of completing the correspondence courses and becoming a candidate for a degree. If the statement is not filed the student will not be considered a June candidate and his name will not appear on the June graduating list for that year.

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 catalog and announcements for the year in which he entered the college; but he may meet the graduation requirements in the catalog of the year in which he graduates. A student may graduate under the provisions of the catalog 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 catalog 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 catalog 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 catalog or the separate Graduate Bulletin.

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 co-operates with the college authorities in administering student affairs.

Music Organizations

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. 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 news of the college.

La Ventana is the annual published each year and issued near the end of the second semester. It records the principal events of the year, 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, Larry Adler, Paul Draper, Mona Paulee, 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, Jussi Bjoerling, Christopher Lynch, Vronsky and Babin, Anna Kraskas, Rise Stevens, and Bidu Sayao have appeared under sponsorship of this committee.

Public Speaking and Debate

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 participated 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 proper authority for the right to organize such a club, stating the object, type of membership, and other matters necessary for its organization. Each 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. 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.

Service Clubs

Alpha Phi Omega.
Association of Women Students.
Forum.
Junior Council.
Men's Dormitory Associations.
Saddle Tramps.
Women's Self-Governing Association.

Religious Organizations and The Willson Lectures

Texas Technological College was established in the belief that religion is a deep and pervading experience and that religious faith can be an unfailing and vital force in the lives of college students. The J. M. Willson family of Floydada, Texas, has set up an endowment and the income therefrom is used in the support of an annual series of lectures at the college on the general subject of science or technology and religion.

Encouragement is given to student religious organizations as fostered by the various churches. The Student Religious Council serves as a coordinating agency for those groups. The groups now active on the campus are: Baptist Student Union, Canterbury Club, Newman Club, Presbyterian Student League, and Wesley Foundation. Bible chairs are maintained by several churches in centers near the campus. Courses are offered in Biblical literature and a maximum of 12 semester hours may be offered as elective credit toward certain degrees in the college. The quality of work of these Bible courses is under the supervision of the academic authorities of the college but the courses are supported entirely by the respective church organizations.

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)

Delta Sigma Pi (Business Administration)
 Future Farmers of America
 Future Teachers of America
 Kappa Alpha Mu (Photography)
 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)

Local Honorary and Professional Organizations

Freshman Honor Society (Scholarship)

Divisional and Departmental Organizations

Agricultural Club
 Book Reviewers Club
 Capa y Espada
 Cercle Francais
 Double T Association
 Engineering Society
 Gargoyle Club
 Home Economics Club
 Industrial Engineering Society
 International Relations Club
 Liederkranz
 Physics Club
 Plant Industry Club
 Pre-Law Club
 Pre-Med Club
 Press Club
 Rodeo Association
 Sock and Buskin
 Society of Petroleum Geologists and Petroleum Engineers
 Sociology Club
 Tech Accounting Society
 Texas Tech Chamber of Commerce
 Textile Engineering Club
 Women's Physical Education Major and Minor Club
 Women's Recreational Association

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.

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, contests are conducted 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 inspectors; 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 agriculture students. 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 inter-collegiate 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 permissible 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 catalog 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 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 Agriculture.

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
A. H. 131-General	3	D. M. 131-Prin. of Dairying	3
Agron. 131-Crop Production	3	Hort. 131-Plant Propagation	3
Biol. 133-Bot.	3	Biol. 134-Zool.	3
Chem. 131-Gen. Chem.	3	Chem. 132-Gen. Chem.	3
Eng. 131-Composition	3	Eng. 132-Composition	3
P.E., Band, or M.S.	1-2	P.E., Band, or M.S.	1-2
	16-17		16-17

Sophomore Year

First Semester	Credit	Second Semester	Credit
A. H. 231-Breeds	3	P. H. 231-Farm Poultry	3
Ag. Eco. 235-Fundamentals	3	Ag. Eco. 236-Prin. of Mkt.	3
Agron. 221-Soils	2	D. M. 222-Dairy Industries	2
Bact. 231	3	Hort. 231-Veg. Gardening	3
Chem. 341-Organic	4	Chem. 220-Agr. Qual.	2
Eng. 234-Correct Usage	3	Math. 230-Agricultural	3
P.E., Band, or M.S.	1	P.E., Band, or M.S.	1
	19		17

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRICULTURAL ECONOMICS MAJOR

For Uniform Freshman and Sophomore Years see Above

Junior Year

First Semester	Credit	Second Semester	Credit
Ag. Eco. 323-Advanced	2	Ag. Eco. 322-Mkt. Ag. Products	2
Ag. Eco. 331-Statistics	3	Speech 338-Bus. and Professional	3
Ag. Eco. 333-Cooperatives	3	P. I. 341-Prin. of Genetics	4
Agron. 331-Forage Crops	3	Govt. 230-National and State	3
A. H. 331-Prin. of Feeding	3	Electives	5
Electives	3		
	17		17

Senior Year

First Semester	Credit	Second Semester	Credit
Ag. Eco. 411—Seminar	1	Ag. Eco. 412—Seminar	1
Ag. Eco. 421—Land Eco.	2	Ag. Eco. 422—Prices	2
Ag. Eco. 433—Farm Mgt.	3	Ag. Eco. 434—Aiv. Farm Mgt.	3
Rur. Soc. 431—Research	3	Ag. Eco. 435—International	3
Electives	8	Rur. Soc. 432—Rur. Soc.	3
		Electives	5
	17		17

Hours required for graduation, exclusive of P. E. Band, or M. S., 132.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRICULTURAL EDUCATION MAJOR

For Uniform Freshman and Sophomore Years see Page 72

Junior Year

First Semester	Credit	Second Semester	Credit
Ag. Eco. 331—Statistics	3	Ag. Engr. 322—Farm Shop	2
Ag. Engr. 321—Farm Shop	2	A. H. 331—Prin. of Feeding	3
Ag. Engr. 331—Forage Crops	3	P. I. 341—Prin. of Genetics	4
A. H. 322—Farm Meats	2	Ag. Ed. 321—Administration	2
P. I. 331—Plant Insects	3	Psy. 231—Educational	3
Govt. 230—National and State	3	Vet. 333—General Science	3
Electives	3		
	19		17

Senior Year

First Semester	Credit	Second Semester	Credit
Ag. Ed. 431—Methods	3	Ag. Ed. 432—Methods	3
Ag. Ed. 421—Prac. Teaching	2	Ag. Ed. 422—Prac. Teaching	2
Ag. Eco. 433—Farm Mgt.	3	Ag. Eco. 435—International	3
Ag. Engr. 422—Soil Mgt.	2	Electives	7
Ag. Engr. 411—Soil Mgt. Lab.	1		
Electives	6		
	17		15

Hours required for graduation, exclusive of P. E., Band, or M. S., 132.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRONOMY AND FARM MACHINERY MAJOR

For Uniform Freshman and Sophomore Years see Page 72

Junior Year

First Semester	Credit	Second Semester	Credit
Agron. 311—Soils	1	Agron. 331—Forage Crops	3
Agron. 332—Grain Crops	3	Ag. Engr. 332—Farm Power	3
Ag. Engr. 321—Farm Shop	2	Ag. Engr. 322—Farm Shop	2
Ag. Engr. 331—Farm Power	3	P. I. 341—Prin. of Genetics	4
P. I. 331—Plant Insects	3	Electives	6
Ag. Eco. 331—Statistics	3		
Govt. 230—National and State	3		
	18		18

Senior Year

First Semester	Credit	Second Semester	Credit
Agron. 422—Soil Mgt.	2	Agron. 421—Cotton and Fiber Crops	2
Ag. Engr. 411—Soil Mgt. Lab.	1	Agron. 423—Soil Mgt.	2
Ag. Engr. 323—Farm Machinery	2	Ag. Engr. 412—Soil Mgt. Lab.	1
Ag. Eco. 431—Farm Buildings	3	P. I. 411—Seminar	1
Electives	8	Spch. 338—Bus. & Professional	3
		Electives	7
	16		16

Hours required for graduation, exclusive of P. E., Band, or M. S., 132.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

AGRONOMY MAJOR

For Uniform Freshman and Sophomore Years see Page 72

Junior Year

First Semester	Credit	Second Semester	Credit
Ag. Eco. 331—Statistics	3	P. I. 331—Plant Insects	3
A. H. 331—Prin. of Feeding	3	P. I. 341—Prin. of Genetics	4
Agron. 331—Forage Crops	3	Agron. 311—Soils	1
Govt. 230—National and State	3	P. I. 333—Plant Functions	3

RANGE MANAGEMENT OPTION

Bot. 232—Taxonomy	3	Agron. 333—Range Plants	3
Bio. 333—Plant Bio-ecology	3	Vet. 333—General Science	3
	18		17

CROPS OPTION

Agron. 332—Grain Crops	3	Agron. 323—Crop Judging	2
Electives	3	Electives	3
	18		16

SOILS OPTION

Electives	6	Agron. 322—Crop Judging	2
	18	Electives	3
			16

Senior Year

First Semester	Credit	Second Semester	Credit
Agron. 422—Soil Mgt.	2	Agron. 434—Soil Conservation	3
Ag. Eco. 433—Farm Mgt.	3	P. I. 411—Seminar	1
		P. I. 431—Plant Breeding	3
		Ag. Eco. 435—International	3

RANGE MANAGEMENT OPTION

Agron. 437—Range Mgt.	3	A. H. 424—Beef Cattle Production ...	2
Agron. 435—Soil Genesis	3	A. H. 426—Sheep and Wool Production ..	2
Ag. Engr. 432—Land Map & Measuring ..	3	A. H. 438—Range Mgt.	3
Electives	3		
	17		17

CROPS OPTION

Text. Engr. 234—Cotton Classing	3	Agron. 421—Cotton and Fiber Crops ...	2
Ag. Engr. 323—Farm Machinery	2	Agron. 423—Soil Mgt.	2
Ag. Engr. 411—Soil Mgt. Lab.	1	Ag. Engr. 412—Soil Mgt. Lab.	1
Electives	6	Electives	2
	17		17

SOILS OPTION

Agron. 435—Soil Genesis	3	Agron. 423—Soil Mgt.	2
Agron. 439—Soil Microbiology	3	Agron. 436—Soil Chemistry	3
Ag. Engr. 323—Farm Machinery	2	Ag. Engr. 412—Soil Mgt. Lab.	1
Ag. Engr. 411—Soil Mgt. Lab.	1		
Electives	4		
	18		16

Hours required for graduation, exclusive of P. E., Band, or M. S., 132.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

ANIMAL HUSBANDRY MAJOR

For Uniform Freshman and Sophomore Years see Page 72

Junior Year

First Semester	Credit	Second Semester	Credit
Ag. Eco. 331—Statistics	3	A. H. 331—Prin. of Feeding	3
Agron. 331—Forage Crops	3	P. I. 341—Prin. of Genetics	4
Spch. 338—Bus. & Professional	3	Vet. 332—Diseases and Parasites	3
Vet. 331—Anat. & Physiology	3		

ANIMAL INDUSTRY OPTION

A.H. 312—Adv. L. S. Judging	1	A.H. 313—Adv. L. S. Judging	1
Electives	4	A.H. 322—Farm Meats	2
		Electives	4
	17		17

DAIRY HUSBANDRY OPTION

A.H. 324—Dairy Breeds	2	A.H. 323—Adv. Dairy Cattle Judg.	2
D.M. 331—Market Milk	3	D. M. 323—Judging Dairy Prod.	2
		Electives	3
	17		17

POULTRY HUSBANDRY OPTION

P.H. 324—Adv. Poultry Judging	2	P.H. 331—Incubation & Brooding	3
Electives	3	Electives	4
	17		17

RANGE MANAGEMENT OPTION

Bot. 232—Taxonomy	3	Agron. 333—Range Plants	3
Biol. 333—Plant Bio-ecology	3	Electives	3
	18		16

Senior Year

First Semester	Credit	Second Semester	Credit
A.H. 422—Breeding	2	Ag. Eco. 433—Farm Mgt.	3
A.H. 423—Nutrition	2	Ag. Eco. 435—International	3
Govt. 230—National & State	3		

ANIMAL INDUSTRY OPTION

A.H. 421—Purebred Herds & Flocks ...	2	A.H. 411—Seminar	1
A.H. 427—Swine Production	2	A.H. 424—Beef Cattle Production	2
Electives	6	A.H. 426—Sheep and Wool Production ..	2
		Electives	6
	17		17

DAIRY HUSBANDRY OPTION

A.H. 428—Dairy Cattle Production	2	A.H. 411—Seminar	1
A.H. 427—Swine Production	2	A.H. 429—Adv. Dairy Cattle Prod.	2
Electives	6	D.M. 335—Dairy Bact.	3
		Electives	5
	17		17

POULTRY HUSBANDRY OPTION

P.H. 422—Turkey Production	2	A.H. 411—Seminar	1
A.H. 428—Dairy Cattle Production	2	P.H. 421—Poultry Production	2
Electives	7	Electives	8
	17		17

RANGE MANAGEMENT OPTION

Ag. Engr. 432—Land Map. & Measuring	3	A.H. 411—Seminar	1
Agron. 437—Range Mgt.	3	A.H. 424—Beef Cattle Production	2
Agron. 435—Soil Genesis	3	A.H. 426—Sheep and Wool Production ..	2
Electives	1	A.H. 438—Range Mgt.	3
		Agron. 434—Soil Conservation	3
	17		17

Hours required for graduation, exclusive of P. E., Band, or M. S., 132.

Electives may be chosen from the following: Agricultural Economics, Agricultural Education, Agronomy, Agronomy and Farm Machinery, Biology, Business Administration, Chemistry, Dairy Manufactures, Foreign Languages, Horticulture, Journalism, Military Science, Physics, Speech.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

DAIRY MANUFACTURES MAJOR

For Uniform Freshman and Sophomore Years see Page 72

Junior Year				
First Semester		Credit	Second Semester	Credit
D.M. 321—Testing Dairy Prod.	2		D.M. 332—Market Milk	3
D.M. 323—Judging Dairy Prod.	2		D.M. 335—Dairy Bact.	3
D.M. 331—Market Milk	3		D.M. 337—Dairy Plant Equip.	3
Ag. Eco. 331—Statistics	3		A.H. 331—Prin. of Feeding	3
Spch. 338—Bus. & Professional	3		P.I. 341—Prin. of Genetics	4
Electives*	4		Electives*	2
<hr/>		17	<hr/>	

Senior Year				
First Semester		Credit	Second Semester	Credit
D.M. 420—Merchandising	.....	2	D.M. 411—Seminar	.....1
D.M. 431—Cheese Making	.....	3	D.M. 421—Creamery Mgt.	.....2
D.M. 441—Butter Making	.....	4	D.M. 422—Condensed & Powd. Milk	.....2
Govt. 230—National & State	.....	3	D.M. 433—Ice Cream Making	.....3
Electives*	.....	5	Ag. Eco. 435—International	.....3
			Electives*	.....5
		<hr/> 17		<hr/> 16

Hours required for graduation, exclusive of P. E., Band, or M. S., 132.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURE

HORTICULTURE MAJOR

For Uniform Freshman and Sophomore Years see Page 72

Junior Year			
First Semester		Second Semester	
	Credit		Credit
Hort. 333—Fruit Culture	3	P.I. 341—Prin. of Genetics	4
Agron. 311—Soils	1	Agron. 331—Forage Crops	3
P.I. 331—Plant Insects	3		
Ag. Eco. 331—Statistics	3		

GENERAL HORTICULTURE OPTION

Hort. 331—Trees and Shrubs	3	Hort. 332—Annuals and Perennials	3
Electives	5	Hort. 322—Landscape Appreciation	2
	<hr/> 18	Electives	4
			<hr/> 16

POMOLOGY OPTION

Electives	8	P.I. 321—Beekeeping	2
	<hr/> 18	Hort. 322—Landscape Appreciation	2
		Electives	5
			<hr/> 16

LANDSCAPE AND FLORICULTURE OPTION

Hort. 331—Trees and Shrubs	3	Hort. 332—Annuals and Perennials	3
Hort. 334—Floriculture	3	Hort. 335—Floriculture	3
Arch. 121—Freehand Dr.	2	Engr. Dwg. 131—Engr. Drawing	3
	<hr/> 18	Arch. 121—Freehand Dr.	2
			<hr/> 18

*Electives will be chosen from the following groups:

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

B. General Science—Chemistry, Bacteriology, Physics, Mathematics, Engineering Drawing.

C. Business Administration—Economics, including Agricultural Economics, Psychology, Journalism.

D. Military Science.

Senior Year

First Semester	Credit	Second Semester	Credit
Ag. Eco. 433—Farm Mgt.	3	Agron. 423—Soil Mgt.	2
Govt. 230—National and State	3	Ag. Engr. 412—Soil Mgt. Lab.	1
		P.I. 411—Seminar	1
		P.I. 431—Adv. Plant Breeding	3
		P.I. 333—Plant Functions	3

GENERAL HORTICULTURE OPTION

Electives	12	Electives	6
	18		16

POMOLOGY OPTION

Hort. 431—Adv. Pomology	3	Hort. 432—Adv. Pomology	3
Hort. 421—Citriculture	2	Electives	3
Hort. 433—Systematic Pomology	3		
Electives	4		
	18		16

LANDSCAPING AND FLORICULTURE OPTION

Hort. 336—Landscape Design	3	Hort. 337—Landscape Design	3
Electives	9	Hort. 322—Landscape Application	2
		Electives	1
	18		16

Hours required for graduation, exclusive of P. E., Band, or M. S., 132.

Electives may be chosen from the following:
 Agricultural Economics, Agricultural Education, Agricultural Engineering, Agronomy, Animal Husbandry, Architecture, Biology, Chemistry, Dairy Manufactures, Education, English, Engineering, Engineering Drawing, Geology, Journalism, Foreign Languages, Mathematics, Physical Education, Physics, Plant Industry.

DIVISION OF ARTS AND SCIENCES

R. C. GOODWIN, *Dean*

The Division of Arts and Sciences 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 four-year 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.

Unless specifically indicated to the contrary in a particular curriculum, all entering freshmen students in this division will pursue the established freshman year set forth immediately below. This same year will be followed by prospective majors in the Division of Business Administration. The courses beyond the freshman year may vary according to the degree sought and are described in the curricula established for these degrees.

Established Freshman Curriculum:

	Credit
1. Eng. 131-2—Composition	6
2. Math., Foreign Language, Science, or History.....	18
3. Electives, if not included under 2 above	6
4. Phy. Ed., Band or Mil. Sci.	2-4

Total for both semesters of freshman year 32-34 hours

Required freshman courses should be taken during the freshman year and not postponed. No student will be classified as a senior unless he has completed four separate semesters of physical education, military science, or band. Furthermore, students who postpone taking required freshman subjects until the senior year must take such subjects though the credit therefrom will not apply toward the hours required for a degree. For the purpose of this regulation a senior is considered as a student with a minimum of 90 semester hours to his credit.

The normal amount of work to be carried by a student in the Division of Arts and Sciences should not exceed 17 hours per semester. Unless specifically prescribed by a particular curriculum, loads exceeding 17 hours or loads of less than 12 hours must have the expressed approval of the dean. In calculating the load, all active correspondence courses will be considered. Grade point averages and extra-curricular work are also considered in the approval of any student's load.

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. Major, minor, and electives sufficient with the above required courses to total a minimum of 123 semester hours not including P. E., Band, or M. S.	
9. Physical Education, Band, or Military Science.....	4-6

* 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 less than two admission units in the same foreign language are accepted, three years or 18 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

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, the second year of physical education, band, or military science, and remove all unabsolved freshman requirements. The selection of the major and minor fields should be made by the time the student reaches his junior year. For the 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 the minor he will complete a minimum of 18 semester hours, at least 6 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, commerce, 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 the required 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, and receive the Bachelor's Degree after three years in this college and graduation from the professional school.

Studies Preparatory to Law. The usual minimum requirements for admission to standard law school include 15 entrance units and graduation from high school plus at least three aca-

are required. If three units are accepted including two units in algebra and one 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.

demic years (90 semester hours) of college work. Exceptions are sometimes made in the case of veterans for whom special requirements may be fixed. Many law schools now require a degree from a reputable college or university for admission, 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, 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 adviser 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 requirements for the degree as prescribed in the catalog.

Pre-law students may obtain the Bachelor of Arts Degree from Texas Technological College upon completion of three years' work in the Division of Arts and Sciences of this college and graduation from a three-year standard law school.

Students following this combination degree program should obtain the minimum of 18 hours credit in at least two of the social science departments.

The Head of the Department of Government is the adviser 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 dentistry require an applicant to present 15 units of approved work and a certificate of graduation from an accredited high school and a minimum of two years 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 Year: The established freshman curriculum should include Chemistry 131-2 and Biology 131-2. If necessary, Math 130 should be included as a prerequisite for Physics 141-2 (See below). The University of Texas College of Medicine requires 6 semester hours of American history before a degree will be

granted. History 231-2 fulfills this requirement and may be taken during the freshman year.

Sophomore Year

First Semester	Credit	Second Semester	Credit
Chem. 220—Qual. Anal.	2	Chem. 242—Inorganic Chem.	4
Zool. 234—Invert. Morph.	3	Zool. 241—Comp. Vert. Anat.	4
*Phys. 141—Gen. Phys.	4	*Phys. 142—Gen. Phys.	4
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
For. Lang.	3	For. Lang.	3
P.E., Band, or M.S.	1	P.E., Band, or M.S.	1
	16		19

Junior Year

First Semester	Credit	Second Semester	Credit
Zool. 331—Animal Histology	3	Zool. 332—Comp. Vert. Embry	3
and/or		and/or	
Bact. 331—Prin. of Bact.	3	Bact. 332—Prin. of Bact.	3
Chem. 343—Organic Chem.	4	Chem. 344—Organic Chem.	4
Chem. 331—Quan. Anal.	3	Chem. 332—Quan. Anal.	3
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Electives	3	Electives	3
	16		16

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 in one of two ways:

A. While in residence at Texas Technological College by completing the requirements outlined in this catalog. Such students will probably select chemistry or zoology as their major subject; therefore, their senior years are outlined accordingly.

Senior Year: A sufficient number of courses in the major department to complete the major requirements, and all other required courses, not previously taken, should be completed, together with sufficient electives to meet the semester hour requirement.

For Chemistry Majors. Chemistry 411-2, 3 semester hours of senior chemistry and Bacteriology 331-2 complete the major requirement. Chemistry 441-2 may be substituted for the above courses except Chemistry 411-2 by those students who have completed the mathematics prerequisite.

For Zoology Majors. Biology 231, Zoology 411, Bacteriology 331-2, and 6 hours of zoology of senior rank complete the major requirements.

B. By completing three years of work in the Division of Arts and Sciences totaling a minimum of 100 semester hours and graduation from a Class A medical or dental college, and subject to the following regulations:

1. Of the three years of pre-professional work at least the junior year must be completed in residence at this college. This minimum will apply to transfers from other colleges, provided they have satisfactorily completed the work outlined in the freshman and sophomore years, or its equivalent.
2. The three years' work must satisfy all graduation require-

*The prerequisites for Physics 141-2 are two units of high school algebra and one unit of high school plane geometry or Math 130.

ments for the Bachelor of Arts Degree in Texas Technological College with the exception of the major requirements.

3. Submission of properly approved credentials from a Class A college of medicine or college of dentistry to the effect that the applicant has completed satisfactorily the work leading to a Degree of Doctor of Medicine or Doctor of Dental Surgery.

The program outlined above is not designed to meet the minimum requirements of any medical school, but it is planned to fit the student for the successful study of medicine. Each student is charged with the responsibility for knowing any special requirements of the medical school which he plans to attend, and should consult with the pre-medical adviser, in the chemistry department, at each registration period. Application for admission to the professional school should be made through his office. Arrangements for the Professional Aptitude Test, sponsored by the Association of American Medical Colleges, should be made through the office of Assistant Dean Ernest Wallace.

CURRICULUM FOR THE DEGREE OF BACHELOR OF ARTS ECONOMICS MAJOR*

For Uniform Freshman Year see Page 79

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eco. 231—Prin. of Eco.	3	Eco. 232—Prin. of Eco.	3
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
For. Lang.	3	For. Lang.	3
Science	3	Science	3
P.E., Band, or M.S.	1	P.E., Band, or M.S.	1
	<u>16</u>		<u>16</u>

Junior Year

First Semester	Credit	Second Semester	Credit
Eco. 331—Inter. Eco. Prin.	3	Mkt. 346—Statistics	4
Hist. 231—Hist. of the U.S.	3	Hist. 232—Hist. of the U.S.	3
Fin. 333—Banking Prin.	3	Eco. electives	3
Eco. electives	3	Electives	6
Electives	<u>4</u>		<u>16</u>
	<u>16</u>		

Senior Year

First Semester	Credit	Second Semester	Credit
Eco. 4310—Adv. Eco. Prin.	3	Eco. 436—Dev. of Eco. Doctrines	3
Eco. 437—Cur. Eco. Prob.	3	Eco. 438—Eco. & Bus. Research	3
Eco. electives	3	Eco. electives	3
Electives	<u>7</u>	Electives	<u>7</u>
	<u>16</u>		<u>16</u>

*For administrative purposes the Department of Economics is a part of the Division of Business Administration. The degree of Bachelor of Arts with Economics major is conferred by the Division of Arts and Sciences.

CURRICULUM FOR THE DEGREE OF BACHELOR OF ARTS JOURNALISM MAJOR

For Uniform Freshman Year see Page 79

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 235—Survey Eng. Lit.	3	Eng. 236—Eng. Lit.	3
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Jour. 231—Reporting	3	Jour. 232—Reporting	3
Science	3	Science, cont.	3
For. Lang. begun Fr. Yr.	3	For. Lang., cont.	3
P.E., Mil. Sci., or Band	1	P.E., Mil. Sci., or Band	1
	16		16

Junior Year

First Semester	Credit	Second Semester	Credit
Jour. 335—Hist.	3	Jour. Elective	3
Jour. 336—Adv. Reporting	3	Jour. 337—Adv. Reporting	3
Eco. 231—Principles	3	Eco. 232—Principles	3
Eng. elective	3	Eng. Elective	3
Electives	4	Phil. 330 or Psy. 230	3
	16	Elective	1
			16

Senior Year

First Semester	Credit	Second Semester	Credit
Jour. 434—Edit. Wr. or 333—Prob.	3	Jour. 430—Principles	3
Jour. Electives	6	Jour. Electives	6
Electives	7	Electives	6
	16		15

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

For Uniform Freshman Year see Page 79*

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
For. Lang.	3	For. Lang.	3
Music 221—Solfeggio	2	Music 222—Solfeggio	2
Music 223—Harmony	2	Music 224—Harmony	2
Music or Band 225—Applied	2	Music or Band 226—Applied	2
Phys. 137	3	Phys. 138	3
P.E., M.S. or Band	1	P.E., M.S., or Band	3
	17		17

Junior and Senior Years

First Semester	Credit	Second Semester	Credit
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Hist. 131—Hist. of Civil.	3	Hist. 132—Hist. of Civil.	3
Math. 130—Alg. or 137—Com. Alg.	3	Math. 131—Trig. or 138—Math of Fin.	3
Science	3	Science	3
Psy. 230 or Social Science	3	Phil. 230 or Social Science	3
Music	9	Music	9
Electives	9	Electives	9
	33		30

*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, Music 125-6, or Band 125-6.

The Degree of Bachelor of Science: For students primarily interested in the natural sciences and mathematics, the Division of Arts and Sciences provides curricula 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 fields of science and mathematics are emphasized in the requirements for this degree. The minimum requirements for this degree, in terms of semester hours, are as follows:

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. Additional courses to make a minimum total of 124 semester hours, exclusive of required physical education, band, or military science
7. Physical Education, Band, or Military Science 4-6 sem. hrs.

Specific curricula in the various major fields are shown below. In general 78 hours must be completed in the Departments of Biology, Chemistry, Geology, Mathematics, and Physics with at least 6 hours in each department though majors in physics and mathematics are required to complete work in only three of the science departments. Geology majors may substitute engineering drawing and a year of mathematics above the required work in that department for the two years of foreign language, provided such substitution has the approval of the head of the Department of Geology.

Freshmen will follow the curriculum for the established freshman year with the specific recommendations as shown under the respective majors. Thereafter the student will follow the prescribed curriculum of the major of his choice as set forth below. Any and all electives allowed must receive the prior approval of the head of the major department.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE BOTANY MAJOR

Freshman and Sophomore Years

Biol. 133—Bot.	3	Biol. 134—Zool.	3
Chemistry, geology, or physics (beginning courses)	6	Chemistry, geology, or physics (beginning courses)	6
Math.	3	Math.	3
Eng. 131—Comp.	3	Eng. 132—Comp.	3
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
For. Lang.	6	For. Lang.	6
Bot. 231—Plant Groups	3	Bot. 232—Taxonomy	3
Zool. 234—Invert. Morph. or app. elec. 3		Zool. 241—Vert. Anat. or app. elec. 3 or 4	
P.E., Band, or M.S.	2-3	P.E., Band, or M.S.	2-3

Junior and Senior Years

Bot. 331—Plant Physiol.	3	Bot. 339—Pl. Anat.	3
Bot. (junior or senior)	3	Bot. (junior or senior)	3
Bact., Biol., or Bot. (jun. or sen.) ...	6	Bact., Biol., or Bot. (jun. or sen.) ...	6
Chem., Geol., or Phys. (begin. course) 3		Chem., Geol., or Phys. (begin. course) 3	
Approved science electives	9	Approved science electives	6
Eco.	3	Eco.	3
Govt.	3	Govt.	3
Approved elective	2	Approved electives	6
Bot. 411—Seminar	1		
	33		33

**CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
CHEMISTRY MAJOR**

For Uniform Freshman Year see Page 79*

Sophomore Year

First Semester	Credit	Second Semester	Credit
Chem. 220—Qual. Anal.	2	Chem. 242—Inorg. Chem.	4
Science—Courses in 2 science depts. not represented in freshman year ...	6	Science—Continuation of courses begun first semester	6
For. Lang.	3	For. Lang.	3
**Govt. 230—Amer. Govt.		**Govt. 231—Amer. Govt.	
or		or	
**Math. 335—Diff. & Integ. Calc.	3	**Math. 336—Diff. & Integ. Calc.	3
P.E., M.S., or Band	1	P.E., M. S., or Band	1
	15		17

Junior Year

First Semester	Credit	Second Semester	Credit
Chem. 331—Quan. Anal.	3	Chem. 332—Quan. Anal.	3
Chem. 343—Org. Chem.	4	Chem. 344—Org. Chem.	4
For. Lang.	3	For. Lang.	3
Phys. Elective	3	Phys. Elective	3
Govt. 230—Amer. Govt.		Govt. 231—Amer. Govt.	
or		or	
Math. 335—Diff. & Integ. Calc.	3	Math. 336—Diff. & Integ. Calc.	3
	16		16

Senior Year

First Semester	Credit	Second Semester	Credit
Chem. 411—Seminar	1	Chem. 412—Seminar	1
Chem. 441—Phys. Chem.	4	Chem. 442—Physical Chem.	4
Economics	3	Economics	3
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Chem. 435—Adv. Quan. Anal.		Science Electives	4
or			
Chem. 436—Biol. Chem.	3		
Science Elective	3		
	17		15

**CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
ZOOLOGY MAJOR****Freshman and Sophomore Years**

Biol. 133—Botany	3	Biol. 134—Zoology	3
Chem., Geol., or Phys. (begin. courses) 6		Chem., Geol., or Phys. (begin. courses) 6	
Math.	3	Math.	3
Eng. 131—Comp.	3	Eng. 132—Comp.	3
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
For. Lang.	6	For. Lang.	6
Zool. 234—Invert. Morph.	3	Zool. 241—Vert. Anat.	4
Bot. 231—Plant Groups or app. elec. ...	3	Bot. 232—Taxonomy of app. elec. ...	3
P.E., Band, or M.S.	2-3	P.E., Band, or M.S.	2-3
	32-33		33-34

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

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

Junior and Senior Years

Zool. 331—An. Histol.;	
333—Parasitol.	3 or 6
Zool. (junior or senior)	0 or 3
Bact., Biol., or Bot. (jun. or sen.)	6
Chem., Geol., or Phys. (begin. course) ..	3
Approved science electives	9
Eco.	3
Govt.	3
Approved electives	2
Zool. 411—Seminar	1

33

Zool. 332—Embryol.;	
333—Parasitol.	3 or 6
Zool. (junior or senior)	0 or 3
Bact., Biol., or Bot. (jun. or sen.)	6
Chem., Geol., or Phys. (begin. course) ..	3
Approved science electives	6
Eco.	3
Govt.	3
Approved electives	6

33

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
MATHEMATICS MAJOR

For Uniform Freshman Year see Page 79*

Sophomore Year

First Semester	Credit
Math. 235—Anal. Geom.	3
Eng. 237—Types of Lit.	3
For. Lang.	3
Hist. 131—Hist. of Civ.	3
Chem. 131—Gen. Chem.	3
**Astron. 231—Gen. Astron.	3
P.E., M.S., or Band	1

19

Second Semester	Credit
Math. 236—Anal. Geom.	3
Eng. 238—Types of Lit.	3
For. Lang.	3
Hist. 132—Hist. of Civ.	3
Chem. 132—Gen. Chem.	3
Astron. 232—Gen. Astron.	3
P.E., M.S., or Band	1

19

Junior and Senior Years

First Semester	Credit
Math. 333—Advan. Alg.	3
Math. 335—Diff. Calculus	3
Math. 433—Th. of Equations	3
Math. 434 or 437	3
Govt. 230—Amer. Govt.	3
Eco. 231—Principles of Eco.	3
Science	6
Civ. Eng. 331—Statics	3
Elective	3

30

Second Semester	Credit
Math. 334—Advan. Alg.	3
Math. 336—Int. Calculus	3
Math. 432—Diff. Equat.	3
Math. 435 or 438	3
Govt. 231—Amer. Govt.	3
Eco. 232—Prin. of Eco.	3
Science	6
Phil. 337—Logic	3
Elective	3

30

*Physics 131-2 should be scheduled as the first science course, and either Geol. 131-2 or Biol. 131-2 as the second one. Defer Hist. 131-2.

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

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
PETROLEUM GEOLOGY MAJOR

Freshman Year

First Semester	Credit
Geol. 131—Gen. Geol.	3
Chem. 131—Gen. Chem.	3
For. Lang. 131	3
or	
E. Dr. 131—Drawing	3
Math. 130—Algebra	3
Eng. 131—Comp.	3

Second Semester	Credit
Geol. 132—Gen. Geol.	3
Chem. 132—Gen. Chem.	3
For. Lang. 132	3
or	
E. Dr. 122—Drawing	2
Math. 131—Trig.	3
Eng. 132—Comp.	3

Sophomore Year

For. Lang. 231	3
or	
Advan. Math.	3
Geol. 231—Mineralogy	3
A Biol. Sc. 131	3
Phys. 131—Gen. Phys.	3
Eng. 237—Types of Lit.	3
P.E., M.S., or Band	1

For. Lang. 232	3
or	
Advan. Math.	3
Geol. 234—Elem. Struct.	3
A Biol. Sc. 132	3
Phys. 132—Gen. Phys.	3
Eng. 238—Types of Lit.	3
P.E., M.S., or Band	1

Summer

*Geol. 363—Field Geology3

*May be used as junior elective.

Junior Year

Geol. 333—Petrog. & Petrol.	3	Geol. 334—Petrog. & Petrol.	3
Geol. 335—Gen. Paleo.	3	Geol. 336—Gen. Paleo.	3
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Eco. 231—Prin. of Eco.	3	Eco. 232—Prin. of Eco.	3
Sc. elective	3	Sc. elective	3

Senior Year

Geol. 411—Geol. of Tex.	1	Geol. 412—Geol. of Tex.	1
Geol. 413—Seminar	1	Geol. 414—Seminar	1
Geol. 431—Advan. Gen. Geol.	3	Geol. 432—Advan. Gen. Geol.	3
Geol. 433—Struc. Geol.	3	Geol. 434—Pet. Geol.	3
**Geol. 435—Index Fossils	3	**Geol. 436—Micropaleo.	3
Gen. Elective	3	Gen. Elective	3
Sc. Elective	3	Sc. Elective	3

**CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
PHYSICS MAJOR**

For Uniform Freshman Year see Page 79

Sophomore Year

First Semester	Credit	Second Semester	Credit
For. Lang. begun in freshman year	3	For. Lang. begun in freshman year	3
Math. 251—Calc.	5	Math. 233—Calc. Applic.	3
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
Chem. 131—Gen. Chem.	3	Chem. 132—Gen. Chem.	3
P.E., M.S., or Band	1	Elective	3
		P.E., M.S., or Band	1
	16		17

Junior and Senior Years

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Eco. 231—Prin. of Eco.	3	Eco. 232—Prin. of Eco.	3
Math. 321—Diff. Equat.	2	Phys. 435—Mechanics	3
Math. 434—Adv. Calc.	3	Math. 436—Adv. Calc.	3
Phys. 331—Light	3	Phys. 332—Heat	3
Phys. 333—Elect. and Mag.	3	Phys. 334—Elect. and Mag.	3
Phys. 337—Modern Phys.	3	Phys. 338—Modern Phys.	3
Phys. 411 or 413—Phys. Sem.	1	Phys. 412 or 414—Phys. Sem.	1
Phys. 423—Elect. Meas.	2	Phys. 424—Elect. Meas.	2
Geol. 131—Gen. Geol. or		Geol. 132—Gen. Geol. or	
Biol. 131—Bot. and Zool.	3	Biol. 132—Bot. and Zool.	3
Electives	3	Electives	3
	32		33

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 respective fields of work.

The minimum requirements for the Degree of Bachelor of Science in Education in terms of semester hours, are as follows:

1. English	12
2. Government	6
3. History or Speech	6
4. Laboratory science, 12; or Science, 6, and Mathematics, 6	12
5. Physical Education	6
6. Music (for Primary and Elementary majors)	6
7. Art (for Primary and Elementary majors)	6
8. Sociology	3

**With the approval of the department head, Geology 437-8 may be substituted for Geology 435-6.

9. Degree major, teaching major, teaching minor, and electives sufficient with the above required courses, but not including freshman and sophomore Physical Education, Band, or Military Science, to total 124 semester hours.

10. Physical Education, Band, or Military Science 4-6

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 health and physical education, music, and band. 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. Certain more general teaching majors and minors are available, such as social science, general science, and foreign language. Such majors and minors ordinarily call for the completion of a minimum of 30 and 24 semester hours, respectively. The 30 hours for the teaching major include 18 hours in one subject, 12 hours above the basic course, and 6 hours in each of two other subjects. The 24 hours for the teaching minor include 12 hours in one subject, 6 hours above the basic course, and 6 hours in each of two other subjects. Special requirements are made for public school music and band majors, as outlined in the appropriate curricula below. Certificate requirements are outlined in the appendix of this catalog. See page 216.

To complete the degree, the student is required to show a total of 138 grade points.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN EDUCATION

For Uniform Freshman Year see Page 79*

Sophomore Year

First Semester	Credit	Second Semester	Credit
Ed. 234—Prin. of Second. Educ.		Ed. 235—High Sch. Meth.	
or		or	
Ed. 236—Basic Skills in Elem. Grad. ...3		Ed. 237—Lang. Arts. ....3	
Eng. 235—Survey of Eng. Lit.		Eng. 236—Survey of Eng. Lit.	
or		or	
Eng. 237—Types of Lit. ....3		Eng. 238—Types of Lit. ....3	
Biol. 131—Nat. Hist.		Biol. 132—Nat. Hist.	
or		or	
Zool. 235—Anat., Physiol. and Hyg. ...3		Zool. 236—Anat. Physiol., and Hyg. ....3	
Govt. 230—American Govt. ....3		Govt. 231—Amer. Govt. ....3	
Psy. 230—Intro. to Psy. ....3		Teaching Major ....3	
P.E., M.S., or Band .....1		P.E., M.S., or Band .....1	
	16		16

*The student will take Ed. 131 and 138, either mathematics or science, and may substitute speech for history.

Junior Year

First Semester	Credit	Second Semester	Credit
Psy. 333—Meas. in Educ.		Psy. 335—Psy. of Adol.	
or		or	
Psy. 431—Mental Testing	3	Psy. 331—Child Psy.	3
Ed. 331—Prin. of Educ.		Sociol.	3
or		P.E., 233—Meth. in P.E.	
Ed. 430—Soc. Prin. of Educ.		or	
or		Elective	3
Ed. 431—Educ. in the U. S.	3	Teaching Major	3
Phys. Ed. 230—Prin. of Health Ed.	3	Teaching Minor	3
Teaching Major	6	Elective	2
Teaching Minor	3		
Elective	2		
	17		17

Senior Year

First Semester	Credit	Second Semester	Credit
Elective in Educ.	3	Ed. 3316 or 3317—Obs. and Prac.	3
Teaching Major	6	Elective in Educ.	3
Teaching Minor	6	Teaching Major	3
		Teaching Minor	6
	15		15

Hours required for graduation—124, exclusive of Physical Education, Band, or Military Science.

Note:

1. High school majors are required to complete 30 semester hours in education and psychology; primary or elementary, 39 hours.

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. A student may, however, take both of these sciences.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN EDUCATION

PUBLIC SCHOOL MUSIC MAJOR**Freshman Year**

First Semester	Credit	Second Semester	Credit
Eng. 131—Comp.	3	Eng. 132—Comp.	3
Ed. 131—Intro. to Educ.	3	Ed. 138—Career Guid.	3
Phys. 137	3	Phys. 138	3
Music 121—Solfeggio	2	Music 122—Solfeggio	2
Music 123—Harmony	2	Music 124—Harmony	2
Music 125—Applied	2	Music 126—Applied	2
Music 117—Class Voice	1	Music 118—Class Voice	1
P.E., M.S., or Band 111	1-2	P.E., M.S., or Band 112	1-2
	17-18		17-18

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Ed. 234—Prin. of Sec. Educ.	3	Ed. 235—High Sch. Meth.	3
or		or	
Ed. 236—Basic Skills in Elem. Ed.		Ed. 237—Lang. Arts	2
Music 221—Solfeggio	2	Music 222—Solfeggio	2
Music 223—Harmony	2	Music 224—Harmony	2
Music 225—Applied	2	Music 226—Applied	2
Music 217—Class Voice	1	Music 218—Class Voice	1
P.E., Band, or M.S.	1	P.E., M.S., or Band	1
	17		17

Junior Year

First Semester	Credit	Second Semester	Credit
Music 327—Conducting	2	Music 328	2
Psy. 230—Intro. to Psy.	3	Psy. 333—Meas. in Educ.	
		or	
Music 335—Music Hist.	3	Psy. 431—Mental Testing	3
Music 337—Music. Educ.	3	Music 336—Music Hist.	3
Music 325—Applied	2	Music 438—Music Meth.	3
Subject Matter Minor	3	Music 326—Applied	2
	16	Subject Matter Minor	3
		Band 321—Conduc. & Meth.	2
			18

Senior Year

First Semester	Credit	Second Semester	Credit
Music 431—Minor Instru.	3	Music 432—Minor Instru.	3
Music 425—Applied	2	Music 426	2
Music 413—Chorus	1	Music 414	1
Subject Matter Minor	3	Subject Matter Minor	6
Ed. 331—Prin. of Educ.		Ed. 3316 or 3317—Observ. & Pract.	3
or			
Ed. 430—Soc. Prin. of Educ.			
or			
Ed. 431—Educ. in the U. S.	3		
Psy. 335—Psy. of Adol.			
or			
Psy. 331—Child Psy.	3		
	15		15

NOTE:

1. Students should consult the head of the Department of Education in order to choose the proper courses for certification and also for either elementary or secondary school teaching.

**CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
IN EDUCATION****BAND MUSIC MAJOR****Freshman Year**

First Semester	Credit	Second Semester	Credit
Eng. 131—Comp.	3	Eng. 132—Comp.	3
Ed. 131—Intro. to Educ.	3	Ed. 133—Career Guid.	3
Science	3	Science	3
Music 121—Solfeggio	2	Music 122—Solfeggio	2
Music 123—Harmony	2	Music 124—Harmony	2
Band 125—Applied	2	Band 125—Applied	2
Music 117—Class Voice	1	Music 118—Class Voice	1
P.E., M.S., or Band 111	1-2	P.E., M.S., or Band 112	1-2
	17-18		17-18

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Ed. 234—Prin. of Sec. Educ.	3	Ed. 235—High Sch. Meth.	3
or		or	
Ed. 236—Basic Skills in Elem. Ed.		Ed. 237—Lang. Arts	2
Music 221—Solfeggio	2	Music 222—Solfeggio	2
Music 223—Harmony	2	Music 224—Harmony	2
Music 217—Class Voice	1	Music 218—Class Voice	1
Band 225—Applied	2	Band 226—Applied	2
P.E., M.S., or Band 211	1	P.E., M.S., or Band 212	1
	17		17

Junior Year

First Semester	Credit	Second Semester	Credit
Band 325—Applied	2	Band 326—Applied	2
Psy. 230—Intro. to Psy.	3	Psy. 333—Meas. in Educ.	2
		or	
Teaching Minor	6	Psy. 431—Mental Testing	3
Electives in Social Science	3	Teaching Minor	3
		Electives in Social Science	3
		Band 321—Conduc. & Methods	2
		Music 328—Conducting	2
	16		15

Senior Year

First Semester	Credit	Second Semester	Credit
Band 421—Conducting	2	Band 422	2
Band 425—Applied	2	Band 426—Applied	2
Music 431—Minor Instruments	3	Music 432—Minor Instruments	3
Teaching Minor	3	Teaching Minor	6
Ed. 331—Prin. of Educ.		Ed. 3316 or 3317—Observ. & Pract.	3
or			
Ed. 430—Soc. Prin. of Educ.			
or			
Ed. 431—Educ. in the U. S.	3		
Psy. 335—Psy. of Adol.			
or			
Psy. 331—Child Psy.	3		
	16		16

NOTE:

1. Students should consult the head of the Department of Education in order to choose the proper courses for certification and also for either elementary or secondary school teaching.

DIVISION OF BUSINESS ADMINISTRATION

T. C. Root, *Dean*

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 ordinarily 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, Bachelor of Science, Master of Business Administration and Master of Science.

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 below. At some time before completion of the sophomore year, students will select a major field of study from one of the curricula on page 94 et seq., and will consult the faculty adviser 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.

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
Eco. 231—Prin.	3	Eco. 232—Prin.	3
Acct. 244—Intro. to Acct.	4	Acct. 245—Intro. to Acct.	4
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Elective	3	Elective	3
P.E., M.S., or Band	1	P.E., M.S., or Band	1
	<hr/> 17		<hr/> 17

Students electing a management major are to take Management 231, Business Organization and Management.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION ACCOUNTING MAJOR

For Uniform Sophomore Year See Above

		Junior Year	
First Semester	Credit	Second Semester	Credit
Acct. 334—Intermed.	3	Acct. 335—Intermed.	3
Acct. 336—Princ. of Cost	3	Speech 338—Bus. Speech	3
Fin. 331—Corp.	3	Mkt. 332—Prin.	3
Fin. 338—Bus. Law	3	Fin. 339—Business Law	3
Sect. Admin. 333—Bus. Corres.	3	Mkt. 346—Stat.	4
	<hr/> 15		<hr/> 16
		Senior Year	
First Semester	Credit	Second Semester	Credit
Acct. 434—Advan. Acct.	3	Acct. 435—Advan. Acct.	3
Elective Acct.	3	Acct. 437—Auditing	3
Electives	9	Eco. 438—Research	3
	<hr/> 15	Elective Acct.	3
		Electives	3
			<hr/> 15

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

COMMERCIAL TEACHING MAJOR

For Uniform Sophomore Year See Page 94

Junior Year*

First Semester	Credit	Second Semester	Credit
Ed. 234—Prin. of Secon. Ed.	3	Ed. 235—High Sch. Meth.	3
Sect. 333—Bus. Corres.	3	Mkt. 346—Stat.	4
Mkt. 332—Prin. of Mkt.	3	Fin. 331—Corp. Fin.	3
Fin. 338—Bus. Law	3	Mkt. 333—Mkt. Prob.	3
Elective	3	Fin. 339—Bus. Law	3
	15		16

Senior Year

First Semester	Credit	Second Semester	Credit
Psy. 231—Educ. Psy.	3	Ed. 3316—Prac. Teaching	3
Sect. 434—Punch Card Machines	3	Sect. 432—Meth. of Teaching	3
Mkt. 433—Salesmanship	3	Spch. 338—Bus. Speech	3
Eco. 438—Research	3	Electives	7
Elective	4		
	16		16

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

FINANCE MAJOR

For Uniform Sophomore Year See Page 94

Junior Year

First Semester	Credit	Second Semester	Credit
Fin. 331—Corp. Fin.	3	Fin. 332—Short-Term	3
Fin. 333—Banking	3	Fin. 334—Credits and Collec.	3
Mkt. 346—Stat.	4	Mkt. 332—Prin.	3
Acct. 334—Intermed.	3	Acct. 335—Intermed.	3
Fin. 338—Bus. Law	3	Fin. 339—Bus. Law	3
	16		15

Senior Year

First Semester	Credit	Second Semester	Credit
Fin. 431—Federal Reserve System	3	Fin. 434—Invest.	3
Sect. 333—Bus. Corres.	3	Spch. 338—Bus. Speech	3
Electives	9	Eco. 438—Research	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 94

Junior Year

First Semester	Credit	Second Semester	Credit
Mgt. 331—Indus. Mgt.	3	Mgt. 332—Small Bus. Enterprises	3
Eco. 336—Labor Prob.	3	Mkt. 346—Stat.	4
Mkt. 332—Prin.	3	Fin. 331—Corp. Fin.	3
Fin. 338—Bus. Law.	3	Acct. 336—Prin. of Cost.	3
Elective	3	Fin. 339—Bus. Law	3
	15		16

*Secretarial Administration 114, Typewriting, and Secretarial Administration 235-6, Shorthand, will be completed in the sophomore year.

Senior Year

First Semester	Credit	Second Semester	Credit
Mgt. 431—Office Mgt.	3	Mgt. 433—Labor Relations	3
Mgt. 432—Personnel Mgt.	3	Mgt. 434—Job Eval. & Merit Rating ..	3
Eco. 438—Research	3	Sect. 333—Bus. Corres.	3
Spch. 338—Bus. Speech	3	Elective in Eco.	3
Elective in Eco.	3	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 94

Junior Year

First Semester	Credit	Second Semester	Credit
Mkt. 332—Prin. of Mkt.	3	Mkt. 333—Mkt. Prob.	3
Eco. 335—Transporta. Eco.	3	Sect. 333—Bus. Corres.	3
Psy. 230—Intro. to Psy.	3	Psy. 338—Pay. Applied to Bus.	3
Mkt. 346—Stat.	4	Fin. 331—Corp. Fin.	3
Fin. 338—Bus. Law	3	Fin. 339—Bus. Law	3
	16		15

Senior Year

First Semester	Credit	Second Semester	Credit
Mkt. 433—Salesmanship	3	Mkt. 435—Bus. Cycles and Forecasts ..	3
Mkt. 436—Retail Store Mgt.	3	Eco. 438—Research	3
Speech 338—Bus. Speech	3	Electives	9
Eco. 338—Foreign Trade	3		
Electives	3		
	15		15

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION**SECRETARIAL ADMINISTRATION MAJOR**

For Uniform Sophomore Year See Page 94

Junior Year*

First Semester	Credit	Second Semester	Credit
Sect. 321—Office Machines	2	Sect. 332—Sect. Prac.	3
Sect. 331—Sect. Prac.	3	Mkt. 346—Stat.	4
Sect. 333—Bus. Corres.	3	Fin. 339—Bus. Law	3
Fin. 338—Bus. Law	3	Spch. 338—Bus. Speech	3
Electives	4	Electives	3
	15		16

Senior Year

First Semester	Credit	Second Semester	Credit
Sect. 434—Punch Card Machines	3	Sect. 421—Voice Writing & Dup.	2
Eco. 438—Research	3	Sect. 433—Sect. Prob. and Prac.	3
Mgt. 431—Office Mgt.	3	Electives	10
Electives	6		
	15		15

Hours required for graduation—127.

*Secretarial Administration 114, 131, 132, 235, 236 will be completed previous to the junior year.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE ECONOMICS MAJOR

For Uniform Sophomore Year See Page 94

Junior Year

First Semester	Credit	Second Semester	Credit
Eco. 332—Pub. Util.	3	Eco. 334—Taxation	3
Eco. 333—Pub. Expend.	3	Fin. 331—Corp.	3
Eco. 336—Labor Prob.	3	Spch. 338—Bus. Speech	3
Mkt. 332—Prin.	3	Mkt. 346—Stat.	4
Fin. 338—Bus. Law	3	Fin. 339—Bus. Law	3
	15		16

Senior Year

First Semester	Credit	Second Semester	Credit
Eco. 331—Intermed. Eco.	3	Eco. 433—Internat. Eco. Relations	3
Eco. 338—Internat. Trade	3	Eco. 436—Devel. of Doctrines	3
Eco. 438—Research	3	Mkt. 435—Bus. Cycles and Forecasts ..	3
Eco. 437—Current Eco. Prob.	3	Eco. 4310—Advan. Prin.	3
Sect. 333—Bus. Corres.	3	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 94

Junior Year

First Semester	Credit	Second Semester	Credit
Eco. 335—Transportation	3	Eco. 337—Eco. Sys.	3
Eco. 338—Foreign Trade	3	Eco. 339—Latin Amer. and the U. S. ..	3
Fin. 338—Bus. Law	3	Fin. 339—Bus. Law	3
Mkt. 332—Prin.	3	Govt. 336—Amer. Diplomacy	3
Mkt. 346—Stat.	4	Spch. 338—Bus. Speech	3
	16		15

Senior Year

First Semester	Credit	Second Semester	Credit
Eco. 432—For. Mkt. Surveys	3	Eco. 433—Internat. Trade Relations	3
Eco. 437—Current Eco. Prob.	3	Govt. 436—Internat. Law	3
Eco. 434—Air Transport.	3	Sect. 333—Bus. Corres.	3
Govt. 435—Internat. Org.	3	Electives	6
Govt. 437—Polit. Geog.	3		15
	15		15

Hours required for graduation—127.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE PUBLIC ADMINISTRATION MAJOR

For Uniform Sophomore Year See Page 94

Junior Year

First Semester	Credit	Second Semester	Credit
Eco. 332—Pub. Util.	3	Eco. 333—Pub. Expend.	3
Eco. 335—Transporta.	3	Mkt. 346—Stat.	4
Fin. 331—Corp. Fin.	3	Mkt. 332—Prin.	3
Fin. 338—Bus. Law	3	Fin. 339—Bus. Law	3
Spch. 338—Bus. Speech	3	Sect. Admin. 333—Bus. Corres.	3
	15		16

Senior Year

First Semester	Credit	Second Semester	Credit
Eco. 331—Intermed.	3	Eco. 4310—Advan. Prin.	3
Eco. 334—Taxation	3	Mkt. 435—Bus. Cycles and Forecasts ..	3
Eco. 438—Research	3	Acct. 432—Governmental	3
Electives, Eco. and Govt.	6	Electives, Eco. and Govt.	6
	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 the 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 specialization 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; Mechanical 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-week summer terms prior to the time when his degree in the five-year curriculum is conferred.

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, Indus-

trial Engineer, Mechanical Engineer, Textile Engineer.

The requirements for any of these degrees include acceptable professional experience, a thesis, and an examination.

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
E.Dr. 131—Engr. Drawing	3	E.Dr. 121—Engr. Drawing	2
Math. 121—Alg.	2	Math. 122—Alg.	2
Math. 131—Trig.	3	Math. 132—Anal.	3
Eng. 131—Comp.	3	Eng. 132—Comp.	3
Chem. 131—Gen. Chem.	3	Chem. 132—Gen. Chem.	3
E.Or. 111—Orient.	1	Govt. 230—Amer. Govt.	3
P.E. or Band	1	P.E. or Band	1
or M.S.	2	or M.S.	2
	16 or 17		17 or 18

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
Chem. 220—Qual. Anal.	2	Chem. 242—Inorg. Chem.	4
Chem. 331—Quant. Anal.	3	Chem. 332—Quant. Anal.	3
Math. 251—Calc.	5	Chem. 234—Engr. Mtls. & Calcs.	3
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
Eng. 233—Tech. Writing	3	C.E. 331—Statics	3
P.E., M.S., or Band	1	P.E., M.S., or Band	1
	18		18

Junior Year

First Semester	Credit	Second Semester	Credit
Chem. 343—Org. Chem.	4	Chem. 344—Org. Chem.	4
Chem. 441—Phys. Chem.	4	Chem. 442—Phys. Chem.	4
Chem. 431—Prin. of Chem. Engr.	3	Chem. 432—Prin. of Chem. Engr.	3
Chem. 411—Chem. Seminar	1	Chem. 412—Chem. Seminar	1
E.E. 426—Elem. of E.E.	2	E.E. 427—Elem. of E.E.	2
E.E. 412—E.E. Lab.	1	E.E. 413—E.E. Lab.	1
I.E. 332—Mgt.—Prod. Plan. & Cont.	3	C.E. 333—Strength of Mater.	3
	18		18

The senior year of this curriculum will not be offered in 1948-49. Senior students in 1948-49 will follow the curriculum as published in the twentieth or twenty-first catalog.

Senior Year

Thermodynamics	6
Chem. Engr. Design	4
Org. Unit Processes	3
Advan. Chem. Engr.	3
Distillation & Absorption	3
Unit Operations Lab.	6
Electives	12

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN CIVIL ENGINEERING

For Uniform Freshman Year See Page 100

Sophomore Year

First Semester	Credit	Second Semester	Credit
C.E. 231—Plane Surveying	3	C.E. 232—Plane Surveying	3
Math. 251—Calc.	5	C.E. 331—Statics	3
Phys. 235—Engr. Phys.	3	Math. 233—Calc. Applic.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
Geol. 233—Geol. for Engineers	3	Phys. 236—Engr. Phys.	3
Eco. 235—Prin.	3	Chem. 220—Qual. Anal.	2
P.E., M.S., or Band	1	Eng. 233—Tech. Writing	3
		P.E., M.S., or Band	1
	19		19

Junior Year

(Not effective before year of 1949-50)

See Twenty-second Catalog

First Semester	Credit	Second Semester	Credit
C.E. 332—Kinematics & Kinetics	3	C.E. 333—Strength of Mater.	3
C.E. 320—Struct.	2	C.E. 330—Struct.	3
C.E. 335—Highway Engr.	3	C.E. 336—Highway Engr.	3
C.E. 339—Fluid Mech.	3	C.E. 334—Surveying	3
C.E. 312—Fluid Mech. Lab.	1	M.E. 335—Heat Engines	3
C.E. 3310—Munic. San.	3	Spch. 338—Bus. & Prof. Spch.	3
M.E. 334—Elem. Thermo.	3		
	18		18

Senior Year

(Not effective before year of 1950-51)

See Twenty-second Catalog

First Semester	Credit	Second Semester	Credit
C.E. 424—Mater.	2	C.E. 425—Mater.	2
C.E. 423—Eco. of Hwy. Design	2	C.E. 439—Law & Ethics	3
C.E. 431—Rein. Conc.	3	C.E. 4312—Soil Mech. & Found.	3
C.E. 433—Struct.	3	E.E. 427—Elem. of E.E.	2
E.E. 412—E.E. Lab.	1	E.E. 413—E.E. Lab.	1
E.E. 426—Elem. of E.E.	2	**Elective B	6
*Elective A	3	*Elective A	3
	16		20

Hours required for graduation—139 and P.E., M.S., or Band.

*Elective A. Choices made from the following are suggested, but 6 credit hours of continuous material are required: C.E. 437 and C.E. 438; Acct. 244 and Acct. 245; Fin. 338 and Fin. 339; Span. 131 and Span. 132. Other courses may be chosen as Elective A subject to approval by head of department and dean.

**Elective B. Choices are limited to the following: C. E. 432, C.E. 434, C.E. 4313, C.E. 4314.

Advanced military science may be substituted for Speech 338 and M. E. 335, in accordance with catalog regulations.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

For Uniform Freshman Year See Page 100

Sophomore Year

First Semester	Credit	Second Semester	Credit
E.E. 231—Prin. of E.E.	3	E.E. 232—Prin. of E.E.	3
E.E. 221—E.E. Lab.	2	E.E. 222—E.E. Lab.	2
Math. 251—Calc.	5	Math. 233—Calc. Applic.	3
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
E.Dr. 221—Machine Dr.	2	C.E. 231—Statics	3
Chem. 220—Qual. Anal.	2	Eng. 233—Tech. Writing	3
P.E., M.S., or Band	1	P.E., M.S., or Band	1
	19		19

Junior Year

First Semester	Credit	Second Semester	Credit
E.E. 332—A.C. Circuits	3	E.E. 334—Com. Circuits	3
E.E. 322—A.C. Circuits Lab.	2	E.E. 324—Communication Lab.	2
C.E. 332—Kinematics & Kinetics	3	E.E. 325—Electronics	2
M.E. 334—Elemen. Thermo.	3	E.E. 323—Electronics Lab.	2
M.E. 317—Heat Engr. Lab.	1	C.E. 333—Strength of Mater.	3
M.E. 313—Machine Shop	1	M.E. 314—Machine Shop	1
Math. 321—Diff. Equat.	2	M.E. 335—Heat Engines	3
Eco. 235—Prin.	3	M.E. 318—Heat Engr. Lab.	1
	18		17

Senior Year

First Semester	Credit	Second Semester	Credit
E.E. 4312—Elec. Mach.	3	E.E. 4313—Elec. Mach.	3
E.E. 4212—Elec. Mach. Lab.	2	E.E. 4213—Elec. Mach. Lab.	2
E.E. 428—Engr. Electronics	2	E.E. 429—Engr. Electronics	2
E.E. 4215—Engr. Electronics Lab.	2	E.E. 4216—Engr. Electronics Lab.	2
I.E. 332—Mgt.—Prod. Plan. & Cont. ...	3	C.E. 439—Law & Ethics in Engr.	3

COMMUNICATIONS OPTION

First Semester	Credit	Second Semester	Credit
E.E. 4310—Radio Engr.	3	E.E. 4311—Radio Engr.	3
E.E. 4210—Radio Engr. Lab.	2	E.E. 4211—Radio Engr. Lab.	2
*Electives	2	*Electives	2
	19		19

POWER OPTION

First Semester	Credit	Second Semester	Credit
E.E. 4214—Adv. Circuit Theory	2	E.E. 433—Transmission	3
C.E. 420—Hydraulics	2	C.E. 310—Testing Lab.	1
*Electives	3	*Electives	3
	19		19

Hours required for graduation—140 and P.E., or M.S., or Band.

*Subject to approval by Dean of Engineering and Head of Department.

Advanced military science may be substituted for Eng. 233, provided a B average or better has been made in Eng. 131-2. Not more than 6 hours credit may be used for military science.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

For Uniform Freshman Year See Page 100

Sophomore Year

First Semester	Credit	Second Semester	Credit
E.Dr. 221—Mach. Drawing	2	E.Dr. 222—Des. Geom.	2
Math. 251—Calc.	5	Math. 233—Calc. Applic.	3
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
M.E. 221—Engr. Prob.	2	M.E. 211—Sheet Metal Wk.	1
Psy. 230—Intro. to Psy.	3	C.E. 331—Statics	3
Eco. 235—Prin.	3	Chem. 220—Qual. Anal.	2
P.E., M.S., or Band	1	Acct. 231—Indus. Acct. for Engrs.	3
	20	P.E., M.S., or Band	19

Junior Year

First Semester	Credit	Second Semester	Credit
I.E. 316—Personnel Admin.	1	I.E. 331—Time & Motion Study	3
I.E. 332—Mgt.—Prod. Plan. & Cont. ...	3	I.E. 336—Tool Design	3
I.E. 333—Manuf. Meth.	3	C.E. 333—Strength of Mater.	3
E.Dr. 322—Advan. Mach. Dr.	2	M.E. 315—Heat Treating of Steel	1
C.E. 231—Plane Surveying	3	M.E. 316—Welding Prac.	1
M.E. 334—Elem. Thermo.	3	M.E. 335—Heat Engines	3
M.E. 313—Mach. Shop	1	Spch. 338—Bus. & Prof. Spch.	3
Eng. 233—Tech. Writing	3		17
	19		

Senior Year

First Semester	Credit	Second Semester	Credit
I.E. 432—Indus. Plant Design	3	I.E. 433—Indus. Plant Design	3
I.E. 436—Prin. of Engr. Eco.	3	I.E. 435—Indus. Safety Engr.	3
M.E. 311—Pattern Shop	1	I.E. 431—Purch. & I.E. Prob.	3
M.E. 312—Foundry Prac.	1	E.E. 439—Elem. of E.E.	3
E.E. 438—Elem. of E.E.	3	E.E. 413—E.E. Lab.	1
E.E. 412—E.E. Lab.	1	*Elective	3
Fin. 338—Bus. Law	3		
*Elective	2		

17

16

Hours required for graduation—137 and P.E., or M.S., or Band.

*Must be in one branch of engineering or business administration. Recommended electives: Group A—M.E. 337, Math. 321, C.E. 439, Chem. 322; Group B—C.E. 420, C.E. 426, Fin. 339. Not more than 3 hours may be selected from Group B. Advanced military science (12 hours) may be substituted for Spch. 338.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING AND MECHANICAL ENGINEERING—AERONAUTICAL OPTION

For Uniform Freshman Year See Page 100

Sophomore Year

First Semester	Credit	Second Semester	Credit
M.E. 221—Engr. Prob.	2	M.E. 241—Mech. Dynamics	4
Math. 251—Calc.	5	Math. 233—Calc. Applic.	3
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
E.Dr. 221—Mach. Dr.	2	C.E. 331—Statics	3
Eco. 231—Prin.	3	Eco. 232—Prin.	3
Chem. 220—Qual. Anal.	2	P.E., M.S., or Band	1
P.E., M.S., or Band	1		

19

18

Junior Year

First Semester	Credit	Second Semester	Credit
M.E. 313—Mach. Shop.	1	M.E. 314—Mach. Shop.	1
M.E. 311—Pattern Shop	1	M.E. 315—Heat Treating	1
M.E. 312—Foundry Prac.	1	M.E. 316—Welding Prac.	1
M.E. 330—Thermo.	3	M.E. 331—Thermo.	3
M.E. 337—Metallurgy	3	M.E. 322—Elem. Mach. Des.	2
M.E. 341—Steam Power	4	M.E. 332—Thermo Lab.	3
C.E. 332—Kinematics & Kinetics	3	C.E. 333—Strength of Mater.	3
Math. 321—Diff. Equat.	2	C.E. 310—Testing Lab.	1
		Eng. 233—Tech. Writing	3

18

18

Senior Year

First Semester	Credit	Second Semester	Credit
M.E. 436—Mach. Design	3	M.E. 437—Mach. Design	3
M.E. 431—Power Lab.	3	M.E. 434—Indus. Mgt.	3
E.E. 438—Elem. of E.E.	3	E.E. 439—Elem. of E.E.	3
E.E. 412—E.E. Lab.	1	E.E. 413—E.E. Lab.	1
Electives	7	Electives	9

17

19

Subject to approval by the head of the Department of Mechanical Engineering and by the Dean of Engineering prior to registration, electives may be chosen from the following subjects:

Group A: M.E. 423-4, 432, 438-9, 4310, 4311.

Group B: C.E. 231, 339, 410, 420, 434, 4310; T.E. 331, 332; I. Engr. 331; E. Sem. 411, 412; Spch. 338.

A minimum of 7 semester hours must be selected from Group A. Advanced military science may be substituted for 6 hours of Group B electives in accordance with catalog regulations.

AERONAUTICAL OPTION

Senior Year

First Semester	Credit	Second Semester	Credit
M.E. 436—Mach. Design	3	M.E. 437—Mach. Design	3
M.E. 431—Power Lab.	3	M.E. 434—Indus. Mgt.	3
M.E. 423—Int. Comb. Eng.	2	M.E. 424—Int. Comb. Eng.	2
M.E. 4310—Aerodynamics	3	M.E. 4311—Aerodynamics	3
C.E. 4310—Airplane Struct.	3	C.E. 434—Struct.	3
E.E. 438—Elem. of E.E.	3	E.E. 439—Elem. of E.E.	3
E.E. 412—E.E. Lab.	1	E.E. 413—E.E. Lab.	1

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Hours required for graduation—138 and P.E., or M.S., or Band.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
IN PETROLEUM ENGINEERING

GEOLOGY OPTION

For Uniform Freshman Year See Page 100

Sophomore Year

First Semester	Credit	Second Semester	Credit
Geol. 131—Gen.	3	Geol. 132—Gen.	3
Geol. 231—Mineralogy	3	Math. 233—Calc. Applic.	3
Math. 251—Calc.	5	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
Phys. 235—Engr. Phys.	3	C.E. 331—Statics	3
Eng. 233—Tech. Writing	3	E.Dr. 222—Des. Geom.	2
P.E., M.S., or Band	1	Chem. 220—Qual. Anal.	2
		P.E., M.S., or Band	1

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Summer

	Credit
Geol. 363—Field	6

Junior Year

First Semester	Credit	Second Semester	Credit
Geol. 333—Petrol.	3	Geol. 334—Petrol.	3
Geol. 335—Paleon.	3	Geol. 336—Paleon.	3
C.E. 332—Kinematics & Kinetics	3	C.E. 333—Strength of Mater.	3
C.E. 231—Plane Surveying	3	C.E. 232—Plane Surveying	3
Eco. 231—Prin.	3	C.E. 310—Testing Lab.	1
		Eco. 232—Prin.	3

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Senior Year

First Semester	Credit	Second Semester	Credit
Geol. 431—Advan. Gen.	3	Geol. 432—Advan. Gen.	3
Geol. 433—Struct.	3	Geol. 434—Petrol.	3
Geol. 435—Index Fossils	3	Geol. 436—Micropaleon.	3
Geol. 411—Texas Geol.	1	Geol. 412—Texas Geol.	1
Geol. 413—Seminar	1	Geol. 414—Seminar	1
C.E. 334—Surveying	3	Spch. 338—Bus. & Prof. Spch.	3
		*Elective	3

14

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Hours required for graduation—134 and P.E., or M.S., or Band.

Geology Option is open only to those students who elected it prior to March 1948.
Advanced military science may be substituted for Speech 338 and used as elective
in accordance with catalog regulations.

GEOPHYSICS OPTION

For Uniform Freshman Year See Page 100

Sophomore Year

First Semester	Credit	Second Semester	Credit
Geol. 131—Gen.	3	Geol. 132—Gen.	3
Math. 251—Calc.	5	Geol. 231—Mineralogy	3
Phys. 215—Phys. Meas.	1	Math. 233—Calc. Applic.	3
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
E.E. 231—Prin. of E.E.	3	Phys. 216—Phys. Meas.	1
E.E. 221—E.E. Lab.	2	E.Dr. 222—Des. Geom.	2
P.E., M.S., or Band	1	Eng. 233—Tech. Writing	3
	18	P.E., M.S., or Band	1

Summer

	Credit
Geol. 363—Field	6

19

Junior Year

First Semester	Credit	Second Semester	Credit
Geol. 333—Petrol.	3	Geol. 334—Petrol.	3
Geol. 335—Paleon.	3	Geol. 336—Paleon.	3
Geol. 411—Texas Geol.	1	Geol. 412—Texas Geol.	1
E.E. 332—Alt. Current	3	E.E. 333—Electronics	3
E.E. 322—Alt. Current Lab.	2	E.E. 323—Electronics Lab.	2
Phys. 333—Elec. & Mag.	3	Phys. 334—Elec. & Mag.	3
	15		15

Senior Year

First Semester	Credit	Second Semester	Credit
Geol. 431—Advan. Gen.	3	Geol. 432—Advan. Gen.	3
Geol. 433—Structural	3	Geol. 434—Petrol.	3
Geol. 435—Index Fossils	3	Geol. 436—Micropaleon.	3
Geol. 413—Seminar	1	Geol. 414—Seminar	1
Geol. 427—Geophysics	2	Geol. 428—Geophysics	2
E.E. 4210—Radio Engr. Lab.	2	E.E. 4211—Radio Engr. Lab.	2
E.E. 4310—Radio Engr.	3	E.E. 4311—Radio Engr.	3
	17		17

Hours required for graduation—136 and P.E., or M.S., or Band.

When possible, it is recommended that E.E. 232, E.E. 222, and Math. 321 be substituted for Phys. 333-4; and that E.E. 334, and E.E. 324 be substituted for E.E. 4311 and E.E. 4211.

Geophysics Option is open only to those students who elected it prior to March 1948.

PRODUCTION AND NATURAL GAS OPTION

For Uniform Freshman Year See Page 100

Sophomore Year

First Semester	Credit	Second Semester	Credit
Chem. 235—Hydrocarbons	3	Chem. 246—Analytical	4
Math. 251—Calc.	5	Math. 233—Calc. Applic.	3
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
Geol. 131—Gen.	3	Geol. 132—Gen.	3
M.E. 221—Engr. Prob.	2	C.E. 331—Statics	3
Eco. 235—Prin.	3	Eng. 233—Tech. Writing	3
P.E., M.S., or Band	1	P.E., M.S., or Band	1
	21		21

Junior Year

First Semester	Credit	Second Semester	Credit
Pet. E. 331—Dev. Meth.	3	Pet. E. 333—Prod. Meth.	3
Geol. 433—Struct.	3	Geol. 434—Petrol.	3
Geol. 231—Mineralogy	3	Eco. 326—Petrol.	2
C.E. 332—Kinematics & Kinetics	3	C.E. 333—Strength of Mater.	3
C.E. 231—Plane Surveying	3	C.E. 310—Testing Lab.	1
M.E. 338—Thermo.	3	M.E. 339—Thermo.	3
M.E. 317—Heat Lab.	1	M.E. 318—Heat Lab.	1
	19	Chem. 346—Physical	4
			20

Senior Year

First Semester	Credit	Second Semester	Credit
Pet. E. 410—Seminar	1	Pet. E. 411—Seminar	1
C.E. 334—Surveying	3	*Fin. 3310—Oil & Gas Law	3
E.E. 438—Elem. of E.E.	3	E.E. 439—Elem. of E.E.	3
E.E. 412—E.E. Lab.	1	E.E. 413—E.E. Lab.	1
M.E. 423—Int. Comb. Engines	2	M.E. 424—Int. Comb. Engines	2
Geol. 4312—Sedimentation	3	Geol. 4313—Sedimentation	3
C.E. 339—Fluid Mech.	3	Acct. 231—Acct. for Engrs.	3
C.E. 312—Fluid Mech. Lab.	1		

PRODUCTION OPTION

*Specialized Courses

First Semester	Credit	Second Semester	Credit
Pet. E.—Advan. Prod. Prob.	3	Pet. E.—Reservoir Engr.	3
		Pet. E.—Lab.	1
	20		20

NATURAL GAS OPTION

*Specialized Courses

First Semester	Credit	Second Semester	Credit
Pet. E.—Nat. Gas & Gasoline	3	Pet. E.—Nat. Gas & Gasoline	3
		Pet. E.—Lab.	1
	20		20

Hours required for graduation—150 and P. E., or M.S., or Band.

*Not to be offered before 1949-50. Course numbers to be designated later.

Advanced Military Science may be substituted for Accounting 231 and English 233 in accordance with catalog regulations.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
IN TEXTILE ENGINEERING

For Uniform Freshman Year See Page 100

Sophomore Year

First Semester	Credit	Second Semester	Credit
T.E. 234—Cotton Class. & Mkt.	3	T.E. 235—Textl. Fibers	3
Math. 251—Calc.	5	T.E. 326—Wool	2
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
E. Dr. 221—Mach. Drawing	2	C.E. 331—Statics	3
M.E. 221—Engr. Prob.	2	Chem. 322—Power Plant Chem.	2
Eco. 231—Prin.	3	**Eco. 232—Prin.	3
P.E., M.S., or Band	1	P.E., M.S., or Band	1
	20		18

Junior Year

First Semester	Credit	Second Semester	Credit
T.E. 331—Yarn Mfr.	3	T.E. 332—Yarn Mfg.	3
T.E. 333—Bleaching & Dyeing	3	T.E. 334—Bleaching & Dyeing	3
T.E. 335—Fab. Des. & Weaving	3	T.E. 336—Fab. Des. & Weaving	3
M.E. 334—Elem. Thermo.	3	M.E. 335—Heat Engines	3
M.E. 317—Heat Engr. Lab.	1	M.E. 318—Heat Engr. Lab.	1
C.E. 332—Kinematics & Kinetics	3	C.E. 333—Strength of Mater.	3
Chem. 341—Organic Chem.	4	I.E. 332—Mgt.-Prod. Plan. & Cont.	3
	20		19

Hours required for graduation—142 and P.E., or M.S., or Band.

**Advanced military science may be substituted for Economics 232 and English 233 in accordance with catalog regulations.

Senior Year		Second Semester	
First Semester	Credit		Credit
T.E. 438—Mill Org.	3	T.E. 437—Cost Engr.	3
T.E. 421—Fab. Anal. Weav. & Jac. Des. 2	2	T.E. 422—Fab. Anal. Weav. & Jac. Des. 2	2
T.E. 433—Dyeing & Finishing	3	T.E. 434—Dyeing & Finishing	3
T.E. 435—Adv. Yarn Mfr.	3	T.E. 436—Adv. Yarn Mfr.	3
E.E. 412—E.E. Lab.	1	E.E. 413—E.E. Lab.	1
E.E. 426—Elem. of E.E.	2	E.E. 427—Elem. of E.E.	2
E.S. 411—Engr. Seminar	1	E.S. 412—Engr. Seminar	1
M.E. 313—Mach. Shop	1	M.E. 316—Welding Prac.	1
I.E. 316—Personnel Admin.	1	Eng. 233—Tech. Writing	3
	17		19

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN TEXTILE ENGINEERING CHEMISTRY AND DYEING OPTION

For Uniform Freshman Year See Page 100

Sophomore Year		Second Semester	
First Semester	Credit		Credit
T.E. 234—Cotton Class. & Mkt.	3	T.E. 235—Textil. Fibers	3
Math. 251—Calc.	5	T.E. 326—Wool	2
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
M.E. 221—Engr. Prob.	2	C.E. 331—Statics.	3
Chem. 220—Qual. Anal.	3	Chem. 242—Inorganic Chem.	4
Eco. 231—Prin.	3	Eco. 232—Prin.	3
P.E., M.S., or Band	1	P.E., M.S., or Band	1
	20		20

Junior Year		Second Semester	
First Semester	Credit		Credit
T.E. 331—Yarn Mfr.	3	T.E. 332—Yarn Mfr.	3
T.E. 333—Bleaching & Dyeing	3	T.E. 334—Bleaching & Dyeing	3
T.E. 335—Fab. Des. & Weav.	3	T.E. 336—Fab. Des. & Weaving	3
C.E. 332—Kinematics & Kinetics	3	Chem. 344—Organic Chem.	4
Chem. 331—Quant. Anal.	3	Chem. 332—Quant. Anal.	3
Chem. 343—Organic Chem.	4	*Eng. 233—Tech. Writing	3
	19		19

Senior Year		Second Semester	
First Semester	Credit		Credit
T.E. 438—Mill Org.	3	T.E. 437—Cost Engr.	3
T.E. 421—Fab. Anal. Weav. & Jac. Des. 2	2	T.E. 422—Fab. Anal. Weav. & Jac. Des. 2	2
T.E. 433—Dyeing & Finishing	3	T.E. 434—Dyeing & Finishing	3
T.E. 435—Adv. Yarn Mfr.	3	T.E. 436—Adv. Yarn Mfr.	3
M.E. 313—Mach. Shop	1	T.E. 423—Adv. Dye. & Color Match. ..	2
E.S. 411—Engr. Seminar	1	E.S. 412—Engr. Seminar	1
Chem. 433—Indus. Chem.	4	M.E. 316—Welding Prac.	1
	17	Chem. 434—Organic Prep.	3
			18

Hours required for graduation—142 and P.E., or M.S., or Band.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN TEXTILE ENGINEERING

WEAVING AND DESIGN OPTION

For Uniform Freshman Year See Page 100

Sophomore Year		Second Semester	
First Semester	Credit		Credit
T.E. 234—Cotton Class. & Mkt.	3	T.E. 235—Textil. Fibers	3
Math. 251—Calc.	5	Phys. 216—Phys. Meas.	1
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	M.E. 221—Engr. Prob.	2
Arch. 121—Freehand Drawing	2	Arch. 122—Freehand Drawing	2
Arch. 123—Elem. of Comp. I.	2	Arch. 124—Elem. of Comp. I.	2
Eco. 231—Prin.	3	C.E. 331—Statics.	3
P.E., M.S., or Band	1	*Eco. 232—Prin.	3
	20	P.E., M.S., or Band	1
			20

*Advanced military science may be substituted for Eco. 232 and Eng. 233 in accordance with catalog regulations.

Junior Year

First Semester	Credit	Second Semester	Credit
T.E. 335—Fab. Des. & Weaving	3	T.E. 336—Fab. Des. & Weaving	3
T.E. 331—Yarn & Mfr.	3	T.E. 332—Yarn Mfr.	3
T.E. 333—Bleaching & Dyeing	3	T.E. 334—Bleaching & Dyeing	3
C.E. 332—Kinematics & Kinetics	3	I.E. 332—Mgt.-Prod. Plan. & Cont.	3
Arch. 437—Dr., Ptg. & Theory Des.	3	Arch. 438—Dr., Ptg., & Theory Des.	3
Chem. 341—Organic Chem.	4	Chem. 322—Power Plant Chem.	2
	19		17

Senior Year

First Semester	Credit	Second Semester	Credit
T.E. 438—Mill Org.	3	T.E. 437—Cost Engr.	3
T.E. 421—Fab. Anal. Weav. & Jac. Des. ..	3	T.E. 422—Fab. Anal. Weav. & Jac. Des. ..	3
T.E. 433—Dyeing & Finishing	3	T.E. 434—Dyeing & Finishing	3
T.E. 435—Adv. Yarn Mfr.	3	T.E. 436—Adv. Yarn & Mfr.	3
M.E. 313—Mach. Shop	1	T.E. 326—Wool	2
Arch. 426—Oil Ptg. or W. Color	2	Arch. 427—Oil Ptg. or W. Color	2
I.E. 316—Personnel Admin.	1	M.E. 316—Welding Prac.	1
E.S. 411—Engr. Seminar	1	E.S. 412—Engr. Seminar	1
*Eng. 233—Tech. Writing	3		
	19		17

Hours required for graduation—142 and M.S., or P.E., or Band.

*Advanced military science may be substituted for Eco. 232 and Eng. 233 in accordance with catalog regulations.

CURRICULA FOR THE DEGREE BACHELOR OF ARCHITECTURE**DESIGN OR CONSTRUCTION OPTION****Freshman Year**

First Semester	Credit	Second Semester	Credit
Arch. 121—Freehand Drawing I.	2	Arch. 122—Freehand Drawing II.	2
Arch. 125—Shades & Shadows	2	Arch. 126—Perspective	2
Arch. 131—Elem. of Arch.	3	Arch. 132—Elem. of Arch.	3
Math. 121—Alg.	2	Math. 122—Alg.	2
Math. 131—Trig.	3	Math. 132—Anal.	3
E. Or. 111—Orientation	1	Eng. 132—Comp.	3
Eng. 131—Comp.	3	P.E., M.S., or Band	1
P.E., M.S., or Band	1		
	17		16

DESIGN OPTION**Sophomore Year**

First Semester	Credit	Second Semester	Credit
Arch. 231—Arch. Design I.	3	Arch. 232—Arch. Design I.	3
Arch. 221—Hist. Ancient Arch.	2	Arch. 222—Hist. Med. Arch.	2
Arch. 224—Freehand Drawing III.	2	Arch. 225—Freehand Drawing IV.	2
Phys. 131—Elem. Coll. Phys.	3	Phys. 132—Elem. Coll. Phys.	3
Eng. 237—Types of Lit.	3	C.E. Approved Elective	2
Fren. 131 or Span. 131—Beg. Crse.	3	A For. Lang. Cont.	3
P.E., M.S., or Band	1	P.E., M.S., or Band	1
	17		16

Junior Year

First Semester	Credit	Second Semester	Credit
Arch. 351—Arch. Design II.	5	Arch. 352—Arch. Design II.	5
Arch. 322—Hist. Ren. Arch.	2	Arch. 323—Hist. Am. & Mod. Arch.	2
Arch. 326—Constr. Anat.	2	Arch. 327—Life Drawing I.	2
C.E. 231—Plane Surveying	3	E.E. 335—Wiring & Illumination	3
Eco. 235—Prin.	3	Spch. 338—Bus. & Prof. Spch.	3
A For. Lang. begun in Soph Yr.		A For. Lang. begun in Soph Yr.	
or		or	
Eng. 238—Types of Lit.	3	Eng. 3323—Masterpcs. of Wld. Lit.	3
	18		18

Senior Year

First Semester	Credit	Second Semester	Credit
Arch. 461—Arch. Design III	6	Arch. 462—Arch. Design III	6
Arch. 333—Bldg. Constr.	3	Arch. 334—Bldg. Constr.	3
Arch. 422—Bldg. Mat. & Constr.	2	Arch. 420—Professional Prac.	2
Arch. 321—Hist. E. Clv. & Art.	2	Arch. 324—Hist. Sculpture	2
Arch. 423—Life Drawing II	2	Arch. 424—Life Drawing III	2
C.E. 337—Struc. Mech.	3	C. E. 338—Struc. Mech.	3
	18		18

Fifth Year

First Semester	Credit	Second Semester	Credit
Arch. 483—Arch. Design IV	8	Arch. 484—Arch. Design IV (Thesis) ..	2
Arch. 3216—Clay Modeling	2	Arch. 3217—Clay Modeling	2
Arch. 435—Advan. Arch. Constr.	3	Arch. 436—City Planning	3
Govt. 230—Amer. Govt.	3	C.E. 310—Testing Lab.	1
	16		14

Hours required for graduation—165 and M.S., or P.E., or Band.

CONSTRUCTION OPTION

For Uniform Freshman Year See Page 108

Sophomore Year

First Semester	Credit	Second Semester	Credit
Arch. 231—Arch. Design I	3	Arch. 232—Arch. Design I	3
Arch. 221—Hist. Ancient Arch.	2	Arch. 222—Hist. Med. Arch.	2
Math. 251—Calc.	5	Math. 233—Calc. Applic.	3
Phys. 235—Engr. Phys.	3	Phys. 236—Engr. Phys.	3
Phys. 215—Phys. Meas.	1	Phys. 216—Phys. Meas.	1
Engr. 233—Tech. Writing	3	C.E. 331—Statics.	3
P.E., M.S., or Band	1	P.E., M.S., or Band	1
	18		16

Junior Year

First Semester	Credit	Second Semester	Credit
Arch. 351—Arch. Design II	5	Arch. 352—Arch. Design II	5
Arch. 322—Hist. Ren. Arch.	2	Arch. 323—Hist. Am. & Mod. Arch. ...	2
C.E. 231—Plane Surveying	3	E.E. 335—Wiring & Illum.	3
C.E. 320—Struct.	2	C.E. 330—Struct.	3
C.E. 332—Kinematics & Kinetics	3	C.E. 333—Strength of Mater.	3
Eco. 235—Princ.	3	Spch. 338—Bus. & Prof. Spch.	3
	18		19

Senior Year

First Semester	Credit	Second Semester	Credit
Arch. 461—Arch. Design III	6	Arch. 462—Arch. Design III	6
Arch. 333—Bldg. Constr.	3	Arch. 334—Bldg. Constr.	3
Arch. 422—Bldg. Mat. & Constr.	2	Arch. 420—Professional Prac.	2
C.E. 431—Reinf. Conc.	3	C.E. 432—Reinf. Conc.	3
M.E. 334—Elem. Thermo.	3	Govt. 230—Amer. Govt.	3
	17		17

Fifth Year

First Semester	Credit	Second Semester	Credit
Arch. 435—Advan. Arch. Constr. ..	3	Arch. 436—City Planning	3
C.E. 433—Struc.	3	C.E. 434—Struc.	3
C.E. 424—Mater.	2	C.E. 425—Mater.	2
M.E. 438—Heat, Vent., & Air Condit. .	3	M.E. 439—Heat, Vent., & Air Condit. .	3
Approved Electives	4	Approved Electives	3
	15		14

Hours required for graduation—163 and P.E., M. S., or Band.

CURRICULUM FOR THE DEGREE BACHELOR OF COMMERCIAL ART

Freshman Year

First Semester	Credit	Second Semester	Credit
Arch. 121—Freehand Drawing I	2	Arch. 122—Freehand Drawing II	2
Arch. 123—Elem. of Comp. I	2	Arch. 124—Elem. of Comp. I	2
Arch. 133—Commerc. Lettering	3	Arch. 125—Shades & Shadows	2
Math. 121—Alg.	2	Math. 131—Trig.	3
E. Dr. 134—Graphic Arts	3	E. Dr. 135—Graphic Arts	3
E. Or. 111—Orientation	1	Eng. 132—Comp.	3
Eng. 131—Comp.	3	P.E., or Band	1
P.E., or Band	1		
	17		18

Sophomore Year

First Semester	Credit	Second Semester	Credit
Arch. 131—Elem. of Arch.	3	Arch. 132—Elem. Arch.	3
Arch. 221—Hist. Ancient Arch.	2	Arch. 222—Hist. Med. Arch.	2
Arch. 224—Freehand Drawing III	2	Arch. 225—Freehand Drawing IV	2
Arch. 235—Elements of Comp. II	3	Arch. 236—Elem. of Comp. II	3
Eng. 237—Types of Lit.	3	Arch. 126—Perspective	2
A For. Lang., Fr., Span., or Germ.	3	A For. Lang., Fr., Span., or Germ.	3
P.E., M.S., or Band	1	P.E., or Band	1
	17		18

Junior Year

First Semester	Credit	Second Semester	Credit
Arch. 239—Pottery	3	Arch. 2310—Pottery	3
Arch. 320—Hist. of Orn. & Furn.	2	Arch. 234—Hist. of Sculpture	2
Arch. 321—Hist. E. Civ. & Art.	2	Arch. 327—Life Drawing I	2
Arch. 322—Hist. Ren. Arch.	2	Arch. 3211—Commerc. Illus. I	2
Arch. 326—Constr. Anat.	2	Spch. 338—Bus. & Prof. Spch.	3
Arch. 3210—Commerc. Illus. I	2	Eco. 235—Prin.	3
A For. Lang. begun Soph. Yr.		A For. Lang. begun Soph. Yr.	
or		or	
Eng. 238—Types of Lit.	3	Eng. 3323—Masterpcs. of Wild. Lit.	3
	16		18

Senior Year

First Semester	Credit	Second Semester	Credit
Arch. 331—Commerc. Design I	3	Arch. 332—Commerc. Design I	3
Arch. 423—Life Drawing II	2	Arch. 424—Life Drawing III	2
Arch. 426—Oil Ptg., or W. Color	2	Arch. 427—Oil Ptg., or W. Color	2
Arch. 428—Hist. of Ptg.	2	Arch. 429—Hist. of Ptg.	2
Arch. 437—Dr., Ptg., & Theory Des.	3	Arch. 438—Dr., Ptg., & Theory Des.	3
Govt. 230—Amer. Govt.	3	Arch. 420—Professional Prac.	2
Psy. 230—Intro. to Psy.	3	Psy. 338—Psy. Applied to Bus.	3
	18		17

Fifth Year

First Semester	Credit	Second Semester	Credit
Arch. 4210—Decorative Fig. Dr.	2	Arch. 4211—Decorative Fig. Dr.	2
Arch. 4212—Commerc. Illus. II	2	Arch. 4213—Commerc. Illus. II	2
Arch. 433—Commerc. Design II	3	Arch. 434—Commerc. Design II	3
Jour. 435—Advertising	3	Jour. 436—Advertising	3
Approved Electives	6	Approved Electives	6
	16		16

Hours required for graduation—163 and P.E., or Band.

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 lunchrooms, 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. Completion of a curriculum leading to the degree usually requires four years. This time may be shortened by attending 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 Education 111—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 3 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 this 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 teacher's certificate but is in addition thereto.

Teachers' Certificates. 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.

CURRICULA 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
Eng. 131—Comp	3	Eng. 132—Comp.	3
Chem. 131—Gen. Chem.	3	Chem. 132—Gen. Chem.	3
A. Arts 131—Design	3	Child Dev. 131—Child Guid.	3
Cloth. 132—Cloth. Prob.	3	Foods 131—Prep. & Serv.	3
Math. 137—Com. Alg.	3	Elective	3
H.E. Ed. 111—Orientation	1	P.E. 112	3
P.E. 111	1		

*To be used with all curricula except Pre-Nursing.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

APPLIED ARTS MAJOR

For Uniform Freshman Year See Page 112

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Typ. and Mast.	3	Eng. 238—Typ. and Mast.	3
Psy. 231—Ed. Psy.	3	Ed. 234—Sec. Ed.	3
Zool. 235—Anat.	3	Zool. 236—Anat.	3
A.A. 133—Design	3	A.A. 231—Cos. Design	3
Clo. 131—Basic Textiles	3	A.A. 233—Textile Design	3
Govt. 230—Amer. Govt.	3	P.E.	1
P.E.	1		
	19		16

Junior Year

First Semester	Credit	Second Semester	Credit
Eco. 231—Prin. of Eco.	3	Soc. 230—Intro. to Sociol.	3
H. Mgt. 332—H. Mgt.	3	or	
A.A.—232—Crafts Design	3	Soc. 333—Social Prob.	3
Elective in Foods and Nutr.	3	Bact. 231—Bact.	3
*Elective	3	A.A. 234—Minor Crafts	3
		A.A. 331—Interior Design	3
		Electives	3
	15		15

Senior Year

First Semester	Credit	Second Semester	Credit
Fam. Rel. 433	3	A.A. 434—Metalwork	3
Cloth. 322—Weaving Crafts	2	or	
A.A. 431—Wood	3	A.A. 435—Jewelry-Lapidary	3
Psy. 331—Ch. Psy.	3	H.E. Ed. 331—Prin. of Tch. H.E.	3
or		H.E. Ed. 411—H. E. Lect.	1
Psy. 335—Adol. Psy.	3	Electives	9
**Electives	6		
	17		16

Hours required for graduation 130.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

CHILD DEVELOPMENT AND FAMILY RELATIONS MAJOR

For Uniform Freshman Year See Page 112

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Zool. 235—Anat., Phys. and Hyg.	3	Zool. 236—Anat., Phys. and Hyg.	3
Foods 132—Elem. Food Prep.	3	Cloth. 131—Basic Textiles	3
Psy. 231—Ed. Psy.	3	Ch. D. 231—Dev. in Infancy	3
Govt. 230—Amer. Govt.	3	Ed. 234—Prin. of Sec. Ed.	3
P.E.	1	P.E.	1
	16		16

Junior Year

First Semester	Credit	Second Semester	Credit
Eco. 231—Prin. of Eco.	3	Soc. 330—Intro. to Sociol.	3
or		Fam. Rel. 433—Fam. Rel.	3
Ag. Eco. 235—Fund. of Eco.	3	Nutr. 334—Dietetics	3
Ch. D. 431—Dev. of Learn.	3	Psy. 331—Ch. Psy.	3
Foods 232—Meal Plan. and Serv.	3	H.E. Ed. 331—Prin. of Tch. H.E.	3
H. Mgt. 332—Home Mgt.	3	Electives	3
A. A. 233—Textile Design	3		
	15		18

*General Option select Cloth. 232; Crafts Option select P.E. 230.

**General Option select Cloth. 333; Crafts Option select Psy. 433 and P.E. 331.

Senior Year

First Semester	Credit	Second Semester	Credit
Psy. 433—Mental Hyg.	3	A. A. 331—Int. Design.	3
Ed. 3310—Ch. Lit.	3	Ch. D. 435—Stud. Tch. in Nur. Sch.	3
Ch. D. 432—Nur. Sch. Ed.	3	H.E. Ed. 411—H.E. Lect.	1
H.E. Ed. 431—Meth. of Tch. H.E.	3	H.E. 412—Sup. Obs. in H. Ec.	1
H. Mgt. 432—Res. in H. Mgt. Hse.	3	H.E. Ed. 435—Meth. for Adult Lead.	3
		Electives	6
	15		17

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
IN HOME ECONOMICS

CLOTHING AND TEXTILES MAJOR

For Uniform Freshman Year See Page 112

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Cloth. 131—Basic Text.	3	Cloth. 232—Dressmaking	3
Hist. 131—Hist. of Civ.	3	Hist. 132—Hist. of Civ.	3
A.A. 231—Cost. Design	3	Govt. 230—Amer. Govt.	3
Psy. 231—Ed. Psy.	3	Elective	3
P.E.	1	P.E.	1
	16		16

Junior Year

First Semester	Credit	Second Semester	Credit
Elective	3	Elective	3
Cloth. Elec.	3	Cloth. Elec.	3
Cloth. 333—Pattern Design	3	Nutr. Elec.	3
A.A. 331—Int. Design	3	A.A. Elec.	3
Eco. 231—Prin. of Eco.	3	Soc. 230—Intro. to Sociol.	3
Zool. 235—Anat., Phys. and Hyg.	3	or	
		Soc. 333—Cur. Social Prob.	
		Zool. 236—Anat., Phys. and Hyg.	3
	18		18

Senior Year

First Semester	Credit	Second Semester	Credit
Eco. 232—Prin. of Eco.	3	H.E. Ed. 411—H.E. Lect.	1
Elective	3	Elective	3
Cloth. Elec.	3	Cloth. Elec.	6
Cloth. 431—Textil. Eco.	3	Fam. Rel. Elec.	3
H. Mgt. 332—H. Mgt.	3	Bact. 231—Bact.	3
		or	
		Chem. 341—Org. Chem.	
	15		16

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE
IN HOME ECONOMICS

FOODS AND NUTRITION MAJOR

For Uniform Freshman Year See Page 112

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Zool. 235—Anat., Phys. and Hyg.	3	Zool. 236—Anat., Phys. and Hyg.	3
Chem. 220—Qual. Anal.	2	Foods 232—Meal Plan. and Serv.	3
Foods 132—Food Prep.	3	*Ed. 234—Prin. Sec. Ed.	3
Psych. 231—Ed. Psych.	3	Gov. 230—Amer. Gov.	3
Cloth. 131—Textiles	3	P.E.—Phys. Ed. for Women	1
P.E.—Phys. Ed. for Women.	1		

*Teaching option select Ed. 234. Nutrition option select Math. 138. Institutional Management option select Acct. 244. Commercial Foods Service option select Journ. 3310.

Junior Year

First Semester	Credit
Eco. 231—Prin. of Eco.	3
Nutr. 334—Dietetics	3
Bact. 231—Bacteriology	3
Chem. 341—Org. Chem.	4
Elective	3

Second Semester	Credit
Soc. 333—Cur. Social Prob.	3
Foods Elec.	3
A.A. Elec.	3
Chem. 342—Phys. Chem.	4
Elective	3

Senior Year

First Semester	Credit
Nutr. 432—Nutrition	3
H.Mgt. 332—Home Management	3
Foods & Nutr. Elec.	3
**Approved Electives	6

Second Semester	Credit
Nutr. 431—Nutr. in Disease	3
H.Mgt. Elec.	3
Foods 333—Exp. Cookery	3
**Approved Electives	6
H.E. Ed. 411	1

Hours required for graduation—130.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE IN HOME ECONOMICS

GENERAL HOME ECONOMICS MAJOR

For Uniform Freshman Year See Page 112

Sophomore Year

First Semester	Credit
Eng. 237—Types of Lit.	3
Zool. 235—Anat., Phys. and Hyg.	3
Psy. 231—Ed. Psy.	3
A.A. 231—Costume Design	3
Cloth. 131—Basic Textiles	3
P.E.	1

Second Semester	Credit
Eng. 238—Types of Lit.	3
Zool. 236—Anat., Phys. and Hyg.	3
Govt. 230—Amer. Govt.	3
Cloth. 232—Dressmaking	
or	
Foods 232—Meal Plan. and Serv.	3
Foods 132—Elem. Food Prep.	3
P.E.	1

16

16

Junior Year

First Semester	Credit
Eco. 231—Prin. of Eco.	
or	
Ag. Eco. 235—Fund. of Eco.	3
Chem. 341—Organic Chem.	4
or	
Bact. 231—Bacteriology	3
Foods 232—Meal Plan. and Serv.	
or	
Cloth. 232—Dressmaking	3
H.Mgt. 332—Home Management	3
A.A. 331—Interior Design	3

Second Semester	Credit
Soc. 330—Intro. to Sociol., or	
R. Soc. 432—Rural Sociol.	3
Cloth. 333—Pattern Design	3
Nutr. 334—Dietetics	3
H.Mgt. 432—Res. in H.Mgt. House	3
Electives	5

15 or 16

17

Senior Year

First Semester	Credit
Ch. D. 431—Dev. Learn	3
Arts & Sciences Elec.	6
Cloth. 334—Fam. Cloth. Probs	
or	
Cloth. 431—Textile Eco.	3
Electives	5

Second Semester	Credit
Elective—Child Dev.	3
Arts & Sciences Elec.	6
Cloth. 435—Home Furn.	3
H.E. Ed. 411—H.E. Lectures	1
Elective—Foods & Nutr.	3

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.

Cloth. 322. Weaving Crafts.

Electives in Division of Agriculture—at least 6 semester hours.

**Teaching option select H.E. Ed. 331, 431, and other courses in education necessary to qualify for the desired certificate. Nutrition option select Chem. 331-2. Institutional Management option select Instit. Mgt. 432, 435, 436; Cloth. 431. Commercial Foods Service option select Foods 331, 333; Cloth. 431; Home Mgt. 433.

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 112

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Zool. 235—Anat. Phy. Hyg.	3	Zool. 236—Anat. Phy. Hyg.	3
Psy. 231—Ed. Psy.	3	Ed. 234—Prin. Sec. Ed.	3
Foods 132—Elem. Food Prep.	3	Govt. 230—Amer. Govt.	3
A.A. 231—Cost. Design	3	Cloth. 232—Dressmaking	
Cloth. 131—Basic Text	3	or	
P.E.	1	Foods 232—Meal Plan. Table Serv.	3
		P.E.	1
	19		18

Junior Year

First Semester	Credit	Second Semester	Credit
Eco. 231—Prin. Eco.		Soc. 230—Intro. to Sociol.	
or		or	
Ag. Eco. 235—Fund. of Eco.	3	Soc. 333—Cur. Sociol. Prob.	
Chem. 341—Organic	4	or	
Foods 232—Meal Plan. and Serv.		R. Soc. 432—Rural Soc.	3
or		Bact. 231—Bacteriology	3
Cloth. 232—Dressmaking	3	Nutri. 334—Dietetics	3
H.Mgt. 332—Home Mgt.	3	H.E. Ed. 331—Prin. Tch. HE Ed.	3
A.A. 331—Int. Design	3	Elective	3
	16		15

Senior Year

First Semester	Credit	Second Semester	Credit
H.E. Ed. 431—Meth. Tch. H.E.	3	H.E. Ed. 441—Stud. Tch. H.E.	4
Ch. D. 431—Dev. Learn	3	Elect. in Ch. Dev. or Fam. Rel.	3
H.Mgt. 432—Res. H.Mgt. House	3	Cloth. 435—Home Furn	3
Cloth. 334—Fam. Cloth. Prob.		H.E. Ed. 411—H.E. Lectures	1
or		Electives	6
Cloth. 431—Text. Eco.	3		
H.E. Ed. 412—Supr. Obs. in H.E.	1		
Electives	5		
	18		17

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
Eng. 131—Comp.	3	Eng. 132—Comp.	3
Chem. 131—Gen. Chem.	3	Chem. 132—Gen. Chem.	3
Foods 131—Elem. Food Prep.	3	Foods 132—Elem. Food Prep	3
Math. 137—Com. Alg.	3	Ch.D. 131—Child Guid.	3
Zool. 131—Gen. Zool.	3	Zool. 132—Gen. Zool.	3
H.E. Ed. 111—Orientation	1	P. E. 112	1
P. E. 111	1		
	17		16

Sophomore Year

First Semester	Credit	Second Semester	Credit
Eng. 237—Types of Lit.	3	Eng. 238—Types of Lit.	3
Govt. 230—Amer. Govt.	3	Govt. 231—Amer. Govt.	3
Psy. 230—Intro. to Psy.	3	Soc. 330—Intro. to Sociol.	3
Chem. 220—Qual. Anal.	2	Foods 232—Meal Plan. and Serv.	3
Hist. 231—Eco. & Polit. Hist. U.S.	3	Hist. 232—Eco. & Polit. Hist. U.S.	3
P.E.	1	P.E.	1
	15		16

DIVISION OF GRADUATE STUDIES

WILLIAM C. HOLDEN, *Dean*

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 and Petroleum Engineering, 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. A third class of students may pursue graduate work. Students in residence who lack 6 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 under-

graduate 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 15 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 is 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 12 semester hours of advanced 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 6 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 50 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 other work in which he may be deemed deficient.

2. After 12 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 12 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 27 hours and a thesis, although a department may increase the number of hours required

of a particular candidate. Of the required work at least 15 semester hours and a thesis must be completed in the major subject. At least 6 of the 27 hours must be in a department other than the major department. Two minors may be chosen, but in no case will less than 6 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 with the understanding that additional work over and above that completed by the undergraduate student must be completed by the student seeking graduate credit in these courses.

For completion of requirements for the major at least 9 semester hours must be completed in courses of Class a above.

Graduate students are limited to a load of not exceeding 15 semester hours for each semester and a load of not exceeding 6 semester hours for each full summer term of six weeks if any portion of such work is to be counted 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 this institution 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. Six summers will be allowed for Plan III and seven summers for the non-thesis option of Plan II of the Master of Education Degree.

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 semesters or terms required for 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 6 hours of graduate credit:
 - a. A maximum of 6 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 6 semester hours of graduate work taken through the Division of Extension of Texas Technological College may be used.

An additional 9 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 department, the dean of the division concerned, 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 requirement in foreign language.
5. Thesis: The completion of an acceptable thesis is a requirement of all Masters' Degrees, with the exception of 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 responsibility rests upon the major professor, who will be the chairman of the advisory committee, the candidate should consult freely with 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 not later than 30 days prior to Commencement during the regular session, and not later than 20 days prior to 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 Dean of the Division of Graduate Studies, who will issue a receipt for the deposit, 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 final 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.
9. Special departmental requirements: Each major department, in addition to the foregoing, may impose special requirements, such as a written examination, special reading assignments, or any other provisions deemed essential.

DEGREES

Master of Arts

Prerequisite: A Bachelor of Arts Degree. 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.

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 30 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:

- 27 hours of advanced and graduate courses and a thesis. The courses include 9 hours of graduate level courses, 3 hours in statistics, and 3 hours in technique of research. The major in education consists of 15 hours and a thesis, and the minor of 12 hours in a subject-matter department, or 6 hours in each of two such departments.
2. Plan II, designed especially for classroom teachers.
 - a. Option 1, with thesis. Required: 27 hours of advanced and graduate courses and a thesis. The courses include 3 hours in the technique of research and at least 9 hours at graduate level. As few as 12 hours and as many as 24 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 30 hours in advanced and graduate levels. At least 9 hours must be at the graduate level. As few as 12 hours and as many as 24 may be taken in the Department of Education. The remainder of the 30 hours may be taken in a subject-matter, or minor, department, or in two such departments. Twelve of the 42 hours may be selected from any department in the college, and may be of any level.
 3. Plan III, without thesis. Required: 36 hours of advanced and graduate courses, 9 of which must be of graduate level. From 18 to 24 hours may be taken in education, the remainder of the 36 hours to be in one or two minor departments in which the candidate has the necessary prerequisites.

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

The professional degrees in engineering, Chemical Engineer, Civil Engineer, Electrical Engineer, Industrial Engineer, Mechanical Engineer, Petroleum Engineer, and Textile Engineer, are open, upon application, to graduates of the Division of Engineering of Texas Technological College, and to others upon invitation from the faculty of the college. The degrees are conferred only upon recommendation of the faculty of the Division of Engineer-

ing and the Committee on Graduate Work.

Normally the requirements include distinctive professional experience and a thesis. The candidate must have made a superior undergraduate record and since graduation, he must have been an honor and an asset to his profession.

Professional experience will include five years subsequent to graduation and prior to his application for a degree. Two of the five years will have been in positions of direct responsibility and trust from an engineering standpoint. The quality of this experience will be judged by the faculty of the Division of Engineering, the Committee on Graduate Work, and such other members of the profession as may be selected. A Master's Degree in engineering may be substituted for two years of the ordinary professional experience.

The thesis project will be on an engineering subject; it will include only personal investigations or discoveries by the applicant; and it will be a distinct contribution to engineering. It will be evaluated upon the standards used in respect to the quality of the professional experience, and by the same people.

Not later than eight months prior to the time when the degree is to be conferred, the candidate will make written application to the Committee on Graduate Work. This application will include a statement of the degree desired, a resume of professional experience with pertinent documentary evidence, and a comprehensive outline of the thesis. The applicant will be admitted to candidacy upon approval by the faculty of the Division of Engineering and the Committee on Graduate Work.

Eight weeks before the degree is to be conferred a copy of the thesis will be submitted to the Dean of the Division of Graduate Studies. It must be approved by the faculty of the Division of Engineering, or its selected representatives, and by the Committee on Graduate Work. Two weeks before the degree is to be conferred, three complete copies of the approved thesis will be filed with the Dean of the Division of Graduate Studies.

The candidate will be present to receive the degree except under extraordinary circumstances.

DIVISION OF EXTENSION

J. HOMER MILLIKIN, *Director*

Texas Technological College through the Division of Extension offers approximately 250 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.

Arts and Sciences: Bible, Biology, Education and Psychology, English, Foreign Languages, Geology (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 6 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 for each correspondence course of 1 semester hour is \$7; of 2 semester hours, \$14; and of 3 semester hours, \$21. All fees are payable in advance and are not refunded. A correspondence course may not be exchanged for some other course 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 of securing credit.

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 sciences, mathematics, foreign languages, and science.

The enrollment fee for a one-half unit course is \$11; for each one-unit course, \$21.

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 enrollment fee is \$7 per semester hour. Laboratory fees may be required for courses requiring laboratory work. Enrollment fees are required in advance and are not refunded.

A maximum of 6 semester hours of extension 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.

The Placement Service

The college offers the facilities of its placement services, both to its students and to those desiring to employ these students. Graduates and former students are urged to take advantage of this service, and graduating seniors will be expected to complete personnel sheets for filing with that office prior to the receipt of their degrees.

Employers, representing both school administrators and industry, should file requests with that office for needed personnel. All correspondence relative to employment of students should be addressed to that office.

Further details and coverage offered may be received from the Secretary to the Placement Committee, Room 205 of the Administration Building.

MILITARY SCIENCE AND TACTICS

R. O. T. C.

All physically fit male students of the freshman and sophomore years, except veterans, are required to elect either band, physical education, or military science. Should the student elect military science (ROTC) he agrees to continue the basic course for two academic years or completion as a prerequisite to graduation unless released for reasons beyond his control. Total credit for the basic course amounts to 6 semester hours.

RESERVE OFFICERS' TRAINING CORPS

The Departments of the Army and the Air Force maintain a senior division of the ROTC at Texas Technological College, which is classified a CC (Civilian College) institution. The mission of the senior division is to produce junior officers who have the qualities and attributes essential to progressive and continued development as officers in a component of the Army and Air Forces of the United States. The Division of Military Science and Tactics at this college places special emphasis upon *leadership* to assist men in meeting life situations with success and honor. The Reserve Officers' Training Corps is not a component of the armed forces of the United States, however those students securing a deferment from the draft because of enrollment in the ROTC program must agree, in writing, subject to call, to serve not less than two years on active duty after receipt of a commission. Besides producing reserve officers, the senior division ROTC provides the principal source of procurement of junior officers for the Regular Army or Air Force. The Department of the Army maintains three units of ROTC at this college which are: Corps of Engineers, Signal Corps, and Infantry. The Department of the Air Force maintains two units, these being: Administration and Military Management, and Armament.

Senior ROTC Program

The senior ROTC program consists of two parts: basic course and advanced course, including a summer camp.

Basic course. (a) For freshmen, the course consists of formal military instruction of four hours per week for one academic year, and (b) for sophomores, the course consists of formal instruction of three hours per week for one academic year. The professor of military science and tactics may allow up to two years credit in the basic course for previous honorable active service in the armed

forces. Veterans of World War II who have had 6 to 12 months active service may be given credit for one year of the basic course and a veteran who has had over 12 months of service may be given credit for the entire basic course making him eligible for consideration in the advanced course immediately, provided he has attained full sophomore college standing, the minimum considered necessary for the advanced course.

Advanced course. The advanced course consists of formal military instruction, principally of a specialized type applicable to the arm or service concerned for six hours per week over a period of not less than two academic years of 32 weeks each and a summer camp of six weeks duration and is designed to qualify selected students for Reserve or Regular Army or Air Force Commissions in one of the several arms or services. Entrance to the advanced course is limited to those taking an academic course on the college level who have completed the basic course or received credit for prior service. Upon successful completion of the advanced course ROTC and four years of college work the graduate will be tendered a commission as second lieutenant in the Organized Reserve Corps. Exception to this allows the granting of Reserve Commissions to veterans upon successful completion of the advanced course. Those electing the advanced course are advised that completion of the summer encampment and the acceptance of a reserve commission are prerequisites to receiving any part of the academic credit allowed for the advanced course toward a college degree. Exceptions to this will be made only to those students becoming physically unqualified.

Distinguished military students are so designated by the professor of military science and tactics with the concurrence of the President of the College, from those ROTC students who have achieved scholastic excellence and who possess outstanding qualities of leadership, character and aptitude for military service. This selection is made during the second year of advanced work and is progressive in that a student so selected, and who continues to do the same quality of work until graduation, is at that time designated a *distinguished military graduate*. This makes him eligible to be considered for a Regular Army or Regular Air Force Commission.

Financial Assistance

Advanced ROTC course students are paid a monetary allowance at a daily rate equal to the value of the commuted ration, (during the fiscal year 1947-48 this was 79 cents per day) for a maximum of 570 days. It is expected that Congress will authorize the payment of an allowance for quarters. These figures are in excess of veteran benefits under Section 400(b), Servicemen's Readjustment Act of 1944, and of any disability benefit authorized a veteran provided he passes the ROTC physical examination.

Uniforms and Equipment

All ROTC students are furnished officer type uniforms, including overcoat and shoes, without cost to the student. This uniform and other property remains the property of the United States. Each student is required to maintain his uniform by cleaning and proper care and to return same to the ROTC supply office in the event he leaves school or becomes separated from the ROTC for other reasons.

The Federal Government provides the necessary texts and equipment to carry out the ROTC program. This equipment consists of M1 .30 caliber rifles, .45 caliber pistols, carbines, machine guns, automatic rifles, .22 caliber rifles, ammunition for small bore rifle shooting, trench mortars, 20mm, 57mm, and 75mm guns, trucks, tractors, fire control instruments, radar, radio, telephone and telegraph equipment, and visual signal equipment, bomb sights, bomb racks, automatic pilots, and numerous other training aids such as charts, maps, training films, and movie projectors of various types.

Discipline

Texas Technological College is not a military school. Discipline in the military science division is accomplished by instilling pride in the individual student and by a system of demerits for minor offenses such as failure properly to maintain equipment and personal appearance. These demerits may be removed by constructive study or other work in the division. Unremoved demerits will lower the student's final semester grades. This system of demerits does not apply to students not enrolled in military science.

Summer Camp

Members of the advanced course are required to attend camp one summer, normally between the first and second advanced years. All students going to camp receive mileage for the round trip from school or home at the rate of 5 cents per mile and are furnished mess, housing, uniforms, and medical attention at government expense and are paid at the rate of \$75 per month while at camp. The duration of camp will be either six or eight weeks and begins about June 15 each year.

The military training at camp will consist of practical and theoretical instruction of a specialized branch type. In addition to this training, the student has an opportunity to participate in outdoor sports of all kinds and in competition with young men from other colleges. All students attending camp should take with them athletic shorts, tennis shoes, swimming suit, and personal athletic equipment. A well-arranged religious program is conducted at each of the several camps by experienced army chaplains.

Requirements for Enrollment and Continuance

The general requirements for enrollment and continuance in the ROTC are: be a citizen of the United States, be physically qualified as prescribed by the Department of the Army or Air Force, be accepted by the institution as a regularly enrolled student, be not less than 14 years of age and not over 23 years of age at the time of enrollment except for veterans of World War II enrolling at college prior to Jan. 1, 1950. No student will be enrolled in the advanced course after he has reached 27 years of age. He must successfully complete such general survey or screening tests as are given to determine eligibility for admittance to the basic and advanced courses, and agree in writing upon admission to the advanced ROTC course to complete the course of instruction offered unless sooner released by the Department of the Army or Air Force. Should a student fail to continue the prescribed course while enrolled at this college, he may be required to refund to the government any sums previously paid him. The contract will expire if the student's attendance at school is interrupted for more than two calendar years.

Membership in the ROTC program defers students from the draft, but not registration, as long as they remain in the ROTC program, provided they are on the deferred list prescribed by the Selective Service Act of 1948. Students receiving such a deferment from the draft must agree to serve, subject to call by the Department of the Army or Air Force, two years active duty after receipt of a commission.

Academic Credit

Credit is granted toward a degree for the completion of courses in military science as follows:

Fall Semester		Spring Semester	Total
Basic 1st yr.	2 hrs.	2 hrs.	4
Basic 2nd yr.	1 hr.	1 hr.	2
Advan. 1st yr.	3 hrs.	3 hrs.	6
Advan. 2nd yr.	3 hrs.	3 hrs.	6

Band

An ROTC band of 28 pieces was formed during the Spring of 1948 and will hereafter be a regular part of the ROTC. Those students with prior band experience will be assigned to the band and will maintain practice periods and play during the normal drill period. The ROTC band is supervised by a member of the military science division. A large number of band instruments are furnished by the government; however, students owning instruments are encouraged to use them.

Members of the ROTC band are also eligible for membership in the college band.

Rifle Team

A rifle team chosen through individual competition is selected to represent the ROTC in Hearst matches, in Army matches, and in matches with other colleges and universities throughout the country. The firing is conducted with modern small-bore rifles on an indoor rifle range in the basement of the Military Science Building.

The Basic Course

Military instruction is of a general type applicable to the Army and Air Force as a whole and is for the purpose of providing the student with a foundation of basic military knowledge for the future officer.

Subjects	Freshman Class Hours	Sophomore Class Hours
Processing, Testing & Orientation	3	.....
Individual Weapons & Marksmanship	28	.....
National Defense Act & ROTC	4	.....
Military Organization	9	.....
Hygiene & First Aid	11	.....
Maps & Aerial Photographs	11	8
Leadership, Drill & Exercise of Command	48	36
Commander's Time	8	8
Holidays	6	.....
Evolution of Warfare .....	.....	18
Physical Development Methods .....	.....	6
Military Administration .....	.....	8
Military Law & Boards .....	.....	12
	128	96

The Advanced Course

Those who successfully complete the basic course may apply for enrollment in the advanced course. When a student applies for the advanced course, credit may be given toward completion of the basic course for training received at an educational institution having a junior ROTC unit or for former military service. Students must pass successfully the prescribed physical examination prior to enrollment in the advanced course.

The number enrolled in the advanced course varies from year to year, depending on the number authorized by the Departments of the Army and Air Force. It is to the student's advantage to make his intention known to the Division of Military Science and Tactics as early as possible in order to be included in the quota, after which he is assigned to a branch unit most closely related to his college course. Students who desire to take the advanced military science course but who are not able due to physical or other reasons to qualify for ROTC under those regulations may take the course without expense to the government, qualifying for college credit and other benefits the course affords pro-

vided they have the necessary prerequisites.

In general, students selected for the advanced course are those who have shown, in the basic course, outstanding potential qualities for "leadership and command", and whose intelligence insures their developing into efficient officer material.

The training of the advanced student is divided into two distinct phases: one, theoretical, involving study and recitations in the classroom; the other, practical, involving exercises that develop leadership which establishes a sound foundation for command duty after the receipt of a commission. Illustrations of theoretical classroom work are; military problems of the United States, psychological warfare, and military teaching methods. The supervision and training of basic course students by the advanced course student, under the direction of Regular Army or Air Force instructors, is an illustration of the means of developing leadership.

	First Year Advanced Class Hours	Second Year Advanced Class Hours
Processing, Testing & Orientation	3	1
Leadership, Drill & Exercise of Command	30	30
Military Leadership, Psychology and Personnel Management	14	
Geographical Foundations of National Power	12	
Military Law & Boards	12	
Maps & Aerial Photographs	3	
Voice and Command	2	
Subjects Peculiar to Selected Branch	102	92
Holidays	6	6
Commander's Time	8	8
Officers' Course (Customs of the Service)		4
Combined Forces		3
Command & Staff		12
Military Teaching Methods		12
Psychological Warfare		4
Military Problems of the United States		12
Military Mobilization and Demobilization		4
Combat Intelligence		4
TOTALS	192	192

Corps of Engineers

The engineer unit has as its aim the instruction and training of engineering students in the mission and functioning of the Corps of Engineers of the Army. The aim of the advanced course is to supplement the technical instruction of the Division of Engineering.

Admission to the engineer unit is limited to those applicants who are enrolled in courses leading to an Engineering, Technical or Scientific degree.

Military engineering subjects included in this course are: bridge design and classification, explosives and demolitions, military roads, military sketching, water supply, camouflage, construction and utilities, and airborne and amphibious operations.

Air Force

Tactics and technique in the advanced course is designed to qualify students for definite assignments in the United States Air Force. Subjects offered to all Air Force students during the first year advanced course include history, organization, supply, training, and inspection systems of the air force as an introduction to that service. Subjects of a technical nature include courses in navigation, meteorology, communication, transportation, and guided missiles. At the beginning of the second year advanced Air Force program is offered a choice of courses, one being administration and military management, the other, armament. The first of these courses concerns the detailed operation of Air Force units such as personnel management, publication, service records, and functions of management. The armament course consists of a study of aircraft, guns and ammunition, aerial gunsight, cameras, explosives, and the armament officer in tactical operations.

Signal

The Signal Corps has for its aim the instruction and training of students of the engineering departments in the mission and functioning of the Signal Corps in the Army. The aim of the advanced course is to supplement the technical instruction of the engineering departments. The course provides demonstrations and practical problems involving the use of military wire and radio material.

Admission to the Signal Corps unit is limited to those applicants who are enrolled in one of the following curricula: electrical engineering, mechanical engineering, electronics, or any other curricula leading to a Bachelors Degree in which the student is majoring in physics. Typical course subjects include: message center and signal center procedure, Signal Corps photography, field wire, field radio, teletypewriter, and Signal Corps supply.

Infantry

Admission to the infantry unit is not limited to a special curriculum. Any qualified student enrolled in any academic course may make application. The infantry course is primarily concerned with the technique of fire of rifles, machine guns, and mortars, and with infantry tactics. Short courses in organization, troop movement, motors and transportation, and communication are given to enable the student more thoroughly to understand and master the study of tactics. During the first year advanced course consideration is given to direct fire and observation of fire with tactics to include an infantry battalion. During the second year advanced course indirect fire and calculation of firing problems are considered with tactics to include an infantry battalion in special problems such as landing operations, river crossings and jungle fighting. Tactics will be taught largely through student participation in solving map and sand table problems.

DESCRIPTION OF COURSES

Accounting And Finance

PROFESSOR ROOT. PART-TIME PROFESSOR DUPREE. ASSOCIATE PROFESSORS RUSHING, TAYLOR. ASSISTANT PROFESSORS GIBSON, EAVES, WHITTINGTON. PART-TIME LECTURERS BASS, CARR, CRAVENS.

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 advisers 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.

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. Advisers will assist students to plan their courses to fit the individual for his particular activity.

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 proprietors. 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, 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. Records and reports for the cost department. Methods of allocating overhead costs. Records and principles for handling material, labor, and indirect costs.

337. Advanced Cost Accounting. Cr. 3. II.

Prerequisite: Acct. 334 and 336. Especial attention will be given to estimate cost accounting, standard cost accounting, and the installation of systems.

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: Acct. 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 taxes, and social security taxes.

432. Governmental Accounting. Cr. 3. I.
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.
433. Petroleum Accounting. Cr. 3. I.
Prerequisite: Acct. 244-5. Accounting for the production, refining, and distribution of oil with emphasis upon production.
- 434-5. Advanced Accounting. Cr. 3. I, II.
Prerequisite: 90 semester hours including Acct. 244-5 and Acct. 334-5, 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. 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. I.
Prerequisite: 90 semester hours including Acct. 244-5, Acct. 334-5, and Acct. 336. Auditing procedure, classification of audits, and investigations. Methods of verification of financial statements. Problems and principles of auditing.
438. Advanced Auditing. Cr. 3. II.
Prerequisite: Acct. 437. Review of auditing standards; case studies in auditing procedure. Completion of an audit practice case.
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.
601. Thesis.

Courses in this department which may be taken for graduate credit, in addition to Acct. 531, are: Acct. 336, 337, 430, 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.

FINANCE

331. Corporation Finance. Cr. 3. I, II.
Prerequisite: 60 semester hours, including Eco. 231-2 and Acct. 244-5. The financial aspects of the modern business corporation; promotion; financial plan; sale of securities; dividend policies; expansion, merger, consolidation; failure and reorganization; public relations.
332. Short-Term Finance. Cr. 3. II.
Prerequisite: 60 semester hours, including Eco. 231-2 and Acct. 244-5. Principles of management of circulating capital; types of credit institutions; commercial banks; finance companies; 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. 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. Types and analyses of financial statements; credit limits; collection procedure; special problems of installment credit; legal remedies of the creditor.
336. Life Insurance. Cr. 3. I.
Prerequisite: Eco. 231-2 and Acct. 244-5. The economic, business, and personal uses of life insurance; classification and analysis of policies, reserves and surrender values; policy loans; rate computation; organization and administration of life insurance companies and agencies; state supervision of the life insurance business.
337. Property and Casualty Insurance. Cr. 3. II.
Prerequisite: Eco. 231-2 and Acct. 244-5. The principles of property and casualty insurance. An analysis of premiums, reserves and policy types. A study of fidelity and surety bonds; liability, compensation and marine insurance. Organization and administration of the company, underwriter, agency and broker.
- 338-9. Business Law. Cr. 3. I, II.
(Formerly Business 334-5) Prerequisite: 60 semester hours including 6 hours of economics. The ordinary rules of business law. The development of our legal system. The law of persons, torts, contracts, agency, private property, sales, negotiable instruments, insurance, labor, partnerships and corporations. Stress will be placed upon Texas law where it varies from usual practice.

3310. Oil and Gas Law. Cr. 3. II.
General contracts, oil and gas leases and their interpretation, titles, royalty, production and conservation of oil and gas, regulations governing drilling operations, Government lands, cases on oil and gas.
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.
432. Real Estate. Cr. 3. I.
Prerequisite: 60 semester hours. Real estate practice and finance from the standpoint of the broker, business man and property owner. Real estate office organization; leasing and property management; valuation and taxation. The legal, financial economic and social aspects of the real estate field.
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: Finance 331, 332, 333, 334, 336, 337, 338, 339, 3310, 431, 432, 434, if properly petitioned for and provided additional work or an added problem is done in each course.

Agricultural Economics

PROFESSOR McBRIDE. ASSOCIATE PROFESSORS LEONARD, MARSHALL

The objective of this department is to provide training in the solution of basic economic problems and the business aspects of production and marketing agricultural products. Courses are provided for students who wish preparation for county agent work or vocational agriculture teaching, employment with federal or private agencies dealing with problems of rural life, or for commercial and industrial vocations closely allied with agriculture.

AGRICULTURAL ECONOMICS

235. Fundamentals of Economics. Cr. 3. (3-0) I, II.
Analysis of fundamental economic principles and their application to modern economic problems.
236. Principles of Marketing Agricultural Products. Cr. 3. (3-0) I, II.
Analysis of the various agents performing the functions in the purchase, sale, and distribution of agricultural products.
322. Marketing Agricultural Products. Cr. 2. (2-0) I, II.
Prerequisite: 236. Problems and practices involved in the marketing of specific agricultural commodities.
323. Advanced Agricultural Economics. Cr. 2. (2-0) I.
Analysis of proportion of factors of production in agriculture.
331. Statistical Problems. Cr. 3. (2-3) I, II
Prerequisite: Junior standing. Principles involved in the collection, presentation, and interpretation of agricultural data.
333. Cooperation in Agriculture. Cr. 3. (3-0) I.
Organization and operation of agricultural cooperatives.
- 411-2. Agricultural Economics Seminar. Cr. 1. (1-0) I, II.
Round table discussion of current economic problems.
421. Land Economics. Cr. 2. (2-0) I
Land as a factor of production; classification and utilization.
422. Agricultural Prices and Forecasting. Cr. 2. (2-0) II.
Prerequisite: 331. Agricultural prices and forecasting. Original research applied to an agricultural commodity of the student's choice.

431. **Livestock Marketing. Cr. 3. (3-0)** I
Prerequisite: Junior standing in agriculture. Livestock marketing practices and problems.
433. **Farm Management and Records. Cr. 3. (2-3)** I
Prerequisite: Junior standing. The organization and management of the individual farm. Field trips to nearby farms.
434. **Advanced Farm Management. Cr. 3. (3-0)** II
Prerequisite: 433. Legal problems in farm organization and operation. Administration, finance, contracts, leases, liens, and insurance.
435. **International Agricultural Economics. Cr. 3. (3-0)** II
Prerequisite: Junior standing. An economic analysis of the conditions under which the world's supplies of agricultural products are obtained; trade routes; trade barriers. Analysis of domestic relationships to world agriculture.
436. **Marketing Dairy Products. Cr. 3. (3-0)** II
Economic conditions affecting the marketing and prices of dairy products. Analysis of the various agencies in the marketing channels.

RURAL SOCIOLOGY

431. **Agricultural Research and Extension and Organization and Methods. Cr. 3. (1-6)** I
Methods and problems, programs for research, extension work, and vocational teaching. A survey of a selected county or region will be made and written by each student.
432. **Rural Sociology. Cr. 3. (3-0)** II
A study of rural society and its institutions. Rural leadership. Methods of dealing with the problems involved.
532. **Current Problems in Rural Sociology. Cr. 3. (3-0)** I, II
Prerequisite: Graduate standing. Current problems in rural sociology.

Agricultural Education

PROFESSOR CHAPPELLE. ASSOCIATE PROFESSOR HARGRAVE.

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. The satisfactory completion of the requirements will be followed by recommendations to teach vocational agriculture in high schools.

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.

321. **Organization and Administration of Vocational Education in Agriculture. Cr. 2. (2-0).** I, II
Prerequisite: 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. (2-0)** 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 vocational agriculture of special interest to the individual student. May be repeated for credit.
- 431-2. **Agricultural Education. Cr. 3. (3-0)** 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. (1-0)** S.
Prerequisite: Completion of requirements to teach vocational agriculture under the Smith-Hughes Act. Current problems of the teacher in the field of vocational agriculture. May be repeated for credit.

522. Advanced Methods, I. Cr. 2. (2-0) 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. (2-0) II, S.
Prerequisite: Graduate standing. Advanced methods of teaching vocational agriculture in part-time and evening schools.
524. Advanced Methods, III. Cr. 2. (2-0) II, S.
Prerequisite: Graduate standing. Advanced methods of teaching Future Farmer work.
531. Investigations in the Field of Agricultural Education. I, S.
Cr. 3. (3-0)
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. (3-0) S.
Prerequisite: Graduate standing and consent of the head of the department. Advanced methods in teaching farm shop to all-day, part-time, and evening classes.
601. Thesis.

Agricultural Engineering

(See Plant Industry)

Agronomy

(See Plant Industry)

Animal Husbandry

*PROFESSORS STANGEL, MOWERY, HARBAUGH. ASSOCIATE
PROFESSOR FINE. ASSISTANT PROFESSORS
BAUMGARDNER, DEVIN AND O'BRIEN*

The Department of Animal Husbandry, in which students may major as candidates for the Degree of Bachelor of Science in Agriculture, provides instruction in the selection, breeding, feeding, management and marketing of livestock and poultry. Primarily for class instruction, representative breeds of livestock and poultry, along with the necessary building, equipment, and pastures are maintained.

Graduates of the animal husbandry curriculum and its various options, which allow liberal elective credits, find many employment opportunities in addition to livestock farming and ranching for which the curriculum is primarily designed.

All courses numbered in the 500 series are for graduate credit. In addition all 300 or 400 series courses if properly petitioned for, and provided additional work or an added problem is done, may receive graduate credit.

ANIMAL HUSBANDRY

131. General Animal Husbandry. Cr. 3. (2-3) I, II.
An introductory course designed to acquaint the student with the importance of livestock in Texas and United States. Types, market classes and grades of cattle, hogs, horses, sheep and goats, livestock markets. Slaughtering and slaughter by-products. Selection of feeder and market animals.
231. Breeds of Livestock. Cr. 3. (2-2) I, II.
Prerequisite: A.H. 131. 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.
- 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 livestock shows.
322. Farm Meats. Cr. 2. (1-3)
Prerequisite: A.H. 131, 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. (2-0) 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. Principles of Feeding. Cr. 3. (2-3) I, II.
Prerequisite: Chem 341. Chemical composition of plants and animals. Digestibility, energy, and manurial value of feeds. Feeding standards and calculation of rations for maintenance, growth, fattening, milk and wool production.
334. Wool and Mohair. Cr. 3. (2-3) II.
Wool and mohair production and preparation for market. A study of physical and chemical characteristics; sampling, grading, sorting and scouring.
411. Animal Husbandry Seminar. Cr. 1. (1-0) II.
Prerequisite: Senior standing in Department of Animal Husbandry. Assigned subjects. Review of recent investigations. Reports and discussions.
411. Dairy Husbandry Seminar. Cr. 1. (1-0) 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. 312-13. Fitting, exhibiting, and judging livestock for show and sale.
422. Animal Breeding. Cr. 2. (2-0) I.
Prerequisite: P.I. 341. Genetics applied to the improvement of farm animals. Fertility and sterility. Systems of breeding.
423. Animal Nutrition. Cr. 2. (2-0) II.
Prerequisite: A.H. 331. Principles of nutrition and their application in the feeding practice. The role of protein, carbohydrates, fat, minerals, and vitamins in the metabolism of farm animals.
424. Beef Cattle Production. Cr. 2. (2-0) 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. Laboratory practice with farm animals and equipment is done as assigned problems.
425. Horse and Mule Production. Cr. 2. (2-0) 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. (2-0) 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. (2-0) 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 (2-0) 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. (1-3) II.
Prerequisite: A.H. 422 and 428. Advanced studies in dairy cattle breeding and nutrition. Artificial insemination.
438. Range Management. Cr. 3. (3-0) II.
Prerequisite: Agron. 437. The relationship of livestock to range management; history, development, and types of ranges; types and breeds of range livestock; the inter-relationship between management of the soil and plant growth, and the management of the animals and their requirements.
441. Livestock Production. Cr. 4. (3-3) II.
Prerequisite: A.H. 331. A modified course composed of portions of A.H. 424, 425, 426, 427, and 428. Problems. Feeds; feeding and managing of beef and dairy cattle, hogs, horses, mules and sheep. For students not following an animal husbandry major.
- 531-2. Advanced Animal Husbandry. Cr. 3. II.
Prerequisite: Graduate standing and the consent of the head of the department. Investigations in the field of animal production and nutrition.

533-4. Animal Husbandry Research. Cr. 3.

I, II.

Prerequisite: Graduate standing and consent of the head of the department. Special research in some phase of livestock production which may form the basis of a master's thesis.

601. Thesis.**POULTRY HUSBANDRY****231. Farm Poultry.-Cr. 3. (2-3)**

I, II.

The poultry industry. Classes, breeds, and varieties. Judging, culling, breeding, feeding, housing, and marketing. Disease 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 Production. Cr. 2. (1-3)

I.

Prerequisite: P.H. 131 and A.H. 331. The poultry industry. Brooding, breeding, hatching, housing, feeding and marketing. Disease control and sanitation. Studies of costs of production. Required field trip to visit nearby poultry enterprises.

422. Turkey Production. Cr. 2. (1-3).

II.

Prerequisite: A.H. 331. The turkey industry. Breeds, breeding, incubation, rearing, housing, feeding, and marketing. Disease control and sanitation. Required field trip to visit nearby turkey farms.

VETERINARY SCIENCE**331. Anatomy and Physiology. Cr. 3. (3-0)**

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. (3-0)

II.

Prerequisite: Vet. 331. The common infectious and non-infectious diseases. Common external and internal parasites. Application to personal and professional problems in everyday life. Study, observation, practice with color, texture, line, form, neutral value. Prevention, treatment, and sanitation.

333. General Veterinary Science. Cr. 3. (3-0)

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.

Anthropology

(See History and Anthropology)

Applied Arts

PROFESSOR POINDEXTER. ASSISTANT PROFESSORS HAWLEY, BEITLER. INSTRUCTOR ROGERS

The Department of Applied Arts aims to develop judgment and creative ability in the choice and combination of objects in daily use; to promote understanding and appreciation of aesthetic values, and to afford opportunities for the acquisition of knowledge and skills that may lead to new activities and experiences. 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 a minimum of 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.

131. Design. Cr. 3, (2-3)

I, II.

Study and application of the elements and principles of design.

133. Design. Cr. 3. (1-6)

I, II.

Aims to strengthen knowledge of elements and principles of design and to develop some skill in the use of pencil, charcoal, pen and ink, watercolor.

- 231. Costume Design. Cr. 3, (2-3)** I, II
 Prerequisite: A. Arts 131. Elements and principles of design applied to selection of costumes; 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 homes, public schools, and recreations departments.
- 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 to textiles by the following methods: batik, tie-dye, block print, stencil, silk screen printing.
- 234. Minor Crafts. Cr. 3, (1-6). (formerly 432)** II
 Prerequisite: A. Arts 131. 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. 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.
- 337. Art Appreciation. Cr. 3.** II
 Prerequisite: Not open to freshmen. Aims to establish correct attitudes and set up standards for evaluating objects with reference to beauty, cost, and use.
- 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)** II
 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.
- 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.

Architecture

PROFESSORS KLEINSCHMIDT, BRADSHAW. ASSOCIATE PROFESSOR LOCKARD. ASSISTANT PROFESSOR HOUGHTON. INSTRUCTORS BLACK, JOHNSTON, SASSER, ANDERSON.

The Department of Architecture is a member of the Association of the Collegiate Schools of Architecture. It is affiliated with the Beaux-Arts Institute of Design, the American Federation of Arts, the College Art Association, and it holds valuable teaching aids provided by the Carnegie Foundation.

Curricula open to both men and women lead to:

- (1) Bachelor of Architecture, a five-year curriculum for the Design Option or a five-year curriculum for the Construction Option.
- (2) Bachelor of Commercial Art, a five-year curriculum.
- (3) Bachelor of Arts may be conferred at the completion of the first four years of the commercial art curriculum.

The courses in commercial art are arranged for those who plan to enter professional art or into any one of its many allied fields. The emphasis is placed on a thorough knowledge of theory and aesthetics, and the student is given practical work with the tools and techniques.

The degree in architecture may be obtained with a Design Option or with a Construction Option. During the first year the work in these options is identical—this plan gives the student ample opportunity to appraise the two avenues of development. The curricula are designed for

those who intend to become architects, yet either option offered will furnish excellent preparation for entrance into any one of the many branches of the building industry. Standards upheld by various state registration boards are met, and the degree is the logical step toward a license to practice architecture.

In design, the emphasis is placed on general requirements which are fundamental to a comprehensive understanding of the many aspects of the profession. The role of an architect as a coordinator is promoted. Basic work in the scientific fields is required and at the same time there is more drawing and design with the aesthetic approach stressed.

In construction, considerable attention is given to artistic ideals but mainly the factors of safety and economy in building are made significant. This curriculum includes more advanced mathematics and requires some specialization in structural engineering.

Insofar as possible the design work in the department is taught by the program-competition-method in which the students compete with one another in the solving of a wide variety of theoretical and practical problems. Individual development is encouraged by advice and criticism on a faculty-to-student personal conference level. Lecture and laboratory courses are supplemented with material from a substantial collection of departmental books, periodicals, projection slides and printed plates.

Courses which may be used for graduate credit in this department 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.

121-2. Freehand Drawing, I, II. 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, I, 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 Medieval 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, 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, 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, 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. 222. Illustrated lectures dealing with the origins of 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. 225. 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. S
Cr. 2, (0-6).
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, II
Prerequisite: Arch. 235-6. 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, II
Prerequisite: Arch. 224. 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, II
Prerequisite: Arch. 131-2 and 235-6. 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, 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, 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, III. Cr. 2, (0-6). I, II.
Prerequisite: Arch. 327. Continuation of Arch. 327.
- 426-7. Oil Painting or Advanced Water Color. Cr. 2, (0-6). I, 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, 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, II.
Prerequisite: Arch. 424. 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, 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, 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. 485 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. I, II.
Cr. 3, (1-6).
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. 335-8, 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, 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, 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, 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. Second semester devoted to thesis.
- 411-2. Engineering Seminar, Cr. 1.
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.

Astronomy

See Mathematics)

Bacteriology

(See Biology)

Band

(See Music and Band)

Biology

**PROFESSOR STUDHALTER. ASSOCIATE PROFESSOR LANDWER.
ASSISTANT PROFESSOR SEALEY. INSTRUCTORS CAMP,
HOLMAN, JANSEN, WIDMOYER, GUNN, COOK**

Students majoring in botany may minor in zoology, and vice versa, both in undergraduate and in graduate work. Students majoring in botany for the B. A. Degree are expected to complete the following courses in the Biology Department as a minimum: Biology 133-4, Botany 231, 232, 331, 339, 411; 3 semester hours of zoology above the freshman year; and 12 additional hours of courses of junior or senior rank in bacteriology, biology, or botany. Students majoring in zoology for the B. A. Degree are expected to complete the following courses in the Biology Department as a minimum: Biology 133-4, Zoology 234, 241; any two of the following three—Zoology 331, 332, 333; Zoology 411; 3 semester hours of botany above the freshman years; and 12 additional hours of courses of junior or senior rank in bacteriology, biology or 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 graduate 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.

For detailed information for requirements for the B. S. Degree see page 85.

BACTERIOLOGY

131. Bacteriology for Nurses. Cr. 3. (2-3). I, II
Open only to nurses in training. Bacteria and fungi; and their relation to human diseases, immunity, sanitation, and foods.

231. Bacteriology. Cr. 3. (2-3). I, II
Open only to students of the Divisions of Agriculture and Home Economics during their sophomore or junior year. Prerequisite: 6 semester hours in the Biology Department. The morphology, physiology, and activities of bacteria and molds, with emphasis on those 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 emphasis on their relation to water sanitation and sewage disposal.

331-2. Principles of Bacteriology. Cr. 3. (2-3). I, II
Prerequisite: 12 semester hours in the Department of Biology, Chemistry, Geology, or Physics; prerequisite or parallel: 6 semester hours in chemistry. The morphology, physiology, and classification of bacteria and molds. Bacteria in relation to soils, food and water sanitation, disease, and the problems of immunity.

333. Communicable Disease. Cr. 3. (3-0). I or II
Prerequisite: 3 semester hours in bacteriology; junior standing. History, prevalence, etiology, sources and modes of infection, laboratory diagnosis, and methods of control of the principal human diseases.

334. Bacteriology of Foods and Food Sanitation. Cr. 3. (2-3).
Prerequisite: 3 semester hours in bacteriology; junior standing. Bacteria and molds in their relations to food spoilage and food sanitation. Offered at intervals.

BIOLOGY

133-4. Botany and Zoology. Cr. 3. (2-3). I, II
Both botany and zoology are offered each semester; either may be taken first, but both must be completed before credit is received toward a degree. Biology 133, botany, emphasizes the flowering plants, bacteria, and fungi. In Biology 134, zoology, emphasis is placed on the vertebrates, protozoa, insects, and certain parasitic forms. In both, general principles and concepts are stressed.

331. Heredity. Cr. 3. (3-0). I
Prerequisite: 12 semester hours in the Biology Department. Principles of heredity with special reference to practical application in human affairs, hereditary mechanisms, and problems.

332. Teaching of Biology. Cr. 3. (3-0).

Prerequisite: 12 semester hours in the Biology Department; or 6 semester hours in the Biology Department and 6 semester hours in chemistry, geology, geography, or physics; and 6 semester hours in education. Lectures, assigned readings, reports, and laboratory and field problems. May be counted as biology or education. Offered at intervals.

333. Bio-ecology. Cr. 3. (2-3).

Prerequisite: 12 semester hours in the Biology Department, or junior standing in the Division of Agriculture. Introduction to the relationship of organisms to their environment. Field trips to nearby points are included at a minimum cost to the student.

334. Bio-ecology. Cr. 3. (2-3).

Prerequisite: Biology 333. The biotic community, population studies, and succession. Field trips to nearby points are included at a minimum of cost to the student.

431. Advanced Heredity. Cr. 3. (2-3).

Prerequisite: Biology 331. The nature of the gene, chromosome mechanics, and population genetics. Offered at intervals.

432-3. Advanced Bio-ecology. Cr. 3. (1-6).

Prerequisite: Biology 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. Field trips to nearby points are included at a minimum of cost to the student. Offered at intervals.

533. Plankton. Cr. 3. (1-6).

Prerequisite: Graduate standing in botany or zoology, including Botany 231 and Zoology 234. The collection, preservation, and identification of plankton. Quantitative studies and methods; cyclic variations; economic implications; food chains and food cycles. Offered at intervals.

BOTANY**231. Morphology of the Plant Groups. Cr. 3. (2-3).**

Prerequisite: Biology 133-4. The morphology of those plant groups not emphasized in Biology 133.

232. Taxonomy. Cr. 3. (2-3).

Prerequisite: Biology 133-4. Principles and practice in the classification of the flowering plants.

331. Plant Physiology. Cr. 3. (2-3).

Prerequisite: Botany 231-2; or Biology 133-4 and 6 semester hours in horticulture or agronomy; prerequisite or parallel: Chemistry 131. The physiological processes as applied to the seed plants.

339. Plant Anatomy. Cr. 3. (2-3).

Prerequisite: Botany 231-2; or Biology 133-4 and 6 semester hours in horticulture or agronomy. Studies of the anatomy of the vascular plants.

411. Botany Seminar. Cr. 1. (1-0).

Prerequisite: Senior or graduate standing in botany or zoology. Critical reviews of classical and recent literature and reports of original investigations. May be repeated for full credit.

431. Botanical Microtechnique. Cr. 3. (1-6).

Prerequisite: Botany 339; or 3 semester hours of botany of sophomore rank and 9 semester hours in horticulture or agronomy. Freehand and microtome sections, staining, and the preparation of permanent slides.

433. Advanced Morphology. Cr. 3. (1-6).

Prerequisite: Botany 231, 331, 339. Morphology of one of the following groups: algae, bryophytes, pteridophytes, gymnosperms, angiosperms. May be repeated with full credit in one of the other groups named. Offered at intervals.

435. Advanced Taxonomy. Cr. 3. (1-6).

Prerequisite: Botany 232, 331, 339; or Botany 232 and 9 semester hours in horticulture or agronomy. A critical study of classification and nomenclature as applied to vascular plants. Offered at intervals.

436-7. Plant Geography. Cr. 3. (3-0).

Prerequisite: 6 semester hours in botany of junior rank; or Biology 133-4 and 12 semester hours in zoology, geology, geography, horticulture, or agronomy. Geographic distribution of plants, types of vegetation, origin and composition of the floras of North America, some applied problems of plant geography. Field trips to nearby sections of the country are included as feasible at a minimum of cost to the student.

438. Morphology of Fungi. Cr. 3. (2-3).

Prerequisite: Botany 331, 339; or Botany 232 and 9 semester hours in horticulture or agronomy. Morphology and taxonomy of the fungi as a basis for plant pathology. Offered at intervals.

531. Problems in Botany. Cr. 3. (1-6).

Prerequisite: Graduate standing in botany. Selected problems in morphology, anatomy, ecology, taxonomy, or possibly others. May be repeated for full credit in another field or with new materials in the same field. Offered at intervals.

534. Advanced Plant Anatomy. Cr. 3. (1-6).

Prerequisite: Botany 339 and graduate standing in botany. Advanced anatomy of vascular plants. Offered at intervals.

535. Field Botany. Cr. 3.

Prerequisite: Graduate standing in botany. Readings, reports, and field work on assigned problems. The cost of field trips is held to a minimum. May be repeated for full credit with new materials. Offered at intervals.

536. Taxonomy of Grasses. Cr. 3. (1-6).

Prerequisite: Botany 232 and graduate standing in botany. Classification of grasses with emphasis on pasture and range plants. Offered at intervals.

601. Thesis.**ZOOLOGY****135-6. Human Anatomy and Physiology. Cr. 3. (2-3).**

I, II

Open only to nurses in training. The elements and fundamental principles of human anatomy and physiology.

234. Invertebrate Morphology. Cr. 3. (2-3).

I

Prerequisite: Biology 133-4. Structure, function, and history of invertebrates, with emphasis on forms not stressed in Biology 134.

235-6. Anatomy, Physiology, and Hygiene. Cr. 3. (2-3).

I, II

Prerequisite: Sophomore standing in college. Gross anatomy of the mammalian body; the various physiological processes; the fundamental principles of hygiene and sanitation; the fundamentals of heredity and evolution.

241. Comparative Vertebrate Anatomy. Cr. 4. (2-6).

II

Prerequisite: Biology 133-4. Structure, function, and history of the vertebrates, with emphasis on the dogfish and cat.

331. Animal Histology. Cr. 3. (1-6).

I

Prerequisite: Zoology 234, 241. The study of normal animal tissues.

332. Comparative Vertebrate Embryology. Cr. 3. (1-6).

II

Prerequisite: Zoology 234, 241. The embryological development of different vertebrate forms with emphasis on the pig and chick.

333. Parasitology. Cr. 3. (2-3).

I or II

Prerequisite: Zoology 234, 241. Internal and external parasites, their life histories and host relationships.

334. Entomology. Cr. 3. (2-3).

Prerequisite: Zoology 234, 241; or Biology 133-4, and 6 semester hours sophomore rank in the Division of Agriculture. Structure and classification of insects.

411. Zoology Seminar. Cr. 1. (1-0).

I, II

Prerequisite: Senior or graduate standing in zoology or botany. Critical reviews of classical and recent literature and reports of original investigations. May be repeated for full credit.

435. Cytology. Cr. 3. (2-3).

I or II

Prerequisite: Biology 331. A study of the cell and its application to heredity.

436. Zoological Microtechnique. Cr. 3. (1-6).

II

Prerequisite: 12 semester hours of zoology above the freshman year. Preparation and interpretation of permanent microscopic slides.

437. Mammalogy. Cr. 3. (1-6).

Prerequisite: Senior standing in zoology. Readings, reports, and field work on assigned problems. The cost to the student of field work is held to a minimum. Offered at intervals.

531. Problems in Zoology. Cr. 3. (1-6).

Prerequisite: Graduate standing in zoology. Selected problems in morphology, anatomy, ecology, taxonomy, or possibly others. May be repeated for full credit in another field or with new materials in the same field. Offered at intervals.

535. Field Zoology. Cr. 3.

Prerequisite: Graduate standing in zoology. Readings, reports, and field work on assigned problems. The cost of field trips is held to a minimum. May be repeated for full credit with new materials. Offered at intervals.

601. Thesis.

Courses numbered in the 400 and 500 series may be counted for a graduate major in botany or zoology. If a petition is approved and provided additional work is done in each course, the following courses may be counted: Bacteriology 331-2, 333, 334; Biology 331, 333, 334; Botany 331, 339; Zoology 331, 332, 333.

Botany

(See Biology)

Chemistry And Chemical Engineering

PROFESSORS GOODWIN, CRAIG, DENNIS. ASSOCIATE PROFESSORS MARSHALL*, OBERG, SCHNEIDER, SLAGLE. ASSISTANT PROFESSORS GALBRAITH, SOUTHALL. INSTRUCTORS BRYANT, COHEA, HARDEY, MENAUL, PLEMMONS, STUART, WORK**.

The Department of Chemistry and Chemical Engineering offers curricula leading to three degrees. For those students who desire the maximum flexibility in their choice of courses, the Bachelor of Arts Degree is recommended. Those who are preparing for professional work in medicine or in the teaching of science may find this curriculum preferable. The curriculum leading to the Bachelor of Science Degree is designed to give the student fundamental work in the various fields of chemistry, supporting work in mathematics and physics, and introductory courses in the fields of biology and geology. Upon completion of this curriculum the student is prepared for industrial work or for graduate study.

The third curriculum leads to the Degree of Bachelor of Science in Chemical Engineering. Chemical engineering is that branch of engineering concerned with the development and application of manufacturing processes in which chemical and certain physical changes of materials are involved. These processes may usually be resolved into a coordinated series of unit physical operations and chemical processes.

The work of the chemical engineer is concerned primarily with the design, construction, and operation of equipment and plants in which these unit operations and processes are applied. Chemistry, physics, and mathematics are the underlying sciences of chemical engineering, and economics is its guide in practice.

131-2. General Chemistry. Cr. 3, (2-3).

Each, I, 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.

Section I. Chemical Section. Prerequisite: Chem. 131-2, although 132 may be taken in parallel with special permission. The qualitative separation of basic radicals and simple acidic radicals with full consideration of underlying principles.

Section II. Agricultural Section. Prerequisite: Chem. 131-2. Qualitative principles as in Section I but application directed toward more practical problems.

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: Chem. 131-2 and sophomore standing in petroleum 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: Chem. 131-2 and sophomore standing in petroleum engineering. Theory and methods of analysis of fuels, gases, petroleum products, water and emulsions.

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.

*On leave 1947-48.

**Resigned Jan 31, 1948.

331-2. Quantitative Analysis. Cr. 3, (3-6).

I, 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. The study of the compounds of carbon as a background for courses in physiological chemistry, feeds and feeding, nutrition, etc. Primarily for students in agriculture and home economics. May be used only where a one-semester course in organic chemistry is required. Not open to majors or minors in chemistry.

342. Physiological Chemistry. Cr. 4, (3-3).

II

Prerequisite: Chem. 341 or equivalent. An elementary study of carbohydrates, fats, proteins and their metabolism.

343-4. Organic Chemistry. Cr. 4, (3-3).

I, 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. Satisfies pre-medical requirements.

346. Physical Chemistry. Cr. 4, (3-3).

II

Prerequisite: Chem. 235, 246, 5 semester hours in calculus, sophomore physics, and junior standing in petroleum engineering. A survey of the modern concept of solids, liquids, and gases, and the laws regarding their physical and chemical behavior. Physico-chemical measurements.

411-2. Chemistry Seminar. Cr. 1.

I, 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, II

Prerequisite: A course in calculus and 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.

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, II

Prerequisite: Chem. 220, 242, 331-2, 343-4, 5 semester hours in calculus, 6 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, 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, II

Prerequisite: Chem. 431-2. Emphasis placed on cost calculations in design and operation of basic processes such as distillation, filtration, heat transfer.

- 537-8C. Advanced Organic Chemistry. Cr. 3, (2-3). I, 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.
Theory and application of colloid chemistry.
601. Thesis.

Child Development And Family Relations

PROFESSOR CALLAN. ASSISTANT PROFESSOR BALLOW.
INSTRUCTOR CASKEY.

Students are prepared through the study of the development of the child in infancy and early childhood for vocations of home making; teaching home economics; and major students are equipped to direct nursery schools. The nursery school provides a laboratory for student observation and participation. Parent education and family relations are integral parts of the child development program. Courses which may be used for graduate credit: Ch. D. 432, 435; Fam. Rel. 433, if properly petitioned for and additional work done.

131. Introduction to Child Guidance. Cr. 3, (2-3). I, II.
Elementary understanding of the young child at various levels of development; practical techniques of guidance. Nursery school used as laboratory.
231. Development in Infancy. Cr. 3. II.
Prerequisite or parallel: Zool. 235-6. Psy. 230 or 231. Development of the child during the pre-natal period and infancy.
431. Development of Learning in Young Children. Cr. 3, (2-3). I, II.
Prerequisite: Ch. D. 131. Psy. 230 or 231. Growth in physical, mental, social and emotional areas. Nursery school used as laboratory.
422. Nursery School Education. Cr. 3, (2-3). II.
Prerequisite: Ch. D. 431; Prerequisite or parallel: Nutr. 333 or 334. Nursery school administration and organization. Methods of teaching in nursery school. Nursery school used as laboratory.
433. Family Relations. Cr. 3. I, II.
Prerequisite: Psy. 230 or 231 and junior standing. Factors which contribute to successful family life in mate selection and marriage adjustment.
435. Student Teaching in Nursery School. Cr. 3, (1-6). II.
Prerequisite: Ch. D. 432; H. E. Ed. 431; at least 102 grade points. Supervised observation and teaching the nursery school.

Civil Engineering

PROFESSORS MURDOUGH, ADAMS, McREE. ASSOCIATE PROFESSORS DECKER, HARDING. ASSISTANT PROFESSOR WHETSTONE. INSTRUCTOR OVERBY. LECTURERS ANDERSON, ODLE. PART TIME LECTURERS BOWDEN, TURNBOW.

The courses offered by the department fall into two classes: service courses, such as surveying, applied mechanics, and fluid mechanics, which are required in many engineering curricula; and courses which serve students majoring in civil engineering, and in closely allied fields.

The curriculum in civil engineering follows the pattern developed through usage by engineering colleges throughout the nation, and is designed to develop in the student the basic fundamentals of engineering as particularly applied to civil engineering. Opportunities are offered for some specialization in highway engineering, in structures, or in sanitary engineering.

Combination Course Petroleum Engineering—
Geology Option and Civil Engineering

The Department of Civil Engineering and the Department of Pe-

troleum 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 changes: omit Geol. 435 and 436 and C.E. 310 and add C.E. 320, 330, and 420. The fifth year will include: C.E. 335, 431, 432, 433, 434, 439 and 424, 425, 426, or 437, 438.

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, 431, 432, 433, 434, 435, 437, 438, 439, 4312 4313, 4314, 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.

- 231-2. Plane Surveying. Cr. 3, (2-3). I, 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. 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.
312. Fluid Mechanics Laboratory. Cr. 1, (0-3). I, II.
Prerequisite: Registration in C. E. 339. (Not offered in 1948-49)
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.
- 335-6. Highway Engineering. Cr. 3. I, II.
Prerequisite: C. E. 231. Fundamentals of highway location, design, construction, and maintenance. Traffic control and traffic regulation. History and development of transportation. Highway administration and finance.
- 337-8. Structural Mechanics. Cr. 3. I, II.
Prerequisite: Math. 131. Statics, strength of materials and structural design. For students of architecture, design option, and others who desire a brief and general presentation of the material.
339. Fluid Mechanics. Cr. 3. I, II.
Prerequisite: C. E. 331. Dynamics of viscous and non-viscous fluids, impulse and momentum, pipe flow, fluid resistance (Not offered in 1948-49)
3310. Municipal Sanitation. Cr. 3, (2-2). I.
Prerequisite: Junior engineering standing. General principles of sanitation. Microscopy of water and sewage. (Not offered in 1948-49)

410. Hydraulics Laboratory. Cr. 1. (0-3). I.
Prerequisite: C. E. 420. Laboratory study of principles taught in C. E. 420. (Not offered after 1949-50).
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. (Not offered in 1949-50).
420. Hydraulics. Cr. 2. I.
Prerequisite: C. E. 331. Mechanics of water at rest and in motion. (Not offered after 1949-50).
423. Economics of Highway Design. Cr. 2, (0-6). I.
Prerequisite: C. E. 335. Economics of design applied to various highway projects and problems.
424. Materials. Cr. 2, (1-3). I.
Prerequisite: Junior engineering standing. The properties and tests of materials of engineering, with special reference to concrete materials.
425. Materials. Cr. 2, (1-3). II.
Prerequisite: C. E. 333. The properties and tests of materials of engineering, with special reference to wood and steel.
426. Municipal Sanitation. Cr. 2. I.
Prerequisite: Junior standing or consent of instructor. General principles of sanitation as applied to the community. (Not offered after 1949-50).
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, (2-6). I.
Prerequisite: C. E. 330, 333. Design and detail of steel structures.
434. Structures. Cr. 3. II.
Prerequisite: C. E. 333. 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).
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. I, II.
Prerequisite: Senior standing in engineering or approval of head of department. Professional and industrial problems, contracts, specifications, ethics of engineering.
4310. Airplane Structures. Cr. 3. I.
Prerequisite: C. E. 333. Stress analysis and design of elastic materials as applied to airplane structures.
4312. Soil Mechanics and Foundations. Cr. 3. II.
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. (Not offered in 1949-50)
4313. Water Purification. Cr. 3. I.
Prerequisite: Registration in C. E. 437. The methods used in the treatment of municipal water supplies and the design of structures necessary for such treatment. (Not offered in 1949-50)
4314. Sewage Treatment. Cr. 3. II.
Prerequisite: C. E. 431 and registration in C. E. 438. The methods used in the treatment of municipal sewage and the design of structures necessary for such treatment. (Not offered in 1949-50)
- 411-2. Engineering Seminar. Cr. 1. I, II.
Credit for this course may be given as often as successfully repeated. Investigation and study of engineering problems of special interest and value to 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.

Clothing And Textiles

PROFESSOR ERWIN. ASSOCIATE PROFESSOR BUSTER. ASSISTANT PROFESSORS BIBB, KINCHEN. INSTRUCTOR WRIGHT.

The Department of Clothing and Textiles endeavors to train in a thorough understanding of basic principles and concepts in the selection, use and care of fabrics and of making them into garments and household furnishings according to standards consistent with time, money and energy available. Students who wish to teach should choose electives in home economics education. To enter such professions as merchandising and dress designing electives should form a continuity approved by the head of the department.

Courses which may be taken for graduate credit are: 531, 532, 533, 601, and, if petitioned for at the beginning of the semester with a planned additional project, 331, 332, 334, 431, 432, 433.

131. Basic Textiles. Cr. 3. (2-3).

I, II

Problems in selection and maintenance of fabrics, ready-made clothing and home furnishings. Judging fabric quality; evaluating consumer literature, terms, labels, laws and advertising.

132. Basic Clothing Problems. Cr. 3. (1-6).

I, II

Use of the machine and commercial patterns. Making a dress and blouse. Planning a harmonious and economical wardrobe.

134. Sewing Techniques. Cr. 3. (1-6).

I, II

Prerequisite: Cloth. 132 Practice in machine and hand sewing. Emphasis on machine adjustment, attachments, accuracy, pressing and decorative details. Organization of work, short cuts and other aids toward speed consistent with precision standards.

135. Fashion in Dress. Cr. 3.

II

Assembling garments and accessories suitable for different occasions and personalities. Psychology of dress selection. Re-styling and fitting ready-mades. Principles of good shopping.

232. Dressmaking. Cr. 3. (1-6).

I, II

Prerequisite: Cloth. 131, 132; A.A. 231. Principles of dressmaking applied to a wool coat and a silk or rayon dress. Emphasis on precision and management. Considerable attention to pattern alteration, fitting, pressing and finishes of self material.

311. Historic Textiles. Cr. 1.

I

Prerequisite: Clothing, textiles, history, or art satisfactory to the instructor. Study of tapestries, Oriental rugs, paisley shawls, Navajo blankets and other historic and contemporary textiles.

321. Children's Clothing. Cr. 2. (1-3).

II

Prerequisite: Cloth. 132. Selecting, constructing and assembling wardrobes suitable for infants and children of all ages.

322. Weaving Crafts. Cr. 2. (0-6).

I

Prerequisite or parallel: Cloth. 131 and A.A. 131. Hand weaving. Preparing warp, threading loom, dyeing yarn for luncheon sets, drapery, rugs, upholstery and coatings.

331. Tailoring. Cr. 3. (1-6).

I

Prerequisite: Cloth. 232, 333. Techniques of constructing and pressing tailored garments. Time and cost studies.

332. Advanced Dressmaking. Cr. 3. (1-6).

II

Prerequisite: Cloth. 232, 333. Construction and designing of garments by modeling on a dress form, with some adaptations from commercial and flat-patterns. Emphasis on absolute perfection of fit and sewing, and the use of unusual and textured materials.

333. Pattern Designing. Cr. 3. (1-6).

I, II

Prerequisite: Cloth. 131, 232. Principles of fitting and special needs for common figure difficulties. Corrected pattern used as a foundation pattern in designing and cutting free-hand patterns. 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: Cloth. 232 and Eco. 231 or 235. Developing a spending pattern to satisfy the needs of the family based on the family income. Assembling and maintaining wardrobes consistent with the needs and desires of each age group. Selecting quality grades in relation to use. Application of modern theories to the construction of a child's garment. Speed problems.

431. Textile Economics. Cr. 3. (2-3).**I, II.**

Prerequisite: Cloth 131 and Eco. 231. A study of the range in quality of household textiles as bedding and floor coverings and in clothing as coats, dresses, slips, furs and hosiery. Methods of selecting the quality suited to specific needs. Care and maintenance of household articles and clothing. Interpretation of specifications, standards, labels, trade-marks, performance tests and existing laws concerning the sale of certain commodities. Evaluation of consumer literature.

432. Advanced Textiles. Cr. 3. (2-3).**II.**

Prerequisite: Cloth. 131, economics and senior standing in home economics. Technical information necessary for thorough knowledge of textile buying. Effect of fiber content, construction, and finish on the quality, use, serviceability and cost of fabrics. Recent trends in textiles, research studies and 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.

435. Home Furnishings. Cr. 3. (1-6).**I, II.**

Prerequisite: Senior standing, Eco 231, Cloth. 232, and A.A. 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. Identification of fibers, fabrics, qualities, and brands of piece goods; care, use, and display of merchandise. Familiarity with technical terms, current fashion trends, labels, legislation. Offered in alternate years.

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. Techniques, principles, and high standards for fitting. Methods of fitting oneself, re-styling old garments, altering ready-to-wear. Classroom methods of handling these problems. Offered in alternate summers.

532-3. Special Problems in Clothing. Cr. 3-6.**I, II.**

Prerequisite: Graduate standing in home economics 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. Independent projects in construction, teaching, purchasing, using or distributing clothing and textiles.

601. Thesis.

Dairy Manufactures

**PROFESSOR HARMON. INSTRUCTORS DENISON, CARDWELL.
PART-TIME LECTURER TINNEY.**

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. 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.

Courses which may be used for graduate credit:

In addition to all courses numbered in the 500 series, courses numbered in the 300 and 400 series may be taken for graduate credit, if properly petitioned, and provided additional work or a problem is performed.

131. Principles of Dairying. Cr. 3. (2-3).**I, II.**

A general survey of the field of dairying; composition of milk; milk analysis; milk production and processing.

222. The Dairy Industries. Cr. 2. (2-0).**I, II.**

Prerequisite: D. M. 131. Developing of the dairy industries; relationship to agriculture; promotion; policies; regulations.

321. Testing Dairy Products. Cr. 2. (1-3). I
Prerequisite: D. M. 131, Chem. 132. Chemical and physical tests used in the manufacture of dairy products; laboratory control methods for the dairy plant.
323. Judging Dairy Products. Cr. 2. (1-3). I
Commercial grades and classification of dairy products; practice in judging milk, butter, cheese, and ice cream; student contests.
- 331-2. Market Milk. Cr. 3. (3-0) I, (2-3) II
Prerequisite: D. M. 131, Bact. 231. 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; field trips.
333. Domestic Dairying. Cr. 3. (2-3). S
For Home Economics students. Food value, production and uses of dairy products, with emphasis on quality; testing and scoring of milk, butter, cheese, and ice cream.
334. Fundamentals of Dairy Science. Cr. 3. (2-3). I
Prerequisite: D. M. 131, Chem. 132. Chemical and physical principles of basic importance in the manufacture of dairy products.
335. Dairy Bacteriology. Cr. 3. (2-3). II
Prerequisite: D. M. 131, Bact. 231. Study of organisms in milk and dairy products; methods of control.
336. Food Industries. Cr. 3. (3-0). I
Prerequisite: 60 semester hours in agricultural curricula. Growth and development of the various types of food processing industries; types and classes of food products processed; personnel requirements; pure food requirements; economic aspects of combination food processing plants.
337. Dairy Plant Equipment. Cr. 3. (3-0). II
Prerequisite: D. M. 131. 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. (1-0). II
Prerequisite: Senior standing in the department. A review of scientific literature; papers and reports; class discussion.
412. Starters and Cultured Milk. Cr. 1. (0-3). I
Prerequisite: D. M. 335. Bacteriology of starters and fermented milks; technique of preparing cultures for use in dairy manufacturing operations.
420. Dairy Products Merchandising. Cr. 2. (2-0). I
Prerequisite: D. M. 131. Special practices, organization, ethics, and methods of merchandising dairy products.
421. Creamery Management. Cr. 2. (2-0). II
Prerequisite: D. M. 131. Organization and control of the dairy plant from a business standpoint; duties of plant manager, and relationship of manager to the business; required field trip.
422. Condensed and Powdered Milk. Cr. 2. (2-0). II
Prerequisite: D. M. 131. 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. 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. (3-0). S
Prerequisite: 21 hours in the department and consent of head of department. Investigation of special problems in the field of dairy industry in which the student has a special interest.
433. Ice Cream Making. Cr. 3. (2-3). II
Prerequisite: D. M. 131. Problems of the ice cream industry; ingredients; standardization and calculation of mixes; processing; cost studies; supplemented by field trips.
435. Dairy and Food Inspection. Cr. 3. (2-3). II
Prerequisite: D. M. 131. Municipal, state, and federal dairy and food regulations; methods used in inspection in field and laboratory; analysis of dairy and food products; required field trip.
436. Food Beverages. Cr. 3. (2-3). II
Prerequisite: D. M. 335. Preparation and sales of food beverages, fruit juices, carbonated drinks, milk drinks; flavoring materials; formulae; standards and methods of laboratory control.
441. Butter Making. Cr. 4. (2-6). I
Prerequisite: D. M. 131, Bact. 231. Problems of the butter industry; manufacture of sweet and sour cream butter; plant practice in the manufacture of butter; supplemented by field trips.

512. Advanced Dairy Products Quality Control. Cr. 1. (0-3). S.
Prerequisite: Graduate standing in agriculture. Judging quality in dairy products; discussion of problems relative to quality control, especially milk, butter, cream, cheese and ice cream.
- 531-2. Dairy Manufactures Research. Cr. 3. (0-9). I, II.
Prerequisite: Graduate standing in agriculture and consent of head of 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, II.
Prerequisite: Graduate standing in agriculture and consent of 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.

Economics And Management

PROFESSOR WIESEN. ASSOCIATE PROFESSORS ANDERSON, MIZE, CLOVER. ASSISTANT PROFESSOR HARDING. INSTRUCTOR HUBBARD.

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.

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.

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.
- Eco. 233. Aviation Cr. 3.
Aviation consisting of ground school instruction and flight training leading to private license from Civil Aeronautics Administration. There will be a maximum of 50 hours of ground school instruction and a maximum of 45 hours flying.
235. Principles of Economics. Cr. 3. I, II.
Prerequisite: 30 semester hours. The same general subject matter as 231-2 condensed into one semester.
326. Petroleum Economics. Cr. 3. II.
Prerequisite: Eco. 235. Theory and problems particularly applicable to the economics of the petroleum industry.
331. Intermediate Economic Principles. Cr. 3. I.
Prerequisite: 60 semester hours including Eco. 231-2. A study of the operation of the modern economic system. Primary consideration is given to the determination of prices of products and productive agents under conditions of competition, imperfect competition, and monopoly.
332. Public Utility Economics. Cr. 3. I, II.
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, II.
Prerequisite: 60 semester hours including Eco. 231-2. Analysis of the economic aspects of government finance; principles, policies, and problems of public expenditures, nation, 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.

I

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 economies 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. For international trade majors only.

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.

II

Prerequisite: 60 semester hours, including 6 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 3 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, II

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.

532. Seminar in Current Economic Trends. Cr. 3.

I

Prerequisite: Graduate standing and 12 hours of economics.

533. Seminar in Recent Economic Theory. Cr. 3.

II

Prerequisite: Graduate standing and 12 hours of economics.

534. Seminar in Public Finance. Cr. 3.

I

Prerequisite: Graduate standing and 12 hours of economics including Eco. 333 or Eco. 334.

535. Readings in Economics. Cr. 3.

II

Prerequisite: Graduate standing and 12 hours of economics.

601. Thesis.

Courses which may be used 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.

MANAGEMENT

231. Business Organization and Management. Cr. 3.

II.

Prerequisite: Eco 231-2 and Acct. 244-5, or concurrent enrollment therein. An introduction to business management. A study of the nature and fundamental principles and policies of business management, including organization and promotion of an enterprise, operation, managerial controls, and external relations.

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.

332. Management of Small Business Enterprise. Cr. 3.

II.

Prerequisite: 60 semester hours, including Mgt. 331 or concurrent enrollment therein. A problem course involving application of fundamental principles of management to small-scale enterprise situations, organization, financing, property control, production control, personnel administration, advertising and sales management, and coordination of activities.

431. Office Management. Cr. 3.

I.

Prerequisite: 60 semester hours including Sec. 122 and 6 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 Eco. 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.

Prerequisites: 60 semester hours including Eco. 231-2 and 336. 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.

434. Job Evaluation and Merit Rating. Cr. 3.

II.

Prerequisite: 60 semester hours, including Mgt. 432. A study of various methods of job evaluation for worker placement and wage determination. An analysis will be made of industrial rating plans, and students will be given opportunities to carry out evaluation and rating problems. Attention will be given to procedures used in developing industrial service-rating programs and applying results obtained in their use.

Courses which may be used for graduate credit are Management 331, 432, 433.

Education And Psychology

PROFESSORS GARLIN, BARNETT, JACKSON. ASSOCIATE PROFESSORS COOPER, DYSART, SHAVER, TRUE.

DEPARTMENTAL MAJORS

Major requirements: Students may major in either education or psychology. Education majors are available in two fields; namely, secondary education and primary or elementary education. Students interested in secondary school teaching will complete 30 semester hours in education and psychology, including the following courses or their equivalent: Education 131, 138, 234, 235, 331 or 430 or 431, 3316; Psychology 230, 335, 333 or 431. Students interested in primary or elementary school teaching will complete 39 semester hours in education and psychology, including the following courses or their equivalent: Education 131, 138, 236, 237, 331 or 430 or 431, 4311 or 339, 3317; Psychology 230, 331, 333 or 431. Psychology majors will complete 30 semester hours in psychology. With special permission, certain education courses may apply on the psychology major. For certificate requirements see Appendix.

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.

Survey of the general field of education.

138. Career Guidance in Education. Cr. 3. I, II, S.
Guidance opportunities with reference to choosing teaching as a profession.
234. Principles of Secondary Education. Cr. 3. I, II, S.
Prerequisite: Sophomore classification. Basic principles underlying the organization and program of the secondary school.
235. High School Methods. Cr. 3. I, II, S.
Prerequisite: Sophomore classification. Study and analysis of methods of teaching used in junior and senior high schools.
236. Basic Skills in the Elementary Grades. Cr. 3. I, S.
Prerequisite: Sophomore classification. Methods and materials in the teaching of arithmetic, writing, and spelling.
237. The Language Arts. Cr. 3. II, S.
Prerequisite: Sophomore classification. Methods and materials in teaching the language arts, with special reference to reading, and written and oral composition.
238. Methods and Materials in the Social Studies in the Elementary Grades. Cr. 3. II, S.
Prerequisite: Sophomore classification. Principles, procedures, and materials in developing social, economic, and geographical concepts and relationships.
314. Reading Clinic. Cr. 1. S.
Prerequisite: 12 hours in education and psychology and junior classification. Techniques in diagnosing pupil reading difficulties.
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 psychology, including a course in secondary education, 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. 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 psychology 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 the principles and methods of guidance. Credit may not be received for Ed. 336.
3210. Children's Literature. Cr. 2. S.
Prerequisite: 12 hours in education and psychology, including a course in elementary education, and junior classification. Survey of recent trends in literature for children 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, including a course in elementary education, and junior classification. Analysis of reading difficulties and remedial programs.
3214. Duties of School Principals. Cr. 2. S.
Prerequisite: 12 hours in education and psychology and junior classification. 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. 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 and psychology, including a course 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. 332.
333. Education of Exceptional Children. Cr. 3. S.
Prerequisite: 12 hours in education and psychology and junior classification. Survey course in the education of exceptional children.
335. The Junior High School. Cr. 3. I, S.
Prerequisite: 12 hours in education and psychology and junior classification. Detailed analysis of the origin, organization, and program of the junior 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. Principles, methods, and organization of guidance. Credit may not also be received for Ed. 326.
338. Every Teacher's Problems. Cr. 3.
Prerequisite: 12 hours in education and psychology and junior classification. Professional, classroom, and personal problems of the teacher. Designed to meet the needs of administrators, elementary and secondary school teachers.
339. Unit Teaching. Cr. 3. II.
Prerequisite: 12 hours in education and psychology and junior classification. Unit theory and technique and application to the construction of units.
3310. Children's Literature. Cr. 3. I, S.
Prerequisite: 12 hours in education and psychology, including a course in elementary education, and junior classification. Introduction to literature, both new and old, prose and poetry, for children under 12, including standards for judging and criteria for selecting books. Credit may not also be received for Ed. 3210.
3314. Duties of School Principals. Cr. 3. S.
Prerequisite: 12 hours in education and psychology and junior classification. Organization and administration of a school building unit. 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 psychology and junior classification. Covers both the administration and method of visual-audio aids, on both the secondary and elementary levels.
3316. Observation and Practice. Cr. 3. I, II, S.
Prerequisite: 18 hours in education and psychology or consent of instructor. Relates largely to junior and senior high school teaching.
3317. Observation and Practice. Cr. 3. I, II, S.
Prerequisite: 18 hours in education and psychology or consent of instructor. For primary and elementary teachers.
420. Sociological Principles of Education. Cr. 2. S.
Prerequisite: 12 hours in education and psychology and junior classification. Brief analysis of the social basis of education. Credit may not also be received for Ed. 430.
421. Education in the United States. Cr. 2. S.
Prerequisite: 18 hours in education and psychology or consent of instructor. Brief survey of educational history, theory, and practice in the United States. Credit may not also be received for Ed. 431.
422. Public School Administration. Cr. 2. S.
Prerequisite: 18 hours in education and psychology. 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 and psychology. Organization of the program and media of approach to the public. Credit may not also be received for Ed. 433.
424. Supervision of Instruction. Cr. 2. S.
Prerequisite: 18 hours in education and psychology. Brief survey of the organization and 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 psychology and junior classification. A study of co-curricular activities in both secondary and elementary schools.
4212. Evaluation of Secondary Schools. Cr. 2. S.
Prerequisite: 18 hours in education and psychology or consent of instructor. Survey course in high school evaluation, using the criteria of the Cooperative Study of Secondary School Standards.
4213. Evaluation of Elementary Schools. Cr. 2. S.
Prerequisite: 18 hours in education and psychology or consent of instructor. Review of efforts to evaluate the elementary school with emphasis on current procedures.
4215. Remedial Reading in the Secondary School. Cr. 2. S.
Prerequisite: 18 hours in education and psychology. 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 psychology and junior classification. Detailed study of the sociological principles underlying elementary and secondary 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 and psychology or consent of instructor. Detailed study of educational history, theory, and practice in the United States. Credit may not also be received for Ed. 421.

432. Public School Administration. Cr. 3. II.
Prerequisite: 18 hours in education and psychology. Detailed analysis of the principles and problems involved in the organization and administration of a school system. Credit may not also be received for Ed. 422.
433. Public School Relations. Cr. 3. I.
Prerequisite: 18 hours in education and psychology. 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 and psychology. Principles, planning, organization, and techniques of supervision on both the secondary and elementary levels. Credit may not also be received for Ed. 424.
4311. Problems of the Elementary Curriculum. Cr. 3. I.
Prerequisite: 18 hours in education and psychology, including six hours in elementary education. Curriculum construction and reorganization.
4316. Workshop in Curriculum and Instruction. Cr. 3. S.
Prerequisite: 18 hours in education and psychology. For experienced teachers and administrators, both elementary and secondary, to study cooperatively problems actually encountered in the field. Additional work in this field is offered in Ed. 4317.
4317. Workshop in Curriculum and Instruction. Cr. 3. S.
Prerequisite: 18 hours in education and psychology. For experienced teachers and administrators, both elementary and secondary, to study cooperatively problems actually encountered in the field. Additional work in this field is offered in Ed. 4316.
531. Educational Research. Cr. 3. I, S.
Prerequisite: Graduate classification and 18 hours in education and psychology. Study and application of methods of educational research.
532. Philosophy of Education. Cr. 3. S.
Prerequisite: Graduate classification and 18 hours in education and psychology. Analysis of major social philosophies and their application to the field of education.
533. The Activity Program in the Elementary School. Cr. 3. I, S.
Prerequisite: Graduate classification and 18 hours in education and psychology. Theory and practice of the activity program.
534. Modern Trends in Education. Cr. 3. II, S.
Prerequisite: Graduate classification and 18 hours in education and psychology. Current educational trends; their origins, present functions, and future implications.
535. Business Administration of Schools. Cr. 3. S.
Prerequisite: Graduate classification and 18 hours in education and psychology. Organization and operation of the business affairs of a school system.
536. Educational Statistics. Cr. 3. S.
Prerequisite: Graduate classification and 18 hours in education and psychology. Analysis and application of statistical procedures as applied to educational and psychological data.
537. Student Counseling. Cr. 3. S.
Prerequisite: Graduate classification and 18 hours in education and psychology, including a course in testing. Techniques and problems incident to counseling secondary and elementary school students.
538. Adult Education. Cr. 3. I, S.
Prerequisite: Graduate classification and 18 hours in education and psychology. Covers the administration as well as the method of adult education.
539. Seminar. Cr. 3. S.
Prerequisite: Graduate classification and 18 hours in education and psychology. Readings, reports, and discussions, covering problems of administration as well as of method.
5310. Practicum in Vocational Counseling. Cr. 3. II.
Prerequisite: Graduate classification, Psychology 333 and 431 and Education 537, or equivalent courses, and consent of instructor. Experience in interviewing, testing, counseling, and preparing case reports.
601. Thesis.

PSYCHOLOGY

230. Introduction to Psychology. Cr. 3. I, II, S.
Prerequisite: Sophomore classification. Introduction to the study of mental processes.
231. Educational Psychology. Cr. 3. I, II, S.
Prerequisite: Sophomore classification. Principles of psychology as applied to the educational process.
232. Psychology of Modern Elementary Education. Cr. 3. II.
Prerequisite: Sophomore classification. Psychological principles as applied to educational practice at the elementary level.

323. Measurements in Education. Cr. 3. S.
Prerequisite: 12 hours in education and psychology, including Psy. 230 or 231, and junior classification. Brief survey of tests and interpretation of test scores. 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. Study of child development from birth to early adolescence.
333. Measurements in Education. Cr. 3. I, S.
Prerequisite: 12 hours in education and psychology, including Psy. 230 or 231, and junior classification. Analysis of types of tests and interpretation of test scores. Credit may not also be received for Psy. 323.
335. Psychology of Adolescence. Cr. 3. I, II, S.
Prerequisite: 12 hours in education and psychology and junior classification. Study and analysis of adolescent development.
338. Psychology Applied to Business. Cr. 3. II.
Prerequisite: 3 hours of psychology and junior classification. Psychological principles 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. Brief survey of mental tests and their application at various educational levels. For both high school and elementary teachers. 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. Credit may not also be received for Psy. 433.
424. Social Psychology. Cr. 2. S.
Prerequisite: Psy. 230 or equivalent and junior classification. Psychological principles as they apply to group behavior. 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, development of mental tests, and application of mental tests at various educational levels. For both high school and elementary teachers. 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. Discussions, case studies and term paper. Credit may not also be received for Psy. 423.
434. Social Psychology. Cr. 3. II.
Prerequisite: Psy. 230 or equivalent and junior classification. Principles of psychology applied to group behavior. Survey of experimental work and reports on current problems. Credit may not also be received for Psy. 424.
530. Practicum in Intelligence Testing. Cr. 3. I.
Prerequisite: Graduate classification, Psy. 431, and consent of instructor. Practice emphasizing the use of the Stanford-Binet and the Wechsler-Bellevue tests on 20 or more cases each.

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, 339, 3310, 3314, 3315, 420, 421, 422, 423, 424, 425, 4212, 4213, 4215, 430, 431, 432, 433, 434, 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.

Electrical Engineering

PROFESSOR BULLEN. ASSOCIATE PROFESSORS HOUSTON, BENNETT. ASSISTANT PROFESSORS STENIS, WUKASCH.
INSTRUCTORS LEE, STRIBLING.

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 electrical 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 follow 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 course in electrical engineering.

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 E. Sem. 411-2, provided these courses have not been used as electives or required courses for undergraduate credit. In addition, E.E. 322, 323, 324, 325, 332, 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.

221-2. Electrical Engineering Laboratory. Cr. 2, (0-6). I, II.
Prerequisite: Registration in E. E. 231-2. A laboratory course to accompany E. E. 231-2. Three hours per week is assembled and 3 hours nonassembled.

231-2. Principles of Electrical Engineering. Cr. 3. I, 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, 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, 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 3 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 non-assembled.

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 non-assembled.

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, 6 semester hours of physics. Standard methods of wiring circuits; the general theory and modern methods of illumination. For architectural engineering students.
336. Illumination. Cr. 3, (2-3). II.
Prerequisite: Junior standing or consent of instructor. Fundamental principles and modern practice of illumination. Offered 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, 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, 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, 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, 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 3 hours nonassembled.
- 4212-13. Electrical Machinery Laboratory. Cr. 2, (1-3). I, 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, 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 3 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, 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, 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. Maxwell's 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, 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, 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.

Engineering Drawing

(See Industrial Engineering)

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 departments; 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.

English

PROFESSORS ALLEN, CUNNINGHAM*, DOAK, MILLS, SMALLWOOD, STROUT. ASSOCIATE PROFESSORS CAMP, GILL, GUNN, MURPHY, TEAGUE. ASSISTANT PROFESSOR CARTER. INSTRUCTORS BUTTERWORTH, COBB, GAHRING, GREEN, HARRISON, LEWIS, MILES, NALL, RAFFANIELLO, THOMPSON, WELLBORN, WELLS, WILSON.**

Requirements and prerequisites:

English 131-2 is a requirement for students in all divisions and a prerequisite for all sophomore-level courses. Six hours of sophomore English are required of all students except those of the Divisions of Engineering and Agriculture who are required to take 3 hours of English, English 233 and 234 respectively. English 233 and 234 cannot be substituted for required English courses by students in other divisions. For the selection of sophomore English courses see the Description of Courses below. For all advanced courses English majors must have completed English 131-2 and 235-6 or their equivalents; all other students must have completed 131-2 and 235-6 or 237-8. Majors in journalism who minor in English will take four advanced English courses (12 semester hours above sophomore level) instead of the usual two advanced courses required for minors.

A student must make at least C on an advanced course in English if he wishes to have it count toward a major or minor in English. In all English courses, regardless of rank, a student must demonstrate an adequate command of correct and effective English or receive an F in the course.

English majors in their freshman year should elect History 133-4 (English History) instead of History 131-2.

Courses which may be taken for graduate credit:

1. All courses numbered in the 500 series.
2. The following undergraduate courses if they are properly petitioned for and if additional work is done in each: 332, 336, 3316, 3317, 3318, 3322, 431, 434, 4310, 4319.
3. The following undergraduate courses if they are properly petitioned for and if additional work is done in each may be counted as a corresponding 500 course: 330 for 530; 432-3 for 533; 435-6 for 538; 437 for 533; 4315 for 537; 333, 338, and 3320 for 536.

*On leave 1947-48.

**Deceased March 15, 1948.

†Students in the Department of Architecture (Design and Commercial Art Option) will take 6 hours, English 235-6 or 237-8.

The following undergraduate courses may not be taken for graduate credit: 3310, 3311, 3315, 3323, 438, 4313, 4316, 4317.

- 131-2. English Composition. Cr. 3. Each, I, II.
Essentials of correctness and effectiveness in general writing. Text studies, lectures, readings, themes, tests, and conferences.
232. The Major English Writers. Cr. 3. I, II.
Selections from the works of the chief English writers. This course will be offered in 1948-9 only for those students who did not complete their sophomore English under the old plan.
233. Technical Writing. Cr. 3. I, II.
Essentials of correctness and effectiveness in technical writing. Regular themes. Long term report. Some readings in standard English and American literature. Required of sophomore engineering students, except those in the Department of Architecture, Design and Commercial Art Options.
234. Special Work on Correct Usage. Cr. 3. I, II.
Themes, reports, and much practical experience in writing. Required of sophomores in the Division of Agriculture.
- 235-6. Survey of English Literature. Cr. 3. I, II.
The historical development of English literature from "Beowulf" to the present day. Required of English majors and recommended for English minors and for majors in foreign languages, history, and journalism.
- 237-8. Types and Masterpieces of Literature. Cr. 3. I, II.
A study of the chief literary types illustrated from the masterpieces of English, American, modern European, and classical literature. Required as the sophomore course in English for students in the Divisions of Arts and Sciences, Business Administration, and Home Economics, and in the Department of Architecture (Design and Commercial Art Options) except English majors and those electing English 235 and 236. English majors may not substitute English 237-8 for English 235-6 without the approval of the Chairman of the Department of English.
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. Eighteenth Century English Poetry and Prose. 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.
3311. The Nature of Literature. Cr. 3. I.
A careful study of representative poems, plays, and novels to determine something of the method by which thought and experience find expression in literature.
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 Brontës, 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.
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", "Antony and Cleopatra", and "The Tempest".
433. Shakespeare. Cr. 3. II.
A close 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".
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.
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, Goosse, Strachey, and Bradford, as they reflect the social, and political conditions, the art, the science, and the literature of their times.
4315. Tudor Poetry and Prose. 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 craftsmanship 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 of 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 needs of the students enrolled. It may be repeated for credit.
510. Methods of Literary Research. Cr. 1. I, S.
Required of all English graduate students, preferably at the beginning of their graduate work. Compilation of bibliographies; examination and evaluation of primary and secondary sources; problems of interpretation, style, and organization presented by the research paper in the field of literary studies.
530. Middle English Literature. Cr. 3. II.
Teutonic, Celtic, and Classical-Christian origins of medieval literature in English. Studies in the romance, allegory, didactic and lyrical verse, with especial attention to "Sir Gawain", "Pearl", "Piers Plowman". Problems in the interpretation of Chaucer.

533. Elizabethan Drama. Cr. 3.	II.
534. Old English. Cr. 3.	I.
536. Studies in American Literature. 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.
5811. Literary Criticism. Cr. 3.	II.
601. Thesis.	

Family Relations

(See Child Development and Family Relations)

Finance

(See Accounting and Finance)

Foods And Nutrition

PROFESSORS MICHIE, WEEKS. ASSOCIATE PROFESSORS TWYFORD*, LAMB*. ASSISTANT PROFESSORS BUTTRILL, PRITCHETT. INSTRUCTORS HATTOX, McPHERSON.

In the Department of Foods and Nutrition, work is offered leading to the Degree of Bachelor of Science in Home Economics with a major in foods and nutrition.

The curriculum offers optional courses during the junior and senior years which will prepare the student for special phases of work in the field of foods and nutrition, i. e., homemaking, teaching foods and nutrition, appointments in dietetics, social welfare, commercial food service and research. These options are listed with the curriculum on page 114 of this catalog.

In addition to work offered for the undergraduate degree, the Department of Foods and Nutrition gives graduate work leading to the Degree of Master of Science.

Discussion of graduate work including admission, divisions and departments offering graduate work, and graduate degrees given, will be found in this catalog under the Division of Graduate Studies.

Courses which may be taken for graduate credit, in addition to all courses numbered in the 500 series, are Nutr. 431, 432, 433; Foods 331, 335, 433, if properly petitioned for and provided additional work is done in each case.

FOODS AND COOKERY

131. Elementary Food Preparation and Serving. Cr. 3, (2-3). I, II.
The principles of cookery with an introduction to the planning and serving of meals in the home; a study of 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.
135. Food Preparation and Selection (for Nurses.) Cr. 3, (2-3). I, II.
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. The planning and service of luncheons, suppers, dinners, buffet meals and teas. Food combinations in relation to the nutritive and aesthetic aspects of menu planning. Economics of food purchasing and compilation of food budgets.

*On leave 1947-48.

233. Food Selection and Serving. Cr. 3, (2-3).**II**

The planning, preparation and serving of family meals including meals for special occasions as buffet meals, teas, and dinners. Food budgets and the economics of food purchasing. Open to men and women not registered as home economics students.

331. Food Demonstration. Cr. 3, (2-3).**I**

Prerequisite: Foods 232, Nutr. 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, Nutr. 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, Nutr. 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).**I**

Prerequisite: Junior or senior standing in Department of Foods and Nutrition. Adaptation of newer scientific methods to food preservation. Intensive practice in canning, preserving, and pickling meats, fruits, vegetables. Especially for home demonstration agents and vocational home economics teachers.

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 to 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: Nutr. 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).

Prerequisite: Nutr. 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: Nutr. 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: Nutr. 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: Nutr. 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.

601. Thesis.

Foreign Languages

PROFESSORS QUALIA, GORDON. ASSOCIATE PROFESSORS HENNINGER, HAMILTON. ASSISTANT PROFESSORS STREHLI, HAMLETT, REYNOLDS. INSTRUCTORS TUCKER, B. ALEXANDER, T. ALEXANDER, McLENDON.

The Department of Foreign Languages offers instruction in German, French, Latin, Spanish, Portuguese, and Greek. Sufficient work is offered for a major in Spanish and French. 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.

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.

FRENCH

- 131-2. A Beginning Course in French. Cr. 3. I, II.
Grammar, reading, and oral practice.
- 231-2. Grammar, Reading, Composition, and Conversation. Cr. 3. I, II.
Prerequisite: French 131-2, or two units of high school French.
- 331-2. A Rapid Reading Course. Cr. 3. I, 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, II.
Prerequisite: French 331-2 or its equivalent. The drama from 1636 to 1900. Offered in alternate years; not offered in 1947-48.
- 433-4. The Literature of the Nineteenth Century. Cr. 3. I, II.
Prerequisite: French 331 or its equivalent. A study of the prose and poetry of the nineteenth century, exclusive of the drama. Offered in alternate years; not offered in 1947-48.
- 435-6. Readings in French Literature. Cr. 3. I, II.
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, II.
Grammar, reading, and oral practice.
- 231-2. Grammar, Reading, Composition, and Conversation. Cr. 3. I, 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, 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. Contemporary Literature. Cr. 3. I, II.
Prerequisite: German 231-2 or 233-4, or the equivalent. Reading of representative short stories, novels, dramas, and lyrics. Composition based on readings. Conducted chiefly in German.

GREEK

- 131-2. A Beginning Course in Greek. Cr. 3. I, 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.

- 131-2. A Beginning Course in Latin. Cr. 3. I, 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 relative to special subjects.

- 231-2. Reading and Composition. Cr. 3. I, 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, II.
Prerequisite: Latin 231-2 or four units of high school Latin.

- 431-2. Senior Reading. Cr. 3. I, II.
Prerequisite: Latin 331-2. Medieval Latin. A survey of Ovid's works with emphasis on the "Metamorphosis". Offered when demand justifies.

- 433-4. Advanced Reading. Cr. 3. I, II.
Prerequisite to be determined by the instructor. Offered at intervals, when demand justifies.

PORTUGUESE

- 131-2. A Beginning Course in Portuguese. Cr. 3. I, II.
Grammar, reading, and oral practice.

- 231-2. Grammar, Reading, Composition, and Conversation. Cr. 3. I, 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 reference to Brazil.

SPANISH

- 131-2. A Beginning Course in Spanish. Cr. 3. I, II.
Grammar, reading, and conversation.

- 231-2. Grammar, Reading, Composition, and Conversation. Cr. 3. I, II.
Prerequisite: Spanish 131-2, or two units of high school Spanish.

- 331-2. Contemporary Literature. Cr. 3. I, 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, 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, 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 1947-48.

- 433-4. The Modern Drama. Cr. 3. I, 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 1947-48.

435. Teachers' Course in Methods of Teaching Spanish. Cr. 3. S.
Prerequisite: Spanish 331-2 and 6 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.

433. 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.

Prerequisite: Spanish 331-2 or the equivalent. An outline study of the various phases of Hispanic civilization: history, arts, language, literature. Offered in summers in Mexico City. S.

4312-13. The Prose of the Golden Age. Cr. 3.

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 1947-48. I, II.

4314-15. The Drama of the Golden Age. Cr. 3.

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 1947-48. I, II.

4316-17. A Survey of Spanish Literature. Cr. 3.

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. I, II.

4318. Contemporary Drama. Cr. 3.

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. S.

4320. Contemporary Spanish Novel. Cr. 3.

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.

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.

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: 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 400 series, which otherwise carry no graduate credit.

French

(See Foreign Languages)

Geography

(See Geology)

Geology

**PROFESSORS PATTON, STAINBROOK, SIDWELL. ASSOCIATE
PROFESSORS ROBINSON, GLOCK. INSTRUCTOR
LANGSTON. LECTURER KEESEE.**

An important function of the Department of Geology is to train students for work in the petroleum industry. To this end thorough training is offered in all of the branches of geology connected with the petroleum industry. Students who wish to enter geological work in the petroleum industry should take the curriculum in petroleum geology outlined on page 87 of this catalog. Students desiring to take geology as a science credit, should register for Geology 131-2.

131-2. General Geology. Cr. 3. (3-2).

I, II

Physical and historical geology. Present day geologic processes followed by applications of 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. (2-3)

I, II

Prerequisite: Geol. 131-2, Chem. 131-2. Principles of crystallography; methods of identification of minerals; blowpipe and analysis; occurrence and properties minerals.

233. General Geology for Engineers. Cr. 3. (2-3)

I

Prerequisite: Sophomore standing. 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. 1.

II

The characteristic 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; offered in 1948-49.

314. Gold Prospecting. Cr. 1.

II

The occurrence 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; not offered in 1948-49.

333-4. Petrography and Petrology. Cr. 3. (1-6).

I, 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 occurring 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, II

Prerequisite: Geology 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. 231-2, 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, II

Prerequisite: 18 semester hours in geology and junior or senior standing. Physical and historical geology of Texas.

413-4. Seminar. Cr. 1.

I, II

Prerequisite: 18 semester hours in geology and junior or senior standing. Assigned readings, reports, and discussions of current geological problems.

431. Geomorphic and Dynamic Geology. Cr. 3. (2-3)

I

Prerequisite: 18 semester hours in geology including Geol. 335-6. A study and analysis of land forms and of the processes responsible for them.

432. Stratigraphic and Historical Geology. Cr. 3. (2-3)

II

Prerequisite: Geol. 231. 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. Geology of Oil and Gas. 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. (2-3) I, II.
Prerequisite: 24 semester hours in geology. 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, 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, 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; permissible conclusions. Preparation of effective reports and technique of publication. Analysis of selected scientific articles. Practical experience with chosen problems.
- 531-2. Advanced Sedimentation. Cr. 3. I, 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 diastrophism and climate on origin of sediments. Offered in alternate years.
- 533-4. Structure of Oil and Gas Reservoirs. Cr. 3. I, II.
Prerequisite: Graduate standing in 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; offered in 1938-49.
- 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 subtitle describing the course.
- 5313-14. Stratigraphy of the United States. Cr. 3. I, 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. Offered in 1948-49.
5315. Principles of Paleogeology. 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 Paleogeology, 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. 535-6.
- 5317-18. Seismology. Cr. 3. (1-6) I, II.
Prerequisites: 24 semester hours in geology and graduate standing. Principles of seismology; operation and use of seismograph instruments; principles of interpretation of seismograms; operation of seismological observatory; study and interpretation of records of local and major earthquake shocks throughout the world as recorded by the instruments of the college seismological observatory; study and interpretation of data furnished by cooperating seismological stations affiliated with the U. S. Coast and Geodetic Survey.
601. Thesis.

GEOGRAPHY

231-2. Principles of Geography. Cr. 3.

Geographic factors especially as they affect the activities of man. Special emphasis upon relief, climate industries, communication, and political conditions. Not accepted in fulfillment of science requirements. Accepted in fulfillment of social science requirements. I, 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: Geol. 333-4, 335-6, 363, 411-2, 413-4, 431-2, 433, 434, 435, 436, 437-8, 4310-11, 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.

German

(See Foreign Language)

Government

PROFESSORS DAVIS, JACKSON. ASSOCIATE PROFESSOR ABERNETHY. INSTRUCTORS ADAMS, KENNEDY, MACK. PART-TIME LECTURERS BASS, BRUMMETT, CARR, DENTON. GRADUATE TEACHING ASSISTANTS ERICSON, SHEEHAN.

For graduation from Texas Technological College, at least one course in government is required. 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.

Govt. 131-2 or Govt. 230 is required of all students in the college for graduation. Govt. 231 is recommended to follow Govt. 230, although in some departments it is not required for graduation.

Students majoring in government should take certain basic courses in all fields of government. At the beginning of the junior year several alternative fields of emphasis are offered from which the student may choose. They are:

American Government (National, State, and Local)

International Relations (Foreign Service)

Public Administration (Government Service—National, State, Local)

Political Theory (European, American, Modern)

Pre-Law

131. American Government, National. Cr. 3.

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.

The constitutions and framework of the governments of the states with emphasis on Texas.

230. American Government, Organization. Cr. 3.

A study of the constitutions and organization of the governments of the United States, the states in general, and Texas in particular. Required of students whose departments require only 3 hours of government. Credit will not be given for both Govt. 230 and 131.

231. American Government, Functions. Cr. 3.

A study of the functions and services of the governments of the United States, the states in general, and Texas in particular. This course will follow the work given in the first semester and will be taken by most students who take 6 hours in government.

232. Modern Governments. Cr. 3.

Prerequisite: 6 semester hours in American government. A comparative study of selected European governments.

331. Local Government. Cr. 3.

Prerequisite: 6 semester hours in American government. The machinery of city and county government; the forms—both new and old—of municipal government; inter-departmental relations and the relation of local government to state.

332. Local Administration. Cr. 3.

Prerequisite: 6 semester hours in American government. Chief problems of present-day local administration; special stress placed upon administration of Texas cities and counties.

334. American Political Parties. Cr. 3.

Prerequisite: 6 semester hours in American government. Party history, functions, organization, finance, campaign methods and elections.

335. American Foreign Relations. Cr. 3.

Prerequisite: 6 semester hours in American government. Control and conduct of the relations of the United States with the outside world.

336. American Diplomacy. Cr. 3.

Prerequisite: 6 semester hours in American government and 6 hours of history. Foreign policies of the United States.

337. Public Administration, Organization. Cr. 3.

Prerequisite: 6 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: 6 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, and removal and retirement.

3311. Political Institutions. Cr. 3.

Formerly 231 Prerequisite: 6 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.

Prerequisite: 6 semester hours in American government and 6 hours of economics. 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.

Prerequisite: 6 semester hours in American government. 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: 6 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: 6 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. International Organization. Cr. 3.

Prerequisite: 6 hours of American government. A study of international organizations and agencies with emphasis on the modern time.

436. International Law. Cr. 3.

Prerequisite: 6 hours in American government and 3 hours in American or European 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.

Prerequisite: 6 semester hours in American government. 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.

Prerequisite: 6 semester hours in American government. Problems and issues 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 331, 332, 334, 335, 336, 337, 338, 3311, 3312, 431, 432, 433, 434, 435, 436, 437, 438, if properly petitioned for and provided additional work is done in each course numbered in the 300 or 400 series.

Greek

(See Foreign Language)

History And Anthropology

PROFESSORS HOLDEN, EAVES, KINCHEN, McKAY, WALLACE.
LECTURERS KAMMERDIENER, VERNON.

All courses numbered above 300 are advanced. Prerequisites for such courses for history and anthropology majors are Hist. 131-2 or 133-4, and 231-2. For students wishing to take advanced courses in history or anthropology for electives no prerequisites are required unless specified. Thirty-six hours, including Anthro. 331 and 332, are required for majors.

Prerequisite for courses above 500 is graduate standing.

HISTORY**131-2. History of Civilization. Cr. 3. Each, I, II.**

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; crusades; Renaissance; Protestant revolt; rise of the modern state; industrial revolution; World War I, background of World War II. 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, II.

Economic, legal, and cultural development of the English people.

231-2. Economic and Political History of the United States. Cr. 3.

Each, I, II.

Prerequisite: for pre-law and English majors, Hist. 133-4; for history majors, either Hist. 131-2 or 133-4. Discovery, colonization, colonial institutions; Revolution; Confederation; Constitution; growth of nationalism; slavery; expansion; sectionalism; Civil War; Reconstruction; new industrial and social problems; domestic and foreign problems.

330. Teaching History in High Schools. Cr. 3. S.

Modern technique of teaching history in junior and senior high schools. Credited either as history or education.

331. Greek Civilization. Cr. 3. I.

Especially emphasis on Greek contributions to Western civilization.

332. Roman Civilization. Cr. 3. II.

Especially emphasis on Roman contributions to European culture.

333. Renaissance and Reformation. Cr. 3. I.
Emphasis on the emergence of modern thought and institutions.
334. French Revolution and Napoleon. Cr. 3. II.
Nationalism; enlightened despotism; the Metternich system.
335. Geopolitics of World War II. Cr. 3. I, S.
History of events leading to the present world situation.
336. Tudor England. Cr. 3. I.
Establishment of a strong monarchy; break with the Roman Church; rise of sea power.
337. Stuart England. Cr. 3. II.
Contest between king and Parliament; civil war; Commonwealth and Restoration; supremacy of Parliament; colonial policies.
338. Eighteenth Century England. Cr. 3. I.
Rise of the cabinet; colonial supremacy; Wing versus Tory; industrial revolution.
339. Nineteenth Century England. Cr. 3. II.
Napoleonic struggle; reforms; Irish question; development of the Commonwealth.
3311. The Canadian Dominion. Cr. 3. S.
Evolution of the Dominion; relationship with the other dominions in the British Empire.
3313. Europe from 1815 to 1918. Cr. 3. I.
Congress of Vienna to Treaty of Versailles.
3314. Europe since 1919. Cr. 3. II.
World War II and its aftermath.
3315. Japan and China. Cr. 3. II.
Japan's imperialistic policy; World War II and its aftermath in the Far East.
3316. British Empire. Cr. 3. II, S.
Evolution of the British Empire, and its recent transformation in the present Commonwealth of British Nations.
3319. Twentieth Century Britain. Cr. 3. S.
Political and social reform; education; labor movement; effect of Wars I and II.
430. English Colonial America. Cr. 3. S.
Exploration; settlement; development of American institutions and culture.
431. History of Latin America to 1820. Cr. 3. I.
Exploration; colonization; revolution.
432. History of Latin America since 1820. Cr. 3. II.
Political development; social and economic problems; recent movements.
433. The American Revolution. Cr. 3. I.
Causes; progress; French aid; Loyalists; finances; Treaty of 1783.
434. Early American Constitutional Development. Cr. 3. II.
Confederation; Constitution; governmental organization; amendments.
435. Anglo-American Diplomacy. Cr. 3. S.
Relationships from independence to the present.
436. The Federalist and Republican Periods. Cr. 3. I.
Rise of nationalism; economic and political issues.
437. The Jacksonian Period. Cr. 3. II.
Rise of Jacksonian democracy; social and economic movements.
438. History of Texas to 1846. Cr. 3. I.
Exploration; colonization; revolution; the Republic.
439. History of Texas, 1846-1900. Cr. 3. II.
Social and economic movements; emphasis on development of West Texas.
4310. Expansion of the United States. Cr. 3. S.
Purchase of Louisiana; acquisition of Florida; annexation of Texas; Oregon controversy; Mexican cession; Gadsden Treaty; purchase of Alaska; acquisition of our insular possessions.
4311. The Civil War. Cr. 3. I.
The Old South; slavery; secession; economic resources; foreign relations; military movements.
4312. Reconstruction. Cr. 3. II.
Economic status of South; reconstruction policies; radical rule and overthrow.
4313. History of the United States, 1877-1898. Cr. 3. I.
Social adjustments; rise of big business; tariff.
4314. History of the United States, 1898-1918. Cr. 3. II.
Spanish-American War; progressivism; World War I.

4315. Constitutional Development in Texas. Cr. 3. S.
Detailed study of the six constitutions of Texas.
4316. History of the United States, 1919-1932. Cr. 3. I.
Post-war readjustment; Republican rule; economic policies; agricultural life in the 1920's.
4317. History of the United States since 1933. Cr. 3. II.
Election of 1932; New Deal; life in the 1930's.
4319. Latin American Diplomacy. Cr. 3. S.
From Latin American independence to the present.
4320. Social History of Texas, 1821-1860. Cr. 3. S.
Amusements; architecture; religion; transportation; immigration; journalism; dueling; temperance and literature of the colonial period; the republic and early statehood.
4321. Recent History of Texas, 1900-1940. Cr. 3. S.
Emphasis on social and economic movements.
4322. Life and Literature of the Southwest. Cr. 3. S.
530. Seminar in History. Cr. 3. I, II, S.
535. Technique of Research. Cr. 3. I, S.
601. Thesis.

ANTHROPOLOGY

- 331-2. Anthropology. Cr. 3. I, II.
Development of man from his origin; races; special reference to prehistoric races of North and Central America.
- 334-5. The American Indian. Cr. 3. I, II.
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.
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, II.
- 433-4. Southwestern Archaeology. Cr. 3. S.
A field course; lectures, research, and excavation.
- 531-2. Seminar in Anthropology. Cr. 3. I, 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, 332, 333, 334, 335, 336, 337, 338, 339, 3311, 3313, 3314, 3315, 3316, 3319, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 4310, 4311, 4312, 4313, 4314, 4315, 4316, 4317, 4319, 4320, 4321, 4322, 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.

Home Economics Education

PROFESSORS ADAMS, ERWIN. ASSOCIATE PROFESSORS
CLEWELL*, GRAVES. ASSISTANT PROFESSOR
NESBIT.

The curriculum in the Department of Home Economics Education meets the requirements for the Vocational Certificate of Approval for Homemaking Education, the six-year high school certificates, and the special certificate to teach home economics.

Candidates for the Vocational Certificate of Approval for Homemaking Education must have some actual homemaking experience.

Courses which may be used for graduate credit in addition to all courses numbered in the 500 series are: 432, 434, 435, 441, if properly petitioned for and provided additional work or an added problem is done

*On leave, 1947-48.

in each course numbered in the 400 series, which otherwise carry no graduate credit.

111. Introduction to Home Economics, Cr. 1. I, II.

A basic course for all curricula in the Division of Home Economics. Units offered include the relationship of the student with her college; the development of good habits of study; student budgeting of time and money; special emphasis on individual counseling and vocational guidance. Required of all home economics freshmen.

331. Principles of Teaching Home Economics, Cr. 3. I, II.

Prerequisite: Junior standing in the Division of Home Economics; Ed. 234 or parallel. An introduction to teaching home economics; professional development; principles of learning; methods and techniques in presenting the various types of lessons; collection and organization of teaching materials; the year-round program and its relation to the community. Home experiences; evaluation of teaching. Opportunities to visit selected types of home economics programs.

332. Methods of Teaching Home Care of the Sick and Home Safety. Cr. 3. S.

Prerequisite: Junior standing, H. E. Ed. 331. Designed to help teachers meet the need for applying techniques in teaching home care of the sick, home safety and the common home health emergencies.

411. Home Economics Lectures, Cr. 1. I, II.

Prerequisite: Senior standing in home economics. Reports and discussions on assigned topics based on recent literature and research. Counseling; occupation guidance. Aspects of professional preparation and development.

412. Supervised Observation in Home Economics, Cr. 1. I, II.

Prerequisite: 90 hours in home economics curricula. Guided observation of vocational homemaking programs as a basis for analyzing the application of educational principles to homemaking instruction. Evaluation of methods used in teaching.

431. Methods of Teaching Home Economics, Cr. 3. I, II.

Prerequisite: Ed. 234, H.E. Ed. 331, senior standing. Philosophy of homemaking education; national vocational acts; the vocational homemaking program in Texas; current influences and needs; the whole school program and the community; planning space and equipment; business management; records and reports. Visiting selected types of vocational homemaking programs.

432. Problems in Teaching Clothing, Cr. 3. I, 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 materials, scales, exhibits.

434. Methods of Teaching Applied Art in the Homemaking Curriculum. Cr. 3. S.

Prerequisite: H.E. Ed. 331. Methods of incorporating the teaching and application of art into the vocational 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. Emphasis on the techniques and problems in the promotion and organization of programs of homemaking education for adults and out-of-school groups.

441. Student Teaching in Home Economics, Cr. 4. (2-10) I, II.

Prerequisite: H.E. Ed. 431; Nutr. 334; Cloth. 232. Supervised observation and teaching and participation in the various phases of 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 of current home economics literature; administrative problems in developing the program.

534. Techniques of Research, Cr. 3. I, II.

Prerequisite: Graduate standing and the 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.

536. Problems, Cr. 3. S, I.

Prerequisite: Graduate standing; H.E. Ed. 431 and H.E. Ed. 441. Study of individual and group problems according to special interests and needs of the class.

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. Designed for teachers of successful experience. Field contacts with various types of programs.

601. Thesis.

Home Management

PROFESSOR WEEKS. ASSISTANT PROFESSOR DREW.

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. Residence in the Home Management House gives opportunity for securing experiences in the managerial and social problems of homemaking.

Courses which may be taken for graduate credit in addition to those numbered in the 500 series are H. Mgt. 433, 434 if properly petitioned for and provided an additional problem is done.

332. General Home Management. Cr. 3.

I, II.

Prerequisite: Junior or senior standing in home economics. Management of household activities to save time and energy; finance management; family housing; the philosophy of homemaking.

431. Housing, House Care, and Management. Cr. 3. (2-3).

I, II.

Prerequisite: H.Mgt. 332. Housing as it affects the family and community; problems relating to the physical care of the house including cleaning, storage, home safety, laundering, operation and maintenance.

432. Residence in Home Management House. Cr. 3.

I, II.

Prerequisite: H.Mgt. 332, 12 hours in Department of Foods and Nutrition. Living in Home Management House for a minimum of six weeks under supervision. Food preparation and service, housekeeping, household finance, entertaining and group relationships, including care of an infant. Students pay a fixed sum for room and board.

433. Household Equipment. Cr. 3. (2-3)

I.

Prerequisite: H.Mgt. 332. Selection, operation, and care of household equipment, both large and small, including electric, non-electric and gas.

434. Consumer Problems. Cr. 3.

II.

Prerequisite: Eco. 231, junior or 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.

Horticulture

(See Plant Industry)

Industrial Engineering and Engineering Drawing

PROFESSORS ST. CLAIR, PERRYMAN. ASSOCIATE PROFESSOR PENICK. ASSISTANT PROFESSOR ATKINSON. INSTRUCTOR JENKINS.

INDUSTRIAL ENGINEERING

Industrial engineering is that branch of engineering which specializes in the location, design, construction, operation, and equipment of industrial plants.

The demand for graduates in this branch of engineering has greatly increased during the past few years and the need for such training was emphasized during World War II.

The curriculum covered by this major enables a graduate to enter the employ of the average industrial concern on the same basis as a graduate in electrical or mechanical engineering. After his basic training he is in a position to enter any one of a number of fields such as production, purchasing, personnel, time study, design, etc.

The student obtains instruction in the basic branches of electrical, civil, mechanical, and chemical engineering, as well as the more special branches of industrial engineering.

An examination of the curriculum indicates that emphasis is placed on plant design, location, type of building and machinery, safety, meth-

ods of organization, and the proper personnel for operation of a particular industry.

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: I. Engr. 331, 332, 333, 336, 421-2, 432-3, 435, and 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.

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 and workmen. Procedure of interviewing, hiring, transfer, and discharge.

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 watches 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 manufacture 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—also jigs, fixtures, dies, gages, etc.

421-2. Chemical Plant Design. Cr. 2. (0-6) I, II.
Prerequisite: E.Dr. 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; sources 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, 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 observed hazards.

436. Principles of Engineering Economics. Cr. 3. I.
Formerly 423. Prerequisite: 3 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

The courses offered in engineering drawing are fundamental for all courses in engineering. The aim of these courses is to prepare the student to use, intelligently and skillfully, standard drawing instruments and equipment of a design and plant layout man.

Approved drawing equipment is required in all courses.

111. Engineering Drawing. Cr. 1. (0-3)

This course is for students who have completed only 2 semester hours of engineering drawing in a junior college, or other college where the course content has been equivalent to only 2 semester hours of E. Dr. 131. Course content will cover those subjects ordinarily not covered in his previous work. S.

121. Engineering Drawing. Cr. 2. (0-6)

(Formerly 133). Prerequisite: E. Dr. 131, or equivalent. Intersections, developments, dimensioning, slant lettering, oblique drawings, elementary working drawings. I, II

131. Engineering Drawing. Cr. 3. (1-6)

(Formerly 132). The essentials of drafting, including freehand sketching, use of instruments, vertical lettering, engineering geometry, orthographic projection, sections, isometric drawings. In lecture, problems are given in solid geometry. I, II

134-5. Graphic Arts. Cr. 3. (1-6)

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. I, II

221. Machine Drawing. Cr. 2. (0-6)

Prerequisite: E. Dr. 121, or the equivalent. Application of the graphic language to engineering purposes; engineering sketches, machine fastenings, conventional practice, machine details, detail and assembly drawings. I, II

222. Descriptive Geometry. Cr. 2. (1-3)

Prerequisite: E. Dr. 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. I, II

223. Agricultural Drawing. Cr. 2. (0-6)

Not open to freshmen. Orthographic projection, lettering, graphic charts, freehand sketching, and the reading of drawings related to agriculture and agricultural engineering. II

322. Advanced Machine Drawing. Cr. 2. (0-6)

Prerequisite: E. Dr. 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. I

Institutional Management

PROFESSOR CRADDOCK. PART-TIME INSTRUCTOR SMITH.

The curriculum in the Department of Institutional Management is planned for those students who desire training for such positions as managers of lunchrooms, 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.

432. Large Quantity Cookery. Cr. 3. (1-6)

Prerequisite: Foods 232 and junior standing. A study of menu making, preparation of food in large quantity cookery, and practical experience in food purchasing. I

435. Organization and Administration. Cr. 3. (1-6)

Prerequisite: Foods 232 and Inst. Mgt. 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. II

436. Institutional Housekeeping. Cr. 3. (1-6)

Prerequisite: Junior standing. Problems in the selection, operation, and arrangement of institutional household equipment. The cleaning and care of the building, sanitation, plumbing, ventilation, etc. II

Journalism

PROFESSOR HORNE. ASSISTANT PROFESSORS ALLEN, SCHOOLEY. INSTRUCTOR WATSON.

Students majoring in journalism are required to complete 36 hours in journalism; for a minor, a minimum of 18 semester hours, at least 6 of which must be of junior or senior rank. Minor subject must be ap-

proved by head of department. Work of D grade will not be accepted for credit on major requirements. Sophomore classification is prerequisite for any course in journalism except Journ. 131-2. Hours required for graduation: 127. Students who have not had typewriting in high school must take at least one semester in college without credit.

131. Printing. Cr. 3. (1-6)

I.
Elementary hand composition, imposition, and study of good workmanship; technical terms employed in the printing industry; printing plant procedures.

132. Printing. Cr. 3. (1-6)

II.
Prerequisite: Jour. 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, 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 on news features.

332. Magazine Article Writing. Cr. 3.

II.
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.

I.
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, 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. (1-6)

I, II.
A laboratory course in newspaper desk work, including copyreading, the writing of headlines, and make-up. Desk assignments on the college newspaper and *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 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 camera.

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: 9 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 literature, painting, music, plays, motion pictures, and other forms of art. For students seeking general culture as well as for those preparing for newspaper department work.
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, II.
Prerequisite: Jour. 330, 6 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. II.
(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.

Latin

(See Foreign Language)

Management

(See Economics and Management)

Marketing and Secretarial Administration

ASSOCIATE PROFESSORS TERRELL, GOLDEN. ASSISTANT PROFESSOR LEIFESTE. INSTRUCTORS BLACKWELL, HENDERSON, MAUZEY, QUICKSALL, WILSON.

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 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.

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.
Prerequisite: 60 semester hours including 6 hours of mathematics. Sources of business statistics with a survey of methods of their collection, analysis, presentation, and interpretations. 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 business men. 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.

434. Distributive Marketing. Cr. 3. II.
Prerequisite: Marketing 332. Suggested prerequisite: Mkt. 333. A detailed study of the processes and institutions of distributive marketing from manufacturer or processor to retailer through merchant middlemen, functional middlemen, agents and agency structures, selling agents, manufacturers' agents, brokers, jobbers, commission firms, wholesalers, other intermediary marketing institutions, consignments.

435. Business Cycles and Forecasts. Cr. 3. II.
Prerequisite: 60 semester hours including 3 hours of methods of statistics and 6 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; interpreting 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

Prerequisite: 60 semester hours including 3 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.

438. Display. Cr. 3.

II

Prerequisite: Mkt. 432. Technical training of personnel for planning and executing display programs and unit displays, including analysis and evaluation of displays, show-window and interior displays, methods of display appeal through arrangement, color lighting, themes, units, timing, appropriateness, objectives, materials.

439. Sales Administration. Cr. 3.

II

Prerequisite: Mkt. 433. A thorough study of problems and methods of organization and administration of sales department including sales research; sales operation embracing departmental organization, selection, training, equipping, and remunerating sales personnel; sales control, embodying sales territories, routing, expense accounts, quotas, costs and budgets; sales promotion, sales policies.

531. Research in Marketing. Cr. 3.

I

Prerequisite: Graduate standing and 12 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, 432, 433, 434, 435, 436, 437, 438, 439, 531, provided additional work on 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)

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 Sect. 131 who has had one year of shorthand.

223. Punch-Card Machine Operation. Cr. 2. (0-5)

I, II

Training in the operation of key-punch equipment; theory and practice in the operation of the punch-card machines. Machine service, \$4.

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: 60 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 Division of Business Administration. 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: English 131-2, 231-2, 60 semester hours, knowledge of typewriting. 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 the 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.
Prerequisite: Senior classification in the department and 6 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. (2-2) I, II.
Prerequisite: 80 semester hours, including Acct. 244-5. Suggested prerequisite: Sect. 223. Principles of accounting machine methods, tabulating machine cards; practice in the operation of the following: punch, verifier, sorter, and 405 non-net tabulating machine. Machine service, \$4

Mathematics

PROFESSORS MICHIE, WHYBURN, SPARKS, UNDERWOOD,
THOMPSON, HAZLEWOOD, HEINEMAN. ASSISTANT PROFESSORS
GRANT, MAY, WOODWARD, PARKER. INSTRUCTORS
BAILEY, FRAZINE, HOLLAND, KAMMERDIENER,
MCGLOTHLIN, ROBERTS, ROWLAND,
THOMAS, THOMPSON.

- 121-2. *Algebra.* Cr. 2. I, II.
Prerequisite: Two units of high school algebra. Review of high school algebra; quadratic equations; variation; progressions; binomial theorem; graphs; inequalities; complex numbers; theory of equations; exponential equations; determinants. Prerequisite for Math. 122. Math 131 or concurrent registration in Math. 131.
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; binomial 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; radians; trigonometric equations; 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; introduction to solid analytic geometry.
137. *Commercial Algebra.* 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.
138. *Mathematics of Finance.* Cr. 3. I, II.
Prerequisite: Math. 137 or its equivalent. Compound interest; discount; annuities; amortization; depreciation; sinking funds; evaluation of bonds; introduction to statistical methods.
230. *Agricultural Mathematics.* Cr. 3. I, II.
Elementary algebra, percentage, linear equations in one unknown, systems of linear equations, elementary trigonometry, mensuration and application, graphical representation of statistics. For agriculture students.
233. *Calculus Applications.* Cr. 3. I, II.
Prerequisite: Math. 251 or 336. Volumes; centroids; moments of inertia; pressure; work; partial differentiation; series; multiple integrals; indeterminate forms; hyperbolic functions.
- 235-6. *Analytic Geometry.* Cr. 3. I, II.
Prerequisite: Math. 131. The straight line; the conic sections; transformations 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 137. Collection and tabulation of data; bar charts; line graphs; sampling; averages; dispersion; correlation; index numbers; normal curve; probability; applications to economic problems.
251. *Calculus.* Cr. 5. II.
Prerequisite: Math. 122 and 132. Differentiation; maxima and minima; rates; curvature; formal integration; areas.

321. Differential Equations. Cr. 2. I.
Prerequisite: Math. 251. Methods for the solutions of elementary types of differential equations, with applications. 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 equations; 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. I.
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.
- 434-5. Advanced Calculus. Cr. 3. I, II.
Prerequisite: Math. 336. Continuity; multiple integration; indeterminate forms; series; partial differentiation; line, surface and space integrals; Fourier series; partial differential equations.
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. I.
Prerequisite: Math. 335. Scalar and vector products; divergence; gradient; curl; applications.
- 5312-13. Functions of a Complex Variable. Cr. 3. I, II.
Prerequisite: Math 434-5. The 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: Consent of instructor. Partial differential equations; boundary value problems; related topics.
534. Synthetic Projective Geometry. Cr. 3. I.
Prerequisite: Consent of instructor. Fundamental theorems of projective geometry treated synthetically.
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 Astron. 231-2.
- 231-2. General Astronomy. Cr. 3. 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 attention 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.

Note the general regulations for the B. A. degree, and the curriculum for the Degree of Bachelor of Science in mathematics.

Mechanical Engineering

**PROFESSORS GODEKE, POWERS. ASSOCIATE PROFESSOR
HARDGRAVE. ASSISTANT PROFESSORS NEWELL,
MASON, WILLIAMS. INSTRUCTOR LAUDERDALE.**

Mechanical engineering 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 is designed to prepare the student for entrance into these fields. Shop and laboratory courses are used to familiarize the student with methods used in the industries. An approved slide rule is required for all but shop courses.

Electives, offered in the senior year, may be chosen only with the approval of the department. A curriculum in Mechanical Engineering, Aeronautical Option is offered for those who desire to enter this field.

Courses which may be used for graduate credit are M. E. 322, 330-1, 423-4, 438-9, 4310, 4311, Engr. Seminar 411 and Engr. Seminar 412. These must be petitioned for and approved by the head of the department.

211. Sheet Metal Work. Cr. 1. (0-3)

II.

Prerequisite: Registration in E. Dr. 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: E. Dr. 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: E. Dr. 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 stove 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 of 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: E. Dr. 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 operation 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; thermite 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, 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.

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, columns. Energy loads.

330-1. Thermodynamics. Cr. 3.

I, II

Prerequisite: Phys. 236, Math. 251, M. E. 221. Thermodynamics 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. Heat transfer. 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 fluids, 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: E. Dr. 121, registration in 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 nozzles, 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 engines, auxiliary equipment. For chemical, civil, electrical, industrial, and textile engineering students.

337. Metallurgy. Cr. 3.

I

Prerequisite: Chem. 220. The manufacture of iron, steel and non-ferrous 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.

338-9. Thermodynamics. Cr. 3.

I, II

Prerequisite: Phys. 236, Math. 251, M. E. 221. Thermodynamic principles governing transformation of heat energy into power energy or work. Study of perfect and imperfect vapor and gas cycles. Transmission of heat under various conditions. Similar to M. E. 330-1, except that more emphasis is placed upon imperfect gases and less upon vapors. For petroleum engineering students.

341. Steam Power Plant Engineering. Cr. 4.

I

Prerequisite: Registration in M. E. 330. Equipment of 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.

I, 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 performances. No credit for 423 without 424.

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. II.
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.
436. Machine Design. Cr. 3. (0-9) I.
Prerequisite: M. E. 322, 337, E. Dr. 221. Complete code design of welded and riveted vessels. Complete design of one or more additional machines. Lectures on theory pertinent to the design problems.
437. Machine Design. Cr. 3. 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, balancing of machines, vibration isolation and absorption, equivalent systems.
- 438-9. Heating, Ventilating and Air Conditioning. Cr. 3. I, II.
Prerequisite: M. E. 331 or 334. 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. No credit for 438 without 439.
4310. Aerodynamics. Cr. 3. I.
Prerequisite: M. E. 331 or 334, Math. 321. Airfoil theory, airplane performance, longitudinal stability, wing air-load analysis.
4311. Aerodynamics. Cr. 3. II.
Prerequisite: M. E. 4310; registration in M. E. 424. Propeller theory, performance, and load analysis. Rotary wing theory, jet propulsion.

Military Science And Tactics (R.O.T.C.)

PROFESSOR ADAMS, LT. COLONEL, CORPS OF ENGINEERS. ASSISTANT PROFESSORS RIORDAN, LT. COLONEL, AIR FORCE; MAIXNER, LT. COLONEL, INFANTRY; SPURGIN, MAJOR, AIR FORCE; CURIK, MAJOR, AIR FORCE; YANTIS, CAPTAIN, INFANTRY; GOODMAN, MAJOR, SIGNAL CORPS; MALLARD, FIRST LIEUTENANT, AIR FORCE; LINDSAY, FIRST LIEUTENANT, CORPS OF ENGINEERS; ASSISTANT INSTRUCTORS BEHRENS, MASTER SERGEANT; TANNER, MASTER SERGEANT; BROOKS, MASTER SERGEANT; KILPATRICK, MASTER SERGEANT; MOUNSEY, MASTER SERGEANT; ROPER, FIRST SERGEANT; TAYLOR, FIRST SERGEANT; MORGAN, STAFF SERGEANT.

- 121-2. First Year Basic. Cr. 2. I, II.
Prerequisites: Physical and mental qualifications prescribed by the Departments of the Army and the Air Force. 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, cleaning and nomenclature of individual weapons. Marksmanship training and firing on small bore ranges. Personal hygiene, sanitation, and first aid. Maps and aerial photographs, military organization, military drills, and ceremonies.
- 211-2. Second Year Basic. Cr. 1. I, II.
Prerequisite: M. S. 121-2. Leadership, drill and exercise of command, reviews, inspections, and military courtesy. Physical development methods, military law and boards. Evolution of warfare, military administration, and advanced study of maps and aerial photographs.
- 331-2. First Year Advanced (Corps of Engineers). Cr. 3. I, II.
Prerequisite: M. S. 211 or one year of active military service with the armed forces. Courses common to all military branches include: leadership, psychology and personnel management; leadership, drill and exercise of command, geographical foundations of national power, military law and boards, and voice and command.
Tactics and technique of the Corps of Engineers are: bridge design and classification, camouflage, engineer combat principles, engineer reconnaissance, explosives and demolitions, military roads, military sketching, organization of engineer units, organization of the ground and field fortifications, the place of the engineer in the military team, and job management.
- 333-4. First Year Advanced (Signal Corps). Cr. 3. I, II.
Prerequisite: M. S. 211 or one year of active military service with the armed forces. Courses common to all military branches include: leadership, psychology and personnel management; leadership, drill and exercise of command, geographical foundations of

national power, military law and boards, and voice and command.

Tactics and technique of the Signal Corps consists of the following courses; organization and missions of the Signal Corps, organization of the infantry and armored division and their signal communications components, message center and signal center procedure, signal orders, communication security, field wire communication fundamentals, field radio communication fundamentals, Signal Corps photography, and the place of the Signal Corps in the military team.

335-8. First Year Advanced (Air Force). Cr. 3. I, II

Prerequisite: M. S. 211 or one year of active military service with the armed forces. Courses common to all military branches include: leadership, psychology and personnel management; leadership, drill and exercise of command, geographical foundations of national power, military law and boards, and voice and command.

Tactics and technique of the Air Force consists of the following courses: organization of the Air Force, Air Force training, inspection systems, statistical control systems, supply, navigation, meteorology, air intelligence and combat orders, air operations and guided missiles.

337-8. First Year Advanced (Infantry). Cr. 3. I, II

Prerequisite: M. S. 211 or one year of active military service with the armed forces. Courses common to all military branches include: leadership, psychology and personnel management; leadership, drill and exercise of command, geographical foundations of national power, military law and boards, and voice and command.

Tactics and technique of the Infantry consists of the following courses: gunnery, technique of fire and fire control, organization, troop movement, motors and transportation, communication, tactics, and the place of the Infantry in the military team.

431-2. Second Year Advanced (Corps of Engineers). Cr. 3. I, II

Prerequisite: M. S. 331-2. Courses common to all military branches include: command and staff, military teaching methods, psychological warfare, military problems of the United States, military mobilization and demobilization, combat intelligence, and leadership, drill and exercise of command. Courses peculiar to the Corps of Engineers include: airborne and amphibious operations, engineer combat principles, engineer reconnaissance, engineer estimates and orders, water supply, engineer signal communications, river crossing operations, engineer supply, and construction and utilities.

433-4. Second Year Advanced (Signal Corps). Cr. 3. I, II

Prerequisite: M. S. 333-4. Courses common to all military branches include: command and staff, military teaching methods, psychological warfare, military problems of the United States, military mobilization and demobilization, combat intelligence, and leadership, drill and exercise of command. Courses peculiar to the Signal Corps include: field radio material, field wire material, signal supply and repair, applied signal communications, Infantry division, and higher echelon signal communication equipment.

435-6. Second Year Advanced (Air Force). (Armament— Military Management). Cr. 3.

Prerequisite: 335-6. The second year advanced Air Force program includes specialization in armament or administration and military management. Courses common to all military branches include: command and staff, military teaching methods, psychological warfare, military problems of the United States, military mobilization and demobilization, combat intelligence, and leadership, drill and exercise of command. Courses peculiar to the Air Force armament courses include: aircraft weapons, ballistics and ammunition, aerial gunights and cameras, central station fire control systems, aerial bombs and fuses, bombing equipment, bombsights and automatic pilots, aircraft smoke tanks and chemical spray, aircraft rockets, and the armament officer in tactical operations. Courses peculiar to the administration and personnel management course include: Under administration, publications, correspondence, reports and rosters, pay and allowances, unit personnel administration, post administration, non-appropriated funds, orders and memorandums, appointments, and reductions and absences; under military management, principles, functions and art of management, cost accounting, and training and surveys.

437-8. Second Year Advanced (Infantry). Cr. 3. I, II

Prerequisite: M. S. 337-8. Courses common to all military branches include: command and staff, military teaching methods, psychological warfare, military problems of the United States, military mobilization and demobilization, combat intelligence, and leadership, drill and exercise of command. Courses peculiar to Infantry consist of the following: communications, troop movement, gunnery, technique of fire and fire control, supply and maintenance, and new developments.

Music

PROFESSORS BLITZ, WILEY. PART-TIME INSTRUCTORS SHORT, TROTTER. LECTURER HADDON.

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, Bachelor of Science in Education.

Primary and elementary teachers of public school 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 enroll for Music 337 after an examination.

The selection of music minors and music electives should be made after consulting the department head. Any branch of music may be elected upon recommendation of the head of the department in which the student is majoring. Music 335, 336 is the only advanced subject which can be taken without music prerequisites.

The department does not offer majors in voice and instruments, 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.

Courses are listed under the following headings: music, band, chorus, orchestra, and applied music with voice or the instrument specified.

All branches listed under applied, chorus, orchestra, and band are normally divisible. Music 121 and Music 123 may be taken by non-music majors as individual courses. Exceptions to the normal music offerings will be made on petition by the student to the Head of the Department with the approval of the Dean of Arts and Science.

The holder of the Degree of Bachelor of Science in Education with a major in band may obtain 12 hours in the following branches as a minor for a Degree of Master of Education: Band 521, 522, 523, 524, Music 335, 336, 337, 438, Band 421, 422, 425, 426, 431, 432, Applied Music 324, 326, 425, 426, 4215, 4216, if properly petitioned for in advance and if an additional special problem is done.

The holder of the Degree of Bachelor of Science in Education with a public school music major may obtain 12 hours in the following branches as a minor for a Degree of Master of Education: Chorus 4113, 4114, Applied Music 4215, 4216, Band 425, 426, 421, 422, if properly petitioned for in advance and if an additional special problem is done.

MUSIC

- 117-8 Class Voice. Cr. 1. I, II.
Posture; breath control; voice placement; physical development; vocalization. Taught in small groups. Chorus attendance required.
- 121-2. Solfeggio. Cr. 2. I, II.
Sight singing. Ear training and dictation. Training in ensemble. Coordination of solfeggio and instrument.
- 123-4. Harmony. Cr. 2. I, II.
Consonant harmony. Harmonization of melodies and figuration of basses. Survey of chords of the sevenths.
- 217-8. Voice. Cr. 1. I, II.
Continuation of physical development, vocalization, repertoire. Chorus attendance required.
- 221-2. Solfeggio. Cr. 2. I, 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, conducting. Choral training. Coordination of solfeggio and instrument.
- 223-4. Harmony. Cr. 2. I, II.
Prerequisite: Music 123-4. 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, II.

Prerequisite: 221-2. Elements of counterpoint. Score reading. Choir directing. Dictation and interpretation. Instrumental transpositions 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, II.

Prerequisite: Junior standing. The study of musical literature covering the various periods from the pre-classic 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, 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, 114. Freshman Chorus. Cr. 1.**

I, II, S.

213, 214. Sophomore Chorus. Cr. 1.

I, II, S.

313, 314. Junior Chorus. Cr. 1.

I, II, S.

413, 414. Senior Chorus. Cr. 1.

I, II, S.

4113, 4114. Additional Senior Work. Cr. 1.

I, II, S.

Open to students interested in choral diffusion, organization, discipline and community singing. These various levels, meeting at the same time, are differentiated by the placement of the singers in the chorus sections and the attendant responsibilities of the positions assigned. One hour period per week. Preparation supervised when necessary.

During the summer sessions the syllabus includes rudiments of music, public school music singing, and methods.

ORCHESTRA**115-6. Freshman Orchestra. Cr. 1.**

I, II.

215-6. Sophomore Orchestra. Cr. 1.

I, II.

315-6. Junior Orchestra. Cr. 1.

I, II.

415-6. Senior Orchestra. Cr. 1.

I, II.

4115-6. Additional Senior Work. Cr. 1.

I, II.

APPLIED MUSIC

Terms for private instruction are found on page 197.

The 2-hour courses (125, etc.), represent private instruction for 60 minutes per week with 10 hours per week preparation. Participation in applied music demonstration group or equivalent is required.

The 1-hour courses (115, etc.), represent private instruction for 60 minutes per week with five hours per week preparation. Participation in the applied music group or equivalent is required. Recommended to students who have not the time to cover the repertoire of the 2-hour courses.

The applied music demonstration group is a class demonstration wherein the music literature of various instruments, countries and periods is performed. This class is supervised by the head of the department, and through its medium, and without extra tuition, grades and accreditations are submitted for recording. Exemption from this class is granted only when the equivalent of the course is directed by a college music faculty member.

Admission to the applied music courses is based upon the applicant's public school record, music background, education, and skill. For

the Bachelor of Arts Degree admission will not be considered unless the student has approximated the intermediate grades according to the high school applied music outline.

The syllabus of the applied music follows a nationally standardized repertoire.

Keyboard—recommended to students as a secondary or minor instrument, or to students who have not obtained the required proficiency in piano. May be taken as a 1- or 2-hour semester credit course.

Voice or Instrument (1-hour courses)

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.

Voice or Instrument (2-hour courses)

125, 126. Freshman. Cr. 2.	I, II.
225, 226. Sophomore. Cr. 2.	I, II.
325, 326. Junior. Cr. 2.	I, II.
3215, 3216. Junior (Additional work) Cr. 2.	I, II.
425, 426. Senior. Cr. 2.	I, II.
4215, 4216. Senior (Additional work) Cr. 2.	I, II.

Pipe Organ

125, 126. Freshman. Cr. 2.	I, II.
225, 226. Sophomore. Cr. 2.	I, II.

Prerequisite: Two years of solfeggio. Two years of harmony. Two years of piano. Manual technique, pedal technique. Manual studies. Studies for manuals and pedals. Chorales. Repertoire.

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, or Bachelor of Arts with a band major.

Since a great majority of the students who play in the band will major in some other field, it is suggested that these students register for the 1-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 8 hours of music may be counted as elective credit on the Bachelor of Arts Degree.

Full Band

111-2. Freshman. Cr. 1.	I, II.
211-2. Sophomore. Cr. 1.	I, II.
311-2. Junior. Cr. 1.	I, II.
411-2. Senior. Cr. 1.	I, 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 responsibilities of the positions assigned. Five one-hour meetings per week which include lecture, rehearsal, and preparation periods.

Military Band

Part of ROTC training. For particulars, inquire of the officer in command.

Band Music Major

125-6. Freshman. Cr. 2.	I, II.
225-6. Sophomore. Cr. 2.	I, II.
325-6. Junior. Cr. 2.	I, II.

425-6. Senior. Cr. 2.

I, II

Required courses for a band major on the degree, Bachelor of Science 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 10 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.

Music 431, 432. Senior Music. (Minor Instruments). Cr. 3.

I, II

Listed on the band curriculum for Bachelor of Science 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 1-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, 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.

431. Administration of the School Band. Cr. 3.

S.

Prerequisite: Senior standing. It may be offered as graduate work.

432. A Survey of Teaching Materials for Band. Cr. 3.

S.

Prerequisite: Senior standing. It may be offered as graduate work.

521. Band Conducting for Graduate Students. Cr. 2.

S.

Study and performance of composers' 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, Tchaikowsky, 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 Semester Terms
J. P. Blitz	Cello or Violin	90.00
Mrs. Myrtle Dunn Short	Piano or Voice	54.00
Mrs. E. F. George	Piano	54.00
Miss Margaret Huff	Organ	54.00
	Piano	45.00
	Voice	45.00
Mrs. Carl Scoggin	Voice	45.00
D. O. Wiley	Violin	54.00
Mrs. Cecil Conway Meskimen	Piano	54.00
Mrs. Mamie I. Neal	Pipe Organ	54.00
	Piano	36.00
Miss Imogene Webster	Piano	50.00
	Organ	50.00
Elton Plowman	Voice	54.00
Mrs. Stewart Shafter	Piano	50.00
	Voice	50.00
Mr. L. L. Stoelzing	Violin	50.00
Mr. J. H. Penn	Voice	40.00
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.

Nutrition

(See Foods and Nutrition)

Petroleum Engineering**PROFESSOR DUCKER. INSTRUCTOR JOHNSON.**

The petroleum engineering curricula offered by this department are designed to equip the graduate with a knowledge of the fundamentals of mathematics, physics, chemistry, mechanical sciences, geology, economics, business, and many specialized courses specifically related to petroleum. With this background of undergraduate work and a sound knowledge and understanding of its application, he is equipped to enter the field of petroleum engineering, to attack the problems that will be met with in the petroleum industry, and to advance and develop in the profession of petroleum engineering.

Although the emphasis of this department is at all times placed on a sound foundation of the fundamentals of engineering, the technology of petroleum has made such advances in recent years that it is no longer possible to cover adequately all of its phases in a four-year engineering course. For this reason the work towards a Bachelor of Science Degree in Petroleum Engineering has been divided into four options, each containing special courses that direct the emphasis towards that particular phase of petroleum technology.

(1) Geology Option*

In addition to a basic knowledge of engineering fundamentals, a thorough training is provided in those branches of geology that pertain

*Open only to those students who elected it prior to March 1948.

to petroleum technology.

(2) Geophysics Option*

The emphasis in this option is placed on geology, physics, and electrical engineering, to supplement the basic engineering work also included.

(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 production 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 specialized courses pertaining to production, transportation, and marketing natural gas are required.

For the requirements for a Bachelor of Science Degree in Civil Engineering in a five-year combination with the Geology Option, see "Civil Engineering Department."

331. Petroleum Development Methods. Cr. 3. (3-0)

I.

Prerequisite: Math. 233, junior standing in petroleum engineering. Exploration methods; standard and rotary drilling methods; cementing and well completion methods; well surveying; drilling hazards, directional drilling; field trips.

333. Petroleum Production Methods. Cr. 3. (2-3)

II.

Prerequisite: Pet. E. 331 and junior standing in petroleum engineering. Flowing wells; gas-lift methods and equipment; gas wells; pumping methods and problems; water emulsion problems; gathering and storage systems; field trips; laboratory.

410-11. Seminar. Cr. 1. (1-0)

I, II.

Prerequisite: Senior standing in petroleum engineering. Discussion of current petroleum problems; reports; lectures by men from industry.

421. Oil Field Testing Methods. Cr. 2. (0-6)

I.

Prerequisite: Pet. E. 333 and registration in Pet. E. 432. Theory and practical application in the laboratory of tests used in oil field practice.

432. Advanced Petroleum Engineering. Cr. 3. (3-0)

I.

Prerequisite: Pet. E. 333. A continuation of Pet. E. 333; methods of secondary recovery; field storage; transportation; oil field management. Problems.

433. Special Problems in Petroleum Production. Cr. 3. (2-3)

I.

Prerequisite: Pet. E. 432, C. E. 332, and 333, and M. E. 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)

II.

Prerequisite: Pet. E. 333 and M. E. 334 and 335. Methods of production metering, transportation and testing of natural gas. Problems.

Philosophy And Sociology

ASSISTANT PROFESSOR LITTLE. INSTRUCTOR SMITH.

Major requirements: Students may major in either philosophy or sociology. Majors in either field will complete a total of 30 semester hours. With special permission, certain courses in the one field may apply on the major in the other. By special arrangement, also, certain of the following courses are available to majors in this department: Anthro. 331-332, Govt. 433 and 434, Psy. 433 and 434, Eco. 337 and 436, R. Soc. 431 and 432.

PHILOSOPHY

230. Introduction to Philosophy. Cr. 3.

I, II.

Prerequisite: Sophomore classification. Problems involved in the interpretation of the nature of knowledge, reality, and value.

238. Ethics. Cr. 3.

II.

Prerequisite: Sophomore classification. Problems of individual and social conduct.

332. History of Philosophy. Cr. 3.

I.

Prerequisite: Junior classification. Philosophical systems developed by the great philosophers of the world.

*Open only to those students who elected it prior to March 1948.

337. Logic. Cr. 3. II.
Prerequisite: Junior classification. Introduction to deductive and inductive methods.
431. Aesthetics. Cr. 3. I.
Prerequisite: Senior classification or consent of instructor. Interpretations of the nature of beauty and analysis of the aesthetic experience.
436. Philosophy of Religion. Cr. 3. I.
Prerequisite: Senior classification or consent of instructor. Survey of historical and contemporary religious movements.
438. Seminar in Philosophical Problems. Cr. 3. I.
Prerequisite: Senior classification and major or minor in philosophy. Readings on selected topics, reports, and conferences.

SOCIOLOGY

211. Problems in Community Health. Cr. 1. I.
Prerequisite: Sophomore classification. Health problems as they affect the community, the family, or the individual. Additional work in this field is offered in Soc. 212.
212. Problems in Community Health. Cr. 1. II.
Prerequisite: Sophomore classification. Health problems as they affect the community, the family, or the individual. Additional work in this field is offered in Soc. 211.
230. Introduction to Sociology. Cr. 3. I, II.
Prerequisite: Sophomore classification. The underlying principles of social science.
233. Current Social Problems. Cr. 3. I, II.
Prerequisite: Sophomore classification. Survey and analysis of current social problems.
331. Social Pathology. Cr. 3. I, II.
Prerequisite: Junior classification. Study of the major maladjustments in society.
332. Marriage. Cr. 3. II.
Prerequisite: Junior classification. History, present status, current problems, and future of the marriage institution.
336. Social Life and Culture of Mexico. Cr. 3. II.
Prerequisite: Junior classification and a course in sociology or consent of instructor. Comparison of social institutions and problems of Mexico with those of the United States.
433. Criminology. Cr. 3. I.
Prerequisite: Senior classification or consent of instructor. Study of the causes and remedies of delinquency and crime.
438. Seminar in Social Problems. Cr. 3. II.
Prerequisite: Senior classification and major or minor in sociology. Independent research in sociological problems.

Courses which may be used for graduate credit: Phil. 431, 436, 438, Soc. 433, 438, Psy. 433, 434, Eco. 337 and 436, Govt. 433, 434, R. Soc. 431, 432, 532, 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.

Physical And Health Education For Men

PROFESSOR JENNINGS. ASSOCIATE PROFESSOR ROBISON.
ASSISTANT PROFESSOR MORRIS. LECTURER PHILBRICK.

Students wishing to do major or minor work in the Department of Physical and Health Education will follow the general requirements for the degree, Bachelor of Science in Education.

Details concerning the special certificate required of physical education teachers and coaches are noted under the Department of Education and Psychology.

Activities for Men:

- A. Intercollegiate Athletics.
- B. Dual and Individual Sports: handball, fencing, tennis, golf, badminton, boxing, wrestling, and swimming.
- C. Gymnastic Activities: individual gymnastics, tumbling.
- D. Team Games: volleyball, softball, basketball, speedball, soccer,

baseball, touch football.

- E. Intramural Sports: The intramural program has been planned to give each student an opportunity to compete in some sport of his own choosing.

113. Physical Education. Cr. 1. (0-2)

114. Physical Education. Cr. 1. (0-2)

213. Physical Education. Cr. 1. (0-2)

214. Physical Education. Cr. 1. (0-2)

231. Theory and Practice of Individual Sports. Cr. 3. (3-3)

Meets three hours each week in lecture and three in laboratory. 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 in laboratory. Continuation of P. E. 231 but is designed thoroughly to acquaint students with team games commonly used in school programs.

*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.

3311. Methods of Teaching Physical Education in High School. Cr. 3.

Prerequisite: 6 semester hours of physical education and 6 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. Discussion of various systems and the 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 1948-49).

*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 1948-49).

*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 recreation for community groups. (Not offered in 1948-49).

Courses in this department which may be taken for graduate credit are P. E. 434, 435, 436, 437, 438, and 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.

Physical And Health Education For Women

PROFESSOR LANGFORD. ASSISTANT PROFESSOR RAINY.
INSTRUCTORS PEACOCK, HILL.

Physical education is required of all freshman and sophomore women students to meet the graduation requirement for all degrees. Courses

111-112 and any two of the 200 courses meet the requirement.

111. Fundamentals in Gymnastics and Rhythms. Cr. 1. (0-2)

Exercises for coordination and posture, free rhythmic steps, and movements.

*Open to both men and women.

112. Fundamentals in Dancing and Sports. Cr. 1. (0-2)
Folk, square and country dancing and basic skills in one of two major team sports.
210. Clogging. Cr. 1. (0-2)
Clog, character and tap dancing.
211. Riding. Cr. 1. (0-2)
Instruction and practice in horseback riding.
212. Tennis. Cr. 1. (0-2).
Technique and practice in tennis.
215. Basketball. Cr. 1. (0-2)
Technique and practice in basketball.
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 skills and practice in folk dancing.
218. Volleyball. Cr. 1. (0-2)
Technique and practice in volleyball.
219. Stunts and Tumbling. Cr. 1. (0-2)
Fundamental skills and practice in stunts and tumbling.
2110. Archery. Cr. 1. (0-2)
Fundamental skills and practice in archery.
2111. Golf. Cr. 1. (0-2)
Technique and practice in golf.
2112. Swimming. Cr. 1. (0-2)
Technique and practice of the various strokes in swimming.
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 practice in field hockey.
2115. Badminton. Cr. 1. (0-2)
Technique and practice in badminton.
2116. Social Dancing. Cr. 1. (0-2)
Fundamentals and practice of social dance.
2117. Recreational Games. Cr. 1. (0-2).
Games of low organization such as table tennis, darts, badminton.
2119. Softball. Cr. 1. (0-2)
Technique and practice in softball.

Major Program

Physical education majors and minors complete the requirements for the Bachelor of Science in Education with the following special requirements.

Thirty semester hours of physical education are required for a major, including P. E. 131, 132, 230, 233, 338, 339, 4311, 4312, 3313, 4310.

Minor Program

A minimum of 18 hours is required for a minor in physical education including P. E. 230, 233, 331, 131-132, 3310.

131. Orientation for Physical Education Students. Cr. 3. (3-0)
Brief introduction to the field of physical education, its philosophy, its aims and objectives, its potential values. The significance of physical education in the school program.

132. History and Principles of Physical Education. Cr. 3. (3-0)
An historical survey of physical education stressing the relation between the types of activity developed and the social and political ideals of different nations and periods. A study of the principles upon which physical education is based. Analysis of successful teaching in physical education.

- *230. Principles of Health Education. Cr. 3. (3-0)
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. (3-0)
A method and content course dealing with the theory and practice of physical education for the classroom teacher in the elementary school.

- *331. Recreational Methods. Cr. 3. (3-0)
Group and unorganized games; highly organized games and sports. The games taught are suitable for schools, playground, and social recreation.

*Open to both men and women.

338-9. Technique of Sports. Cr. 3. (3-0)

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. (3-0)**

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. (3-0)**

A study of safety and first aid. Also prevention and care of injuries common to athletic and physical education activities.

3313. Teaching of Rhythmical Activities. Cr. 3. (3-0)

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.

***435. Modern Trends in Physical Education. Cr. 3. (3-0)**

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. (3-0)**

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.

***437. Tests and Measurements in Physical Education. Cr. 3. (3-0)**

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.

***439. Community Recreation. Cr. 3. (3-0)**

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 recreation for community groups.

***4310. Physiology of Exercise. Cr. 3. (3-0)**

Prerequisite: Zool. 235-6. The benefits and results of exercise.

4311-12. Methods in Secondary Physical Education. Cr. 3. (3-0)

Methods of teaching physical education in secondary schools; health examination and preparation of a complete program of physical education for secondary schools.

Women's Physical Education Majors and Minor 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.

Requirement for Teaching Health and Physical Education in Public Schools: P.E. 230, P.E. 233 meet the standards of the State Department of Education for certificates in health and physical education for the classroom teacher.

Physics

**PROFESSOR SCHMIDT. ASSISTANT PROFESSORS DAY, CROSS.
LECTURERS ELLIOTT, BRADFORD, STEFFY.**

Students majoring in physics for the Bachelor of Arts Degree should take Phys. 131-2 or 141-2, 235-6, 215-6 and select at least 18 hours of courses in physics of junior or senior rank. Majors for the Bachelor of Science Degree see page 88.

131-2. Elements of College Physics. Cr. 3. (2-3)**I, II**

A general survey of the entire field of physics; mechanics, heat, sound, electricity, magnetism, and light. Primarily for students of the Divisions of Agriculture, Arts and Sciences, Home Economics, and Business Administration.

137-8. Physical Basis of Speech and Music. Cr. 3.**I, II**

For students majoring in speech and music.

*Open to both men and women.

- 141-2. General Physics. Cr. 4. (3-3) I, II.
Prerequisite: Two units of high school algebra and one unit of plane geometry or Math 130. A general course in physics designed to meet pre-medical requirements, but may be taken by others.
- 215-6. Physical Measurements. Cr. 1. (0-3) I, II.
Must be taken parallel with Phys. 235-6.
- 235-6. Engineering Physics. Cr. 3. I, II.
Prerequisite: One year of high school or college physics; parallel enrollment in calculus. See Phys. 215-6.
- 312-3. Modern Physics Laboratory. Cr. 1. (0-3)
Prerequisite: Parallel enrollment in Phys. 337-8. Approval of instructor. Credit will be given for either or both semesters.
331. Light. Cr. 3. (2-3) I.
Prerequisite: One year of physics and junior standing.
332. Heat. Cr. 3. II.
Prerequisite: One year of physics and calculus.
- 333-4. Electricity and Magnetism. Cr. 3. I, II.
Prerequisite: One year of physics and calculus.
337. Introduction to Modern Physics. Cr. 3. I.
Prerequisite: One year of physics and calculus.
338. Introduction to Modern Physics. Cr. 3. II.
Prerequisite: One year of physics and calculus.
- 411-2. Physics Seminar. Cr. 1. I, II.
Prerequisite: 12 hours of physics and calculus. Offered in alternate years.
- 413-4. Physics Seminar. Cr. I. I, II.
Prerequisite: 12 hours of physics and calculus. Offered in alternate years.
- 415-6. Special Projects. Cr. 1. (0-3) I, II.
Prerequisite: 16 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, II.
Prerequisite: 12 hours of physics and calculus.
435. Mechanics. Cr. 3. II.
Prerequisite: 12 hours of physics and calculus.
- 531-2. Theoretical Physics. Cr. 3. I, II.
Prerequisite: Graduate standing.
- 539-10. Geometrical and Physical Optics. Cr. 3. I, II.
Prerequisite: Calculus and Physics 331.
601. Thesis.

Plant Industry

PROFESSORS YOUNG, LEIDIGH, YOCUM. ASSISTANT
PROFESSORS MADER, AYERS, ELLE. INSTRUCT-
OR BURNETT. LECTURER WILLIAMS.

The Department of Plant Industry provides curricula leading to the degree of Bachelor of Science in Agriculture with major work in the fields of agronomy, agronomy and farm machinery, and horticulture. Crops, soils, and range management options are offered in agronomy and general horticulture; pomology and floriculture and landscape design options are offered in horticulture. The agronomy curriculum provides instruction in the basic principles of production of forage, pasture, grain and fiber crops, management practices for range lands, pasture and soils under both subhumid and irrigated conditions. The agronomy and farm machinery curriculum provides instruction in basic agronomic practices and selection, care, use, repair and management of farm, machinery, buildings, and electrical devices, as well as the engineering of moisture conservation structures and irrigation systems. The horticulture curriculum provides instruction in the basic principles underlying plant propagation, orcharding, vegetable gardening, floriculture and landscape gardening. A plant industry farm is maintained with field plots, tree nursery and orchard in which field and vegetable crops and fruits are

grown for practical training of students. Field trips are included in many courses to assist in broadening the student's training.

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.

PLANT INDUSTRY

321. Apiculture. Cr. 2. (1-3).

II.

Prerequisite: Junior standing. Introduction to practical beekeeping. Value of bees in production of horticultural and agronomic crops.

331. Plant Insects and Diseases and Their Control. Cr. 3. (3-0).

I, 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.

333. Functions of Horticultural and Agronomic Crop Plants.

Cr. 3. (3-0)

II.

Prerequisite: 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 fungus invasion of horticultural and agronomic crop plants.

341. Principles of Genetics. Cr. 4. (3-3)

I, II.

Prerequisite: Junior standing in agriculture and Ag. Eco 331. 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.

411. Plant Industry Seminar. Cr. 1. (1-0)

II.

Prerequisite: Senior standing in Department of Plant Industry. Assigned readings, current advances and thought. Informal discussions, oral reports, and papers.

421. Plant Industry Problems. Cr. 2. (2-0)

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.

431. Plant Breeding and Improvement. Cr. 3. (3-0)

II.

Prerequisite: P. I. 341. Practical application of genetics in the breeding and improvement of plants.

432. Plant Industry Problems. Cr. 3. (3-0)

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.

A modified course composed of applied production of fiber and grain crops applicable to Texas. Problems in seed and feed production. Special emphasis on needs of vocational agriculture teachers, county agents, etc.

512-3-4. Graduate Seminar. Cr. 1, 2, or 3. (1-0)

I, II.

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. (3-0)

I, II.

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. (3-0)

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. Crops, their classification, identification, distribution, production, grading, and use. Tillage and elementary soils. Diseases and pests.

221. Soils. Cr. 2. (2-0)

I, II.

Prerequisite: Chem. 131, sophomore standing in agriculture. Origin, formation, classification of soils, physical, chemical, and biological requirements, maintenance of soil fertility.

311. Soils Laboratory. Cr. 1. (0-3) I, II.
Prerequisite or parallel: Agron. 221. Field study of soil-forming materials, soil texture, classification, identification, field surveying, and mapping.
323. Principles of Crop Judging and Grain Grading. Cr. 2. (0-6) II.
Prerequisite: A junior standing in agriculture, and Agron. 131. Practice in identification, grading, judging, and testing quality and value of seeds and crop products.
331. Forage and Pasture Crops. Cr. 3. (2-3) I, II.
Prerequisite: Agron. 131, junior standing in agriculture. The production, harvesting, storage and uses of forage and pasture crops.
332. Grain Crops. Cr. 3. (2-3) I.
Prerequisite: Agron. 131, junior standing in agriculture. 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, junior standing in agriculture. The economic value of range grasses, non-grassaceous forage plants and poisonous plants. Identification, habitat, palatability, and regions of growth.
421. Cotton and Other Fiber Crops. Cr. 2. (2-0) II.
Prerequisite: Junior standing in agronomy or approval of instructor. Culture improvement and classification of cotton. Diseases and insect pests of cotton.
422. Soil Management. Cr. 2. (2-0) I.
Prerequisite: Agron. 221, 331, senior standing in agriculture. Soil moisture conservation, supplemental water supply, permanent farming under the conditions of light or wide seasonal variations of rainfall.
423. Soil Management. Cr. 2. (2-0) I.
Prerequisite: Agron. 331, 221, senior standing in agriculture. The nature and sources of plant nutrients, their liberation and conservation. Use of supplements and fertilizers. Irrigation and drainage, inspection trips.
424. Advanced Crop Judging and Grain Grading. Cr. 2. (0-6) I.
Prerequisite: Agron. 323, junior standing. Special work in identification, judging, testing, grading, and market standards for grain crops, hay crops, and general farm crops. Inspection trips and contests.
434. Soil Conservation and Land Use Planning. Cr. 3. (2-3) I, II.
Prerequisite: Agron. 221, 331. Junior standing. A study of types of erosion causes and controls. Inspection trips in soil conservation. Land use planning and conservation management.
435. Soil Morphology and Genesis. Cr. 3. (2-3) I, II.
Prerequisite: Agron. 221, senior classification in agriculture. The origin and classification of soils of the world and particularly of the United States.
436. Soil Chemistry. Cr. 3. (3-0) I, II.
Prerequisite: Agron. 221, 12 hours chemistry, senior standing in agriculture. 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, 333, A. H. 331. Management problems and use of plants and soils under range conditions.
439. Soil Microbiology. Cr. 3. (3-0) I, II.
Prerequisite: Agron. 221, Bact. 231, 12 hours of chemistry, senior standing in agriculture. Micro-organisms in the soil with emphasis upon the functions of the soil bacteria and their influence upon the decomposition of organic matter and soil fertility in general.

HORTICULTURE

131. Principles of Horticulture and Plant Propagation. Cr. 3. (2-3) I, 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. (2-0) I, II.
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. (3-0) I.
Prerequisite: Junior standing. Identification characteristics, and use of shrubs, deciduous and evergreen trees of economic and ornamental importance.

332. Annuals and Perennials. Cr. 3. (3-0) II.
Prerequisite: Junior standing. Identification, characteristics, culture and uses of annuals, perennials, bulbous crops, and outdoor roses.
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.
- 334-5 Principles of Floriculture. Cr. 3. (2-3) I, II.
Prerequisite: Hort. 131. Junior standing. Greenhouse construction, heating, and management. Culture of special greenhouse crops. Retail management, flower arrangement and nursery management.
- 336-7. Landscape Design. Cr. 3. (1-6) I, II.
Prerequisite: E. Dr. 131, Arch. 121-2, junior standing. Principles of landscape design, the city home, country estates, gardens, small city parks, and playgrounds. Field trips are included for practical applications.
421. Citriculture. Cr. 2. (2-0) I.
Prerequisite: Junior standing. Commercial production of citrus fruits, adaptation, soil requirements, temperature, orchard heating, and irrigation.
- 431-2. Pomology. Cr. 3. (3-0) I, II.
Prerequisite: Hort. 333, or registration in Hort. 433. The principles underlying fruit production. Temperature, moisture, irrigation, nutrition, fruit setting of pomological fruits.
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.

AGRICULTURAL ENGINEERING

- 321-2. Farm Shop. Cr. 2. (1-3) I, II.
Prerequisite: Junior standing. Care, fitting, and use of tools. Woodwork as affects farm problems. Minor 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, II.
Prerequisite: Junior standing. Principles of operation of the gasoline engine as power, operation, care and repair, modern farm tractors, and electric motors.
411. Soil Management Laboratory. Cr. 1. (0-3) I.
Prerequisite: Senior standing in agriculture. Terrace location, design, and construction for soil erosion control and moisture conservation. Inspection trips.
412. Soil Management Laboratory. Cr. 1. (0-3) II.
Prerequisite: Senior standing in agriculture. Design and lay-out of ditches and systems for irrigation or drainage. Measurements of water. Inspection trips.
431. Farm Buildings. Cr. 3. (3-0) II.
Prerequisite: Senior standing in agriculture. 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: Senior standing in agriculture. Study and construction of plane table and topographic maps and the interpretation of aerial maps with special application.
433. Advanced Farm Shop. Cr. 3. (1-6) I, II.
Prerequisite: Ag. Engr. 321, 322, senior standing in agriculture. 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.
Prerequisite: Senior standing in agriculture. Ag. Engr. 321, 322. 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.

Portuguese

(See Foreign Language)

Poultry Husbandry

(See Animal Husbandry)

Psychology

(See Education and Psychology)

Rural Sociology

(See Agricultural Economics)

Secretarial Administration

(See Marketing and Secretarial Administration)

Sociology

(See Philosophy and Sociology)

Spanish

(See Foreign Language)

Speech

**PROFESSOR PENDLETON. ASSISTANT PROFESSOR MCGUIRE.
INSTRUCTOR PHELPS. LECTURER UPSHAW.**

Majors in the Department of Speech are required to take Speech 131, 231-2, 233, 235-6, 432-3, 435, 439, and at least 6 additional hours to be selected from courses numbered 300 or above. They will fulfill graduation requirements for the Bachelor of Arts Degree as listed on page 79. To fulfill graduation requirements in science, majors in the Department of Speech will take Phys. 137-8 and Zool. 235-6. Eighteen semester hours of English are required for majors in the department.

Speech may be offered as a minor in graduate work. Courses in this department which may be taken for graduate credit are Speech 423, 432-3, 434, 435, and 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.

A Speech Clinic, open to students and others with deficiencies in speech, is conducted by members of the staff 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 history and nature of drama and developments in the art of acting. Study of stage terms and technique. Analysis of characterization with practice in line reading and pantomime. Stage make-up. Materials 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. Experience with various aspects of production, including scenery, properties, costuming, and lighting. Production of one-act plays as laboratory projects.

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. The use of phonetics and phonetic symbols for ear training and transcription of speech. Practical exercises in developing adequate vocal controls for effective speaking.

235. Argumentation and Debate. Cr. 3. I.

Prerequisite: Govt. 131-2 or 230-1, or parallel enrollment in government. Class discussion and debate on questions of present-day interest. Emphasis on analysis and the use of evidence. Open to freshmen with permission of the instructor.

236. Argumentation and Debate. Cr. 3. II
Prerequisite: Speech 235. Continuation of discussions and debates. A study of the types of argument, fallacies, and the use of refutation and rebuttal. Briefing debate propositions.
335. Radio Speech. Cr. 3. (2-3) I
Prerequisite: 6 semester hours of speech, or by permission of the instructor. 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 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 Division of Agriculture, Business Administration, Engineering, and Home Economics.
423. Advanced Stage Directing. Cr. 2. (1-3) I
Prerequisite: Speech 231-2; junior classification. Discussion of the problems of the director with practical work in the staging of plays for public presentation. Preparation of the prompt book.
432. Speech Correction. Cr. 3. I
Prerequisite: Junior classification. A general survey of the speech correction field and classification of common speech defects. Study of the nature and development of speech, including structure of the speech mechanism and the science of phonetics. Emphasis on methods and procedures in handling defects of articulation. Part-time observation in the Speech Clinic.
433. Speech Correction. Cr. 3. II
Prerequisite: Speech 432. A background study of the causes and therapies of common speech defects, with emphasis on voice disorders and stuttering. Observation of hearing tests. Supervised work with articulation cases in the Speech Clinic.
434. Speech Seminar. Cr. 3. I, II
Prerequisite: 18 semester hours in speech. Sources and methods of finding material. Evaluation, assimilation, and organization of material.
435. Interpretative Reading. Cr. 3. I
Prerequisite: Junior classification and 18 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
Formerly 421. Prerequisite: 20 semester hours of speech; 9 semester hours of education. Methods of teaching speech. Review of all phases of speech. A survey of the texts in speech. Preparation of syllabi.

Textiles

(See Clothing and Textiles)

Textile Engineering

PROFESSOR PARSONS. ASSISTANT PROFESSOR SHAFTER.
TEXTILE LECTURER, BUNTON.

Training in this department is intended to provide the proper background for those students planning to enter the textile and allied fields. Although the work is aimed primarily at training for textile design, production, and finishing, it also provides a sound background for the fields of testing, research, dry cleaning, laundering, sales, and general textile administration.

Although the work offered in the Department of Textile Engineering is practically the same for all students, some specialization may be achieved because of the choice of service courses incorporated in the curriculum and offered in other departments. To this end the curriculum is divided into three options: Textile Engineering Option, Chemistry and Dyeing Option and Weaving and Design Option.

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 machines are 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 practice work in the manufacture of many standard fabrics. Wide latitude is given the student in producing fabrics to illustrate different color combinations and weave effects of his own design. In the dyeing laboratory instruction, which precedes practical dyeing on the machines, students study the action of the alkalis 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.

It is the policy of the Textile Engineering Department to encourage and sponsor cooperative research work in the field of textiles. At the present time both state supported and industrial research is being carried on. This cooperation provides the student interested in research, special opportunities in that field.

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 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, II.
Prerequisite: T.E. 234. 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, II.
Prerequisite: Registration in Chem. 343 or Chem. 341. The chemistry and practicing of bleaching and dyeing 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, 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, II.
Prerequisite: T.E. 335-6. Analyzation of fabric construction. Advanced work in design of fancy woven fabrics. A continuation of the mechanics of operation of the various looms.
423. Advanced Dyeing and Color Matching. Cr. 2. (0-6) II.
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, 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 operation 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.

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. II.

***438. Mill Organization. Cr. 3. (2-3)**

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 quantity of textile product. Lectures are given on duties of operating executives and technical staffs. I.

411-2. Textile Engineering Seminar. Cr. 1.

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. Offered only to students of senior standing, with permission of head of the department. I, II.

*Formerly T.E. 424.

Veterinary Medicine

(See Animal Husbandry)

Zoology

(See Biology)

BIBLICAL LITERATURE

MR. CECIL RAYMOND MATTHEWS, THE METHODIST CHURCH.

MR. DEARL DALTON RICHARDSON, DISCIPLES OF CHRIST.

MR. CARL SPAIN, CHURCHES OF CHRIST.

MR. VESTER WOLBER, 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.

221. Book of John. Cr. 2.

A study of the background, authorship, and occasion for writing the book of John with emphasis on interpretation and major teaching.

222. Book of Revelation. Cr. 2.

A conservative study of the background and interpretation of the book of Revelation.

231. History of Christian Church. Cr. 3.

A study of the history and growth of the Christian Church from its earliest beginning to the present time.

232. Problems of Christian Leadership. Cr. 3.

A study of the problems of Christian leadership with emphasis on the needs of those who plan religious vocations, and guidance in the interpretation of the Bible as it challenges Christlike living in all vocations.

234. Studies in the New Testament. Cr. 3.

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.

311. The Bible, Its Origin and Growth. Cr. 1.

Prerequisite: Junior classification. A study of the origin and growth of the Bible and its significant message for our generation. I.

313. The Book of James. Cr. 1.

Prerequisite: Junior classification or Bible 132. A study of the background, authorship, and occasion for writing the book of James with emphasis on its message of practical Christian living. I.

338. The Spread of Christianity. Cr. 3.

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. I.

431. The Prophets, Cr. 3.**I.**

Prerequisite: Junior classification. A careful study of the Hebrew prophets, their place in history, and their message.

432. The Life and Teachings of Jesus, Cr. 3.

Prerequisite: Junior classification. A study of the life, teaching, and significance of Jesus as revealed in the gospels.

434. Comparative Religion, Cr. 3.**II.**

Prerequisite: Junior classification or Bible 132. This course includes a study of the origin and fruits of the chief world religions (Confucianism, Buddhism, Taoism, Hinduism, Mohammedanism, Zoroastrianism).

ENROLLMENT

Enrollment for the Long Session, 1947-48

	Freshmen	Sophomores	Juniors	Seniors	Graduates—Totals
Agriculture	326	254	157	116	21
Arts and Sciences	993	517	371	292	119
Business Administration	77	377	246	170	14
Engineering	653	718	495	277	5
Home Economics	221	105	73	84	7
Totals	2267	1971	1342	1023	166
Total Men Students	4991		Total Women Students	1698	

Enrollment for the Summer Session, 1947

	Freshmen	Sophomores	Juniors	Seniors	Graduates—Totals
Agriculture	59	82	84	77	22
Arts and Sciences	203	247	289	253	202
Business Administration	59	152	122	113	12
Engineering	171	304	223	179	1
Home Economics	60	38	48	52	15
Totals	552	823	766	674	252
Total Men Students	2187		Total Women Students	880	

EXTENSION

Individual enrollments in extension classes	425
Individual enrollments in correspondence courses	2490
Total enrollment for the period	2915

Attendance 1925-1948

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	3067	2625	11787
1947-48	6689			

DEGREES CONFERRED 1927-1947

Division of Agriculture

	Conferred in 1947			Totals 1927-47
	Men	Women	Both	
Bachelor of Science in Agriculture	69	—	69	690
Master of Science	—	—	—	34
Total for Division of Agriculture	69	—	69	724

Division of Arts and Sciences

Bachelor of Arts	23	38	61	2432
Bachelor of Science	12	9	21	160
Bachelor of Science in Education	16	20	36	782
Master of Arts	2	—	2	441
Master of Education	5	1	6	69
Master of Science	3	2	5	34
Master of Science in Education	—	—	—	1
Total for Division of Arts and Sciences	61	70	131	3919

Division of Business Administration

Bachelor of Business Administration	50	30	80	814
Bachelor of Science	4	1	5	6
Master of Business Administration	—	—	—	10
Total for Division of Business Administration	54	31	85	830

Division of Engineering

Bachelor of Architecture	1	—	1	19
Bachelor of Arts	1	6	7	64
Bachelor of Commercial Art	—	—	—	4
Bachelor of Science in Architectural Engineering	—	—	—	32
Bachelor of Science in Chemical Engineering	10	—	10	119
Bachelor of Science in Civil Engineering	18	—	18	147
Bachelor of Science in Electrical Engineering	13	—	13	181
Bachelor of Science in Geological Engineering	—	—	—	23
Bachelor of Science in Industrial Education	—	—	—	1
Bachelor of Science in Industrial Engineering	2	—	2	21
Bachelor of Science in Mechanical Engineering	20	—	20	171
Bachelor of Science in Petroleum Engineering	7	—	7	87
Bachelor of Science in Textile Engineering	6	—	6	62
Bachelor of Science in Textiles	—	—	—	19
Master of Science	—	—	—	11
Total for Division of Engineering	78	6	84	961

Division of Home Economics

Bachelor of Science in Home Economics	—	36	36	785
Master of Science	—	—	—	11
Total for Division of Home Economics	—	—	36	796

Honorary Degrees

Doctor of Laws	—	—	—	6
Doctor of Science	—	—	—	1
Total Honorary Degrees	—	—	—	7

SUMMARY OF DEGREES CONFERRED 1927-47

Total Bachelors Degrees	6619	Total Men Receiving Degrees	3709
Total Masters Degrees	611	Women Receiving Degrees	3528
Total Doctors Degrees	7		

APPENDIX

TEXAS TECHNOLOGICAL COLLEGE—ESTABLISHING AND PROVIDING FOR THE LOCATION THEREOF.

S. B. No. 103

Chapter 20

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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 thereof, 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 under 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 desirable location of an institution of this kind. 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 outweigh 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 approval 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 purposes 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 for 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) dollars 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.

REGULATIONS OF STATE DEPARTMENT OF EDUCATION GOVERNING TEXAS STATE TEACHERS' CERTIFICATES

Four-Year Elementary or Two-Year High School Certificate. On completion of five college courses (30 semester hours), including 6 semester hours in English, 6 semester hours in education, and the required courses in government, an elementary certificate valid for four years, or high school certificate valid for two years, may be issued.

Six-Year Elementary or Four-Year High School Certificate. On completion of 10 college courses (60 semester hours), including 12 hours in education, and the required courses in English and government, a four-year high school certificate, or six-year elementary certificate, may be issued. Any 12 hours in education will be accepted for the elementary certificates, valid for six years, but an applicant must have credit for 6 semester hours that bear wholly on high school education before the high school certificate may be issued. It is provided that the holder of the six-year elementary certificate shall, upon completion of five years of successful elementary teaching, be granted a permanent elementary certificate. It is provided further that the satisfactory completion of a year's college work (30 semester hours) may be substituted for a year's successful teaching, if attendance at the college takes place after the issuance of the certificate.

Six-Year High School Certificate. A six-year high school certificate may be issued on completion of three years of college work, including 18 semester hours of education. The courses in education must include at least 2 semester hours in observation and practice teaching and 6 semester hours in high school education.

Permanent High School Certificate. A permanent high school certificate may be issued on a bachelor's degree, including 24 semester hours in education. A part of the courses in education must include at least 2 semester hours in observation and practice teaching, 2 semester hours in high school methods and 6 semester hours in high school education.

A permanent high school certificate may be issued also on a bachelor's degree, which includes 12 hours in education (6 hours of high school), with the usual required courses in English and government, and three years' teaching experience subsequent to a degree.

Special Certificates. Special certificates authorizing the holders to teach the special subjects of agriculture, home economics, commercial subjects, public school drawing, speech, manual training, physical training, public school music, instrumental music, industrial training, or foreign languages may be granted by meeting the requirements set forth by the State Department of Education for the several certificates. Thus, also students who are registered in the Divisions of Agriculture, Home Economics, Engineering, or Commerce may take sufficient courses in education and psychology to meet the requirements for a state teacher's certificate and the usual special certificates in the designated fields, and thus may take their degrees in the division in which they are registered and qualify themselves to teach agriculture, home economics, shop work, industrial training, commercial subjects, or combinations of these and other high school subjects.

The three-year special certificate may be issued on completion of two years' college work, which must include 6 semester hours in English, 6 semester hours in education, 6 semester hours in required courses in government, and 6 semester hours in the special subject in which the certificate is issued, and in addition thereto, one semester's work in methods of teaching the special subject.

The four-year special certificate may be issued on the completion of three years' college work, which must include 6 semester hours in English, 6 semester hours in education, 6 semester hours in required courses in government, and 18 semester hours in the special subject in which the certificate is granted, and in addition thereto, one semester's work in the methods of teaching the special subject.

The permanent special certificate may be issued on the completion of the requirements for a bachelor's degree, in which must be included the required courses of 6 semester hours in English, 6 semester hours in education, and 24 semester hours in the special subject, and in addition thereto, one semester's work in special methods of teaching the subject in which the certificate is issued.

Holders of special certificates in certain fields may secure a permanent special certificate in that field on the completion of three years of teaching this special subject during the validity of their certificate.

Administrator's Certificate of Approval. A statement of approval is issued those administrators who present the completion of at least 12 semester hours credit in the field of advanced administration and supervision, and 6 semester hours of credit in the field of advanced methods. This document is not accepted in lieu of any legal certificate that may be required. It indicates that the holder has met the recent requirement concerning the training of superintendents and principals of accredited schools systems in Texas. These courses are generally taken by people who have already been graduated. The number of education courses required for the degree of Bachelor of Science in Education usually prevents a student from taking additional courses in education for the undergraduate degree.

State Department of Education Rulings for Teachers of Physical and Health Education. Full-time teachers of physical education must have, in addition to the usual requirements for teachers' certificates, 24 semester hours of college credit in physical and

health education, distributed as follows: 6 hours in methods and materials of health education, 6 hours in methods and materials of physical education; 6 hours in coaching team sports (methods), and 6 hours electives—principles of physical education, administration of health and physical education.

For the present the State Department of Education is asking that certain prescribed courses in physical and health education be required of all classroom teachers responsible for playground work.

One Year Extension of Certificates of Any Grade. Any certificates of any grade may be extended for a period of one year by completion of 6 semester hours in summer school, during the year in which the certificate expires. Work done in long sessions and by correspondence or extension work may not be used in lieu of summer school attendance for extension of certificate.

Government Requirement. A teacher's certificate issued by the State Department of Education based on college work requires courses in government covering the federal and Texas constitutions. Govt. 230 will satisfy the minimum requirements for this purpose. However, for degree purposes, 6 hours of government are required.

Courses for Primary and Elementary Teachers. Students who are preparing to teach in the primary or elementary grades of the public schools should elect Biol. 131-2 as the basic requirement in elementary science. They are also expected to take courses in physical education and in music and art in connection with their preparation for acceptable teaching in these fields.

Scholarship, as shown by the grades of the students, will be given great weight in recommending students for certificates or teaching positions.

Placement Service. A placement service is operated for the benefit of teachers and prospective teachers, who desire to secure teaching positions. Due to the shortage of teachers at the present time, all candidates for teaching positions and all persons qualified to teach should register with the service.

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 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 processors of those materials.

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