# COLLEGE OF MINES AND METALLURGY

(A Branch of The University of Texas)

## EL PASO, TEXAS

Bulletin No. 3207, August 15, 1932

# CATALOGUE

*for*

*1931 - 1932*

**With Announcements for**

**1932 - 1933**

**and**

**1933 - 1934**

PUBLISHED BY
THE UNIVERSITY OF TEXAS
AUSTIN

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The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free-government.

Sam Houston

Cultivated mind is the guardian genius of Democracy, and while guided and controlled by virtue, the noblest attribute of man. It is the dictator that freemen acknowledge, and the only security which freemen desire.

Mirabeau B. Lamar

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# BOARD OF REGENTS

## OFFICERS

R. L. BATTS, *Chairman*
EDWARD RANDALL, *Vice-Chairman*
HARRY YANDELL BENEDICT, President of The University of Texas; *Adviser to the Board*
LEO C. HAYNES, *Secretary*

## MEMBERS

### Terms Expire January, 1933

R. L. BATTS.....Austin
EDWARD CRANE.....Dallas
ROBERT L. HOLLIDAY.....El Paso

### Terms Expire January, 1935

W. M. ODELL.....Fort Worth
EDWARD RANDALL.....Galveston
BEAUFORD JESTER.....Corsicana

### Terms Expire January, 1937

JOHN T. SCOTT.....Houston
LESLIE C. WAGGENER.....Dallas
M. FRANK YOUNT.....Beaumont

## STANDING COMMITTEES

AUDITING: Odell, Scott, Waggener.
BUILDINGS AND GROUNDS: Yount, Randall, Jester.
COLLEGE OF MINES AND METALLURGY: Holliday, Crane, Yount.
COMPLAINTS AND GRIEVANCES: Jester, Odell, Waggener.
EXECUTIVE: Batts, Randall, Yount.
FINANCE: Waggener, Odell, Scott.
LAND: Holliday, Crane, Yount.
LAND LEASING BOARD: Crane, Holliday.
LEGISLATIVE: Crane, Holliday, Jester.
MEDICAL BRANCH: Randall, Odell, Jester.
PUBLIC RELATIONS: Scott, Odell, Yount.

# CALENDAR

## of

# THE COLLEGE OF MINES AND METALLURGY

(A Branch of the University of Texas)

### 1932

AUGUST 15, MONDAY. Summer work in surveying begins.

SEPTEMBER 7, WEDNESDAY, 10 A. M. Faculty Registration Conference.

SEPTEMBER 7, WEDNESDAY, 2 P. M. Freshman Convocation and Registration Conference.

SEPTEMBER 8–10, THURSDAY–SATURDAY. Registration.

SEPTEMBER 12, MONDAY. First semester classes begin.

SEPTEMBER 19–21, MONDAY–WEDNESDAY. Examinations for admission, postponed examinations, examinations for advanced standing, and examinations to remove course conditions. Foreign language examinations. Examinations in summer work, summer reading, etc. Petitions to take these examinations must be filed with the Registrar not later than September 14.

SEPTEMBER 24, SATURDAY. Last day of registration.

SEPTEMBER 26, MONDAY. Last day of Juniors and Seniors to file completed petitions to become Candidates for Degrees.

NOVEMBER 11, FRIDAY. Armistice Day, a holiday.

NOVEMBER 24, THURSDAY. Thanksgiving Day, a holiday.

DECEMBER 23, FRIDAY. Christmas recess begins.

### 1933

JANUARY 2, MONDAY. Classes resumed.

JANUARY 9–14, MONDAY–SATURDAY. Dead Week. Suspension of student activities and formal reports. Week devoted to review of work of first semester.

JANUARY 16–25, MONDAY–WEDNESDAY. Final examinations for the first semester.

JANUARY 26–28, THURSDAY–SATURDAY. Registration for the second semester.

JANUARY 30, MONDAY. Second Semester classes begin.

FEBRUARY 11, SATURDAY. Last day a student may register in second semester.

FEBRUARY 22, WEDNESDAY. Washington's Birthday, a holiday.

MARCH 2, THURSDAY. Texas Independence Day, a holiday. The University of Texas Roundup.

APRIL 21, FRIDAY. San Jacinto Day, a holiday. College of Mines Blast.

MAY 6, SATURDAY, 2 P. M. Major examinations.

MAY 13, SATURDAY, 2 P. M. Foreign language examinations. Petitions to take these examinations must be filed with the Registrar not later than May 9.

MAY 23–31, TUESDAY–WEDNESDAY. Final examinations for the senior class.

MAY 22–27, MONDAY–SATURDAY. Dead week.

MAY 29–JUNE 7, MONDAY–WEDNESDAY. Final examinations for other classes.

JUNE 4, SUNDAY. Commencement Sunday.

JUNE 5, MONDAY. Alumni and Class Day.

JUNE 6, TUESDAY. Commencement Day.

JUNE 8–10, THURSDAY–SATURDAY. Registration for first term, Summer Session.

JUNE 12, MONDAY. First term classes of Summer Session begin.

# COLLEGE OF MINES AND METALLURGY
(A Branch of The University of Texas)

## ADMINISTRATIVE OFFICERS

JOHN GERALD BARRY, S.B., *President.*
JOHN WILLIAM KIDD, E.E., *Dean of Mining and Metallurgy, and Science; Superintendent of Buildings and Grounds.*
CHARLES ALEXANDER PUCKETT, M.A., *Dean of Arts and Education.*
HOWARD EDMUND QUINN, Ph.D., *Curator of the Museum.*
*ABI ELIZABETH BEYNON, Ph.D., *Dean of Women.*
†MRS. LENA ELDRIDGE, M.A., *Acting Dean of Women.*
BURT FRANKLIN JENNESS, M.D., *Health Officer.*
MRS. LAVORA ENNES NORMAN, *Registrar.*
‡ANDREW BRASK KRUGER, *Acting Bursar.*
MRS. MARY HOLT SNOBARGER, B.S., *Librarian.*

## FACULTY

### Professors

JOHN GERALD BARRY, *Professor of Economic Geology and Mining.*
S.B. (Mining, Geology Option), Massachusetts Institute of Technology, 1907.

JOHN FRASER GRAHAM, *Professor of Mining and Metallurgy.*
B.S., Michigan College of Mining and Technology, 1905; E.M., 1924.

JOHN WILLIAM KIDD, *Professor of Engineering.*
B.S., Oklahoma A. and M., 1904; E.E., Agricultural and Mechanical College of Texas, 1909.

CHARLES ALEXANDER PUCKETT, *Professor of Education.*
B.A., Texas, 1911; M.A., Harvard, 1916.

HOWARD EDMUND QUINN, *Professor of Geology.*
E.M. (Geology), Minnesota, 1918; M.S., 1926; Ph.D., Harvard, 1931.

FRANKLIN HUPP SEAMON, *Professor of Chemistry.*
M.E., Missouri School of Mines, 1891.

### Associate Professors

§ANTON HILMER BERKMAN, *Associate Professor of Biological Sciences.*
B.A., Texas, 1924; M.A., 1926.

*ABI ELIZABETH BEYNON, *Associate Professor of Business Administration and Economics.*
B.A., Nebraska, 1917; M.A., 1920; Ph.D., Washington, 1930.

EMMET ADDIS DRAKE, *Associate Professor of English.*
B.A., Wisconsin, 1882; M.A., 1887.

EDWARD ELIAS, *Associate Professor of Modern Languages.*
A.B., Harvard, 1910; A.M., Chicago, 1917; Ph.D., Michigan, 1930.

EDWIN JOHN KNAPP, *Associate Professor of Mathematics and Physics.*
B.S., Wisconsin, 1921; Ph.D., 1931.

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*Deceased December 11, 1931.
†Appointment effective December 10, 1931.
‡Appointment effective December 20, 1931, succeeding M. T. Tobias.
§Absent on leave for the session of 1931–1932.

JOSEPH MOSES ROTH, *Associate Professor of Classics and Philosophy.*
B.A., New York University, 1919; M.A., 1920; Ph.D., 1923.

*JOSEPH ERNEST SHAFER, *Associate Professor of Economics and Business Administration.*
B.A., De Pauw University, 1923; M.A., Wisconsin, 1929; Ph.D., 1932.

CHARLES LELAND SONNICHSEN, *Associate Professor of English.*
A.B., Minnesota, 1924; A.M., Harvard, 1927; Ph.D., 1931.

JOHN LEROY WALLER, *Associate Professor of History.*
B.S., Oklahoma, 1923; M.A., Colorado, 1925; Ph.D., Texas, 1929.

### Adjunct Professors

PEARL WHITFIELD DURKEE, *Adjunct Professor of Physics.*
B.A., Acadia University, 1903; B.S. (Electrical Engineering), McGill University, 1906.

BERTE ROLPH HAIGH, *Adjunct Professor of Mining and Geology.*
B.S. in Mining Engineering, Texas, 1925.

ERNEST CARLTON KENNEDY, *Adjunct Professor of Mathematics.*
E.M., Texas, 1921; M.A., 1926.

WILLIAM WALTER LAKE, *Adjunct Professor of Chemistry.*
B.S., Ohio, 1913; M.S., 1921.

MALCOLM RAY MARSH, *Adjunct Professor of Drawing.*
B.S. in Civil Engineering, Texas, 1927.

LEON DENNY MOSES, *Adjunct Professor of English.*
A.B., Columbia, 1923; A.M., 1924.

LLOYD ALVINO NELSON, *Adjunct Professor of Geology.*
E.M., Texas, 1916; M.S. (Geology), Colorado, 1929.

ALVIN EDWARD NULL, *Adjunct Professor of History.*
B.A., Indiana, 1910; M.A., Chicago, 1926.

MRS. MARY KELLY QUINN, *Adjunct Professor of Sociology.*
B.A., Wellesley, 1922; M.A., Boston University, 1930.

EUGENE MCRAE THOMAS, *Adjunct Professor of Mining and Metallurgy.*
B.S. in Mining Engineering, Texas, 1926.

ORVILLE ROBERTS WILLETT, *Adjunct Professor of English.*
B.A., Kentucky, 1916; M.A., Chicago, 1919.

### Instructors

WILLIAM ROBERT AVRETT, *Instructor in Modern Languages.*
B.A., Texas, 1927; M.A., 1928.

WILLIAM HENRY BALL, *Instructor in Chemistry.*
B.S., Chicago, 1922; M.S., Iowa State College, 1925.

NORMA EGG, *Instructor in English.*
B.A., Texas, 1913; M.A., 1928.

MRS. LENA ELDRIDGE, *Instructor in Modern Languages.*
B.A., New Mexico, 1919; M.A., Washington, 1927.

MRS. ISABELLA KELLY FINEAU, *Instructor in Modern Languages.*
B.A., Texas, 1905; M.A., 1931.

GLADYS GREGORY, *Instructor in Economics and Government.*
B.A., Southwestern, 1915; M.A., Texas, 1926.

BURT FRANKLIN JENNESS, *Instructor in Biological Sciences.*
M.D., Dartmouth, 1899; Lt. Cmdr., M.C., U.S. Navy, Rtd.

BULAH A. LILES, *Instructor in Mathematics.*
B.A., Texas, 1921; M.A., Chicago, 1927.

MRS. BERTHA REYNOLDS, *Instructor in Education.*
B.A., Colorado, 1921; M.A., 1922.

*Appointment effective February 1, 1932.

MACK SAXON, *Instructor in Physical Education.*
EULA WHITEHOUSE, *Instructor in Biological Sciences.*
B.A., Texas, 1918; M.A., 1931.

### Part-Time Instructors

MRS. MYRTLE EVELYN BALL, *Part-Time Instructor in Public Speaking.*
B.A., New Mexico Normal University, 1926.
*FRANK BRITTON CLAYTON, *Part-Time Instructor in Business Law.*
A.B., Texas, 1926; LL.B., 1925.
MRS. ABBIE MARGUERITE DURKEE, *Part-Time Instructor in Public School Music.*
B.A., Ohio Wesleyan, 1912; B. Music, Wisconsin College of Music, 1915.
†MRS. JULIA IDA KANE, *Part-Time Instructor in Physical Training.*
A.B., University of North Dakota, 1919; M.A., University of Arizona, 1930.
EARL ELLESON MCCOY, *Part-Time Instructor of the Band.*
MRS. LUCY MCREYNOLDS, *Part-Time Instructor in English.*
A.B., Wellesley, 1922; M.A., Columbia, 1928.
†HARRY PHILLIPS, *Part-Time Instructor in Drawing.*
MRS. EVELYN HINYARD RENKEN, *Part-Time Instructor in Business Administration.*
B.B.A., College of Industrial Arts, 1922.
NELL SCOTT, *Part-Time Instructor in Public School Art.*
B.A., Sul Ross State Teachers College, 1930.
LOUISE SHOFNER, *Part-Time Instructor in Biological Sciences.*
B.A., Texas, 1928; M.A., 1931.
‡ELLIOTT JONATHAN STEVENS, *Part-Time Instructor in Business Administration.*
B.S., Texas, 1929.
§RUDOLPH DANNEN WISBRUN, *Part-Time Instructor in Mathematics.*
S.B., Massachusetts Institute of Technology, 1929; S.M., 1931.

### Administrative Assistants

MARGARET NEELY, *Information Clerk.*
FRANCES ELIZABETH OLIVER, *Assistant to the Registrar.*
MAURINE ELIZABETH SMITH, *Assistant to the Bursar.*
MRS. FRANCES SMITH STEVENS, *President's Stenographer and Clerk.*
MRS. ANNIE LOOMIS WEBB, *Faculty Stenographer.*

*Appointment effective December 10, 1931.
†Appointment effective February 1, 1932.
‡Appointment effective December 10, 1931, through January 31, 1932.
§Appointed for first semester only.

# GENERAL INFORMATION

## HISTORY

An announcement of a course in mining first appeared in the University catalogue in 1900–1901. From then until the session of 1910–1911, an arrangement of courses leading to the degree of Mining Engineer appeared annually. The catalogue of that year contained a statement that thereafter freshmen would not be enrolled in mining, and the arrangement of courses leading to a degree in that subject was subsequently omitted.

The Thirty-third Legislature, at its regular session in 1913, passed an act creating the State School of Mines and Metallurgy, to be located in El Paso. By the terms of the act, the School of Mines was placed under the control of the Board of Regents of the University. Early in 1919, by act of the Thirty-sixth Legislature, the school was made a branch of The University of Texas.

The location of the school at El Paso was conditioned upon the donation by the city of the former Military Institute buildings and grounds. The necessary funds for this donation were secured through the activity of the Chamber of Commerce, and the school was opened in September, 1914. On October 29, 1916, the Main Building was burned. It was then decided to remove the institution to a more suitable site on the west side of Mount Franklin, donated for that purpose. The Thirty-fifth Legislature voted an emergency appropriation of $100,000 to erect new buildings.

In 1927 the Legislature authorized further expansion along academic lines.

In 1931 the Board of Regents authorized the conferring of the Bachelor of Arts degree, vesting administrative powers in a President, and appointing an El Paso General Advisory Committee. This followed an annual donation of $25,000 for two years from the City and County of El Paso.

## LOCATION

Texas is the largest and most populous state which supports a separate college of mining and metallurgy. The location of the College of Mines and Metallurgy is advantageous in several ways. The City of El Paso stands at the crossing of several of the oldest highways established by white men on this continent. With a population of 100,000, more than 30% of which is engaged in technical industries, it is the most important city south of Denver, between San Antonio or Fort Worth and Los Angeles. Four transcontinental railroads cross the divide at this point.

El Paso's primary resources include mining, agriculture, livestock, and timber. The United States Government has spent $10,000,000 on a great irrigation project to provide a cheap and unfailing water supply for the Rio Grande Valley above and below El Paso.

Its extreme dryness and medium latitude, combined with a moderately high altitude (4,000 feet), give El Paso a delightful and healthful climate all the year round.

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

El Paso is the industrial center of a large area, and is especially suitable for the location of a college instructing in mining, metallurgy, engineering, the sciences, and technology. The second largest custom smelter in the world is situated about a mile from the College of Mines and Metallurgy. It uses the most modern methods of smelting and treating ores containing copper, lead, gold, silver, and other metals. Within a few miles is also the most modern electrolytic copper refinery which has a capacity of 20,000,000 pounds of copper in process. There are also nearby a large cement plant, two large brick plants, and three oil refineries. Various other manufactories of lime, tile, and other non-metallics exist. There are other varied industries, such as a cotton spinning and weaving mill, cotton oil mills, wood-working mills, etc. There are also large power plants and sub-stations, foundries, machine shops, and other service enterprises of technical natures. Thus it will be seen that the environment is highly favorable for first-class instruction in engineering and technology, all of the industries cooperating fully with the College to this end.

## BUILDINGS AND GROUNDS

The campus consists of twenty-three acres. There are eight college buildings, as follows: Main Building, a dormitory, Chemistry Building, Power House, Kelly Hall, the mill, and Seamon Hall, and a small dressing-room building for women, recently donated by The Women's Association of El Paso. The Main Building contains the administrative offices, the museum, the library, various classrooms, and some laboratories for physics and geology. The Chemistry Building houses the laboratories in chemistry and assaying. The heating plant and engineering laboratory are located in the Power House. The dormitory contains rooms for fifty students, with shower bath and lockers for the athletic teams, a kitchen, and a dining room. Kelly Hall is used for classrooms and offices. The mill contains machinery for the testing of ores. Seamon Hall houses metallurgical equipment and laboratories. All the buildings, except the mill, are of stone, and are fireproof. The

City of El Paso is holding a reservation of thirty-seven acres for the future use of the College.

## LIBRARY

The Library of the College of Mines and Metallurgy is situated on the second floor of the Main Building. It is maintained for the purpose of supplementing and enriching the work of all departments of the College. It consists of a large reading room with a stack room in connection.

The reading room has recently been doubled in capacity in order to meet more adequately the needs of the student body. The stack space has also been rearranged and enlarged. The reading room is a pleasant and quiet place where students may study or may read for recreation. The Library regularly receives about 150 periodicals, many of the leading literary, scientific, and technical ones being included. These are displayed in the reading room where students have free access to them. The New York Times and several newspapers are received. All periodicals are bound and kept, forming a valuable reference collection, the use of which is facilitated by the *Readers' Guide to Periodical Literature*, the *Industrial Arts Index*, and the *New York Times Index*.

The nucleus of the book collection was a gift of the library of the late W. H. Seamon, a mining engineer and a member of the faculty of the College of Mines and Metallurgy. Constant additions by gift and by purchase are being made in order that the College may have a live collection. The Geology and Mining sections of the Library are especially strong. Certain sets of the United States Government publications owned by the Library are especially valuable in that they are complete and contain numerous volumes that are now unobtainable. The Shakespeare section is considered an excellent one.

The books are classified according to the Dewey Decimal System, and their usefulness is increased by a modern and complete catalog, arranged according to author, title, and subject. The Library is open every school day, and students and faculty have access to the catalog and stacks at all times. The Librarian is assisted by several students.

Students are also given full use of the excellent facilities of the El Paso Public Library, 46,000 volumes, as well as the Teachers' Library of the El Paso Public Schools. Many bibliophiles in El Paso as well as the legal, medical, and engineering associations kindly render exceptional assistance in selected cases.

## MUSEUMS

The geology museum, located on the ground floor of the Main Building, contains illustrative specimens for work in general geology, mineralogy, petrology, and palentology; and affords engineering

students a splendid opportunity to study the various classes of rocks, *minerals, rock-forming minerals, and fossils* which have been collected in Texas and the Southwest. The collections, arranged with special reference to educational use, are accessible to students and also to the general public on week days from 8 A.M. to 4 P.M.

The mineralogical collection is especially fine. It includes the Reckhart collection in addition to many other beautiful and rare specimens of minerals and ores that have been supplied to the College by purchase and by gift from mining men and geologists of the Southwest.

An excellent collection of ores includes specimens from almost all the mines of the Southwest and Old Mexico, as well as a considerable number from Canada.

The palentological collection is also very good. It contains many fossils, principally those of the invertebrates, which have been collected from many parts of North America, more especially from Texas, and from Europe. One vertebrate fossil worthy of mention is the tusk of a mastodon found protruding from the glacial ice in Alaska.

A portion of the Natural History and Archeological collections are also housed in this museum.

The Zoology museum is located in Room 22 of Kelly Hall. The collection includes preserved specimens and skeleton material representing the classes and orders of vertebrates, arranged for the study of comparative anatomy, and preserved material representing marine and land invertebrate life. There are also botanical specimens, particularly of the local flora.

## GENERAL POLICIES OF THE COLLEGE

### GENERAL STATEMENT

The academic and technical subjects leading to degrees in four options of Mining and Metallurgy are sufficient to enable students to complete at least two years of work leading to degrees in various other scientific, engineering, and technical branches, as offered by other institutions. All technical students are educated broadly, and they are required to master the principles of all subjects. In scientific and technical subjects the student's knowledge is reinforced by such practice and application as to prepare him for entrance into the industries, especially those related to the natural resources of Texas. Various of the many industries of the region cooperate with the College to promote the technical and general knowledge of the students. The faculty is experienced and expert.

*Thanks to contributions from local governmental and educational* agencies the College now offers advanced academic subjects sufficient for the B.A. degree. A choice of four years' work in one of several

major subjects is now possible. Perusal of the requirements for the degree, also included beyond in tabular form, will show that they are of high standard. Students may be certain of obtaining a fundamental, dependable, and general education applicable to further progress in professions, teaching, and general activities of life.

The College of Mines and Metallurgy gives all of its undergraduate instruction to resident students only. No attempt is made to give extension work in classes away from the College, nor are correspondence courses given. However, an attempt is made by ordinary correspondence to aid worthy citizens of the State who are engaged in mining or prospecting by giving them suitable advice of various kinds when they apply for it.

Pursuant to a policy of non-duplication with other State institutions, the College offers no graduate work, although students who already have degrees frequently attend for the purpose of studying certain undergraduate subjects which they may need. Without entailing graduate study at the College, the degree of Engineer of Mines is granted, subject to regulations made by the Faculty and approved by the Regents, to those graduates of the College who have demonstrated proficiency in responsible positions and who have made a written contribution of some importance regarding some phase of their work.

As an agency for furthering the best development of the State, the principal duty and interest of the College are in advancing and perfecting knowledge of mining and metallurgy as applied to the natural resources of the State by means of research and cooperation with existing agencies and industries. Such effort excepts petroleum and water, which are covered by other agencies. Future efforts and developments will probably be largely concerned with salts and minerals of potash, soda, flourine, and mercury, as well as with those of gold, silver, copper, lead, and zinc.

The College also acts as an examination center for other agencies and institutions, such as the College Entrance Examination Board, the American College of Life Underwriters, etc.

## EL PASO GENERAL ADVISORY COMMITTEE

For the purpose of assisting in controlling the policy and development of the College to the best advantage of the State, the Board of Regents of The University of Texas has appointed an El Paso General Advisory Committee which is composed of:

H. L. BIRNEY, *Chairman;* Banker, and President of The Myers Company—530 East Overland Street.
C. N. BASSETT, President State National Bank of El Paso.
R. F. BURGES, Lawyer—El Paso National Bank Building.
MRS. BRANCH (ELSE KOHLBERG) CRAIGE—517 Corto Street.

C. M. HENDRICKS, Physician—Mills Building.
E. H. KNOHN, General Manager A. Mathias Co.—221 East Overland Street.
R. E. MCKEE, Contractor—1916 Texas Street.
MISS NELL POLLARD—3431 McKinley Avenue.
B. N. RICKARD, General Manager, Southwestern Smelters, American Smelting and Refining Co.—El Paso, Texas, and Hayden, Arizona, plants.
W. E. ROBERTSON, Consulting Structural Engineer—Martin Building.
MAURICE SCHWARTZ, Vice-President, Popular Dry Goods Co.
JOHN G. BARRY, *Secretary, ex-officio.*

## SPECIAL LECTURES

At intervals during the Long Session the student body has opportunities to hear addresses by prominent lecturers and specialists. The lectures may be heard at either special called meetings, or extra class meetings, or seminars, or meetings of student organizations, such as the Scientific Club which is affiliated with the American Institute of Mining and Metallurgical Engineers.

During the Long Session of 1931–1932, the following opportunities were offered:

Twelve lectures on subjects related to life and education, literature, and art by men and women eminent in the United States, Mexico, and Texas;
Twenty-two lectures on mining, metallurgy, and business by eminent managers and consultants connected with large enterprises in the United States, Canada, Mexico, and the Southwest;
Nine lectures on medical and biological topics by eminent physicians and surgeons of El Paso;
Fifteen lectures on sociology and kindred subjects by executives employed on such work in the El Paso region.

The student at El Paso also has opportunities of hearing famous musical artists at minimum rates.

## DETERMINATIONS AND TESTS

**General Principles.**—The College of Mines and Metallurgy (A Branch of The University of Texas) is charged with teaching and research in mining, metallurgy, and allied subjects in order to further the safe and economical development and exploitation of the natural resources of the State. In order to advance this object the College is glad to receive gifts of materials for determinations or tests, whether or not they originate within the State. Such work will be done free of charge, but it should be borne in mind that the College

will not compete with regularly established consultants, but will rather direct, supplement, and advance their work along new or more advanced lines. Persons shipping materials to the College must prepay all freight charges, and, upon agreement, the charges which they have to incur with outside consultants, such as charges for assays, etc. All such materials shipped to the College must be regarded as gifts to it, and become its property upon receipt. The determinative and testing work will be done largely by advanced students under the personal direction of a suitable professor in charge, and will be carefully checked to insure that the results are as precise as the material and tests warrant. Beyond this the College can not assume responsibility. Since all work done by students becomes part of their regular schedules, the rapidity of determinative and testing work depends upon the number of advanced students and the condition of their schedules. The College is glad to assist in the solution of any problems allied to its objectives, and to incorporate them in its regular instructional and research work. Shipments should be made, and correspondence and inquiries addressed, to the President, College of Mines and Metallurgy, El Paso, Texas.

**Rocks, Minerals, Fossils, Ores, Geological Specimens.**—Rocks, minerals, fossils, ores, and other geological specimens will be received gladly for determination and incorporation in the Museum and working collections. Acknowledgement is always accorded to donors. Materials are generally studied first from a geological and mineralogical point of view before being referred to other departments as indicated below. Collectors and museums may find it advantageous to correspond with the College to arrange exchanges and sales of important material.

**Analyses and Assays.**—The College will not make analyses or assays in competition with professional consultants. Those who have special reasons for wishing work done should write to the President explaining the circumstances.

**Metallurgical Tests.**—Shippers of ores desiring tests for process of treatment should see to it that the material submitted is a representative or average sample of the part of the mineral deposit concerned; otherwise, the results of the testing will be commercially worthless.

## EXPENSES

### FEES AND DEPOSITS

**Registration fee.**—Students are urged to complete their registration for an entire long session at the beginning of the session, but are permitted to pay their registration fees on a semester basis at

the beginning of each semester. Those students taking three semester hours or less pay $5 per semester; those taking more than three semester hours but not more than six semester hours pay $10 per semester; all others, those taking more than six semester hours, pay $15 per semester, which is the maximum registration fee.

Refunds of registration fees are permitted only for a semester in which classes have not been attended by the applicant.

**Laboratory fees.**—For each course of three semester hours or less which is accompanied by laboratory work a laboratory fee of $2 is charged, and for each such course of four hours or more a laboratory fee of $4 is charged. If a student is allowed to drop a laboratory course, the fee for the semester not begun will be refunded.

**Deposits.**—All laboratory courses of whatever credit value require a deposit of $2 against breakage except in chemistry, in which the deposit is $6 for each laboratory course. Certificates of payment of these deposits must be received from the Bursar before students can be assigned to desks in the laboratories or enrolled in their classes. A Library deposit of $6 is required of every student. This deposit is subject to charges for fines assessed against the depositor or for books lost or injured. These deposits less charges for breakage or loss will be returned to the student at the end of the session or upon his withdrawal from the College. If a deposit is exhausted before the end of the session, the student will be required to renew it.

**Visitor's fee.**—A fee of $5 is required of persons not registered for credit in the College who wish to visit one or more courses. If Library privileges are desired, the Library deposit must be made.

**Exemption of ex-service men.**—Men and women enlisted in the service during the World War, who are citizens of Texas, are exempted from all fees, but not from deposits. To secure this exemption, the service record or discharge must be presented to the Auditor each time the student registers.

**Students' Association fee.**—The students' association fee is $10. Payment of this fee at the beginning of each session is necessary in order that students may receive valuable training in extra-curricula subjects. In addition to the usual athletic and social activities, important training is given with respect to literary activities, publications, dramatics, current events, and debate, advances and special application in science and engineering, etc.

## BOARD AND ROOM

The College of Mines and Metallurgy maintains a dormitory for men and a cafeteria for all students. Board was reduced to $26 a month the past year. The rate for the coming session will be based

upon the cost of supplies, further reductions being a possibility. As results of a 20% reduction, the corner rooms (when occupied by two students) rent for $12 a month, the other rooms for $8. A student permitted to occupy a room to himself will pay three-fourths of the regular charge for the room.

The rooms are heated by steam, lighted by electricity, and furnished. Each student must provide his own mattress (for single bed), pillow, blankets, and bed linen.

Each student is held responsible for any damage to his room or its contents, whether caused by him or not. A dormitory breakage deposit of $5 is required, which is returned if no damage is done to the furniture, building, or fixtures.

Board must be paid in advance on the first day of each month. Room rent must be paid in advance on the first day of each semester for the entire semester. Any unused portion of the room rent will be refunded.

Rooms will be assigned in the order of application, preference being given to students who are occupying rooms during the current season, provided their applications are received before May 31 and accompanied by a deposit equal to one-half the monthly rental of the room for which application is made. All new applications must be accompanied by a deposit of $5 in order to be considered. Rooms thus reserved will be held only until September 18.

A list of acceptable boarding and rooming places for men and women students may be obtained from the Registrar. Such places are regularly inspected by a faculty committee. Rates vary and may be secured to suit the individual's tastes and finances. Several women in El Paso who have had experience at colleges in Texas and Arizona conduct boarding and rooming houses which are reserved exclusively for women who are either teachers or students.

## SCHOLARSHIPS AND LOAN FUNDS

To a student who is working his way, a city of the size of El Paso offers a large field of opportunity. A students' labor bureau is maintained by the College, and every effort will be made to assist the student, but the College assumes no responsibility except to the extent of trying to help. No student should come to El Paso without funds sufficient for at least the first semester.

**Regents Scholarships.**—The Board of Regents of The University offers the following scholarships on the terms and conditions stated in each case:

*(1) Accredited School Scholarships.*—One scholarship is offered to the valedictorian, boy or girl, in the spring graduating class, and also in the winter graduating class in the case of schools having a regular winter commencement, on the following terms and conditions: 1. The

school must be located in Texas and must hold at least fifteen units accredited by the State Department of Education. 2. The successful applicant must make the best record in the class and an average of at least 90 per cent in the senior year. If no member of the class makes an average of 90 in the senior year no award will be made. 3. Under no circumstances are these scholarships transferable. 4. The financial benefit is exemption from the registration fee of $30 in the holder's first long session in any college or school of The University. 5. The holder must enter The University not later than the first semester of the second year after graduation from the school. 6. The scholarship must be presented before or at the time the holder registers in The University. Holders failing to do this will pay the registration fee for that year and will not be reimbursed therefor. 7. The conduct of scholarship holders must be satisfactory to the faculty.

*(2) Approved Junior College Scholarships.*—One scholarship is offered each year to the best student in the graduating class of each junior college rated as first class by the Association of Texas Colleges. Holders are subject to provisions 2, 3, 4, 5, 6, and 7 of the preceding paragraph entitled "Accredited School Scholarships."

*(3) Boy Scout Scholarships.*—Scholarships are offered to the Boy Scouts of America, in Texas, under the conditions set forth below. These scholarships are valid only for the applicant's first year in college. The applicant must have attained the rank of Eagle Scout, must reside in the district, in Texas, from which his nomination is made, and must be nominated by the Court of Honor of the local council, which shall be required to conduct elimination contests to determine superior fitness if more than one are eligible for such nomination; in addition, the applicant must have ranked in the first quartile of his secondary school graduating class. Not more than one nomination from the jurisdiction of any one local council may be made in any one year. Holders of Boy Scout Scholarships must satisfy admission requirements and are subject to provisions 3, 4, 6, and 7 of "Accredited School Scholarships" above.

*(4) Girl Scout Scholarships.*—Scholarships are offered to Girl Scouts on terms corresponding to those governing "Boy Scout Scholarships."

*(5) Camp Fire Girls Scholarships.*—Scholarships are offered to Camp Fire Girls who have attained the rank of Torch Bearer on terms corresponding to those governing "Boy Scout Scholarships."

*(6) Correspondence Scholarships.*—Scholarships are offered to students who complete with an average grade of *B* as many as thirty semester hours by correspondence in the Extension Teaching Bureau of the Division of Extension. Holders of these scholarships are governed by provisions 3, 4, 6, and 7 of "Accredited School Scholarships."

*(7) Interscholastic League Scholarships.*—One scholarship each is

offered to the students who, at the annual State meet of the University Interscholastic League, are awarded first, second, and third honors in the literary events (debating, extempore speaking, declamation, spelling, and essay-writing). Holders of these scholarships must satisfy *admission requirements and are governed by provisions* 3, 4, 5, 6, and 7 of "Accredited School Scholarships" above.

**Academic Loan Fund.**—This fund is maintained for academic students who have been in attendance for at least one semester and who have achieved an average grade of *B* in at least twelve semester hours of work. The fund is administered by a faculty committee.

**Engineers' Loan Fund.**—This loan fund is maintained by the Engineering Department for the benefit of engineering students who have been in attendance at least one year and who meet other special requirements. The fund is administered by the Dean of Mining and Metallurgy, and Science.

**Ex-Students' Association Memorial Loan Fund of the College of Mines and Metallurgy.**—Under the will of the late William Clifford Hogg, a loan fund of $25,000 will be established for the benefit of students of the College of Mines and Metallurgy of The University. Mr. Hogg made this gift in memory of his father and mother, Governor and Mrs. James Stephen Hogg. Operation of the fund will be inaugurated in the future following the completion of certain legal and financial arrangements.

**Robert E. Lee Loan Fund.**—The Robert E. Lee Chapter, No. 1060, United Daughters of the Confederacy, offers an annual loan of $150. Applicants must be mining engineering students, must have completed one full year of attendance at the College of Mines and Metallurgy, and must be direct descendants of Confederate soldiers or sailors.

The loan is paid the student as follows: $50 at the time of the fall registration and $12 each month during the school year. The loan is repayable without interest to the Chapter one year after graduation. After the first year following graduation the loan or the unpaid portion of it will draw three per cent interest.

**Spanish-American Loan Fund.**—Establishment of and additions to this loan fund are made by residents of the region who are of Spanish descent. Loans are made to students of Spanish descent who are needy and of high scholastic standing. The fund is administered by a faculty committee.

**Women's Association Loan Fund.**—This loan fund was established by The Women's Association for The College of Mines, of El Paso. Loans are made to needy students of high scholastic standing. The fund is administered by a faculty committee.

# REGULATIONS AFFECTING STUDENT LIFE

The College endeavors so to consider and advise its students as to develop men and women who are well prepared citizens, both physically and mentally.

## STUDENT GUIDANCE

Special attention is given to students entering college for the first time. A member of the faculty is assigned to each student as an adviser, so that the student may have a mature friend to whom he may submit his troubles and problems.

In addition to the foregoing, all freshmen are required to take a non-credit course in orientation which is given by several members of the faculty, in which the student is instructed as to his new environment and its problems. The aim of this instruction is to encourage the new student to analyze the problems of independent life, including that at the College, and to point out to him methods for dealing with them.

## PHYSICAL WELFARE

B. F. JENNESS, M.D.....*Health Officer*
MACK SAXON.....*Instructor*
JULIA I. KANE.....*Instructor*

Throughout their residence at the College all students are encouraged to develop physically to their best advantage. They are stimulated to participate in systematic exercises and sports.

With the aid of the Students' Association and under the direction of Dr. B. F. Jenness, Health Officer, an effort is made to guide the physical development and health of all students by examinations, compilations of records, advice, health bulletins, and lectures. The service includes sick absence excuses, and the daily sick list. The Health Officer also acts as an adviser on campus sanitation, etc. Minor medical and surgical advice and treatment, of an emergency nature only, are given. The Health Officer may examine students in verification of suitable vaccination prior to their admission.

Special attention is given to all freshmen, who are subject to physical examination, and who may be required to take a non-credit course in Physical Training. The exercises prescribed may be correctional, developmental, and/or recreational, and, dependent on individual conditions, may vary from absolute rest to strenuous exercises and sports. The climate of El Paso is such that it is possible to conduct all exercises in the open air. Attendance at lectures in hygiene is required. Students are requested to wear the cheap, regulation uniform. A minimum fee of $2 is required. The course number for women is Physical Training 01; for men, Physical Training 02.

## OFFICIAL NON-ATHLETIC EXTRA-CURRICULAR STUDENT ACTIVITIES

**List of Organizations.**—Believing that students are greatly benefited by participation in extra-curricular activities, the College sponsors clubs and organizations of various types. Among those now active and officially recognized are the following:

General Organizations
- Academic Club
- Men's Glee Club
- Co-ed Association
- College Band
- College Players (Dramatics)
- Forensic Society (Debating)
- Women's Glee Club
- Women's Pep Squad
- Latin-American Club
- Pre-Medic Club
- Scientific Club
- Scriblerus Club
- Students' Association (the organization of Student Government)

Publications
- The Prospector (Bi-weekly)
- The Flowsheet (Annual)

Social Organizations
- Alpha Phi Omega Fraternity
- DeMolay Exemplars
- Menorah Society
- Newman Club
- Omega Phi Delta Sorority
- Phi Sigma Psi Fraternity
- Pi Epsilon Pi Sorority

**General Regulations.**—These extra-curricular activities of the non-athletic type are considered of such great importance that they are placed under the supervision of faculty committees and faculty sponsors and function under certain regulations for operation and the eligibility of participants.

The College, in common with other institutions, has, for its orderly and efficient conduct, special regulations additional to the laws of the land. These special regulations are printed annually and are so easily available to all students that each student is charged with notice and knowledge thereof.

In addition to the foregoing, the officers of each organization are charged with the responsibility of acquainting all of their pledges and members with the rules of procedure for organizations and for social affairs as set up by the Faculty Committee on Student Activities and its sub-committees. These rules may be obtained from the chairmen of the respective sub-committees.

**Rules for Participation.**—1. As bases for determining eligibility for participation in non-athletic extra-curricular activities, the following are recognized: (a) serving as editor, assistant editor, managing editor, business manager, or assistant manager on any official student publication; (b) membership in the College of Mines Band, Men's Glee Club, Women's Glee Club, College Players, or Forensic Society, or participation in any local or out-of-town performance given by, or in the name of, the aforementioned organizations; (c) becoming a candidate for, or serving as, president, vice-president, secretary or manager in any recognized non-athletic College organization; (d) serving as a member of student committees or councils; (e) being a member of any of the listed official organizations.

2. The consensus of opinion of the Faculty Committee on Student Activities is that participation by students in the various extra-curricular activities is a "privilege" that is to be earned by maintaining the scholastic and conduct standards of the College.

On the basis of the foregoing paragraph the following students are eligible for such participation:

a. Those who are not subject to any phase of disciplinary action.
b. Those who are taking twelve or more credit hours of regular college work.
c. Those who, during their last semester in attendance, passed a minimum of ten credit hours. Two consecutive terms of summer school may be counted as one semester.
d. Those who are not on Final Trial.
e. Those who have paid Student Association fees.

3. Eligibility requirement for holding office:

Only those who maintain a "C" average in any twelve credit hours may hold office in any extra-curricular activity.

Eligibility at the beginning of a semester holds good throughout the semester unless the student has become ineligible under the above provisions. A student ineligible at the beginning of a semester by reason of the foregoing regulations becomes eligible when the scholastic or disciplinary disability has been removed. First year students are eligible immediately upon entering provided they are carrying the required twelve semester hours of credit work.

## ATHLETICS

All athletic games, exhibitions, and contests, intercollegiate or otherwise, not prescribed as regular physical training, and all exhibitions or performances of any kind given, in whole of in part, for the benefit of athletics, are under the direction of the Athletic Council, *subject only to* the Faculty, President, and Regents.

The following rules govern the participation of all students of the College of Mines and Metallurgy in intercollegiate athletic contests:

Rule I. *Amateur Standing.* SECTION 1. No person shall be allowed to represent the College of Mines and Metallurgy in intercollegiate athletics who has ever competed for money or under a false or assumed name, or who has ever taught or assisted in teaching athletics for money, or pursued any athletic exercise for money or any valuable consideration. An exception shall be made in case of summer baseball in organizations listed as below Class C by the National Baseball Association.

SEC. 2. No person shall be allowed to represent the College of Mines and Metallurgy in intercollegiate athletics who is competing for money or under a false or assumed name, or who is teaching athletics for money, or who is pursuing any athletic exercise for money or for any valuable consideration. Playing under an assumed name shall include all cases of willful misrepresentation of any name by any contestant, either in the official list or in the published account.

Rule II. *Scholarship Qualifications.* SECTION 1. No student of the College of Mines and Metallurgy shall be permitted to participate in intercollegiate athletics who is not a student in good and regular standing and who is not taking at least twelve credit hours a week of regular College work counting toward a degree. Freshmen must be passing in not less than ten hours.

SEC. 2. No student of the College of Mines and Metallurgy shall be eligible to compete in intercollegiate athletics who, during his last semester in attendance, failed to pass in at least ten credit hours a week of regular College work counting toward a degree.

SEC. 3. Withdrawal from the College of Mines and Metallurgy in the course of any semester for any cause except personal sickness or military service shall debar from participation in intercollegiate athletics until the work of that semester shall have been successfully completed by the student so withdrawing. In case of withdrawal on account of personal sickness or military service during any semester, the work of the preceding semester shall be the basis for participation.

SEC. 4. Absence for at least a year shall not count against eligibility provided the student did not register and did not start work in another institution of collegiate rank in the interim.

SEC. 5. In order that the scholarship qualification rule may be enforced for students during their first year in attendance, reports shall be made the first and fifteenth of each month throughout the year.

SEC. 6. The reports called for in Section 5 shall not debar a student from participating in any game which shall occur within five days after the date of the scholastic report.

SEC. 7. Any student who has become scholastically ineligible shall remain ineligible for fifteen days from the date of his last participation in a game.

Rule III. *Time of Entrance.* No student shall be eligible for intercollegiate contests who did not register within the time prescribed in the regular calendar. By registering, it is understood that the student was present on the date of his registration and from that date became a resident student taking regular class work.

Rule IV. *Student Compensation.* SECTION 1. No student shall be allowed to compete in intercollegiate athletics if he receives compensation for regular instruction. This rule shall, however, not apply to undergraduate student assistants (other than athletic assistants) who have been appointed by the Board of Regents, who are doing regular undergraduate work, and who are receiving an annual compensation of not more than $500 for their services.

SEC. 2. No student shall receive money, board, room-rent, clothing, or pay in any form for participating in intercollegiate athletics.

Rule V. *Extent of Participation.* SECTION 1. No student shall participate more than four years in the aggregate in any one sport. Participation in any part of an intercollegiate contest shall be considered as participating for that year.

SEC. 2. No student who has completed the requirements for a degree from any college shall be eligible to participate, regardless of whether or not he has actually graduated upon fulfillment of these requirements.

SEC. 3. Only the first year of junior college competition shall not be considered as participation in intercollegiate athletics.

Rule VI. *Transfers.* SECTION 1. No student transferring from another institution which confers a bachelor's degree shall be eligible to compete until he has been in residence two semesters and shall have completed twenty semester hours of work in the College of Mines and Metallurgy, ten semester hours of which must be made in each of the two semesters.

SEC. 2. Attendance during one semester and the next succeeding or the next preceding full Summer Session shall be considered as meeting the residence requirement.

SEC. 3. A transfer or graduate of a junior college shall be eligible to participate in athletics upon entrance.

Rule VII. *Eligibility Card.* SECTION 1. No student shall be eligible to participate in an intercollegiate contest unless his eligibility card has been filed with and approved by the Faculty Committee on Athletics at least five days prior to the event.

SEC. 2. Any false or misleading statement made on the eligibility

card or any failure to give in full the information required shall be held to be a breach of discipline and shall be treated accordingly.

Rule VIII. *Parent's Consent.* In order to participate in intercollegiate athletics, a student must have, unless he be of age, the written consent of his parent or guardian, sent directly by mail to the Faculty Committee on Athletics.

Rule IX. *Absences.* Absences of College of Mines and Metallurgy representatives on athletic teams, including managers and assistants, shall be governed by the rule stated in the section of the catalogue on "Class Attendance and Absences."

Rule X. *Non-intercollegiate Contests.* All the above rules shall apply to members of regular teams representing the College of Mines and Metallurgy engaging in athletic contests with non-collegiate institutions, organizations, or associations.

Rule XI. *List of Candidates.* Immediately after the training for any team has begun and thereafter as candidates are added, the coach of such team shall report to the Registrar and to the Faculty Committee on Athletics the names of all candidates for positions on the team in question, in order that the foregoing rules may be promptly enforced.

Rule XII. *Physician's Certificate.* In order to participate in intercollegiate athletics, a student must deposit with the Faculty Committee on Athletics a certificate from a reputable physician stating that he is physically fit to take part in athletic contests, and shall submit to such other examinations and measurements as may be ordered.

Rule XIII. *Training Tables.* Training tables shall be prohibited.

Note: The Faculty Committee on Athletics has decided that the College shall seek membership in an athletic conference during the fall of 1932 and that, beginning September, 1933, eligibility shall be determined by rules common to conferences, especially those relating to non-participation by freshmen and individual approval students.

## CONDUCT

It is assumed that students come to the College for a serious purpose, and that they will cheerfully conform to such regulations as may be, from time to time, made by the Faculty. In case of injury to any building, or to any of the furniture, apparatus, or other property of the College, the damage will be charged to the student or students known to be immediately concerned; but if the persons who caused the damage are unknown, the cost of repairing the same may be assessed equally upon all the students of the school.

Students are expected to behave with decorum, to obey the regulations of the College, and to pay due respect to its officers. Conduct inconsistent with general good order, or persistent neglect of work, or failure to respond promptly to official notices, may be

followed by dismissal. In case the offense be a less serious one, the student may be placed on probation.

It is the aim of the Faculty so to administer the discipline of the school as to maintain a high standard of integrity and a scrupulous regard for truth. The attempt of any student to present as his own the work of another, or any work which he has not honestly performed, or to pass any examination by improper means, is regarded by the Faculty as a most serious offense, and renders the offender liable to immediate expulsion. The aiding and abetting of a student in any dishonesty is also held to be a grave breach of discipline.

## DISCIPLINE

*General Statement.*—1. Through matriculation at the College of Mines and Metallurgy, a student neither loses the rights nor escapes the responsibilities of citizenship.

2. Obedience to the law being a primary duty of the citizen, the conviction of the student for violation of law renders him subject also to disciplinary action on the part of the College.

3. A jury indictment for a felony or other offense of serious character suspends the student, without prejudice, until acquitted.

4. Illegal conduct, such as the drinking of intoxicating liquors, gambling, and dishonesty, renders the student subject to discipline.

5. The College, in common with other institutions, has for its orderly and efficient conduct, special regulations additional to the laws of the land. These special regulations are printed annually and are so easily available to all students that each student is charged with notice and knowledge thereof.

6. Persons not registered in the College when accused of misconduct that affects college life and work, if former or prospective students, will have the known circumstances inscribed in their record as a presumption against their moral character. They will not be later admitted to the College unless they can prove moral desirability.

7. All students are expected to show respect for properly constituted authority and to observe correct standards of conduct.

Students are trusted to conduct themselves properly. If, however, it becomes apparent that any student, by misconduct or by neglect of studies, is doing harm to himself, to others, or to the College, the Faculty will use appropriate means of discipline.

The following penalties may be imposed: admonition; probation; suspension of social rights and privileges; suspension of eligibility for official athletic and non-athletic extra-curricular activities; suspension of eligibility for any student office or honor; publication of the name of the offender, his offense, and the penalty

imposed; increase in the number of courses required for a degree; cancellation of credit for scholastic work done; suspension from the College; expulsion; or such other penalty as in the opinion of the Faculty Committee on Discipline seems proper.

*Probation.*—Disciplinary probation will be for a definite period and carries with it the following condition during the period of such probation: any further violation of College regulations during the time of probation will cause such student to be suspended for a period to be determined by the Faculty Committee on Discipline.

A student on probation may not hold office in any organization connected with the College, nor represent the College in any of its activities.

A student on probation who absents himself from any class exercise or neglects any class work, except for reasons considered imperative by his Dean, will thereby drop his name from the College rolls for the remainder of the session.

Absences and neglect on the part of such student, not explained to his Dean within one day—beforehand if possible—will be presumed to be without excuse and will effect the dropping above mentioned.

A student on probation may not be initiated into any social or honorary organization.

*Suspension from the College.*—A student suspended from the College shall remain off the campus of the College during the entire period of his suspension, excepting when summoned by an administrative official of the College, or when an appointment with an official has been previously arranged. A student not living at home while under suspension may not room or board in a fraternity or sorority house, dormitory, or rooming house where other students are living. He may not be initiated into an honorary or social organization. A student under suspension may not receive credit at the College of Mines and Metallurgy for college work done, by correspondence or in residence, at either this or any other institution during the period of suspension, except when allowed by the Faculty Committee on Discipline. This privilege shall not be allowed in cases involving cheating.

*Expulsion from the College.*—A sentence of expulsion means permanent severance from the College. A sentence of expulsion shall be reviewed by the Administrative Committee, which, when in doubt about its propriety, shall return the case to the trial committee with its reason for so doing. The second decision of the trial committee shall be final.

These penalties may be imposed singly or in any combination upon individuals, or groups, or organizations.

In every case in which a student is found guilty of any offense by the Faculty Committee on Discipline and in any other matter

in which an emergency arises, parents or guardians will be informed and asked to cooperate with the authorities.

*Debts.*—The College is not responsible for debts contracted by individual students or by student organizations, but the College will use all possible measures to force the payment of debts justly and regularly contracted by such persons. The College expects all students and student organizations to conduct themselves honorably in all commercial transactions.

*Hazing.*—A student who violates his pledge of hazing, or who engages in, instigates, or encourages any type of class rush not specifically approved by the College, will be liable to suspension or expulsion.

*Bad Checks.*—A student who gives the College a bad check, the fault not being that of the bank, and who does not make it good within five days will be dropped from the College. The College will not accept a check from a student who has once given a bad check.

## ADMISSION REQUIREMENTS

**Control Over Admission.**—Admission to the College is under the control of the Registrar and the Faculty Committee on Scholastic Standing.

### GENERAL REQUIREMENTS

**Sex.**—Applicants of both sexes are admitted to all branches of the College on equal terms.

**Age.**—An applicant must be at least 16 years of age.

**Character.**—An applicant must furnish satisfactory evidence of good moral character.

**Statement of Experience.**—At each registration period, all students are required to furnish the Registrar with full and complete information regarding themselves and their scholastic experience. They are further required at each registration period to conform to all admission requirements, both general and special, except in the case of unit requirements for admission, which are applicable according to the rules and regulations of the catalogue under which the student is registered for the first time at this College. Any student who subscribes to a false, only partially true, or misleading statement may be expelled.

**Vaccination.**—An applicant must present a certificate showing that he has had smallpox or has been successfully vaccinated.

**Hazing Pledge.**—The Legislature having forbidden hazing and rushing in state educational institutions under penalty of fine and imprisonment, each applicant is required to sign the following pledge:

"I hereby pledge myself on my honor not to encourage or participate in hazing or rushing during my attendance at the College of Mines and Metallurgy, provided that contests among students conducted according to rules approved by the Faculty shall not be classed as rushes."

### GENERAL SCHOLARSHIP REQUIREMENTS

**Units.**—Entrance requirements are stated in terms of units. A unit represents nine months of study in the subject in a secondary school, constituting approximately a quarter of a full year's work. A four-year secondary school curriculum should be regarded as representing not more than sixteen units of work.

**Unit Requirements.**—For admission 15 units, with high-school graduation (see "Method of Obtaining Admission Units") are required as specified below. However, world history may not be

counted if early or modern European history, either or both, is offered; and biology may not be presented by a student offering either botany or zoology. A student may enter with a condition in any one subject or group, except English or Mathematics, provided he has a total of at least fifteen acceptable units. In no case will more than four units be accepted from Section B.

| | | Units |
|---|---|---|
| 1. | English (Required of every student) | 3 |
| 2. | From the Mathematics Group in Section A below, one unit each of Algebra and Plane Geometry required of every student | 2 |
| 3. | Two units from each of any two of the three other groups in Section A below (Foreign Language Group, Natural Science Group, Social Science Group), total | 4 |
| 4. | Additional from any group or groups in Section A | 2 |
| 5. | Additional from Section A, or from Section B, or from Sections A and B together | 4 |
| | Total | 15 |

**Section A**

(The units column shows the number of units that may be offered in each subject.)

| Subjects | Units |
|---|---|
| English Group | |
| English | 3–4 |
| Foreign Language Group | |
| Czech | 2–3 |
| French | 2–3 |
| German | 2–3 |
| Greek | 2–3 |
| Latin | 2–3–4 |
| Spanish | 2–3 |
| Mathematics Group | |
| Algebra | 1–1½–2–2½ |
| Plane geometry | 1 |
| Solid geometry | ½ |
| Trigonometry | ½ |

| Subject | Units |
|---|---|
| Natural Science Group | |
| Biology | 1 |
| Botany | 1 |
| Chemistry | 1 |
| General Science | 1 |
| Physics | 1 |
| Physiography | ½ |
| Physiology and hygiene | ½–1 |
| Zoology | 1 |
| Social Science Group | |
| Early European history | 1 |
| Modern European history | 1 |
| World history | 1 |
| English history | ½–1 |
| American history | ½–1 |
| Civics | ½–1 |
| Economics | ½ |

**Section B**

| Subject | Units | Subject | Units |
|---|---|---|---|
| Agriculture | ½–2 | Public Speaking | ½–1 |
| Arithmetic | ½ | Shorthand and typewriting | 1 |
| Bookkeeping | 1 | Any subject accepted by an accredited secondary school for its diploma (except drill subjects such as penmanship, physical education, military training, etc.) | ½–1 |
| Commercial geography | ½ | | |
| Commercial law | ½ | | |
| Drawing | ½–1 | | |
| Home economics | ½–2 | | |
| Manual training | ½–1 | | |
| Music | 1 | | |

**Quality Provisions.**—Quality, however, is more important than quantity. A course thoroughly mastered is worth more than one completed with low or even medium grades. Therefore any applicant ranking in the highest quarter of his graduating class in any fully accredited secondary school and also ranking in the highest quarter of the freshman class in the scholastic aptitude test given by the College in September may enter without admission conditions.

Furthermore, any conditioned first-year freshman student who makes, in the College, in his first Long Session or its equivalent, at least thirty semester hours with an average grade of C will thereby absolve his admission condition. Otherwise it must be removed as provided under "How to Absolve Admission Conditions."

**Applicants of Low Rank.**—As a rule, students who do poor work in high school do poor work in the College. A student ranking in the lowest quarter of his graduating or in the lowest quarter of the freshman class in the scholastic aptitude test is therefore strongly advised to complete an additional year of preparation before applying for admission. *If, however, after due deliberation, his parents* still wish to have him enter at once, he will be admitted and given all the privileges accorded any other student, but he will be placed on what is termed "special observation" and will be required to pass in the minimum amount of work expected of other freshmen to be entitled to remain in school.

**Advice as to Subjects in High School.**—High school students expecting to specialize in foreign languages in college should begin in high-school. Those looking forward to college work in medicine, business administration, statistics, or law should take at least two years of algebra and one year of plane geometry in high-school. Those expecting to major in engineering, mathematics, or sciences, should conform to the admission requirements set forth for Mining and Metallurgy, and Science.

## METHODS OF OBTAINING ADMISSION UNITS

The admission units specified above are usually obtained by graduation from an accredited school or by examination or by a combination of the two. Limited opportunity is also offered by The University's Extension Teaching Bureau at Austin for units to be made by correspondence study. In addition, a teacher's certificate known as a high-school certificate of the second class yields the holder a few units, depending upon the number of acceptable subjects taken for the certificate.

**(1) Graduation From an Accredited School.**—No credit may be obtained without graduation. Within the limits of the above list, graduates of schools on the approved list issued by the State Department of Education are credited with the subjects they have completed in which the schools are accredited. In order to determine these units, they are required to present statements of their work made out by the superintendent or principal on the College's official blank, to be had of the Registrar. *It is of the highest importance that the applicant send this blank, properly filled out, to the Registrar not later than August 1.* Valuable time will be lost if he does not do so, and more if he has to send for it after he arrives. Without it he cannot be admitted at all.

The University of Texas and The College of Mines and Metallurgy have no accredited schools outside Texas, but they will usually accept, for work done in a school in another state, credits granted by the state university of that state; or, in the absence of such an institution, by another institution of recognized standing acquainted with the work of the school in question.

**(2) Examination.**—Any or all scholarship requirements may be met by passing the admission examinations. To obtain credit in any subject, the applicant must make a grade not lower than D. In grading papers in all subjects, account will be taken of the applicant's use of English. Excellence in one subject will not make up for deficiency in another. Credits are not divisible in any subject.

Every natural science examination paper must be accompanied by a laboratory notebook.

Admission examinations are held twice a year, late in April and in the fall.

The April series is given under the direction of the State Department of Education at accredited schools and at other approved places. Application to take these examinations should be made to the State Superintendent of Public Instruction, Austin.

The fall series is held only at the College. The dates and the order are as follows for 1932:

Monday, September 19—9 to 12, English; 2 to 6, American history, early European history, and civics.

Tuesday, September 20—9 to 12, English history, modern history, and economics; 2 to 6, algebra and plane geometry, solid geometry, trigonometry, commercial geography and commercial law.

Wednesday, September 21—9 to 12, French, German, Latin, Spanish, and bookkeeping; 2 to 6, agriculture, biology, botany, chemistry, general science, physiography, physiology and hygiene, shorthand and typewriting, zoology, home economics, physics, and arithmetic.

It is strongly urged that applicants desiring to enter the College in September attempt the April examinations. It is permitted to divide the subjects between the spring and fall examination periods, but credits obtained at the spring examinations lapse unless the applicant passes the deferred examinations the following fall; and credits obtained at the fall examinations, if less than the total number required, are not valid later.

*Junior-senior High-school Graduates.*—Applicants who have passed through and graduated from a junior-senior high-school organization in which the usual type of college entrance subjects were not given in the junior school may be admitted on twelve acceptable units completed in the senior high school (the last three grades), including the unit requirements listed under Sections A and B, plus three unspecified units from the junior high school.

**(3) Admission by Individual Approval.**—At the discretion of the Registrar and Faculty Committee on Scholastic Standing, an applicant over 21 years old may be admitted without examination, but he will not be permitted to register in the Division of Mining and Metallurgy and Science until he has satisfactorly removed all entrance conditions. *Such admission does not confer special privileges, but, on the contrary, puts the applicant under special obligations.* Each applicant proceeds as follows:

1. He must make application on the official blank (to be had of the Registrar), giving the information there desired.

2. He must furnish evidence that he has substantially covered the ground of the units required of other candidates and that he has sufficient ability and seriousness of purpose to do the work desired with profit to himself and the satisfaction of the College.

3. He must show, by the writing of a composition, that he has an adequate command of English.

4. He must present a birth certificate or an affidavit from his parents showing he is at least 21 years of age.

Applicants are advised to send their applications and credentials to the Registrar in advance of their coming to El Paso.

Admission by individual approval contemplates applicants who have not recently attended school and therefore could not pass the admission examinations.

Students so admitted may register for courses other than fresh-

man courses only with the approval of the Dean concerned and the Registrar, given because of evidence of special fitness. This approval can rarely be granted, however, because most individual approval students have less applicable preparation than any other students in the College.

*Neglect of work or other evidence of lack of serious purpose* on the part of a student thus admitted will cause the Registrar and the Faculty to withdraw approval, thus severing the student's connection with the College and preventing his readmission until he has satisfied all admission requirements.

Students admitted by individual approval cannot become candidates for degrees until they have satisfied the admission requirements. As to how to remove admission conditions, see the following section.

## HOW TO ABSOLVE ADMISSION CONDITIONS

**General.**—Admission conditions may be removed: (1) by taking, with the approval of the Registrar, the regular admission examinations in subjects not studied by the student in the College; (2) by correspondence work (a few courses for this purpose are offered in the Bureau of Extension Teaching of The University of Texas at Austin); (3) by counting work done in the College. If the second or third plan be used, any or all of the nine prescribed admission units must be satisfied by work in the corresponding subjects as offered by the Bureau of Extension Teaching or the College; two of the elective admission units must be satisfied by similar work on subjects corresponding to those in Section A; the remaining four elective admission units may be absolved by any credit work done in the College. For the purpose of satisfying admission conditions, a course of six semester hours counts as the equivalent of one and one-half units. Courses used to absolve admission requirements will not count also toward a degree. If a student does not satisfy all of his admission conditions within two years after admission to the College, he must present one additional unit (elective) for each year that each unit remains unsatisfied. In addition he is required at the beginning of the second year to secure the approval of the Registrar of an arrangement for the complete removal of his conditions before he will be allowed to register. Conditions may not be removed by taking admission examinations after the student has completed sixty semester hours of college work. They may thereafter be removed only by work done in the College.

**Individual Approval Students.**—Student granted admission to the College on the basis of individual approval must register and continue to register in the following subjects in the order given until they are passed: English 1, six hours of freshman mathematics, History 4, at least six hours of science, at least nine hours of one foreign language. In cases of students having partial entrance

credits the order of registering for courses may be varied if such action will expedite cleaning of entrance units, but in any event English 1 must be taken. Registration for courses which will interfere with the principle of priority of clearance of entrance conditions will not be permitted.

These students who lack entrance units in English will be given credit also for three admission units of it upon passing English 1 with a grade of C or better.

These students who lack entrance units in mathematics will be given credit also for one entrance unit in algebra and one entrance unit in plane geometry upon passing six semester hours of freshman mathematics with a grade of C or better.

These students who lack any or all of four additional entrance units, two each from any two of the remaining three groups under Section A, must absolve the conditions as indicated under the "General" paragraph of "How to Absolve Admission Conditions."

These students who lack as many as six additional entrance units in order to make a total of fifteen, two of the six being from Section A and four of the six being from either Section A or B or both, may absolve such conditions by passing not less than thirty semester hours of required work, priority being given to listing above, with an average grade of C or better during their first Long Session. Otherwise, such conditions must be absolved as indicated under the "General" paragraph of "How to Absolve Admission Conditions."

## TRANSFER STUDENTS

**Students From Other Colleges.**—A student seeking admission from another college must conform to the requirements for all students, and must present: (1) a letter of honorable dismissal; (2) a vaccination certificate; (3) an official transcript of his entire college record, including his admission units. *Much trouble and time will be saved by sending this official record to the Registrar not later than August 1. Students are not allowed to* register until the proper certificates are presented.

Students from other institutions who have been admitted on Individual Approval and who have not absolved their admission conditions must conform to the regulations stipulated under "Individual Approval Students" and "How to Absolve Admission Conditions." Date of entrance is counted as of the date the student first entered any College. Grades made at another institution will not be counted in absolving admission conditions unless an average grade of C or better is maintained at this College during the first long session of attendance.

Students in other institutions who desire a degree from the College should not wait until their senior year to transfer. If they do, they may not be able to complete all remaining requirements in one year, and they may find their "major examinations" exceptionally difficult.

A student who has failed in his work at another institution and is not entitled to continue there will not be admitted to the College. Others who have failed may be refused admission, or may be admitted on "special observation" or "final trial" or on any other condition that may seem desirable.

Inasmuch as undergradute students taking all their work in the College must have a C average for a degree, only such work completed in another institution, as, altogether, averages the equivalent of our grade of C will be accepted here.

All credits given students from other college are conditional. If their work here is of a low grade, the amount of credit given to individual students may be reduced.

### MINING AND METALLURGY, AND SCIENCE

Students applying for registration in majors in either mining and metallurgy, or mathematics, or sciences must satisfy the admission requirements under either Plan I or Plan II during the scholastic years 1932-1933, 1933-1934, and 1934-1935. If they choose Plan I, it is suggested that they present as many of the required units under Plan II as possible inasmuch as this plan is considered highly desirable. If admitted with entrance conditions, they must register for corresponding courses for removal thereof, and may be required to register in the Division of Arts and Education.

**Plan I.** (Old Plan. To be discontinued March 1, 1935.)

*1. Prescribed Units.*—The following units are prescribed and, except the foreign language, must be presented before admission. A student satisfying all requirements, except the foreign language, including fifteen acceptable units, may be admitted without it subject to the "General" paragraph under "How to Absolve Admission Conditions." The completion of A and 1a courses in German or French satisfies this requirement.

| Subject | Units |
|---|---|
| English | 3 |
| Social sciences (at least one of which must be history) | 2 |
| *Mathematics: | |
| Algebra | 2 |
| Plane geometry | 1 |
| One foreign language | 2 |
| Total | 10 |
| 2. *Additional Elective Units* (Not more than three from Section B) | 5 |
| Total | 15 |

*For admission to this Division, students must present also one-half unit in solid geometry, or they may be admitted without it and make it up during their first semester of attendance; the completion of Mathematics 208 satisfies this requirement. *After 1932-1933 students must present solid geometry in order to obtain admission to this Division.*

**Plan II.** (New Plan. Effective beginning with First Semester, 1935-1936)

The unit requirements for admission and first registration in the Division of Mining and Metallurgy, and Science are as follows:

| Subject | Units |
|---|---|
| 1. English | 3 |
| 2. Mathematics: | |
| Algebra (Last ½ unit should be taken in last year of secondary school | 2–2½ |
| Plane geometry | 1 |
| Solid geometry | ½ .3½–4 |
| 3. Science: | |
| Chemistry | 1 |
| General science or physics | 1 2 |
| 4. Social science: (World history, United States history, and civics recommended) | 2 |
| 5. Foreign language: (German, French, or Latin, relative preference in the order listed) | 2 |
| 6. Additional from Section A, or from Section B, or from Sections A and B together | 2–2½ |
| Total | 15 |

Under 6 no more than one unit each may be offered in drawing and manual training.

All other provisions with reference to admission to the College apply also to admission to the Division of Mining and Metallurgy, and Science.

# SCHOLASTIC REGULATIONS

## REGISTRATION

For the Long Session of 1932-1933 the registration days are as follows:

First semester: September 7-10, Wednesday-Saturday.
Second semester: January 26-28, Thursday-Saturday.

For the Summer Session of 1933 the registration days are as follows:

First term: June 8-10, Thursday-Saturday.
Second term: July 20-22, Tuesday-Thursday.

**Late Registration.**—The registration of students is unavoidably a complex and difficult task. On registration days the entire Faculty is organized for this one purpose. After those days they are busy with their classes. Students are urged, therefore, to register on the appointed days, and to remember that, if they come later, they will necessarily encounter delay, inconvenience, and difficulty in making their schedules, and that the work missed will be hard to make up.

No student will be allowed to enter for credit after September 24 in the first semester or February 11 in the second semester.

**Attendance on Courses as Visitors.**—Permission to visit a course or courses is sometimes granted. Such permission conveys only the privilege of hearing and observing, but not of handing in papers or taking part in class discussions or laboratory or field work.

A person, not registered as a student, desiring to visit a course should apply to the Registrar for a visitor's permit and pay the required fee (p. 20).

Attendance by a registered undergraduate as a visitor in a course is allowed only with the approval of his Dean and under special restrictions.

## EXPLANATION OF COURSES

**Definitions.**—Instruction is given in courses. The unit of measure for credit purposes is the semester hour, which means one hour of recitation (or the equivalent in shop or laboratory work) per week for one semester of eighteen weeks, unless otherwise specified. For each classroom hour two hours of preparation are expected. Three hours of shop or laboratory work are counted equivalent to one classroom hour and the preparation for it.

Most courses meet three hours a week, having a credit value of three hours for one semester, or six hours for both semesters.

**Notation.**—Courses are designated by numbers which indicate both rank and credit value in semester hours, and by letters which indicate the part of a course referred to or the semester or term in which it is given.

**Rank and Credit Value.**—A number between 200 and 299 indicates a value of two semester hours, one between 300 and 399 a value of three semester hours, etc., except that when the value is six semester hours the numbers between 0 and 99 are used, instead of the numbers between 600 and 699. The two digits on the right indicate the rank of the course; if between 0 and 9 the course is of freshman rank; if between 10 and 19, of sophomore rank; if between 20 and 59 of junior rank; if between 60 and 79, of senior rank; if between 80 and 99 of graduate rank.

A student may not receive credit in one department for two courses whose numbers have the same right-hand digits—for example, Physics 12 and Physics 812, the former being substantially merely a part of the latter.

No courses will be given which carry only one semester hour of credit.

Certain beginners' or freshman courses are not numbered, but are marked *A* or *B* and have a value of six semester hours.

A senior course must have as one of its prerequisites at least six semester hours of junior rank.

Courses of junior or senior rank are referred to as *advanced* courses.

**Use of Letters.**—The lower-case letters *f* (first semester), *s* (second semester), following a course number show the semester of the long session in which the course is given. A course not so designated runs throughout the long session and in such a case the lower-case letter *a* means the first half of such a course, the letter *b* the second half. For example, Chemistry 422 is a course running through the entire long session and carrying four semester hours of credit and English 1as is the first half of English 1 (freshman English) given in the second semester and carrying three semester hours of credit, which, however, cannot be counted for graduation until English 1b, the second half of English 1, has been completed.

## AMOUNT OF WORK

**Engineering Students.**—Freshmen may not register for more than eighteen semester hours for each semester. Sophomores, juniors, and seniors may not register for hours in excess of those prescribed in the course of study except in accordance with the grade point rule (252 grade points during their preceding semester), and in no case whatever may they register for more than twenty-one semester hours.

**Other Students.**—After his first semester or summer session at the College a student may register for as many as nineteen hours per week if, during his preceding semester, he has made a score of 252 points, or of 202 during his preceding summer session. To register for more than nineteen hours his score must have been 297 points in his preceding semester, or 234 in his preceding summer session. In no case whatever may a student register for more than twenty-one semester hours per week.

## ADDING AND DROPPING COURSES

After his registration for the session a student may add a course only with the approval of his Dean. No course may be added, however, after the twelfth working day of any semester.

For weighty cause, a student may drop a course with the consent of his Dean. To drop a course without permission means to sever one's connection with the College.

On the recommendation of the instructor concerned, approved by his Dean, a student may at any time be required to drop a course because of neglect or for lack of preparation.

## CLASS ATTENDANCE AND ABSENCES

**Absence From Class.**—Uniform and punctual attendance upon all exercises at which the student is due is strictly required. Absences are sometimes unavoidable, and a reasonable allowance is made for such possibilities, but in all such cases the student must be excused by his instructor. The following restrictions shall not apply to juniors and seniors, provided that their instructors do not complain of excessive absences by them.

Excused absences must not exceed one-sixteenth of the total number of exercises during the semester in the subject concerned.

Unexcused absences must not exceed one-sixteenth of the total number of exercises during the semester in the subject concerned.

When the total of excused and unexcused absences exceeds one-eighth of the total number of exercises during the semester in any subject, excuses for illness excepted, the student will be dropped from the rolls of the College.

No student shall receive an excuse for illness unless his application for it shall have been approved by the Health Officer. When an absence due to illness is prolonged or when absences due to illnesses seem excessive, the respective Dean may either require the student to withdraw for the remainder of the semester, or permit the student to continue following the passing of special examinations.

Having obtained permission from his Dean, the student may be

allowed to continue in the current semester only if he passes special examinations in his subjects.

Late registration does not exempt a student from accountability for prior absences.

If a student is compelled to be absent from his work on account of business, he should apply to his Dean for temporary withdrawal. No repayment of fees is permissible, but, his instructors being notified, he is not reported absent from his classes. In order to be readmitted to his classes for the remainder of the session, the student must, within two weeks after his return, pass special examinations in all his subjects, covering the work missed during his absence. In every case of temporary withdrawal, the parent or guardian is notified.

**Absence From Quiz.**—A student absent from an hour examination or quiz is graded zero on that quiz, unless for urgent reason he is given by the instructor the privilege of taking a postponed examination at a time to be set by the latter.

**Tardiness.**—Serious or repeated tardiness will be considered as equivalent to absence, and reported as such.

**Failure to Hand in Themes, Reports, Etc.**—Themes, reports, etc., not handed in at the time appointed may be received for credit only in case the delay was due to imperative causes satisfactory to the instructor.

## OFFICIAL BULLETIN BOARDS

Official bulletin boards are maintained in the several buildings and departments. These are used principally for posting official notices of changes of regulations, class meetings, special official meetings, etc., as found necessary by the Regents and Faculty. Such notices have the full official force and effect. Students are held responsible for knowledge of and compliance with such notices.

## EXAMINATIONS

**Semester Examinations.**—Wishing to encourage the student to secure a general view of the whole subject and readiness in the use of it, the faculty has ruled that exemptions from examinations may not be given. To encourage preparation for examination, the faculty has further ruled that during the last seven days of each semester before examinations no written examination or review shall be given; and all essays, theses, synopses, and the like must be handed in before this period begins.

In all examinations, account is taken of the student's use of English and of the form of the paper in general, the grade being low-

ered because of deficiencies in these regards as well as in the subject-matter proper.

**Absence From Semester Examinations.**—A student who is compelled to be absent from a semester examination on account of sickness or other imperative cause should petition his Dean, beforehand if possible, for permission to postpone the examination. In cases of illness the petition must have the approval of the Health Officer. Following permission for postponement from his Dean the student should also secure from him permission to take the postponed examination either at the next regular examination in the subject, or in any event, not later than the period of examinations held in the next succeeding September, and should file notice thereof with the Registrar not later than seven days before the beginning of the examination period concerned.

A student absent from a semester examination without his Dean's excuse is graded *F* and required to take the semester's work over again if he desires credit for it.

**Postponed, Advanced Standing, and Removal-of-Condition Examinations.**—Postponed, advanced standing, and removal-of-condition examinations are held at a regular period in each September. A student may take one at another time only at a regular examination in a course and then only with the permission of his Dean. In any event, he must file an application for examination with the Registrar on or before the seventh day preceding the first day of the examination period.

A student who takes and fails to pass a removal-of-condition examination will be given a grade of *F* in the course. Absence from one of these examinations, after permission has been granted, will have the same effect as a failure, unless the student presents a satisfactory excuse to his Dean within a week after the date for the examination.

## GRADES OF SCHOLARSHIP

**Grades.**—The standing of the student in his work is expressed by grades made up from class work and from examinations. There are six grades: *A* (excellent), *B* (good), *C* (fair), *D* (low pass), *E* (failure, but with privileges of petitioning to continue the course and to take removal-of-condition examination), *F* (bad failure, and, if a semester grade, without further current privileges in the course).

**Effect of a Semester Grade of E.**—A student who fails to pass in a course but makes a grade of *E* is called "conditioned," and is allowed opportunity to remove the condition by a second examination at the next regular examination period in that subject, at the

discretion of his Dean, but in any event he must take the condition examination not later than the period of examinations held in the next succeeding September.

In a subject continuing beyond one semester, the instructor may, by sending to the Registrar the proper credit notice, raise an *E* of an earlier semester to *D* because of a grade of *C* done in a later semester, but no grade may be altered after the registration period of the next succeeding semester.

**Higher Work After Failure.**—If a student makes an *F* in a course, he may not take up a higher course in the same subject until the course is taken again. If a student makes an *E* in a course, he may petition to take up a higher course in the same subject only with the written consent of the instructor concerned, approved by his Dean.

**Uncompleted Work.**—A student who has not completed the required volume of work in a course at an intra-semester period for reporting grades may be given the grade *Incomplete* (Inc.) at the discretion of the instructor and the respective Dean; but this grade shall not relieve the student from the obligation of completing the work lacking and all other work prior to the next report period.

A student who has not completed the required volume of work in a course at the end of a semester will receive a grade within the calculation of which will be included the various uncompleted pieces of work rated at zero. When such final semester grade results in an *E* the instructor and respective Dean may require the student to complete the missing work as part of his removal-of-condition obligation.

When a student is late or dilatory in handing in any required work of any nature his instructor may give him, depending on the circumstances, a lowered grade, or even zero, on the late performance in question.

When a student is given the privilege of a postponed examination he will be graded *Incomplete* (Inc.) in the course in question while the matter is pending.

In calculating grade points for any period, the grade *Incomplete* (Inc.) will be considered as an *F*.

## REPORTS

**Intrasemester Reports.**—On October 24, December 5, March 13, and April 24, reports are sent out for students taking first-year courses and for those doing work below the passing grade *(D)*, both to the students themselves and to their parents or guardians. Grades reported at intrasemester periods represent the average grade to date in the given course.

**Semester Reports.**—Reports are sent out to parents and guardians at the end of each semester for all students. Self-supporting students over 21 years of age, if they request it in writing, may have their reports sent to them instead of to their parents.

## CLASSIFICATION OF STUDENTS

Students are classified as regular and irregular. Under *Regular Students* are grouped those taking twelve or more semester hours of work prescribed for a degree. Under *Irregular Students* are grouped those taking less than twelve semester hours.

They are further classified as first-year, second-year, and upper division students, dependent on their time of residence at a college or university. A first-year student is one who has resided not more than two semesters; a second-year student is one who has resided two semesters and not more than four semesters; upper division students are those who have resided more than four semesters. A term of the summer session is equal to one-half semester.

Students are divided into freshmen, sophomores, junors, and seniors as a matter of convenience and prerequisites.

**Engineering Students.**—Until the completion of thirty semester hours of prescribed work in addition to the full admission requirements, engineering students are freshmen; then, until sixty-six semester hours are completed, sophomores; then until one hundred and four semester hours are completed, juniors; then seniors until graduation.

**Other Students.**—Until the completion of thirty semester hours in addition to the full admission requirements, other students are freshmen; then, until sixty semester hours are completed, sophomores; then, until ninety semester hours are completed, juniors; then, seniors until graduation.

## STANDARD OF WORK REQUIRED

**Definitions.**—The grades given are defined under "Grades of Scholarship."

A course with one classroom hour for two semesters when passed implies a credit of two semester hours; a course with three classroom hours for one semester carries a credit of three semester hours, and so on. But in the preceding cases it is also expected that the student will spend two hours of preparation for each classroom hour. In general, when the sum of the clock hours spent in lecture, recitation, laboratory, and preparation is divided by three the result will be approximately the semester hours credit for the course.

In scoring, grades will count as follows: A, 21 points per semester hour; B, 18 points; C, 15 points; D, 12 points; E, 6 points; F, O; Inc., 0. Non-credit courses are not counted in scoring.

**Required Minimum.**—To avoid Special Observation, Final Trial, or being dropped from the rolls of the College for scholastic undesirability, the student must meet the following standard of work at the intrasemester and semester report periods specified above under "Reports".

Students taking less than twelve semester hours must pass in all the work taken.

First-year students taking twelve or more semester hours must make (1) a score of 108 points in twelve semester hours, and (2) must have grades of A, B, C, D, or E in the same twelve semester hours; or must make a score of 126 points in nine semester hours with grades of A, B, C, D, or E in the same nine semester hours.

Second-year students taking twelve or more semester hours must make (1) a score of 126 points in twelve semester hours, and (2) must have grades of A, B, C, D, or E in the same twelve semester hours.

Upper division students taking twelve or more semester hours must make (1) a score of 144 points in twelve semester hours, and (2) must have grades of A, B, C, D, or E in the same twelve semester hours.

**Conferences.**—The Deans of the Divisions of Arts and Education, and Mining and Metallurgy, and Science will confer with all students in the College who are doing unsatisfactory work, both at the intrasemester dates and at the end of the semester. The object of these conferences will be to advise the student for his improvement, to offer him opportunity for renewed effort with such assistance as parents and instructors may be able to furnish, and to encourage or to warn him as the case may demand. First-year students also have the opportunity of conferring with Faculty Advisers.

**Failures.**—The College has prescribed a certain minimum of work which a student must pass at the intrasemester dates and at the end of the semester or be dropped from the College. (See "Required Minimum of Work" rule.) Before a student is dropped from the College for failure in work he will be given two trials or chances, called respectively "Special Observation" and "Final Trial". This will not apply to a student who fails in all his courses. In such case, if the failure occurs at the end of a semester, the student must withdraw until he satisfies the requirements of "Return after Failure".

**Special Observation.** The first failure of a student to pass in the required minimum of work will place such student under Special Observation, which is a sort of first warning to both student and parent or guardian that the student is doing unsatisfactory work. Special Observation will last for a consecutive period of enrollment equivalent to two semesters, after which the student will be restored

to good scholastic standing. Failure to pass in the required minimum of work at any time during the two semesters in attendance succeeding the first day of Special Observation puts the student on Final Trial. Sometimes the first failure is so serious that the parents are advised to withdraw the student at once from the College. Immediate withdrawal after serious failure often enables the student to make other arrangements for his education without loss of time.

**Final Trial.**—A student on Special Observation who withdraws from the College and who reenters within four semesters is put on Final Trial. A student on Special Observation whose score cannot be determined because of postponed or incomplete grades will be put on Final Trial. A student on Special Observation who fails to pass in the required minimum of work is put on Final Trial. This is a last and final warning to student and parent. Final Trial will last for a consecutive period of enrollment equivalent to two semesters, after which the student will be restored to good scholastic standing. A student on Final Trial who fails in the required minimum of work will be dropped from the College. A student on Final Trial who withdraws from the College may not register again before the beginning of the corresponding semester in the next long session unless he shall remove his deficiencies in an intervening summer session as prescribed hereafter.

A student on Final Trial whose score cannot be determined because of postponed grades will be dropped from the rolls of the College.

**Class Attendance.**—The College expects, and has a right to expect, that a student on Special Observation or Final Trial will attend classes with unfailing regularity, will be very punctual in reports and other written work, and will make every effort to show marked improvement in his courses. A failing student unwilling to put forth every effort to keep up with his classes should be withdrawn from the College.

In case of illness or any other imperative reason for absence, such a student should file a written explanation of each absence with the Registrar to be entered upon his record card.

**Return After Failure.**—A student who has withdrawn while on Special Observation or Final Trial, or who has been dropped, may register subsequently in good scholastic standing only if he has remained continuously out of school as long as four semesters of the long session.

A student dropped from the College by reason of failure in work, or who withdraws while on Final Trial, during or at the end of the first semester may register again not earlier than the next summer session. If he attends the summer session he may register

as on Special Observation at the beginning of the next long session provided he makes for the summer session scores of 162 points in twelve semester hours, if a first-year student, or 180 points in twelve semester hours if a second-year student, and of 198 points in twelve semester hours in other cases. If he does not attend the summer session, or if he attends the summer session and makes less than the foregoing scores, he may register as on Final Trial at the beginning of the long session.

A student dropped from the College by reason of failure in work, or who withdraws while on Final Trial, during or at the end of the second semester may not register earlier than the second semester of the next long session unless he attends the intervening summer session and makes scores of 162 points in twelve semester hours if a first-year student, of 180 points in twelve semester hours if a second-year student, and of 198 points in twelve semester hours in other cases. Should he make such a record he may register as on Final Trial at the beginning of the next long session. Should his record exceed the foregoing by 12 respective points he may register on Special Observation. Otherwise he may register not earlier than the beginning of the succeeding second semester and then only on Final Trial.

A student who is on Final Trial at the end of a second semester may register as on Special Observation at the beginning of the next long session if he attends the intervening summer session and makes, in the work of the second semester and the summer session combined, a score of 195 points in fifteen semester hours if a first-year student, of 210 points in fifteen semester hours if a second-year student, and of 225 points in fifteen semester hours in other cases.

A student who is on Special Observation at the end of a second semester may register in good scholastic standing at the beginning of the next long session if he attends the intervening summer session and makes, in the work of the second semester and the summer session combined, a score of 144 points in fifteen semester hours if a first-year student, of 162 points in fifteen semester hours if a second-year student, and of 180 points in fifteen semester hours in other cases.

Students who were dropped failing during the long session 1930-1931 and who attended the summer session and made the required number of points to be readmitted in September, 1931, were registered as of regular standing.

A student shall not receive credit for work done at another institution during a time when he was ineligible to attend the College of Mines and Metallurgy, nor will the College admit a student from another institution who is ineligible to continue there.

The foregoing requirements and the rules governing Special Observation and Final Trial apply to all students, and the Deans are without discretion except in cases of serious illnesses, and in the case of mature students over 25 years of age.

# REQUIREMENTS FOR DEGREES AND CERTIFICATES

## STUDY OF CONSTITUTIONS OF UNITED STATES AND TEXAS REQUIRED

The Forty-first Legislature, at its Second Called Session, passed the following law:

"Section 2. (As amended by Fourth Called Session.) There shall be given in all colleges and universities supported by public funds a course in American government with special emphasis upon the Constitutions of the United States and of Texas, which course shall be given for at least three fifty-minute periods per week for not less than twelve consecutive weeks, or its equivalent if given in summer sessions. No student shall be graduated from any such college or university who has not passed a satisfactory examination in such college or university course in the college or university from which he is graduating or in some other college or university which he may have attended previously.

"Section 5. (As amended by Fourth Called Session.) . . . . Provided, however, that the terms of this bill shall not be applied to, or affect, any student who commenced his studies leading to a degree, in any of the State institutions with the required credits prior to the time this bill was enacted into a law (February 14, 1930), or to any student who, on or before September 1, 1929, had credit for at least half the work required for a bachelor's degree."

The completion of Government 310 satisfies the requirements of this law.

## BACHELOR OF SCIENCE IN MINING ENGINEERING

The completion of one of the following four-year curricula and the satisfaction of other general requirements lead to the degree of Bachelor of Science in Mining Engineering. If a student makes an average grade of less than twelve grade points when first taking the courses set forth in the first three semesters of any one of these curricula he will be considered as lacking in aptitude for the degree, and he and his parents or guardians will be advised that he cannot be allowed to continue. He may be permitted to register for other majors of study.

Each student anticipating a degree of Bachelor of Science in Mining Engineering in either the Mining, the Metallurgy, the Mining Geology, or the Petroleum Geology option must spend at least one summer in practical work related to the degree desired and must furnish satisfactory evidence to the proper authorities of a summer so spent.

**Summer Reading.**—All students registered for major work in Engineering or Sciences are required to complete a prescribed course of reading of a non-professional character during the summer following the first school year. A statement of work done and an examination thereon are required at the beginning of the next school year.

The purpose of this course is to increase the acquaintance of the student with literature, history, and general science, to develop in him a taste for such reading, and to impress him with the importance of general culture, not only as a source of individual enjoyment, but as a practical aid to professional men in their social and business relations.

A circular on Summer Reading is issued each year, containing a list of the required reading, and a supplementary list in which additional books are recommended to the attention of students. The books in both lists are selected for their value from the point of view of general training, and the attempt is made to include only readable and attractive works.

**First Year**

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 801a | 3 | 3 | 6 | 4 |
| Drawing 301 | 1 | 8 | 1 | 3 |
| English 1a | 3 | ---- | 6 | 3 |
| Mathematics 803a | 5 | ---- | 10 | 5 |
| Physical education and orientation (Required) (No credit) | 2 | ---- | ---- | ---- |
| | 14 | 11 | 23 | 15 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 801b | 3 | 3 | 6 | 4 |
| Drawing 302 | 1 | 8 | 1 | 3 |
| English 1b | 3 | ---- | 6 | 3 |
| Mathematics 803b | 3 | ---- | 6 | 3 |
| Geology 302 | 1 | 6 | 2 | 3 |
| Physical education | 2 | ---- | ---- | ---- |
| | 13 | 17 | 21 | 16 |

SUMMER READING: Required; no credit; see announcements.

**Second Year**

(Mining, Metallurgy, and Mining Geology Options)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 311 | 1 | 5 | 3 | 3 |
| Engineering 212 | 2 | 3 | 2 | 2 |
| English 310 | 3 | .... | 6 | 3 |
| Geology 1a | 3 | 3 | 3 | 3 |
| Mathematics 13a | 3 | .... | 6 | 3 |
| Physics 812a | 3 | 3 | 6 | 4 |
| | 15 | 14 | 26 | 18 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 413 | 1 | 8 | 4 | 4 |
| Engineering 213 | 2 | .... | 4 | 2 |
| Mining 310 | 3 | .... | 6 | 3 |
| Geology 1b | 3 | 3 | 3 | 3 |
| Mathematics 13b | 3 | .... | 6 | 3 |
| Physics 812b | 3 | 3 | 6 | 4 |
| | 15 | 14 | 29 | 19 |

(Petroleum Geology Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 311 | 1 | 5 | 3 | 3 |
| Economics 312 | 3 | .... | 6 | 3 |
| English 310 | 3 | .... | 6 | 3 |
| Geology 1a | 3 | 3 | 3 | 3 |
| Mathematics 13a | 3 | .... | 6 | 3 |
| Physics 812a | 3 | 3 | 6 | 4 |
| | 16 | 11 | 30 | 19 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 413 | 1 | 8 | 4 | 4 |
| Government 310 | 3 | — | 6 | 3 |
| Engineering 213 | 2 | — | 4 | 2 |
| Geology 1b | 3 | 3 | 3 | 3 |
| Mathematics 13b | 3 | — | 6 | 3 |
| Physics 812b | 3 | 3 | 6 | 4 |
| | 15 | 14 | 29 | 19 |

SUMMER WORK: Engineering 414: Eight hours a day for four weeks — 4

**Third Year**

(Mining Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 423 | 1 | 8 | 4 | 4 |
| Engineering 832a | 3 | 3 | 7 | 4 |
| Geology 321 | 3 | 3 | 3 | 3 |
| Economics 312 | 3 | — | 6 | 3 |
| Metallurgy 21a | 3 | — | 6 | 3 |
| Mining 221 | 2 | — | 4 | 2 |
| | 15 | 14 | 30 | 19 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Bus. Admin. 211 | 2 | — | 4 | 2 |
| Engineering 832b | 3 | 3 | 6 | 4 |
| Geology 322 | 3 | — | 6 | 3 |
| Chemistry 324 | 1 | 6 | 2 | 3 |
| Metallurgy 21b | 3 | — | 6 | 3 |
| Metallurgy 423 | 3 | 3 | 7 | 4 |
| | 15 | 12 | 31 | 19 |

(Metallurgy Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 423 | 1 | 8 | 4 | 4 |
| Engineering 832a | 3 | 3 | 7 | 4 |
| Geology 321 | 3 | 3 | 3 | 3 |
| Metallurgy 21a | 3 | ... | 6 | 3 |
| Economics 312 | 3 | ... | 6 | 3 |
| Government 310 | 3 | ... | 6 | 3 |
| | 16 | 14 | 32 | 20 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Bus. Admin. 211 | 2 | ... | 4 | 2 |
| Engineering 832b | 3 | 3 | 6 | 4 |
| Chemistry 324 | 1 | 6 | 2 | 3 |
| Metallurgy 21b | 3 | ... | 6 | 3 |
| Chemistry 251 | 2 | ... | 4 | 2 |
| Metallurgy 423 | 3 | 3 | 7 | 4 |
| | 14 | 12 | 29 | 18 |

(Mining Geology Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 423 | 1 | 8 | 4 | 4 |
| Engineering 832a | 3 | 3 | 7 | 4 |
| Geology 321 | 3 | 3 | 3 | 3 |
| Economics 312 | 3 | ... | 6 | 3 |
| Metallurgy 321 | 3 | ... | 6 | 3 |
| Geology 225f | 2 | ... | 4 | 2 |
| | 15 | 14 | 30 | 19 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Bus. Admin. 211 | 2 | — | 4 | 2 |
| Engineering 832b | 3 | 3 | 6 | 4 |
| Geology 322 | 3 | — | 6 | 3 |
| Chemistry 324 | 1 | 6 | 2 | 3 |
| Metallurgy 423 | 3 | 3 | 7 | 4 |
| Physics 226 | 1 | 3 | 2 | 2 |
| Chemistry 251 | 2 | — | 4 | 2 |
| | 15 | 15 | 31 | 20 |

(Petroleum Geology Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Chemistry 423 | 1 | 8 | 4 | 4 |
| Engineering 832a | 3 | 3 | 7 | 4 |
| Geology 321 | 3 | 3 | 3 | 3 |
| Chemistry 21a | 2 | 3 | 4 | 3 |
| Mining 322 | 3 | — | 6 | 3 |
| Geology 225f | 2 | — | 4 | 2 |
| | 14 | 17 | 28 | 19 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Bus. Admin. 211 | 2 | — | 4 | 2 |
| Engineering 832b | 3 | 3 | 6 | 4 |
| Geology 322 | 3 | — | 6 | 3 |
| Chemistry 21b | 2 | 3 | 4 | 3 |
| Chemistry 324 | 1 | 6 | 2 | 3 |
| Physics 226 | 1 | 3 | 2 | 2 |
| Mining 356 | 3 | — | 6 | 3 |
| | 15 | 15 | 30 | 20 |

**Fourth Year**

(Mining Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Engineering 354 | 3 | — | 6 | 3 |
| Geology 364 | 1 | 5 | 3 | 3 |
| Metallurgy 362 | 2 | 3 | 4 | 3 |
| Metallurgy 263 | 2 | — | 4 | 2 |
| Mining 425 | 2 | 6 | 4 | 4 |
| Mining 67a | 3 | — | 6 | 3 |
| Mining 260 | 2 | — | 4 | 2 |
| | 15 | 14 | 31 | 20 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Government 310 | 3 | — | 6 | 3 |
| Engineering 431 | 3 | 3 | 6 | 4 |
| Engineering 350 | 3 | — | 6 | 3 |
| Mining 269 | — | 6 | — | 2 |
| Mining 268 | 2 | — | 4 | 2 |
| Mining 67b | 3 | — | 6 | 3 |
| Mining 261 | 1 | 3 | 2 | 2 |
| | 15 | 12 | 30 | 19 |

(Metallurgy Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Engineering 354 | 3 | — | 6 | 3 |
| Metallurgy 270 | 2 | — | 4 | 2 |
| Metallurgy 473 | 3 | 3 | 6 | 4 |
| Metallurgy 62a | 2 | 3 | 4 | 3 |
| Metallurgy 463 | 2 | 6 | 4 | 4 |
| Mining 67a | 3 | — | 6 | 3 |
| | 15 | 12 | 30 | 19 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Engineering 431 | 3 | 3 | 6 | 4 |
| Engineering 350 | 3 | — | 6 | 3 |
| Metallurgy 352 | 3 | — | 6 | 3 |
| Metallurgy 62b | — | 9 | — | 3 |
| Mining 268 | 2 | — | 4 | 2 |
| Mining 67b | 3 | — | 6 | 3 |
| | 14 | 12 | 28 | 18 |

(Mining Geology Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Engineering 354 | 3 | — | 6 | 3 |
| Geology 364 | 1 | 5 | 3 | 3 |
| Geology 427 | 2 | 6 | 4 | 4 |
| Geology 368 | 1 | 6 | 2 | 3 |
| Mining 67a | 3 | — | 6 | 3 |
| Mining 425 | 2 | 6 | 4 | 4 |
| | 12 | 23 | 25 | 20 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Government 310 | 3 | — | 6 | 3 |
| Geology 365 | 1 | 5 | 3 | 3 |
| Geology 240s | 2 | — | 4 | 2 |
| Geology 461 | 1 | 6 | 4 | 4 |
| Mining 67b | 3 | — | 6 | 3 |
| Mining 268 | 2 | — | 4 | 2 |
| | 12 | 11 | 27 | 17 |

(Petroleum Geology Option)

First Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Engineering 354 | 3 | — | 6 | 3 |
| Geology 364 | 1 | 5 | 3 | 3 |
| Geology 368 | 1 | 6 | 2 | 3 |
| Geology 427 | 2 | 6 | 4 | 4 |
| Geology 363 | 2 | 3 | 4 | 3 |
| Mining 67a | 3 | — | 6 | 3 |
| | 12 | 20 | 25 | 19 |

Second Semester

| | Lect. Rec. | Lab. | Prep. | Sem. Hrs. Credit |
|---|---|---|---|---|
| Geology 365 | 1 | 5 | 3 | 3 |
| Geology 240s | 2 | — | 4 | 2 |
| Geology 369 | 1 | 6 | 2 | 3 |
| Geology 467 | 3 | 6 | 4 | 4 |
| Mining 268 | 2 | — | 4 | 2 |
| Mining 67b | 3 | — | 6 | 3 |
| Chemistry 240 | 1 | 3 | 3 | 2 |
| | 13 | 20 | 26 | 19 |

## BACHELOR OF ARTS

**General Provisions.**—No degree will be conferred except publicly and at Commencements.

All candidates are expected to attend in person the Commencement at which their degree is to be conferred unless absent for good cause, in which case they will petition the Registrar at least one week in advance, giving the reason for their absence.

No degree will be conferred without a residence of at least two long session semesters, or five summer session terms, or one long session semester and two summer session terms or an equivalent.

At least thirty semester hours of work counting toward the degree must be completed in residence.

At least twenty-four of the last thirty semester hours offered must be taken in the College.

At least six semester hours in advanced courses in the major subject must be completed in residence.

Not more than thirty semester hours of credit offered for a degree shall have been secured from other institutions by extension, correspondence, or both.

Degrees will be awarded according to the requirements of the catalogue in force at the time of initial registration, provided these requirements are completed within six years.

If any semester of a freshman course, taken to meet the requirements under Course Outlines, is finished after ninety semester hours have been completed, that semester of the course will not count toward the required minimum of 120 semester hours. If any other course of freshman rank is finished after ninety semester hours have been completed, it will count for only two-thirds of its normal value. If a condition in a course of freshman rank is removed during the session of graduation, that course will count for only two-thirds of its normal value.

**Special Provisions.**—Upon completion of sixty semester hours of work, including the courses specified for the first and second years in the outline for one of the various majors, the student must petition the Faculty through the Registrar for permission *to become a candidate for a degree.*

Upon completion of ninety semester hours of work as set forth in the outline for the chosen major, the student will again petition the Faculty through the Registrar for permission *to continue his candidacy for a degree.*

The student must make an average of at least fifteen points per semester hour in the courses taken at the College which are required and counted toward the degree, an *A* grade on a semester hour counting as 21 points; a *B* grade as 18 points; a *C* as 15 points; a *D* as 12 points; an *E*, an *F*, or a *G* as zero. The Faculty reserves the right to demand grades of *C* or better in certain courses when they are important as prerequisites or as parts of majors or minors.

A student must pass a general four-hour examination in his major field at least one month before the completion of the work required for the degree. Three hours of the examination shall be given in written form on the major subject by the department concerned. One hour shall be an oral examination given by the Faculty Committee on Degrees and shall be limited to questions closely related to the major field. The chairman of the department in which the major is taken shall fix the places and times and supervise the giving of each portion. A student who fails to pass the major examination may take the examination at a similar date one year later, but in no case will a special examination be given.

One month before the completion of the work required for the degree, a student must show such ability to write clear and correct English as to satisfy the *Committee on Students' Use of English.* All the work of the student in all courses is subject to inspection by the Committee. Each member of the teaching staff is required as a matter of duty to report promptly to the Committee, submitting evidence, any student whose use of English is seriously defective.

A student must show such ability to read one foreign language as to satisfy the *Committee on Foreign Language Requirements.* To

meet this requirement, the student will present himself to the Committee when required and early in May at the end of his sophomore year or later.

A study of the Constitutions of the United States and of Texas is required by law. The completion of Government 310 satisfies this requirement.

Students majoring in Chemistry, Geology, Mathematics, or Physics are required to do Summer Reading as prescribed for Engineering students.

**Course Requirements.**—In order to secure a Bachelor of Arts degree, the following minimum course requirements must be met:

1.* Twelve semester hours in English (English 1 and 12).
2.* Twelve semester hours of numbered courses in one foreign language, either ancient or modern.
3.* Twelve semester hours in the natural sciences, six being in chemistry or physics, and six being in botany, or geology, or zoology.
4.* Six semester hours in mathematics ,or six numbered semester hours in Latin or German. Any hours of Latin or German offered in satisfaction of the mathematics requirement may *not be used to satisfy requirement 2 or as a part of a major* or minor.
5.* Six semester hours in history (History 4).
6. Three semester hours in American government (Government 310).
7. Three semester hours in psychology or philosophy.
8.† Not less than thirty semester hours in the major subject, at least eighteen of which must be of advanced courses.
9.† Not less than twenty-four semester hours in a minor subject as set forth in the Course Outline for the major subject. At least twelve of these twenty-four semester hours must be of advanced courses.
10.† Not less than a total of thirty-six semester hours of advanced courses.
11. Enough other courses to make at least one hundred and twenty semester hours, all the foregoing being subject further to the additional requirements set forth in the Course Outlines.
12.* Physical education and orientation, as prescribed, no credit.
13.* Summer reading, as prescribed, no credit.

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*Note: These requirements should be met by the end of the second year.

†Note: Students taking Chemistry 801, 311, and 413 may count the last three semester hours as advanced. Students taking Mathematics 305, 301, 306, and 13, or 803 and 13 may count the semester hours in excess of the first twelve as advanced.

**Course Outlines.**—A student should choose his major subject as early as possible. Once chosen, he must pursue it in accordance with the outline provided for that subject.

## CHEMISTRY MAJOR

(Minor in Mathematics and Physics)

### First Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Chemistry 801a | 4 | Chemistry 801b | 4 |
| English 1a | 3 | English 1b | 3 |
| Mathematics 803a | 5 | Mathematics 803b | 3 |
| Physics 1a | 3 | Physics 1b | 3 |
| Orientation and Physical Education | 0 | Geology 302 | 3 |
| | | Physical Education | 0 |
| | 15 | | 16 |

SUMMER READING: Required; no credit; see announcements.

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Chemistry 311 | 3 | Chemistry 413 | 4 |
| English 12a | 3 | English 12b | 3 |
| Mathematics 13a | 3 | Mathematics 13b | 3 |
| Physics 12a | 3 | Physics 12b | 3 |
| French 1a or German 1a | 3 | French 1b or German 1b | 3 |
| | 15 | | 16 |

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Chemistry 821a | 4 | Chemistry 821b | 4 |
| Chemistry 423 | 4 | Government 310 | 3 |
| History 4a | 3 | History 4b | 3 |
| Botany 1a or Zoology 1a | 3 | Botany 1b or Zoology 1b | 3 |
| French 12a or German 12a | 3 | French 12b or German 12b | 3 |
| | 17 | | 16 |

**Fourth Year**

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Chemistry 860a | 4 | Chemistry 860b | 4 |
| Physics or Mathematics (advanced) | 3 | Physics or Mathematics (advanced) | 3 |
| Physics or Mathematics (advanced) | 3 | Physics or Mathematics (advanced) | 3 |
| Elective | 3 | Suggested additional elective | 6 |
| Psychology 310 or Philosophy 312 | 3 | | |
| | 16 | | 16 |

**Summary**

| | | |
|---|---|---|
| 1. | Chemistry 801, 311, 413, 821, 423, and 860 | 35 |
| 2. | Mathematics 803 and 13 | 14 |
| 3. | Physics 1 and 12 | 12 |
| 4. | Twelve additional semester hours of advanced courses in mathematics or physics or both | 12 |
| 5. | English 1 and 12 | 12 |
| 6. | French or German—twelve numbered semester hours | 12 |
| 7. | History 4 | 6 |
| 8. | Geology 302 | 3 |
| 9. | Government 310 | 3 |
| 10. | Psychology 310 or Philosophy 312 | 3 |
| 11. | Zoology 1 or Botany 1 | 6 |
| 12. | Free electives | 3 |
| 13. | Suggested electives | 6 |
| 14. | Orientation, physical education, and summer reading—*no* credit. | |
| | | 127 |

## ECONOMICS AND BUSINESS ADMINISTRATION MAJOR

(Minor in *Social Science)

### First Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 1a | 3 | English 1b | 3 |
| Foreign Language 1a† | 3 | Foreign Language 1b† | 3 |
| Mathematics or Latin† or German† | 3 | Mathematics or Latin† or German† | 3 |
| Science | 3 | Science (continued) | 3 |
| History 4a | 3 | History 4b | 3 |
| Orientation and Physical Education | 0 | Physical Education | 0 |
| | 15 | | 15 |

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Economics 312 | 3 | Economics 313 | 3 |
| Business Administration 311 | 3 | Government 310 | 3 |
| English 12a | 3 | English 12b | 3 |
| Science | 3 | Science (continued) | 3 |
| Language 12a† | 3 | Language 12b† | 3 |
| | 15 | | 15 |

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Economics 322 | 3 | Economics 329 | 3 |
| Economics 23a | 3 | Economics 23b | 3 |
| Philosophy 312 or Psychology 310 | 3 | Elective or Economics 359 | 3 |
| Social Science or History 15a | 3 | Social Science or History 15b | 3 |
| History 9a | 3 | History 9b | 3 |
| | 15 | | 15 |

*History or sociology or government or combination.
†See Requirement 4 under Course Requirements.

**Fourth Year**

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Economics (advanced) | 3 | Economics (advanced) | 3 |
| Elective | 3 | Economics 359 or elective | 3 |
| Social Science (advanced) | 3 | Social Science (advanced) | 3 |
| Social Science (advanced) | 3 | Social Science (advanced) | 3 |
| Elective | 3 | Elective (advanced) | 3 |
| | 15 | | 15 |

**Summary**

| | | |
|---|---|---|
| 1. | Business Administration 311 and Economics 312, 313, 322, 23, 329, 359, and six additional semester hours of advanced courses | 30 |
| 2. | History 4, 9, and eighteen additional semester hours of social science, twelve of which must be of advanced courses | 30 |
| 3. | English 1 and 12 | 12 |
| 4. | Foreign language—twelve numbered semester hours | 12 |
| 5. | Science—six semester hours each of chemistry or physics and botany, or geology, or zoology | 12 |
| 6. | Mathematics or Latin† or German† | 6 |
| 7. | Philosophy 312 or Psychology 310 | 3 |
| 8. | Government 310 | 3 |
| 9. | Advanced elective | 3 |
| 10. | Electives | 9 |
| 11. | Orientation and physical education—no credit. | |
| | | 120 |

## EDUCATION MAJOR

(Minor in Teaching Subject)

### *First Year*

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 1a | 3 | English 1b | 3 |
| Mathematics or German* or *Latin** | 3 | Mathematics or German* or Latin* | 3 |
| Science | 3 | Science (continued) | 3 |
| Education 301 | 3 | Education 302 | 3 |
| Foreign Language 1a* | 3 | Foreign Language 1b* | 3 |
| Orientation and Physical Education | 0 | Physical Education | 0 |
| | 15 | | 15 |

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 12a | 3 | English 12b | 3 |
| Foreign Language 12a* | 3 | Foreign Language 12b* | 3 |
| Teaching Subject | 3 | Teaching Subject | 3 |
| Education 314 | 3 | Education 317 | 3 |
| Science | 3 | Science (continued) | 3 |
| | 15 | | 15 |

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Education 25a | 3 | Education 25b | 3 |
| History 4a | 3 | History 4b | 3 |
| Teaching Subject | 3 | Teaching Subject | 3 |
| *Psychology 310 or Philosophy 312 or 316* | 3 | *Government 310* | 3 |
| Elective | 3 | Elective | 3 |
| | 15 | | 15 |

*See Requirement 4 under Course Requirements.

**Fourth Year**

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Education 27a | 3 | Education 27b | 3 |
| Education (advanced) | 3 | Education (advanced) | 3 |
| Teaching Subject (advanced) | 3 | Teaching Subject (advanced) | 3 |
| Teaching Subject (advanced) | 3 | Teaching Subject (advanced) | 3 |
| Advanced Elective† | 3 | Advanced Elective† | 3 |
| | 15 | | 15 |

**Summary**

| | | |
|---|---|---|
| 1. | Education 301, 302, 314, 317, 25, 27, and six additional semester hours of advanced courses | 30 |
| 2. | Teaching subject—twenty- four semester hours, twelve of which must be of advanced courses | 24 |
| 3. | English 1 and 12 | 12 |
| 4. | Science—six semester hours each of chemistry or physics and botany, or geology, or zoology | 12 |
| 5. | Foreign language—twelve numbered semester hours | 12 |
| 6. | Mathematics or Latin* or German* | 6 |
| 7. | History 4 | 6 |
| 8. | Government 310 | 3 |
| 9. | Phychology 310 or Philosophy 312 or 316 | 3 |
| 10. | Advanced elective† | 6 |
| 11. | Free electives | 6 |
| 12. | Orientation and physical education—no credit. | |
| | | 120 |

†Other than education and the teaching subject.

## ENGLISH MAJOR

(Minor in either French or German; or in Social Science—History, Sociology, Economics, and Government)

### First Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 1a | 3 | English 1b | 3 |
| Mathematics or German* or Latin* | 3 | Mathematics or German* or Latin* | 3 |
| History 4a | 3 | History 4b | 3 |
| Science | 3 | Science (continued) | 3 |
| French 1a* or German 1a* | 3 | French 1b* or German 1b* | 3 |
| Orientation and Physical Education | 0 | Physical Education | 0 |
| | 15 | | 15 |

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 12a | 3 | English 12b | 3 |
| French 12a* or German 12a* | 3 | French 12b* or German 12b* | 3 |
| Science | 3 | Science (continued) | 3 |
| Government 310 | 3 | Government 311† or elective§ | 3 |
| History 15a‖ or Sociology 310‖ or Economics 312‖ or elective§ | 3 | History 15b‖ or Sociology 311‖ or Economics 313‖ or elective§ | 3 |
| | 15 | | 15 |

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English (advanced) | 3 | English (advanced) | 3 |
| Language (advanced)§ or Social Science (advanced)‖ | 3 | Language (advanced)§ or Social Science (advanced)‖ | 3 |
| Psychology 310 | 3 | Elective | 3 |
| History 9a | 3 | History 9b | 3 |
| Elective | 3 | Elective | 3 |
| | 15 | | 15 |

*See Requirement 4 under Course Requirement.

†If government is chosen as part of the social science minor.

§If minor is in German or French.

‖If minor is in history or sociology or economics or government or combination.

**Fourth Year**

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English (advanced) | 3 | English (advanced) | 3 |
| English (advanced) | 3 | English (advanced) | 3 |
| Language (advanced)§ or Social Science (advanced)† | 3 | Language (advanced)§ or Social Science (advanced)† | 3 |
| Advance elective‡ | 3 | Advance elective‡ | 3 |
| Philosophy 312 or 316 | 3 | Elective | 3 |
| | 15 | | 15 |

**Summary**

| | | |
|---|---|---|
| 1. | English 1, 12, and eighteen additional semester hours of advanced courses | 30 |
| 2. | German or French—twelve numbered semester hours | 12 |
| 3. | Science—six semester hours each of chemistry or physics and botany or geology or zoology | 12 |
| 4. | History 4 and 9 | 12 |
| 5. | Mathematics or Latin* or German* | 6 |
| 6. | Government 310 | 3 |
| 7. | Philosophy 312 or 316 | 3 |
| 8. | Psychology 310 | 3 |
| 9. | Advanced elective‡ | 6 |
| 10. | Orientation and physical education—no credit. | —— |
| §11. | Twelve additional semester hours of advanced courses in French or German | 12 |
| §12. | Free electives | 21 |
| | | 120 |

| | | |
|---|---|---|
| ‖11. | Social science—eighteen additional semester hours, twelve of which must be of advanced courses | 18 |
| ‖12. | Free electives | 15 |
| | | 120 |

*See Requirement 4 under Course Requirement.

†If government is chosen as part of the social science minor.

‡Other than in the major and minor fields.

§If minor is in German or French.

‖If minor is in history or sociology or economics or government or combination.

## GEOLOGY MAJOR

(Minor in Chemistry)

### First Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Physics 1a | 3 | Physics 1b | 3 |
| English 1a | 3 | English 1b | 3 |
| Chemistry 801a | 4 | Chemistry 801b | 4 |
| *Mathematics* 803a | 5 | Mathematics 803b | 3 |
| Orientation and Physical Education | 0 | Geology 302 | 3 |
| | | Physical Education | 0 |
| | 15 | | 16 |

SUMMER READING: Required; no credit; see announcements.

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| *Geology* 1a | 3 | Geology 1b | 3 |
| Chemistry 311 | 3 | Chemistry 413 | 4 |
| English 12a | 3 | English 12b | 3 |
| Physics 12a | 3 | Physics 12b | 3 |
| History 4a | 3 | History 4b | 3 |
| | 15 | | 16 |

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Geology 427 | 4 | *Geology* (advanced) | 3 |
| Geology 321 | 3 | Geology (advanced) | 3 |
| Chemistry 423 | 4 | Government 310 | 3 |
| French 1a or German 1a | 3 | French 1b or German 1b | 3 |
| | | Philosophy 312 or 316 | 3 |
| | 14 | | 15 |

**Fourth Year**

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Geology 364 | 3 | Geology 365 | 3 |
| Chemistry 21a | 3 | Chemistry 21b | 3 |
| Geology (elective) | 2 | Elective | 3 |
| French 12a or German 12a | 3 | French 12b or German 12b | 3 |
| Elective (advanced) | 3 | Elective (advanced) | 3 |
| | 14 | | 15 |

**Summary**

| | | |
|---|---|---|
| 1. | Geology 302, 1, 427, 321, 364, 365, and at least eight additional semester hours, five of which must be of advanced courses | 30 |
| 2. | Chemistry 801, 311, 413, 423, and 21 | 25 |
| 3. | English 1 and 12 | 12 |
| 4. | Physics 1 and 12 | 12 |
| 5. | French or German—twelve numbered semester hours | 12 |
| 6. | Mathematics 803 | 8 |
| 7. | History 4 | 6 |
| 8. | Government 310 | 3 |
| 9. | Philosophy 312 or 316 | 3 |
| 10. | Advanced elective | 6 |
| 11. | Free elective | 3 |
| 12. | Orientation, physical education, and summer reading—no credit. | |
| | | 120 |

## HISTORY MAJOR

(Minor in Social Science—Government, Sociology, Economics or combination)

### First Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 1a | 3 | English 1b | 3 |
| Mathematics or Latin‖ or German‖ | 3 | Mathematics or Latin‖ or German‖ | 3 |
| Science | 3 | Science (continued) | 3 |
| History 4a | 3 | History 4b | 3 |
| History 9a | 3 | History 9b | 3 |
| Orientation and Physical Education | 0 | Physical Education | 0 |
| | 15 | | 15 |

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 12a | 3 | English 12b | 3 |
| Foreign Language 1a‖ | 3 | Foreign Language 1b‖ | 3 |
| Science | 3 | Science (continued) | 3 |
| History 15a | 3 | History 15b | 3 |
| Government 310 or Sociology 310 or Economics 312 | 3 | Government 311 or Sociology 311 or Economics 313 | 3 |
| | 15 | | 15 |

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| History (advanced) | 3 | History (advanced) | 3 |
| Government 310 or Sociology 310 or Economics 312 | 3 | Government 311 or Sociology 311 or Economics 313 | 3 |
| Government or Sociology or Economics (advanced) | 3 | Government or Sociology or Economics (advanced) | 3 |
| Psychology 310 or Philosophy 312 or 316 | 3 | Government 310* or elective | 3 |
| Foreign Langauge 12a‖ | 3 | Foreign Language 12b‖ | 3 |
| | 15 | | 15 |

‖See Requirement under Course Requirements.
*If Government 310 has not already been taken.

### Fourth Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| History (advanced) | 3 | History (advanced) | 3 |
| History (advanced) | 3 | History (advanced) | 3 |
| Government or Sociology or Economics (advanced) | 3 | Government or Sociology or Economics (advanced) | 3 |
| Advanced elective† | 3 | Advanced elective† | 3 |
| Elective | 3 | Elective | 3 |
| | 15 | | 15 |

### Summary

| | | |
|---|---|---|
| 1. | History 4, 9, 15, and eighteen additional semester hours of advanced courses | 36 |
| 2. | Government or economics or sociology or combination, twenty-four semester hours, twelve of which must be of advanced courses | 24 |
| 3. | English 1 and 12 | 12 |
| 4. | Foreign language—twelve numbered semester hours | 12 |
| 5. | Science—six semester hours each of chemistry or physics and botany or geology or zoology | 12 |
| 6. | Mathematics or Latin‖ or German‖ | 6 |
| 7. | Psychology 310 or Philosophy 312 or 316 | 3 |
| 8. | Government 310 | 3 |
| 9. | Advanced elective† | 6 |
| 10. | Free electives | 6 |
| 11. | Orientation and physical education—no credit. | |
| | | 120 |

‖See Requirement 4 under Course Requirements.
†Other than in history, government, sociology, and economics.

## MATHEMATICS MAJOR

(Minor in either Physics or Chemistry)

### First Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 1a | 3 | English 1b | 3 |
| German 1a or French 1a | 3 | German 1b or French 1b | 3 |
| Mathematics 803a | 5 | Mathematics 803b | 3 |
| Orientation and Physical Education | 0 | Physical Education | 0 |
| Chemistry 801a* | 4 | Chemistry 801b* | 4 |
| | | Elective* | 3 |
| | 15 | | 16 |
| Physics 1a† | 3 | Physics 1b† | 3 |
| | | Elective† | 3 |
| | 14 | | 15 |

SUMMER READING: Required; no credit; see announcements.

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 12a | 3 | English 12b | 3 |
| German 12a or French 12a | 3 | German 12b or French 12b | 3 |
| Mathematics 13a | 3 | Mathematics 13b | 3 |
| Physics 1a* | 3 | Physics 1b* | 3 |
| Chemistry 311* | 3 | Chemistry 413* | 4 |
| | 15 | | 16 |
| Chemistry 801a† | 4 | Chemistry 801b† | 4 |
| Physics 12a† | 3 | Physics 12b† | 3 |
| | 16 | | 16 |

*If chemistry is elected as minor.
†If physics is elected as minor.

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Mathematics (advanced) | 3 | Mathematics (advanced) | 3 |
| Botany 1a or Geology 1a or Zoology 1a | 3 | Botany 1b or Geology 1b or Zoology 1b | 3 |
| Philosophy 312 | 3 | Government 310 | 3 |
| History 4a | 3 | History 4b | 3 |
| Chemistry 423* | 4 | **Elective*** | **3** |
| | 16 | | 15 |
| Physics (advanced)† | 3 | Physics (advanced)† | 3 |
| | 15 | | 15 |

### Fourth Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Mathematics (advanced) | 3 | Mathematics (advanced) | 3 |
| Mathematics (advanced) | 3 | Mathematics (advanced) | 3 |
| Chemistry 21a* | 3 | Chemistry 21b* | 3 |
| Elective* | 6 | Elective* | 3 |
| | 15 | | 12 |
| Physics (advanced)† | 3 | Physics (advanced)† | 3 |
| Elective (advanced)† | 4 | Elective† | 5 |
| Elective† | 2 | | |
| | 15 | | 14 |

### Summary

| | | |
|---|---|---|
| 1. | Mathematics 803, 13, and eighteen additional semester hours of advanced courses | 32 |
| 2. | English 1 and 12 | 12 |
| 3. | German or French—twelve numbered semester hours | 12 |
| 4. | History 4 | 6 |
| 5. | Botany 1 or Geology 1 or Zoology 1 | 6 |
| 6. | Government 310 | 3 |
| 7. | Philosophy 312 | 3 |
| 8. | Physics 1 | 6 |

*If chemistry is elected as minor.
†If physics is elected as minor.

| | | |
|---|---|---|
| 9. | Chemistry 801 | 8 |
| 10. | Orientation, physical education, and summer reading—no credit. | |
| ‡11. | Physics 12 and twelve additional semester hours of advanced courses | 18 |
| ‡12. | Advanced electives | 4 |
| ‡13. | Free electives | 10 |
| | | 120 |

| | | |
|---|---|---|
| §11. | Chemistry 311, 413, 423, and 21 | 17 |
| §12. | Free electives | 15 |
| | | 120 |

## MODERN LANGUAGE MAJOR

(French Major—Minor in German)

(German Major—Minor in French or Spanish)

(Spanish Major—Minor in German)

### First Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 1a | 3 | English 1b | 3 |
| Major Language 1a* | 3 | Major Language 1b* | 3 |
| Minor Language* | 3 | Minor Language* | 3 |
| Science | 3 | Science (continued) | 3 |
| History 4a | 3 | History 4b | 3 |
| Orientation and Physical Education | 0 | Physical Education | 0 |
| | 15 | | 15 |

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| English 12a | 3 | English 12b | 3 |
| Major Language 12a* | 3 | Major Language 12b* | 3 |
| Minor Language* | 3 | Minor Language* | 3 |
| Science | 3 | Science (continued) | 3 |
| Mathematics or Latin* or German* | 3 | Mathematics or Latin* or German* | 3 |
| | 15 | | 15 |

*See Requirement 4 under Course Requirements.
†Other than in major and minor languages.
‡If physics is elected as minor.
§If chemistry is elected as minor.

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Major Language (advanced) | 3 | Major Language (advanced) | 3 |
| Minor Language (advanced) | 3 | Minor Language (advanced) | 3 |
| Psychology 310 | 3 | Government 310 | 3 |
| History 9a | 3 | History 9b | 3 |
| Elective | 3 | Elective | 3 |
| | 15 | | 15 |

### Fourth Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Major Language (advanced) | 3 | Major Language (advanced) | 3 |
| Major Language (advanced) | 3 | Major Language (advanced) | 3 |
| Minor Language (advanced) | 3 | Minor Language (advanced) | 3 |
| Advanced elective† | 3 | Advanced elective† | 3 |
| Philosophy 312 or 316 | 3 | Elective | 3 |
| | 15 | | 15 |

### Summary

| | | |
|---|---|---|
| 1. | Major Language 1, 12, and eighteen additional semester hours of advanced courses | 30 |
| 2. | Minor Language 1, 12, and twelve additional semester hours of advanced courses* | 24 |
| 3. | English 1 and 12 | 12 |
| 4. | Science—six semester hours each of chemistry or physics and botany, or geology, or zoology | 12 |
| 5. | Mathematics or Latin* or German* | 6 |
| 6. | History 4 and 9 | 12 |
| 7. | Government 310 | 3 |
| 8. | Philosophy 312 or 316 | 3 |
| 9. | Psychology 310 | 3 |
| 10. | Advanced elective† | 6 |
| 11. | Free electives | 9 |
| 12. | Orientation and physical education—no credit. | |
| | | 120 |

*See Requirement 4 under Course Requirements.
†Other than in major and minor languages.

## PHYSICS MAJOR

(Minor in Mathematics)

### First Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Physics 1a | 3 | Physics 1b | 3 |
| Chemistry 801a | 4 | Chemistry 801b | 4 |
| Mathematics 803a | 5 | Mathematics 803b | 3 |
| English 1a | 3 | English 1b | 3 |
| Orientation and Physical Education | 0 | Geology 302 | 3 |
| | | Physical Education | 0 |
| | 15 | | 16 |

SUMMER READING: Required; no credit; see announcements.

### Second Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Physics 12a | 3 | Physics 12b | 3 |
| Mathematics 13a | 3 | Mathematics 13b | 3 |
| English 12a | 3 | English 12b | 3 |
| History 4a | 3 | History 4b | 3 |
| French 1a or German 1a | 3 | French 1b or German 1b | 3 |
| | 15 | | 15 |

### Third Year

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Physics (advanced) | 3 | Physics (advanced) | 3 |
| Mathematics 25a or 41a* | 3 | Mathematics 25b or 41b* | 3 |
| Chemistry 311 | 3 | Chemistry 413 | 4 |
| Zoology 1a or Botany 1a | 3 | Zoology 1b or Botany 1b | 3 |
| German 12a or French 12a | 3 | German 12b or French 12b | 3 |
| | 15 | | 16 |

*May be counted as six advanced semester hours of either mathematics or physics.

**Fourth Year**

| First Semester | Semester Hours | Second Semester | Semester Hours |
|---|---|---|---|
| Physics (advanced) | 3 | Physics (advanced) | 3 |
| Physics (advanced) | 3 | Physics (advanced) | 3 |
| Mathematics 25a or 41a* | 3 | Mathematics 25b or 41b* | 3 |
| Philosophy 312 | 3 | Government 310 | 3 |
| Psychology 310 | 3 | Chemistry 251 | 2 |
| | 15 | | 14 |

**Summary**

| | | |
|---|---|---|
| 1. | Physics 1, 12, and eighteen additional semester hours of advanced courses | 30 |
| 2. | Mathematics 803, 13, 25, and *41 or six other semester hours of advanced courses in mathematics | 26 |
| 3. | English 1 and 12 | 12 |
| 4. | French or German—twelve numbered semester hours | 12 |
| 5. | Chemistry 801, 311, 413, and 251 | 17 |
| 6. | Botany 1 or Zoology 1 | 6 |
| 7. | History 4 | 6 |
| 8. | Geology 302 | 3 |
| 9. | Psychology 310 | 3 |
| 10. | Philosophy 312 | 3 |
| 11. | Government 310 | 3 |
| 12. | Orientation, physical education, and summer reading—no credit. | |
| | | 121 |

*May be counted as six advanced semester hours of either mathematics or physics.

## PRELIMINARY WORK FOR OTHER DEGREES

Preliminary work covering from one to three years is offered for most degrees in engineering, law, and medicine.

### Selection of Courses

Certain rules govern the order and choice of work, particularly for the freshman and sophomore years. These rules vary somewhat with the character of the degree for which the student proposes to become a candidate. The student should, near the end of his freshman year, advise with his Dean concerning the further selection of courses.

### Work Preparatory to Law

Minimum Requirements for Admission to The University of Texas School of Law

*Freshman Year:* English 1, six semester hours in mathematics, History 4, a natural science, an elective.

*Sophomore Year:* English 12, Government 310 and 311, Economics 312 and 313, History 15, and any other academic course which requires sophomore standing or completion of a freshman course as a prerequisite.

### Work Preparatory to Medicine

Leading to Degree of Bachelor of Arts

Completion of the following courses leads to the degree of Bachelor of Arts at the end of the first year of work in the School of Medicine at Galveston.

Thus both the B.A. and the M.D. degrees may be taken in seven years.

*Freshman Year:* English 1; six semester hours in French or German; six semester hours in mathematics; Chemistry 801; Zoology 1.

*Sophomore Year:* English 12; six additional semester hours in the foreign language taken in the freshman year; Chemistry 311 and 413; Physics 1; Zoology 14.

*Junior Year:* Chemistry 821 and 423; Government 310 and three semester hours in economics; Psychology 310; Zoology 316 and 317, or Zoology 320 and 321; elective, enough to make a total of thirty semester hours for the year.

### Work Preliminary to Other Engineering Degrees

At least two years of work leading to practically all engineering degrees is offered.

*Uniform Freshman Year.*—First semester: Mathematics 803, Chemistry 801, Drawing 301, English 1, Physics 1. Second semester: Mathematics 803, Chemistry 801, Drawing 302, English 1, Physics 1.

## STATE TEACHERS' CERTIFICATES

Students are not encouraged to apply for certificates until at least two years of college work have been completed.

The requirements for the four-year elementary teacher's certificate are sixty semester hours of credit work including English 1, Government 310, and Education 301, 302, 314, and 311. Students wishing to secure a four-year high school certificate are advised to take sixty semester hours of credit work including English 1 and 12, Government 310, and Education 301, 302, 314, and 317.

A student who holds an A.B. degree from the College is entitled to a permanent high school certificate, provided he has credit for Education 301, 302, 314, 317, 27, and six other advanced hours of education.

Information concerning other teachers' certificates may be obtained from the Registrar.

# COURSES OF INSTRUCTION

For an explanation regarding numbers and letters used in titles of courses and their meanings with respect to prerequisites of residence and credit, credit hours earnable, amount of work required in and out of class, semesters in which offered, etc., please see "Explanation of Courses," p. 41.

## BIOLOGICAL SCIENCES

ASSOCIATE PROFESSOR BERKMAN*; INSTRUCTORS JENNESS, WHITEHOUSE, SHOFNER

### Botany

*1. Elementary Botany.*—General survey of the development of the plant kingdom; cell structure, tissues, physiological processes, methods of reproduction, relation to environment, distribution, and economic importance of plants. Two lectures and three laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*11. Taxonomy of the Seed Plants.*—Lectures on principles of classification of gymnosperms and angiosperms, with herbarium and field study, emphasis being placed on characters of taxonomic importance. Prerequisite: Botany 1; or Geology 1 or Zoology 1, and sophomore standing. One lecture and six hours of laboratory or field work. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

### Zoology

*1. General Zoology.*—For students beginning the study of zoology. General survey of animal life, with emphasis upon the important phases of theoretical biology. Two lectures and four laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*14. Vertebrate Zoology.*—Laboratory study of dog-fish, necturus, turtle, bird, mammal, and perhaps other typical vertebrates. Prerequisite: Zoology 1. Two lectures and four laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*316f. Heredity.*—Elementary presentation of fundamental principles of heredity in their application to animals, plants, and mankind. Prerequisite: Sophomore standing. Credit value: Three semester hours.

*317s. Evolution.*—Some of the topics considered in this course are: The evidence for evolution; the methods of evolution; the course which

*Absent on leave for the session of 1931-1932.

evolution has taken. Prerequisite: Zoology 316. Credit value: Three semester hours.

*320s. Cellular Biology.*—The study of cell phenomena, such as the structure of the cell, maturation, fertilization, sex-determination, cell division. Prerequisite: Zoology 14; for juniors and seniors, Zoology 1 completed with a grade of at least *C*, and Zoology 14 in parallel. Zoology 14 must be completed before the student can get credit for Zoology 320. Two lectures and six laboratary hours. Laboratory fee, $4; deposit, $2. Credit value: Three semester hours.

*321f. Vertebrate Embryology.*—A study of the development of typical vertebrates, with emphasis on the development of the chick and a mammal. Prerequisite: Zoology 1 and 14; for juniors and seniors, Zoology 1 completed with a grade of at least *C*, and Zoology 14 in parallel. Zoology 14 must be completed before the student can get credit for Zoology 321. Two lectures and six laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Three semester hours.

## CHEMISTRY

PROFESSOR SEAMON; ADJUNCT PROFESSOR LAKE; INSTRUCTOR BALL

*801. General Chemistry.*—The laws and theories of chemistry; the chemical elements and their most important compounds with reference to their production and use. A comprehensive course of instruction is given in the solution of chemical problems. Special effort is made to acquaint the student with scientific methods of experimentation, observation, and reasoning. Two lectures, one recitation, three laboratory hours, and six hours' preparation per week. Laboratory fee, $4; deposit, $6. Credit value: Eight semester hours. Formerly Chemistry 901.)

*311f. Qualitative Analysis.*—Intended to emphasize the principles involved in chemical analysis, to broaden the student's knowledge of inorganic chemistry, to develop deductive reasoning power, and to give practice in manipulation. The student is required to analyze unknown solids and solutions. A comprehensive course in writing chemical equations is given. Prerequisite: Chemistry 801. One lecture, five laboratory hours, and three hours' preparation per week. Laboratory fee, $2; deposit, $6. Credit value: Three semester hours.

*413s. Gravimetric Chemical Analysis.*—The quantitative analysis of chemical salts, minerals, ores, rocks, and industrial products. The principles involved in the methods of analysis are discussed in detail. A through course of instruction in the solution of problems is given. Prerequisite: Chemistry 311. The last three semester hours of this course count as advanced. One lecture, eight laboratory hours, and

four hours' preparation per week. Laboratory fee, $4; deposit, $6. Credit value: Four semester hours. (Formerly Chemistry 12a.)

*21 and 821. Organic Chemistry.*—A study of the fundamental types of carbon compounds. Prerequisites: Chemistry 801 with a grade of *C*, and Chemistry 423 concurrently; but credit will not be given until Chemistry 423 has been completed. Three lectures, three laboratory hours, and six hours' preparation per week for 821. Students registering for 21 will receive the equivalent of two lectures, three laboratory hours, and four hours' preparation. Laboratory fee, $4; deposit, $6. Credit value for 21: Six semester hours; for 821: Eight semester hours.

*422. Organic Preparations.*—A study of the most important synthetic organic methods. Prerequisite: Chemistry 821. Six laboratory hours and two hours' preparation per week each semester. Laboratory fee, $4; deposit, $6. Credit value: Four semester hours.

*423f. Volumetric Chemical Analysis.*—The preparation and standardization of solutions used in quantitative analysis by volumetric methods. Acidimetry and alkalimetry. The quantitative anlysis of minerals, ores, rocks, and furnace products by volumetric methods. Theory and methods are kept abreast of the most recent advance in quantitative analytical chemistry. Prerequisite: Chemistry 413. One lecture, eight laboratory hours, and four hours' preparation per week. Laboratory fee, $4; deposit, $6. Credit value: Four semester hours. (Formerly Chemistry 12b.)

*324s. Assaying.*—The determination of gold, silver, and lead by fire methods in minerals, ores, and products of mills and smelters. Thermochemistry and the formation of silicates and slags are studied, and the student is encouraged to work out his own assay charges based upon his knowledge of fundamental principles, aided by the study of typical examples. Prerequisite: Chemistry 423. One lecture, six laboratory hours, and two hours' preparation per week. Laboratory fee, $2; deposit, $6. Credit value: Three semester hours. (Formerly Chemistry 424.)

*240s. Oil and Gas Analysis.*—A study of the fundamentals involved in testing petroleum and related substances together with their secondary products. Various standard tests are studied in the laboratory and their respective values in specifications are emphasized. Prerequisite: Chemistry 423 and 21 in advance or concurrently, and Physics 12 or 812. One lecture, three laboratory hours, and three hours' preparation per week. Laboratory fee, $2; deposit, $6. Credit value: Two semester hours.

*343s. Metallurgical Analysis.*—Advanced quantitative chemical analysis; the analysis of alloys, boiler feed water, flue gas, and the theory

and use of electricity in chemical analysis. Prerequisite: Chemistry 423. One lecture, six laboratory hours, and two hours' preparation per week. Laboratory fee, $2; deposit, $6. Credit value: Three semester hours.

*251s. Physical Chemistry.*—The more important principles of physical chemistry. Properties of substances in the solid, liquid, and gaseous state; the mass-action law applied to homogeneous and heterogeneous equilibria; the phase rule, kinetics of chemical reactions. These principles are illustrated and emphasized by numerous problems. Prerequisite: Chemistry 413, Physics 812, Mathematics 13, and junior standing. Two lectures and four hours' preparation per week. Credit value: Two semester hours.

*860. Physical Chemistry.*—Properties of substances in the gaseous, liquid, and solid state; solutions; thermochemistry, homogeneous and heterogeneous equilibria; kinetics of reaction; electrochemistry. Prerequisite: Chemistry 423 and 821, Mathematics 13 in advance or concurrently, and Physics 1. Three lectures and three laboratory hours per week. Laboratory fee, $4; deposit, $6. Credit value: Eight semester hours.

## CLASSICS AND PHILOSOPHY

ASSOCIATE PROFESSOR ROTH

### Greek

*20. The Classics in English.*—Intensive study of the Greek, Roman, and other ancient poets, historians, tragedians, and philosophers in translation, with emphasis on the background furnished to other literatures, especially English. Prerequisite: English 12. Credit value: Six semester hours.

### Latin

*A. Beginner's Latin.*—Conducted in part by the direct method. Forms, word-formation, and the fundamentals of syntax, followed by easy reading. Credit value: Six semester hours.

*1. Freshman Reading.*—Selections from Cicero and Horace. Lectures on Roman Literature and Antiquities. Prerequisite: Two entrance units in Latin or Latin A. Credit value: Six semester hours.

*12. Sophomore Reading.*—Plautus, Terence, and Pliny. Practice in Latin speaking. Prerequisite: Latin 1. Credit value: Six semester hours.

### Philosophy

*312f. Logic.*—Introduction to essentials of correct thinking; deductive and inductive reasoning; fallacies and argumentation. Prerequisite: Sophomore standing. Credit value: Three semester hours.

*315s. Ethics.*—Introductory survey of the evolution of moral codes and ideals; reflective morality; conduct and character; conflicts of interests; personal and social ethics. Prerequisite: Philosophy 312. Credit value: Three semester hours.

*316s. Philosophies of Life.*—Study of the various classical philosophies of life from the point of view of their moral, religious, and aesthetic values. Prerequisite: Sophomore standing. Credit value: Three semester hours.

### Psychology

*310f.—Introductory Psychology.*—A survey of the field of general psychology. Prerequisite: Sophomore standing. Credit value: Three semester hours.

## ECONOMICS AND BUSINESS ADMINISTRATION

ASSOCIATE PROFESSORS BEYNON*, SHAFER†; INSTRUCTORS CLAYTON‡, RENKEN, STEVENS§

### Economics

*312f. Elementary Economics.*—First course: A general survey of the principles and facts involved in the production, exchange, and distribution of wealth in our capitalistic economic system. Specific topics touched upon briefly include historical development, the factors and functions in production, business organization and financial statements, organization of labor, the monetary system, the banking system, transportation, markets, value and price, and the principles underlying the determination of wages, interest, rent, and profits. Required of all students majoring in the department. Prerequisite: Sophomore standing. Credit value: Three semester hours.

*312s. Elementary Economics.*—A repetition each second semester of Economics 312f.

*313s. Elementary Economics.*—Second course: A continuation of Economics 312. Particular problems are introduced, including those

*Deceased December 11, 1931.
†Appointment effective February 1, 1932.
‡Appointment effective December 10, 1931.
§Appointment effective December 10, 1931, through January 31, 1932.

of consumption, protective tariffs, the regulation of public utilities, immigration, public revenues and expenditures, business cycles, changing monetary value, and the numerous schemes of reform and reorganization. Required of all students majoring in the department Prerequisite: Economics 312. Credit value: Three semester hours.

*322f. Money and Banking.*—Study of the principles of money and banking, the existing monetary and banking systems of the United States and selected foreign countries. History of precious metals, bank development, bimetallism, credit, relation of money and credit to prices, fiat money, national and state banking systems, central banks, and principles of foreign exchange. Required of all student majoring in economics. *Prerequisite: Economics* 313. Credit value: Three semester hours.

*329s. Economic Statistics.*—Training in the quantitative methods of analysis in dealing with the problems of economics. The use of tabular and graphic methods in presenting data; organization and description of data; *frequency distributions; types of* averages; index numbers; measures of variation and skewness; organization and analysis of time series; correlation. Required of all students majoring in the department. Prerequisite: Economics 313. One lecture, one discussion period, and five laboratory hours. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours. May not be counted for credit in addition to Business Administration 432.

*332s. Corporation Finance.*—The promotion of corporations in the process of formation, capital structure and its sources; internal financial management; receiverships; reorganization; the relationship of corporation finance to the banks; social consequences of the struggle to earn accounting profits. Prerequisite: Economics 313. Credit value: Three semester hours. (Given in alternate years.)

*335f. Corporate Structure.*—A brief examination of sole proprietorships, partnerships, associations, and other non-corporate business units. The formation of general business corporations, or special business corporations such as banks and public service companies; powers; liabilities; *ultra vires* acts and their consequences; regulation; *taxation; the social* consequences of the rise of corporations as dominant business units; combinations and "trusts"; governmental control of combinations. Prerequisite: Economics 313. Credit value: Three semester hours. (Given in alternate years.)

*337f. Principles of Marketing.*—Place of marketing in our economic structure; the *marketing* functions analyzed; development of market structures by type products. Offered each fourth semester. Prerequisite: Economics 313. Credit value: Three semester hours. May not be counted for credit in addition to Business *Administration* 437. (Given in alternate years with 339s.)

*339s. Principles of International Trade and Finance.*—The theory of international trade; the protection and free trade controversy; control of raw materials, financial penetration; economic aspects of the World War obligations; commercial treaties; merchant marine, colonial trade policies; and the position of the United States in world trade. Offered every fourth semester. Prerequisite: Economics 313. Credit value: Three semester hours. (Given in alternate years with 337f.)

*359s. Seminar in Economics.*—The work will be adapted to the individual need of students. Each student will select one or more problems for individual investigation and report. Methodology in research will be stressed; a formal paper comprises one part. Required for students majoring in the department. Prerequisite: Economics 313 and consent of instructor.

**Business Administration**

*311f. Theory and Principles of Accounting.*—Principles of double-entry bookkeeping and the theories of general financial accounting as applied to the fundamental books of sole proprietorships, partnerships and corporations. Particular attention is given to the analysis of profit and loss statements and balance sheets and their derivations. Required for all students majoring in the department. Prerequisite: Sophomore standing. Credit value: Three semester hours.

*211s. Theory and Principles of Accounting.*—Similar to Business Administration 311. For engineering students. Prerequisite: Sophomore standing. Two lectures. Credit value: Two semester hours.

*314s The Practice of Accounting.*—A continuation of course 311. Students apply the theory and principles of accounting to particular exercises. Prerequisite: Business Administration 311. Laboratory fee, $2; deposit, $2. One discussion period and six laboratory hours. Credit value: Three semester hours.

*23. Business Law.*—By the text method; the general principles of the law of contracts, agency, bankruptcy, bailments, sales, mortgages, negotiable instruments, presented in practical business problems; Texas statutes affecting these subjects. Required for students majoring in the department. Prerequisite: Economics 313. Credit value: Six semester hours.

*432s. Business Statistics.*—Training in the quantitative methods of analysis in dealing with the problems of business management. The use of graphic methods in presenting data; the organization and description of data; the frequency distribution; types of averages; index numbers; measures of variation and skewness; organization and

analysis of time series; the problems of correlation and the business cycle. Prerequisite: Economics 313, six semester hours of mathematics, and junior standing. One lecture, one discussion period, and eight laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours. May not be counted for credit in addition to Economics 329.

*437s. Principles of Marketing.*—Place of marketing in our economic structure; the marketing functions analyzed; development of market structures by type products; special features and problems arising from present marketing practices. Offered each fourth semester. Prerequisite: Economics 313. Credit value: Four semester hours. May not be counted for credit in addition to Economics 337. (Given in alternate years.)

## EDUCATION

PROFESSOR PUCKETT; INSTRUCTORS DURKEE, REYNOLDS, SCOTT, SAXON, KANE

*301f. Introduction to Educational Psychology.*—A study of some of the topics in educational psychology which relate most directly to an understanding of the learning process and the conduct of children. Credit value: Three semester hours.

*301s. Introduction to Educational Psychology.*—Repetition of Education 301f.

*302s. Methods and Management in the Elementary School.*—Deals with the methods for teaching elementary school subjects, and with the management of elementary school pupils. Credit value: Three semester hours.

*302f. Methods and Management in the Elementary School.*—Repetition of Education 302s.

*311s. Practice Teaching in the Elementary Grades.*—A study of principles of teaching, observation of class work, construction of lesson plans, and teaching under supervision. Prerequisite: Education 314. Credit value: Three semester hours.

*314f. Child Psychology.*—A study of the changes which take place in the life of the child as related to the processes of education. Prerequisite: Education 301 and 302 and sophomore standing. Credit value: Three semester hours.

*317s. An Introduction to High-School Teaching.*—Basic principles of high-school teaching and high-school management will be considered. Prerequisite: Education 301 and 302 and sophomore standing. Credit value: Three semester hours.

*321s. Public School Organization and Administration.*—Problems confronting the administrative officer in local schools, such as relation of superintendent with board and public, organization of schools, development of curricula, selection and promotion of teachers. Prerequisite: Twelve semester hours in education. Credit value: Three semester hours. (Offered in alternate years.)

*25. History of Education.*—Studies from the ancient, medieval, and modern periods. Attention will be given to the history of American and Texas education. Prerequisite: Twelve semester hours in education and junior standing. Credit value: Six semester hours.

*27. Student-Teaching.*—A study of principles of teaching, observation of class work, construction of lesson plans, and teaching under supervision. Ordinarily, one period daily for six days a week will be required, but students are expected to have two consecutive hours, between 9 and 3 o'clock throughout the week, in order to facilitate making the teaching assignments. Required of all candidates for a degree with a major in education or for a permanent certificate. Prerequisite: Education 314 and 317, and senior standing. Credit value: Six semester hours.

*36. Curriculum Construction.*—Study of educational theories, principles, methods, and subject-matter which are essential to curriculum making in the elementary schools. Intensive study of the needs of children in general, as well as a thorough survey of the special needs of children in this particular section of the State. The work of the class will include a study of the curriculum for elementary schools. Prerequisite: Twelve semester hours in education, including Education 314. Credit value: Six semester hours. (Offered in alternate years.)

*355f. Mental and Educational Measurement.*—Introduction to measurement in education. Typical methods of measuring intelligence, character, and achievement. Elementary statistical terms and processes. Preparation for use of mental and educational tests. Prerequisite: Education 314 and 317. Credit value: Three semester hours. (Offered in alternate years.)

*Physical Education 21. Physical Education Methods.*—Course for women. Subject matter and method of physical education in the elementary school. Will consider content, progression, and instruction in plays and games, individual and self-testing activities, including stunts, contests, apparatus, dancing, and playground activities. A number of hours of practice teaching and officiating are required. Prerequisites: Junior standing in the Education Major; and Education 301, 302, 314, and 317. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*Physical Education 22. Physical Education Methods.*—Course for men. This course corresponds to Physical Education 21, but deals with teaching methods in activities for boys, including individual and mass athletics, games, contests, stunts, self-defense, etc. A number of hours of practice teaching and officiating are required. Prerequisites: Junior standing in the Education Major; and Education, 301, 302, 314, and 317. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*Physical Education 31. Physical Education Methods in Athletics* (for women).—Theory and practice of teaching athletic sports for girls and women; sports dealt with include basket ball, soccer, playground ball, volley ball, field hockey, handball, tennis, archery, track and field, swimming; practice in measuring achievement, and in officiating. Prerequisites: Senior standing in the Education Major, and Physical Education 21. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*Physical Education 32. Physical Education Methods in Athletics* (for men).—Theory and practice of coaching athletic sports for men; sports include football, basketball, track and field, baseball, swimming; training and conditioning of athletes, schedules, supervision of equipment, and officiating. Practice hours are devoted to participating in the activities of the College athletic squads. Prerequisites: Senior standing in the Education Major, and Physical Education 22. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

### Public School Art

*12 Creative Design.*—A course for students and teachers interested in design as applied to Public School Art. Introduction in principles of design with practice in making designs for printed silks, cottons, cretonnes, and wall papers in accordance with trade requirements. Block printing for textiles also taught. Six laboratory hours. Prerequisite: Six semester hours of drawing. Credit value: Six semester hours. (Offered only in 1931-1932.)

### Public School Music

*1. Music in the Kindergarten and Primary Grades.*—Value of music as an educational subject, sight singing, ear training, phrasing, notation, rhythm, scale building, teaching of rote songs, care of child voice, treatment of monotones, choice of suitable materials, teaching of appreciation. Credit value: Six semester hours.

*1½. Music in the Intermediate Grades.*—Study of the child voice, changing voice, part singing, principles underlying classroom methods,

examination of material, teaching of appreciation. Prerequisite: Public School Music 1. Credit value: Six semester hours.

*320f. Voice Class Teaching.*—A course dealing with the theory and practice of vocal production particularly in the high school with special attention to methods of presentation to groups rather than to individuals. A study of choral literature. Two lectures and three hours of practice. Prerequisite: Public School Music 1 and 14. Credit value: Three semester hours.

## ENGINEERING AND DRAWING

PROFESSOR KIDD; ADJUNCT PROFESSORS DURKEE, MARSH, THOMAS; INSTRUCTOR PHILLIPS

### Engineering

*310. Surveying.*—The first semester will be devoted to plane surveying and will include such topics as leveling, determination of meridian, topographic surveying, the elements of precision, and the solution of a large number of practical problems. The second semester will deal with railroad surveying; thory of simple, compound, and transition curves; changes in alignment; frogs, switches, and crossovers; vertical curves, cross-sectioning, and calculation of earthwork. Prerequisite: Mathematics 803 and Drawing 302. Three lectures and laboratory work of one afternoon per week, both semesters. Laboratory fee, $4; deposit, $2. Credit value: Eight semester hours.

*311s. Elements of Electrical Engineering.*—Direct current, electric and magnetic circuits. Prerequisite: Mathematics 13a and Physics 12a. Two recitations and one laboratory period per week. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours.

*212f. Mechanism.*—A study of the laws which govern the motion of machine parts and the forces transmitted by the parts. Graphic analyses are made of various mechanisms, the motions produced, the velocities and accelerations of the parts; a study of links, cams, and gears. Prerequisite: Mathematics 803 and Drawing 302. Two lectures, three laboratory hours, and two hours' preparation per week. Laboratory fee, $2; deposit, $2. Credit value: Two semester hours. Selected general engineering students may earn an additional hour of credit by doing additional work.

*213s. Plane Surveying.*—The theory of plane surveying including the care and adjustment of instruments; land surveying; traverses; leveling; determination of meridian; topographic surveying; mapping; the different systems of note-keeping; the usual computations used in plane surveying; and an elementary discussion of precision. Pre-

requisite: Mathematics 803 and Drawing 302. Two lectures. Credit value: Two semester hours.

*414. Field Surveying.*—Summer work; practical field course covering the topics outlined in Engineering 213. Accurate and rapid work will be insisted upon. Prerequisite: Engineering 213. Eight hours daily for four weeks preceding the opening of the session. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours.

*315s. Technical Mechanics.*—Concurrent, parallel and non-concurrent forces; friction, reactions; graphical and analytical determination of stresses in framed structures, centers of gravity, moments of inertia of areas. Prerequisite: Physics 1 and Mathematics 13a. Credit value: Three semester hours.

*431s. Direct and Alternating Current.*—Theory of direct and alternating current circuits and machinery; comparison of direct with alternating current for various uses in mining, metallurgical, and electro-chemical work. Prerequisite: Physics 812 and Mathematics 13. Three lectures and three laboratory hours per week. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours.

*832. Applied Mechanics and Structures.*—Center of gravity, moment of inertia, radius of gyration; bending moments; shear, torsion; resilience; flexure of beams; theory of long columns; strength of materials. The funicular polygon; moment diagram; shear diagram; determination of stresses in various types of roof and bridge trusses; completed designs in steel and timber; comparisons as to weight and cost. Prerequisite: Drawing 302, Mathematics 13, and Physics 12 or 812. Three lectures and three laboratory hours per week. Credit value: Eight semester hours.

*233s. Applied Mechanics and Structures.*—The last two semester hours of Engineering 832. May not be counted for credit in addition to Engineering 832. Prerequisite: Engineering 32. Three lectures and three laboratory hours per week for the last nine weeks. (Offered in 1932-1933 only.)

*350s. Thermodynamics.*—The fundamental equations of gases and their application to the steam engine; the heating values of different fuels; the construction and operation of steam boilers; boiler feed pumps; different types of steam engines as regards speed, valves, steam consumption, comparative cost, and relative economy; adjustments of valves, and determination of horsepower by the use of the indicator; steam turbines. Prerequisite: Mathematics 13 and Physics 12 or 812. Three lectures. Credit value: Three semester hours.

*354f. Hydraulics.*—Brief course of hydrostatics; fluids in motion; flow of liquids through pipes, orifices, and over weirs, fluid friction

and loss of head; Bernoulli's theorem; flow of water in canals and rivers; Kutter's formula; and graphical methods. Prerequisite: Physics 12 or 812 and Mathematics 13. Three lectures per week. *Credit value:* Three semester hours.

**Drawing**

*301f. Engineering Drawing.*—For all engineering students. Geometrical construction, freehand lettering, orthographic projection, pictorial methods, working drawings, tracing, and blueprinting. One one-hour discussion and eight hours of supervised drawing per week. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours.

*302s. Descriptive Geometry.*—Includes intersections and development of solids, curved lines, curved surfaces, and warped surfaces, in addition to the point, line, and plane problems. Prerequisite: Drawing 301 and Mathematics 208 unless solid geometry is presented for entrance. One one-hour discussion, and eight hours of supervised drafting per week. Credit value: Three semester hours. Laboratory fee, $2; deposit, $2.

*305f. Principles of Drawing.*—Use of simple drawing instruments including board, T-square, triangles, irregular curves, scales, compass, etc. Application to and interpretation of simple projections, working drawings, and diagrams. Elements of cartographic drawing, including representation of surface forms by contours and shading, and symbols. The principles of lettering, including a consideration of mass, form, spacing, and construction of letters, with emphasis on freehand methods, and instruction in the use of special pens. The theories of pictorial drawing and prespectives with simple applications, especially by freehand drawing. This course is designed for its cultural and utilitarian value to general students, and should be elected by those who wish to develop ability in graphic representations, especially those who expect to design and make drawings, sketches, graphs, charts, diagrams, etc., accompanied by lettering. Essential to majors in economics, social sciences, sciences, and those expecting to teach. One hour of discussion, five hours of supervised drawing, and three hours of preparation per week. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours.

*306s. Freehand Drawing.*—The principles of freehand drawing and sketching, including a consideration of mass, form, and composition. The media used are pencil and charcoal, but toward the end of the course the application of color will be considered briefly. Perspectives, light, shade, shadow, and reflections will be studied. Studies will be made from still life, buildings, building ornamentation, statuary, landscapes and earth-forms, and living models. One lecture, six hours of

supervised drawing, and two hours of preparation per week. Prerequisite: Drawing 305. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours.

*210s. Machine Drawing.*—Primarily for chemical, electrical, mechanical, and general engineering students. Technical sketching; wiring and piping diagrams; detail and assembly drawings of machine parts, and complete machines in orthographic, isometric, and oblique projection, from measurement of objects; tracing; and blueprinting. Prerequisite: Drawing 302. Six hours of supervised drafting per week. Credit value: Two semester hours. Laboratory fee, $2; deposit, $2.

## ENGLISH AND PUBLIC SPEAKING

ASSOCIATE PROFESSORS DRAKE, SONNICHSEN; ADJUNCT PROFESSORS MOSES, WILLETT; INSTRUCTORS BALL, EGG, MCREYNOLDS

### English

For the degree of Bachelor of Arts, twelve semester hours in English are required, namely, 1 and 12. English 1 is prerequisite to all other courses in English; English 12, to all other courses in English literature.

Students expecting to do advanced work in English are advised to take courses in the ancient languages, in German, in history, and in philosophy.

Students expecting to become teachers of English in secondary schools are urged to take English 1 and 12 and at least twelve semester hours of advanced courses in English literature; nor will the department give its full endorsement for such teacherships to students who have not done substantially the equivalent of these courses.

*1. Rhetoric and English Composition.*—Study of the principles of good writing; outlining; analysis and discussion of typical prose masterpieces; frequent essays; collateral reading. Prescribed for freshmen. Credit value: Six semester hours.

*1as. Rhetoric and English Composition.*—Repetition of the first semester of English 1.

*310f. Technical Writing.*—A course designed as a preparation for technical writing. The principal object is to train the student in outlining and writing upon technical subjects for private reports and for publications. Reports upon assigned topics are required. Prerequisite: English 1. Credit value: Three semester hours.

*12. Outline History of English Literature.*—Survey of English literature from the beginning to the present time. Direct study of master-

pieces in prose and poetry, selections from Old English being read in translation. Frequent essays each semester. Prerequisite: English 1. English 12 is prerequisite to all other courses in English literature. Credit value: Six semester hours.

*320f. Shakespeare: The Earlier Plays.*—Detailed study of a few of the plays composed before 1601, with a rapid reading of others belonging to the same period. Prerequisite: English 12. Credit value: Three semester hours.

*321s. Shakespeare: The Later Plays.*—Detailed study of some of the great tragedies, followed by a rapid reading of other plays written after 1600. Prerequisite: English 320. Credit value: Three semester hours.

*35. Contemporary Literature.*—Consideration of literature in English since 1890. The first semester will be devoted primarily to poetry. Some of the poets considered will be Meredith, Hardy, Kipling, Bridges, Thompson, Noyes, Masefield, Yeats, Robinson, Frost, Sandburg, Lindsay, Masters, Amy Lowell. The second semester will be devoted primarily to prose. Some of the writers considered will be Hardy, Gissing, Bennett, Wells, Butler, Hudson, Conrad, Wharton, Chesterton, Benson, Dickinson, Beerbohm. Prerequisite: English 12. Credit value: Six semester hours.

*336f. American Literature.*—A study of the chief American poets and prose writers including those of the Colonial and Revolutionary periods and the early nineteenth century. Prerequisite: English 12. Credit value: Three semester hours.

*337s. American Literature.*—A continuation of 336, dealing with the most important American poets and prose writers of the middle and late nineteenth century. Prerequisite: English 336. Credit value: Three semester hours.

*339f. Eighteenth Century Prose.*—After surveying rapidly the prose of the early writers, the class will study that of DeFoe, Swift, Steele, Addison, Johnson, Boswell, Goldsmith, and Burke. Prerequisite: English 12. Credit value: Three semester hours.

*340s. The Poetry of the English Classical Period.*—Detailed study of poems of Dryden and Pope, and literary theory and later influence of these writers, the most important contemporary poets furnishing material for parallel reading. Prerequisite: English 12. Credit value: Three semester hours.

*344s. Milton.*—Study of all the poetry of Milton, with particular attention to *Comus*, *Samson Agonistes*, *Paradise Lost*, and *Paradise Regained*. Prerequisite: English 12. Credit value: Three semester hours.

*366f. Elizabethan and Jocobean Drama.*—Development of the comedy, the tragedy, and the chronicle history from earlier types of the drama in England. Plays of Lyly, Marlowe, Greene, Beaumont and Fletcher, Dekker, Jonson, Middleton, Webster, and their contemporaries, related so far as possible to the literary fashions that prevailed at various times during the period. Prerequisite: Six semester hours of advanced courses in English literature. Credit value: Three semester hours.

### Public Speaking

*301f. Speech Correction.*—Training in the fundamentals of oral expression, including use of voice, pronunciation, enunciation, good usage, and correction of personal speech defects. Practice in the various forms of public speech will be required. Credit value: Three semester hours.

*301s. Speech Correction.*—Repetition of Public Speaking 301f.

*305s. Principles of Speech.*—A study of the theory of expression; exercises in improving stage presence; practice in speaking with special reference to distinct, direct, and convincing delivery. Speech material and composition emphasized. Prerequisite: Public Speaking 301. Credit value: Three semester hours. (Formerly Public Speaking 205.)

*10. Debating.*—The course aims to apply the principles of argumentation to leading questions of the day and to give practice in the art of debate. Prerequisite: Sophomore standing. Credit value: Six semester hours.

*315f. Teachers' Course in Public Speaking.*—Emphasis upon the teaching of fundamentals of speech. Speech training in secondary schools; organization and direction of school literary societies, with study and practice of parliamentary procedure. Prerequisite: Sophomore standing. Credit value: Three semester hours.

## GEOLOGY

PROFESSOR QUINN; ADJUNCT PROFESSOR NELSON

*1. Principles of General Geology.*—Designed to provide a critical study of the fundamental principles of physiography and geology. It includes a study of the elements of weather and climate, the problems of earth origin, mountain building, age, vulcanism, earthquakes, isostacy, and the internal structure of the earth, as well as the principles of general physical geology including the forces and materials involved. The historical development of the earth together with its fauna and flora will be considered. Laboratory work will consist of

the study and preparation of geological maps and sections, the study and identification of rocks and fossils, as well as other features that can be profitably studied in the laboratory. The laboratory work for students registered in mining engineering options will be more rigorous and quantitative. Such students will be required to present as prerequisites Chemistry 801, Mathematics 803, Drawing 302, and Geology 302. Students in the geology major must present the same prerequisites except Drawing 302. Lectures, recitations, excursions, and collateral reading. Three hours of lectures, three hours of laboratory demonstration or field work, and three hours' preparation a week throughout the year. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*302s. Mineralogy.*—Beginning course in the determination of minerals. The course will include the study of crystallography by use of glass, wooden, and natural models, and its application to the determination of minerals; the determination of about 120 of the more common minerals by means of their physical properties, the blow pipe, and wet methods. An introduction to the determination of mineral grains under the microscope will be given. One lecture and six hours of laboratory work a week. Prerequisite: Chemistry 801a and Chemistry 801b concurrently. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours. (Formerly Geology 16.)

*321f. Advanced General Geology.*—Certain topics of general geology are expanded in an advanced and quantitative manner for the purposes of students in the mining engineering options and the geology major. These include the origin and historical development of the earth, including the stratigraphy and paleontology of North America, and especially of Texas and the Southwest, and a study of the fossils characterizing the major divisions of the geologic column. Similar attention is given to the elements of petrology, structural geology, etc. Prerequisite: Chemistry 801, Mathematics 803, Geology 302, Geology 1 and Physics 12 or 812. Three lectures, three laboratory hours, and three hours' preparation per week. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours.

*322s. General Economic Geology.*—A general consideration of economic occurrences of mineral deposits and rocks with considerable attention given to those of Texas and the Southwest. Both syngenetic and epigenetic deposits are included. Origin of materials, modes of transport, and places of deposit are considered. Much attention is given to ore deposits, including sources, channelways, transporting agents; the space relations, structure, texture, and other relations of surrounding rocks; causes of deposition, receptacles, and replacement; the alterations of mineral deposits and rocks; classification. Prerequisite: Geology 321. Three lectures and six hours' preparation a week. Credit value: Three semester hours. (Formerly Geology 320.)

*225f. Geology of Coal and Petroleum.*—A study of facts, deductions, and theories of origin and accumulation of coal and petroleum as illustrated by experimental and field data; general stratigraphic and structural conditions of the large coal and petroleum provinces of the world and especially of Texas; types of coal and oil field structures; relations to ancient shore lines; organization and presentation of field data. Prerequisite: Geology 321 in advance or concurrently. Two lectures a week. Credit value: Two semester hours. (Formerly Geology 62.)

*427f. Petrology and Petrography.*—The determination, composition, structure, texture, origin, and subsequent history of minerals and rocks as revealed in mineral grains and thin sections by the petrographic microscope, as well as a thorough study of the principles involved in the use of the petrographic microscope will be considered in this course. Special emphasis will be placed on the origin and natural history of igneous rocks and the application of the laws of physics and chemistry to the problems of petrology. Two lectures, six laboratory hours, and four hours, preparation a week. *Prerequisite: Geology* 321 in advance or concurrently. Laboratory fee, $4; deposits, $2. Credit value: Four semester hours. (Formerly Geology 26 and 327.)

*240s. Structural and Metamorphic Geology.*—The conditions, processes, and results of metamorphism; structural features resulting from deformation under varying conditions of load; application of descriptive geometry to the solution of fault problems; application of other graphic methods to the analysis of structural problems. Two lectures a week. *Prerequisite: Geology 321 in advance or concurrently.* Credit value: Two semester hours. (Formerly Geology 328.)

*461s. Advanced Economic Geology.*—Discussions and original papers on new developments in the field of ore deposits. Methods of geological examination; preparation of geological reports and manuscripts; bibliographical research; applications of the principles of ore deposition to the search for ore. Laboratory studies of polished sections of ore minerals using the mineragraphic microscope; microchemical identifications; systematic study of all ore types; rock alteration as a guide to ore occurrence; solution of specific problems arising in practice; construction and interpretation of geologic sections and maps; office methods; preparation of block diagrams and models of various kinds; preparation of geologic photographs and the application of photography to geology; advanced consideration of the mineral deposits of Texas. Prerequisite: Geology 427 and 322. One lecture, six laboratory hours, and four hours' preparation a week. Laboratory fee, $4; deposit, $2. *Credit value: Four semester hours.* (Formerly Geology 261.)

*363f. Sedimentation.*—The interpretation of the history of sedimentary rocks based on the study of present sedimentations, the character

of ancient sediments, and experimentation. Laboratory studies of the physical and mineralogical character of sedimentary rocks, especially the determination of mineral grains and cements by optical methods for the purpose of more accurate surface and sub-surface correlation. Prerequisite: Geology 427 in advance or concurrently and Geology 321. Two lectures and three laboratory hours a week. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours. (Formerly Geology 30.)

*364f. Field Geology.*—The course will include a field study of a limited area near the College, preferably on Mount Franklin and the application of quantitative standards to the mapping and geological field studies. The data and material collected will serve as a basis for laboratory studies. An acceptable typed thesis will be required as evidence of the successful completion of this course. One lecture and five hours in field studies per week. Prerequisite: Six semester hours of advanced courses in geology. Credit value: Three semester hours. (Formerly Geology 317.)

*365s. Field Geology.*—A continuation of Geology 364. Prerequisite: Geology 364. Credit value: Three semester hours.

*367s. Sub-surface Geology and Oil Field Mapping.*—Study of the principles and practice of oil field mapping; preparation of field and property maps, geological sections, structural contour maps, consideration of sub-surface methods of geological correlation; practical problems from the oil fields of Texas. Prerequisite: Geology 427 and 363. Three lectures and six laboratory hours a week. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours. (Formerly Geology 374.)

*368f. Paleontology.*—Study of fossil plants and animals by lectures and laboratory work. Drawing of fossil specimens. After a general course is completed, students are assigned a special group of fossils which they study in minute detail. Prerequisite: Geology 321 and three additional semester hours of advanced courses in geology. One lecture and six laboratory hours a week. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours. (Formerly Geology 23a.)

*369s. Paleontology.*—A continuation of Geology 368. Prerequisite: Geology 368. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours. (Formerly Geology 23b.)

## HISTORY, GOVERNMENT, AND SOCIOLOGY

ASSOCIATE PROFESSOR WALLER; ADJUNCT PROFESSORS NULL, QUINN; INSTRUCTOR GREGORY

### History

*4. History of England.*—Survey of the social, economic, political, and intellectual development of Britain and the British Empire. First semester, to 1603; second semester, 1603 to the present. Credit value: Six semester hours.

*9. History of Europe, 1500-1914.*—Brief survey of conditions at the end of the Middle Ages; rise of nationalities and absolutism; colonial expansion; social and economic progress; the Old Regime and the intellectual awakening; the French Revolution and the Napoleonic Era; restoration and reaction; industrial revolution; growth of nationalism and democracy; unification of Germany and Italy; the Balkan states and the Near Eastern problems; economic imperialism; political Socialism and State Socialism; Triple Alliance and Entente Cordiale; background of the World War. Credit value: Six semester hours.

*312f. The Ancient World.*—A survey of the ancient civilizations—Babylonian, Chaldean, Assyrian, Persian, and Egyptian; more intensive study of the Greek history with its art and culture and its spread over the Mediterranean world; Roman history with its system of law, its early beginnings and expansion over Europe, rise and decline of the Roman Empire. Prerequisite: Sophomore standing or six semester hours in history. Credit value: Three semester hours.

*313s. Medieval Europe.*—Renaissance and Reformation; cultural development of the Middle Ages; social, artistic, and economic phases of the Renaissance; development of feudalism and rise of city-states; causes and results of the Reformation; period of discovery. Prerequisite: Sophomore standing or six semester hours in history. Credit value: Three semester hours.

*15. History of the United States.*—History of the United States from the discovery of America to the present time. First semester, to 1829; second semester, 1829 to present. Prerequisite: Six semester hours in history or sophomore standing. Credit value: Six semester hours.

*23. European History since 1870.*—Examination of the trend of European history toward the realization of political and economic freedom, and the recent course of world politics: The Great War (its causes, conduct, settlements, and results), and the Russian Revolu-

tion. Survey of social and political problems of the Old World today. Prerequisite: Twelve semester hours in history. Credit value: Six semester hours.

*25. History of the United States, 1750-1829.*—Causes of the American Revolution; brief discussion of the War of the Revolution; period of the Confederation and establishment of the Constitution; rise of the West; formulation of a foreign policy, reaching classic expression in the Monroe Doctrine; development of nationalism. Prerequisite: Twelve semester hours in history including History 15. Credit value: Six semester hours.

*335f. History of the United States, 1829-1850.*—Jacksonian Democracy; expansion of the United States into the Southwest and Far West; development of the controversy over state rights; slavery and cotton capitalism. Prerequisite: Twelve semester hours in history including History 15. Credit value: Three semester hours. (Formerly History 35a.)

*336s. History of the United States, 1850-1865.*—Slavery controversy; manifest destiny; party history, breakdown of the Whigs, rise of the Republican Party, new leaders; Civil War, its causes, economic and social factors, military operations, results. Prerequisite: Twelve semester hours in history including History 15. Credit value: Three semester hours. (Formerly History 35b.)

*54. History of Great Britain Since 1815.*—A survey of political, social, and economic Britain from the Congress of Vienna to the present. Emphasis on such topics as Chartism, religious emancipation, free trade, parliamentary reform, Irish Home Rule and the Sinn Fein movement, factory legislation, back-to-the-land movement, the House of Lords in legislation, the Empire and foreign policy, social legislation, the war and its problems of reconstruction, ministerial government, parties, and politics. Prerequisite: Twelve semester hours in history. Credit value: Six semester hours.

*55. History of the United States Since the Civil War.*—Reconstruction, industrial development and the sections, grangers, greenbackers, the silver question, railway regulation, tariff, the last of the frontier, populism, civil service reform, imperialism, diplomacy, the Spanish-American War, the trusts, Roosevelt, Wilson and the World War. Prerequisite: Twelve semester hours of history including History 15. Credit value: Six semester hours. (Not given in 1932-1933.)

**Government**

*310f. American Government.*—The government of the United States—national, state, and local—with special emphasis upon the Constitu-

tions of the United States and of Texas. Fulfills the legislative requirement of a course on the Constitutions of the United States and of Texas. Prerequisite: Sophomore standing. Credit value: Three semester hours.

*310s. American Government.*—A repetition of Government 310f.

*311s. European Governments.*—The governments of the British Empire, the British Commonwealth of Nations, France, Germany, Switzerland, Italy, and Russia, with some attention to the governments of the lesser European states. Prerequisite: Sophomore standing. Credit value: Three semester hours.

*323f. The Governments of England and the British Commonwealth of Nations.*—The rise of English political institutions. A critical analysis of the English and British systems of government with special emphasis on their practical workings. The larger problems of the British Empire and Commonwealth of Nations. Prerequisite: Government 310 and 311. Credit value: Three semester hours. (Given in alternate years. Not offered in 1932-1933.)

*324s. Governments of Continental Europe.*—The governments and politics of France, Italy, Switzerland, Germany, and Russia, with some attention given to lesser European Countries. Recent revolutionary and constitutional changes are emphasized. Prerequisite: Government 310 and 311. Credit value: Three semester hours. Given in alternate years. Not offered in 1932-1933.)

*34. American National Government and Administration.*—The making of the National Constitution; the organization and powers of Congress; the National Executive and National Court System. The organization, powers, personnel, and work of the National Administration. Prerequisite: Government 310 and 311. Credit value: Six semester hours. (Given in alternate years. Omitted in 1931-1932.)

**Sociology**

*310f. Introduction to the Study of Society.*—The local social milieu and social institutions; the process and products of interaction; mechanism of interaction, competition, conflict, accommodation, assimilation; society and the person; social control; social change; social movements. Prerequisite: Sophomore standing. Credit value: Three semester hours.

*311s. Social Pathology.*—Physical and mental defectiveness considered from the sociological viewpoint; defects in social organization; poverty and dependency; pathology of personality. Social controls applied to social problems. Prerequisite: Sociology 310. Credit value: Three semester hours.

*346. The Community: A study of Rural and Urban Life.*—Methods of studying the community; social anatomy; a comparative study of communities; analysis of the underlying forces and social processes which make for natural groups and institutions to meet industrial, religious, educational, governmental, and leisure-time needs; disorganization and reorganization in modern communities. Prerequisite: Sociology 310 and 311. Credit value: Six semester hours. (Not given in 1932-1933.)

*347f. Population Problems and Immigration.*—Population movements and their social control; problems of population, distribution, and assimilation. Social questions attending the complex composition of the American people; an examination of the ethnic origin and racial characteristics of "old" and "new" immigrants, taking up the economic, political, and social aspects of their migration to America. Consideration of Americanization programs and immigration laws. Prerequisite: Sociology 310 and 311. Credit value: Three semester hours.

*348s. Criminology.*—Causes, characteristics, and relief of crime, with consideration of mental, physical, economic, and social factors in crime. Attention to the juvenile offender and the social agencies for his adjustment. A sociological analysis and evaluation of penal methods. Prerequisite: Sociology 310 and 311. Credit value: Three semester hours.

## MATHEMATICS AND PHYSICS

ASSOCIATE PROFESSOR KNAPP; ADJUNCT PROFESSORS DURKEE, KENNEDY; INSTRUCTORS LILES, WISBRUN

### Mathematics

*302s. Analytic Geometry.*—Cartesian coordinates of the point; polar coordinates; graphs of algebraic and transcendental functions; loci in general; and a careful consideration of the plane curves. Prerequisite: Mathematics 305 and 306. Credit value: Three semester hours.

*303. Elementary Mathematical Analysis.*—The first two weeks are devoted to an intensive review of secondary school algebra. Students who at the end of this period show that they do not possess a good working knowledge of secondary school algebra are transferred to a special section and given additional work for which they receive no credit. The course is designed to give the student a good foundation for the study of calculus, and the natural sciences, and engineering. Five recitations the first semester and three recitations the second semester. Credit value: First semester, five semester hours; second semester, three semester hours.

*803as. Elementary Mathematical Analysis.*—Repetition of the first semester of Mathematics 803.

*305f. College Algebra.*—A rapid review of quadratic equations; radical expressions; logarithms; choice, chance; series; the binomial theorem; and the theory of limits. Credit value: Three semester hours.

*305s. College Algebra.*—Repetition of Mathematics 305f.

*306f. Plane Trigonometry.*—The general formulas of plane trigonometry; inverse functions; identities; trigonometric equations; goniometry; solution of triangles; and proficiency in the use of the tables. Credit value: Three semester hours.

*306s. Plane Trigonometry.*—Repetition of Mathematics 306f.

*208f. Solid Geometry.*—Required of candidates for engineering degrees who do not present solid geometry for entrance, and who must pass it in the first semester of the first year in order to continue under that registration. Counts toward academic degrees but not toward engineering degrees. Credit value: Two semester hours.

*13. Calculus.*—In this course differential calculus and integral calculus are carried on together. In differential calculus, special attention is given to the derivation of formulas and to the application of derivatives to the solution of problems in maxima, minima, rates, velocity, acceleration, and geometrical applications. The work in integral calculus drills the student in the integration of forms occurring in mechanics and physics; in evaluating areas, moments, moments of inertia, and volumes, in finding the center of gravity and center of stress; and in the derivation and application of the fundamental formulas of hydrostatics and hydraulics. Prerequisite: Mathematics 208 unless solid geometry is presented for entrance, and Mathematics 803 or Mathematics 302. The last two semester hours of this course count as advanced. Credit value: Six semester hours.

*323f. Advanced Algebra.*—An advanced course in algebra covering such subjects as permutations, combinations, infinite series, probability,theory of investment, solution of cubic and of quartic equations, exponential equations, and determinants. Prerequisite: Mathematics 13. Credit value: Three semester hours.

*25. Advanced Calculus and Differential Equations.*—During the first semester the topics of Mathematics 13 will be extended to include the differentiation and integration of wider classes of functions and the application of these processes to the solution of a wider range of problems; Maclaurin's and Taylor's series, hyperbolic functions, partial differentiation, complex variables and elementary Fourier expansions. The second semester will be devoted to a study of the common

types of ordinary and partial differential equations of geometry and mechanics. Prerequisite: Mathematics 13. Credit value: Six semester hours. (Given when the demand warrants.)

*333s. Theory of Equations.*—Determinants, symmetric functions, theory of polynomials, and other topics. Recommended as a fundamental course for students specializing in mathematics. Prerequisite: Mathematics 13. Credit value: Three semester hours. (Given in alternate years. Omitted in 1933-1934.)

*41. Analytical Mechanics.*—Equilibrium and motion of a particle and rigid body in two or three dimensions. May be counted as six advanced semester hours in physics. Prerequisite: Mathematics 13 with a grade of *C*. Credit value: Six semester hours.

*62. Differential Equations.*—Solution of the differential equations of physics, chemistry, and engineering, and study of the properties of the solutions. Legendre's function, Bessel's function, and other topics. Prerequisite: Mathematics 25. Credit value: Six semester hours. (Given when the demand warrants.)

**Physics**

*1. General Physics.*—Three lectures and three laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*12. Second-Year Physics.*—First semester: electricity, magnetism, and sound; second semester: mechanics, heat, and light. Prerequisite: Mathematics 803, Physics 1, and Mathematics 13 concurrently. Two lectures and three laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Six semester hours.

*812. Physics: Mechanics, Heat, Electricity, and Magnetism.*—Includes a thorough grounding in kinematics, dynamics, statics, kinetics, the elements of precision of measurements, properties of matter, thermometry, expansion, calorimetry, heat and work, change of state, vaporization, condensation of gases, radiation, magnetism, the magnetic field, magnetic induction, electrostatics, electrodynamics, and radioactivity. Particular attention is given to composition and resolution of forces, accelerations, and velocities, to simple harmonic motion and to the moment of inertia. Prerequisite: Mathematics 803, and Mathematics 13 concurrently. Three recitations and three laboratory hours both semesters. Laboratory fee, $4; deposit, $2. Credit value: Eight semester hours.

*421. Electrical Measurements.*—The theory and practice of the more precise measurement of electrical quantities. The discussion of elementary dimensional analysis and of the precision of measurements. Prerequisite: Physics 12, Mathematics 13, and consent of instructor.

One lecture, three laboratory hours, and two hours preparation per week throughout the year. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours. (Given in alternate years, beginning 1932-1933.)

*226s. Light.*—A thorough introductory course in refraction, diffraction, polarized light, optical instruments. One lecture and three laboratory hours. Prerequisite: Physics 12 or 812. Laboratory fee, $2; deposit, $2. Credit value: Two semester hours.

*34. Electricity and Magnetism.*—The theory of electricity and magnetism. Prerequisite: Physics 12 and Mathematics 13, and consent of instructor. Three lectures. Credit value: Six semester hours. (Given in alternate years, beginning 1933-1934.)

*339f. Advanced Heat and Thermodynamics.*—Prerequisite: Physics 12 and Mathematics 13. Lectures and laboratory equivalent to three classroom hours. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours. (Given in alternate years; omitted in 1933-1934.)

*341s. The Kinetic Theory of Gases.*—Largely the study of perfect gases. Mean free path, velocity distribution, and dimensions of molecules. Kinetic theory of pressure, viscosity, heat conduction, diffusion, and specific heat. Two lectures and three laboratory hours. Prerequisite: Physics 12 and Mathematics 13. Laboratory fee, $2; deposit, $2. Credit value: Three semester hours. (Given in alternate years; omitted in 1933-1934.)

*Mathematics 41. Analytical Mechanics.*—Equilibrium and motion of a particle and rigid body in two or three dimensions. May be counted as six advanced semester hours in physics. Prerequisite: Mathematics 13 with a grade of *C*. Credit value: Six semester hours.

## MINING AND METALLURGY

PROFESSOR GRAHAM; ADJUNCT PROFESSORS HAIGH, THOMAS

### Mining

*310s. Mining Methods.*—Prospecting, exploration, development, exploitation, explosives, breaking ground, drifting, shaft sinking, stoping, timbering, drainage, and ventilation of coal and metal mines. Prerequisite: Chemistry 311, Drawing 302, Geology 1a, and Physics 812a. Three lectures. Credit value: Three semester hours.

*221f. Mining Methods.*—Continuation of Mining 310s. Prerequisite: Mining 310. Two lectures. Credit value. Two semester hours.

*322f. Petroleum Drilling and Equipment.*—An exhaustive study of rotary and cable (standard) tool drilling methods, automatic controls and combination rigs, rig equipment, rig types, drilling and fishing tools, drill pipe, cordage, and casing, with special reference to and stress on the standards of the American Petroleum Institute. Drilling and fishing practices are discussed in detail. Cementing, water shut-offs, core-taking, logging and sampling methods are described. The application of diamond drilling in oil field practice is carefully covered. Prerequisite: Geology 321 concurrently and Geology 225 and 240. Three lecture hours. Laboratory work by substitution and arrangement. Credit value: Three semester hours. (Formerly Mining 42a.)

*223s. Coal Mining.*—The extraction, cleaning, and marketing of coal, and the manufacture of coke and collection of all the by-products are considered. Prerequisite: Mining 310. Two lectures. Credit value: Two semester hours.

*425f. Mine and Route Surveying.*—Underground surveying, mapping of underground connections, surface surveying in connection with mineral claims, and all ordinary operations that the mining engineer is called upon to perform. The last half of the semester is devoted to the study of simple, reverse, and compound curves; rights of way; cross-sections; and estimates. Prerequisite: Engineering 414. Two lectures and six laboratory hours per week. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours.

*356s. Oil and Gas Mining.*—An exhaustive study of the methods of locating and drilling oil and gas wells; bringing wells in; their management; piping, transportation, and refining of oil; marketing and valuation of oil properties; the possibilities of development in utilization of oil shales. Prerequisite: Mining 322. Three lecture hours. Credit value: Three semester hours. (Formerly Mining 366.)

*260f. Advanced Mining.*—Underground transport, hoisting plant, shaft pockets, ore bins, compressed air plant, mechanical ventilation, pumps, and electric power for mine service. Prerequisite: Mining 221 and senior standing. Two lectures. Credit value: Two semester hours.

*261s. Advanced Mining.* Continuation of Mining 260. Prerequisite: Mining 260. One lecture and three laboratory hours. Laboratory fee, $2; deposit, $2. Credit value: Two semester hours.

*67. Management.*—Mine examination, sampling, reporting, welfare, organization, financing, and other interesting management problems are considered in a lecture course given only to students who have senior standing in mining engineering options. Three lectures a week. Credit value: Six semester hours. Seminar by the Faculty.

*268s. Mining Law.*—The principles governing contracts, liabilities of mine operators, compensation and insurance of workmen, and the laws and court decisions of the United States, Texas, and Mexico, so far as they relate to locations and acquirements of titles to mines, are carefully considered in a course of lectures. Prerequisite: Senior standing in mining engineering options. Two lectures. Credit value: Two semester hours.

*269s. Mine Plant Design.*—From the data obtained from a mine examination, or by a drilling exploration, the student determines the value of the property, selects the system of mining adapted to the orebody, and plans the development necessary. Calculations are then made covering the problems of mining, tramming, hoisting, pumping, air transmission, etc., and a complete report made. Six hours of laboratory. Prerequisite: Engineering 832 and 431 concurrently and Mining 260. Laboratory fee, $2; deposit, $2. Credit value: Two semester hours.

**Metallurgy**

*321f and 21. General Metallurgy.*—Introductory course covering a description of the various processes for treating all the metals, with a calculation of slags and furnace charges. Prerequisite: Chemistry 413, Physics 812, and Geology 302. Three lectures. Credit value for 321: Three semester hours; for 21: Six semester hours.

*423s. Ore Dressing and Milling.*—Study of the principles of crushing and grinding, amalgamation, concentration, and ore dressing. Prerequisite: Metallurgy 321 or 21a. Three lectures and three laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours.

*352s. Electro-Metallurgy.*—The electric furnace, with its present-day applications and possible future uses. Prerequisite: Metallurgy 21 and Chemistry 251. Three lectures per week. Credit value: Three semester hours.

*362f and 62. Metallurgy of Leaching Processes.*—Study of the chemical and physical properties of the metals and such of their compounds as are of importance in connection with the leaching processes; the cyanide process, and leaching methods employed in the metallurgy of copper, lead, and zinc. Prerequisite: Metallurgy 21. Two lectures and three laboratory hours, first semester; nine laboratory hours, second semester. Laboratory fee, $2; deposit $2, each semester. Credit value for 362: Three semester hours; for 62: Six semester hours.

*463f. Ore Dressing and Milling.*—A continuation of Metallurgy 423, with the emphasis laid upon ore testing and plant design. Prerequi-

site: Metallurgy 423. Two lectures and six laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours.

*263f. Ore Dressing and Milling.*—Metallurgy 463 without the laboratory. Prerequisite: Metallurgy 423. Two lectures. Credit value: Two semester hours.

*270f. Metallurgy of Copper.*—The underlying principles of copper smelting are given particular attention. Prerequisite: Metallurgy 21 and Chemistry 251. Two lectures. Credit value: Two semester hours.

*478f. Metallography.*—An elementary course in the metallography of various metals and products and the heat treatment of iron and steel. *Prerequisite:* Metallurgy 21 and Chemistry 251. Three lectures and three laboratory hours. Laboratory fee, $4; deposit, $2. Credit value: Four semester hours.

## MODERN LANGUAGES

ASSOCIATE PROFESSOR ELIAS; INSTRUCTORS AVRETT, ELDRIDGE, FINEAU

The admission requirement of two units is represented by Course A and the first half of 1. For students presenting two admission units in a modern language, Course A will not count toward a degree, but Course 1a will count. For those presenting three units, neither Course A nor Course 1 will count. Students credited on admission with two units in French, German, or Spanish should take Course 1 in that language. Those presenting three admission units should take Course 12.

### Spanish

*A. Beginners' Spanish.*—Drill on pronunciation; easy conversation; essentials of grammar; easy reading. Credit value: Six semester hours.

*1. Grammer, Reading, and Composition.*—Conversation emphasized. Prerequisite: Spanish A or two admission units in Spanish. Credit value: Six semester hours.

*12. Contemporary Literature.*—Reading of modern Spanish novels, plays, and poetry. One-third of the reading will be in modern scientific Spanish. Composition; conversation. Prerequisite: Spanish 1 or three admission units in Spanish. Credit value: Six semester hours.

*26. History of Spanish Literature.*—General survey of Spanish literature, stressing the important movements and writers. Lectures; assigned reading; reports. Prerequisite: Spanish 12. Credit value: Six semester hours. (Given in alternate years; not offered in 1932-1933.)

*27. Advanced Grammar and Composition.*—Original composition. Prerequisite: Spanish 12. Credit value: Six semester hours. (Given in alternate years. Not offered in 1932-1933.)

*35. Modern Spanish Novel.*—Study of the nineteenth century novel with emphasis on the regional novel. To be conducted in Spanish as far as possible. Prerequisite: Spanish 12. Credit value: Six semester hours. (Given in alternate years. Omitted in 1931-1932.)

*36. Modern Spanish Drama.*—A study of the drama from the time of Moratin to the present. Conducted in Spanish. Prerequisite: Spanish 12. Credit value: Six semester hours. (Given in alternate years. Omitted in 1931-1932.)

**French**

*A. Beginners' French.*—The essentials of grammar with exercises in speaking and writing. Reading of easy stories. Credit value: Six semester hours.

*1. Composition, Reading, and Simple Spoken French.*—Prerequisite: French A or two admission units in French. Credit value: Six semester hours.

*12. Composition and Reading.*—Continuation of French 1. Composition and reading of representative modern French authors. One-third of the reading will be in modern scientific French. Prerequisite: French 1 or three admission units in French. Credit value: Six semester hours.

*20. History of the French Novel.*—Emphasis will be on the modern period. Prerequisite: French 12. Credit value: Six semester hours. (Given in alternate years. Omitted in 1931-1932.)

*24. Advanced Composition.*—Conversation and grammatical drill for advanced students. Formal study of grammar, reproduction, and original composition. Prerequisite: French 12. Credit value: Six semester hours. (Given in alternate years. Omitted in 1932-1933.)

*25. History of the French Drama Since 1636.*—Prerequisite: French 12. Credit value: Six semester hours. (Given in alternate years. Omitted in 1931-1932.)

*28. Survey Course in French Literature.*—Prerequisite: French 12. Credit value: Six semester hours. (Given in alternate years. Omitted in 1931-1932.)

**German**

*A. Beginners' Course.*—Classes conducted in German as far as possible. Essentials of grammar, with practical exercises. Easy reading. Credit value: Six semester hours.

*1. Grammar, Reading, Conversation, and Composition.*—A continuation of German A. Prerequisite: German A or two admission units in German. Credit value: Six semester hours.

*12. Third-Year Reading and Composition.*—Review of grammar. Reading of modern German authors, composition, and translation. One-third of the reading will be in modern scientific German. Prerequisite: German 1 or three admission units in German. Credit value: Six semester hours.

*25. Advanced Composition.*—Conversation and grammatical drill for advanced students. Formal study of grammar, reproduction, and original composition. Prerequisite: German 12. Credit value: Six semester hours. (Given in alternate years. Omitted in 1931-1932.)

*27. History of German Literature.*—An introductory survey of German literature, the aim being to acquaint the student with the most important works and movements in the evolution of German literary life. Prerequisite: German 12. Credit value: Six semester hours. (Given in alternate years.)

*28. German Literature to 1830.*—The course emphasizes developments including the works of Lessing, Schiller, and Goethe. Prerequisite: German 12. Credit value: Six semester hours. (Given in alternate years.)

*29. German Literature Since 1830.*—Prerequisite: German 12. Credit value: Six semester hours. (Given in alternate years.)

# STATISTICAL SUMMARIES

## DEGREES CONFERRED, 1916–1931

| | |
|---|---|
| Engineer of Mines (1916-1923) | 43 |
| Bachelor of Science in Mining Engineering (1924-1931) | 72 |
| Total Degrees Conferred | 115 |

## STUDENTS

| | *Long Session, 1930–1931 | | | | | Long Session, 1931–1932 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Men | | Women | | Total | Men | | Women | | Total |
| | Regular | Irregular | Regular | Irregular | | Regular | Irregular | Regular | Irregular | |
| ENGINEERING: | | | | | | | | | | |
| Postgraduates | 0 | 1 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 2 |
| Seniors | 12 | 0 | 0 | 0 | 12 | 13 | 0 | 0 | 0 | 13 |
| Juniors | 17 | 0 | 0 | 0 | 17 | 17 | 1 | 0 | 0 | 18 |
| Sophomores | 38 | 1 | 0 | 0 | 39 | 34 | 4 | 0 | 0 | 38 |
| Freshmen | 103 | 1 | 0 | 0 | 104 | 103 | 6 | 0 | 0 | 109 |
| Totals | 170 | 3 | 0 | 0 | 173 | 167 | 13 | 0 | 0 | 180 |
| ACADEMIC: | | | | | | | | | | |
| Postgraduates | 0 | 1 | 0 | 1 | 2 | 1 | 4 | 0 | 6 | 11 |
| Seniors | 3 | 0 | 1 | 7 | 11 | 3 | 2 | 5 | 25 | 35 |
| Juniors | 1 | 0 | 10 | 19 | 30 | 19 | 2 | 23 | 43 | 87 |
| Sophomores | 21 | 0 | 44 | 36 | 101 | 32 | 1 | 63 | 55 | 151 |
| Freshmen | 86 | 3 | 157 | 13 | 259 | 115 | 10 | 140 | 24 | 289 |
| Totals | 111 | 4 | 212 | 76 | 403 | 170 | 19 | 231 | 153 | 573 |
| †TOTAL INDIVIDUAL STUDENTS IN THE COLLEGE OF MINES AND METALLURGY | 281 | 7 | 212 | 76 | 576 | 337 | 32 | 231 | 153 | 753 |

*The statistical summary of students for the Long Session of 1930-1931 (Bulletin No. 3107, p. 77) included only those students who registered in the first semester up to the time that bulletin went to press. The figures for 1930-1931 in this table give the complete registration, exclusive of visitors, for the Long Session.

†Visitors are not included.

## STUDENTS, SUMMER SESSION OF 1931

| | Men | Women | Total |
|---|---|---|---|
| Students registered in the first term | 123 | 312 | 435 |
| Students registered in the second term | 94 | 208 | 302 |
| Total registration in both terms | 217 | 520 | 737 |
| Students registered in both terms (deduct) | 70 | 148 | 218 |
| INDIVIDUAL STUDENTS IN THE SUMMER SESSION | 147 | 372 | 519 |