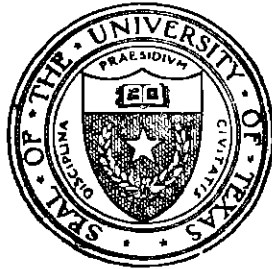


University of Texas Bulletin

No. 2919: May 15, 1929

CATALOGUE
OF THE
COLLEGE OF MINES AND METALLURGY
EL PASO
1928-1929

With Announcements for
1929-1930



PUBLISHED BY
THE UNIVERSITY OF TEXAS
AUSTIN

Publications of the University of Texas

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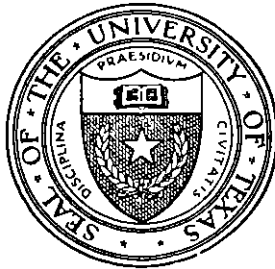
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El Paso, Texas

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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. . . . It is the only dictator that freemen acknowledge and the only security that freemen desire.

Mirabeau B. Lamar

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BOARD OF REGENTS

OFFICERS

H. J. LUTCHER STARK, *Chairman.*

R. L. BATTS, *Vice-Chairman.*

CARROLL D. SIMMONS, *Secretary.*

MEMBERS

Terms Expire January, 1929

EDWARD HOWARD.....Wichita Falls
R. G. STOREY.....Dallas
MRS. H. J. O'HAIR.....Coleman

Terms Expire January, 1931

MARCELLUS E. FOSTER.....Houston
SAM NEATHERY.....Houston
H. J. LUTCHER STARK.....Orange

Terms Expire January, 1933

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

STANDING COMMITTEES

AUDITING: Neathery, Storey.

BUILDINGS AND GROUNDS: O'Hair, Foster, Neathery.

COMPLAINTS AND GRIEVANCES: Howard, Foster, Holliday.

EXECUTIVE: Stark, Batts, O'Hair.

FINANCE: Foster, Crane, Howard.

LAND: Storey, Holliday, Neathery.

LEGISLATIVE: Crane, Batts, Holliday.

The regular meetings of the Board of Regents are held on the third Monday of each month, usually at Austin.

CALENDAR

1929

- AUGUST 19, MONDAY. Summer work in surveying and field geology begins.
- SEPTEMBER 11-14, WEDNESDAY-SATURDAY. Postponed examinations, examinations for advanced standing, and examinations to remove course conditions.
- SEPTEMBER 11-14, WEDNESDAY-SATURDAY. Examinations for admission.
- SEPTEMBER 16-19, MONDAY-THURSDAY. Registration.
- SEPTEMBER 20, FRIDAY. First semester classes begin.
- SEPTEMBER 21, SATURDAY. Examinations in summer work.
- NOVEMBER 11, MONDAY. Armistice Day, a holiday.
- NOVEMBER 28, THURSDAY. Thanksgiving Day, a holiday.
- DECEMBER 22, SUNDAY. Christmas recess begins.

1930

- JANUARY 2, THURSDAY. Classes resumed.
- JANUARY 25-31, SATURDAY-FRIDAY. Mid-year examinations.
- FEBRUARY 1, SATURDAY. Registration for second semester.
- FEBRUARY 3, MONDAY. Second semester classes begin.
- FEBRUARY 22, SATURDAY. Washington's Birthday, a holiday.
- MARCH 2, SUNDAY. Texas Independence Day. Monday, March 3, a holiday.
- APRIL 21, MONDAY. San Jacinto Day, a holiday.
- MAY 19-24, MONDAY-SATURDAY. Final examinations for the graduating class.
- MAY 26-31, MONDAY-SATURDAY. Final examinations for the freshman, sophomore, and junior classes.
- MAY 31, SATURDAY. Commencement exercises.

COLLEGE OF MINES AND METALLURGY

ADMINISTRATIVE OFFICERS

- HARRY YANDELL BENEDICT, PH.D., LL.D., *President.*
CHARLES ALEXANDER PUCKETT, B.A., M.A., *Dean.*
*RUTH MUNRO AUGUR, *Registrar.*
MRS. ANNIE LOOMIS WEBB, *Secretary.*
MRS. LAVORA ENNES NORMAN, *Assistant to the Registrar.*
MRS. MARIE TARRANT TOBIAS, *Bookkeeper.*
MRS. MABEL WHITE KERR COOK, *Librarian.*

FACULTY

- CHARLES ALEXANDER PUCKETT, *Professor of Education; Dean of the College of Mines and Metallurgy.*
B.A., Texas, 1911; M.A., Harvard, 1916.
JOHN WILLIAM KIDD, *Professor of Engineering and Mathematics; Director of Mining and Metallurgy.*
B.S., Oklahoma A and M., 1904; E.E., Texas A. and M., 1909.
FRANKLIN HUPP SEAMON, *Professor of Chemistry.*
M.E., Missouri School of Mines, 1891.
EMMET ADDIS DRAKE, *Associate Professor of English.*
B.A., Wisconsin, 1882; M.A., 1887.
†LLOYD ALVINO NELSON, *Adjunct Professor of Geology and Mining.*
E.M., Texas, 1916.
BURT FRANKLIN JENNESS, *Lieutenant Commander, Medical Corps, U.S. Navy, rtd., Instructor in Biological Sciences.*
M.D., Dartmouth, 1899.
HOWARD EDMUND QUINN, *Professor of Geology and Mining.*
E.M. (Geology), Minnesota, 1918; M.S. (Geology), 1926.
JOHN FRASER GRAHAM, *Professor of Metallurgy.*
B.S., Michigan College of Mining and Technology, 1905; E.M., 1924.
MRS. MARY KELLY QUINN, *Adjunct Professor of History.*
B.A., Wellesley, 1922.
ABI ELIZABETH BEYNON, *Associate Professor of Business Administration; Dean of Women.*
B.A., Nebraska, 1917; M.A., 1920.
MRS. ISABELLA CORBETT MCKINNEY, *Adjunct Professor of English.*
B.A., Occidental College, 1924; M.A., 1927.
MRS. LENA ELDRIDGE, *Instructor in Modern Languages.*
B.A., New Mexico, 1919; M.A., Washington, 1927.
EDWARD JAMES STEWART, *Director of Athletics; Instructor in Physical Training.*
ALVIN EGBERT NULL, *Adjunct Professor of Social Sciences.*
B.A., Indiana, 1910; M.A., Chicago, 1926.
WILLIAM WALTER LAKE, *Adjunct Professor of Chemistry.*
B.S., Ohio, 1913; M.S., 1921.

*Resigned January 12, 1929.

†Absent on leave for the session of 1928-1929.

- ANTON HILMER BERKMAN, *Associate Professor of Biological Sciences.*
B.A., Texas, 1924; M.A., 1926.
- LEON DENNY MOSES, *Adjunct Professor of English.*
B.A., Columbia, 1923; M.A., 1924.
- PEARL WHITFIELD DURKEE, *Adjunct Professor of Engineering and Mathematics.*
B.A., Acadia, 1903; B.S. (Electrical Engineering), McGill, 1906.
- MALCOLM RAY MARSH, *Adjunct Professor of Engineering and Mathematics.*
B.S. IN C.E., Texas, 1927.
- MRS. ISABELLE KELLY FINEAU, *Instructor in Modern Languages.*
B.A., Texas, 1905.
- ORVILLE ROBERTS WILLETT, *Adjunct Professor of English.*
B.A., Kentucky, 1916; M.A., Chicago, 1919.
- BULAH A. LILES, *Instructor in Mathematics.*
B.A., Texas, 1921; M.A., Chicago, 1927.
- BERTE ROLPH HAIGH, *Adjunct Professor of Geology.*
B.S. IN MINING ENGINEERING, Texas, 1925.
- ERNEST CARLTON KENNEDY, *Adjunct Professor of Engineering and Mathematics.*
E.M., Texas, 1921; M.A., 1926.
- WILLIAM ROBERT AVRETT, *Instructor in Spanish.*
B.A., Texas, 1927; M.A., 1928.
- WILLIAM ALONZO STIGLER, *Director of Education.*
B.A., Texas, 1915; M.A., 1921.
- MRS. ABBIE MARGARET DURKEE, *Lecturer in Public School Music.*
B.A., Ohio Wesleyan, 1912; B.MUSIC, Wisconsin College of Music, 1915.
- *EVALINA HARRINGTON, *Lecturer in Elementary Education.*
B.S., Teacher's College, Columbia, 1909; M.A., 1914.
- NELL MIRIAM SMITH, *Lecturer in Public Speaking.*
B.A., California, 1921.
- MRS. EULA STRAIN HARLACKER, *Lecturer in Public School Art.*
- SARA KATHERINE PONSFORD, *Lecturer in Home Economics.*
B.S., Lewis Institute, 1925.
- CUAUHTEMOC TADDEY LOUSTAUNAU, *Assistant in Chemistry.*
- VINCENT ALEXANDER COLLINSON, *Assistant in Chemistry.*
- JOHN EDWARD CHAMBERS, *Assistant in Chemistry.*
- ARTHUR JOHN MAESE, *Assistant in Metallurgy.*
- ALBERTO HUGO VIESCAS, *Assistant in Physics.*

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

*Died January 10, 1929.

located at 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 1926 the Legislature authorized further expansion along academic lines.

LOCATION

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, it is the most important city, south of Denver, between San Antonio 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 is spending \$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 around.

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

The second largest custom smelter in the world is situated about a mile from the College of Mines and Metallurgy. It is fully supplied with equipment for the most modern methods of treating ores that are suitable for smelting, such as ores of copper, lead, gold, and silver. Mining students will find this an exceptional opportunity.

BUILDINGS AND GROUNDS

The campus consists of twenty-three acres. There are seven buildings: Main Building, one dormitory, Chemistry Building, Power

House, Kelly Hall, Mill, and Seamon Hall. The Main Building contains the administrative offices, laboratories, the library, and various class rooms. 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 class rooms 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 fireproof.

POLICY OF THE COLLEGE

Besides the technical courses leading to degrees in mining and metallurgy, the enlarged curriculum now offers at least two years, and in some cases three years, of work towards various academic and engineering degrees.

Emphasis is placed on the practical or applied side of the instruction. Theory and practice must go hand in hand, so to speak, the one supplementing the other. A thorough mastery by the student of details of each required course offered is insisted upon. It is the purpose of the college to give the student a good general education, whether his field is academic or technical.

Every member of the faculty has had sufficient training and experience to make of him an expert in his subject. Each instructor of technical subjects has had several years of successful practical experience.

Athletic activities are encouraged and play a prominent part in student life.

SPECIAL LECTURES

At intervals during the session the student body will have opportunities to hear addresses by prominent specialists.

A series of lectures will be delivered before the Mining Club by members of the faculty and other engineers residing in El Paso. The Mining Club is an affiliated student society of the American Institute of Mining Engineers.

OPPORTUNITIES FOR SELF-HELP

To the 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.

ACCREDITED SCHOOL SCHOLARSHIPS

One scholarship is offered to the best student, 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 for each Long Session and \$5 for each term of the Summer Session. 5. The holder must enter the College of Mines and Metallurgy 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. Holders failing to do this will pay the matriculation fee for that year and will not be reimbursed therefor. 7. Scholarship holders must make an average score of at least 225 points a semester in the freshman year, 252 in the sophomore year, and 270 each year thereafter in order to continue to hold their scholarships; their conduct also must be satisfactory to the faculty.

REQUIREMENTS FOR ADMISSION**GENERAL REQUIREMENTS**

Admission to the College of Mines and Metallurgy, as to all other branches of the University, is under the control of the Registrar of the Main University at Austin.

Age.—Applicants for admission must be at least 16 years old. Applicants who seek admission by individual approval must be at least 21 years old.

Character.—Applicants for admission must furnish evidence of good moral character.

Vaccination.—Applicants for admission must present evidence of proper vaccination at a date sufficiently recent to insure protection against smallpox, or be vaccinated upon matriculation.

Hazing pledge.—Each applicant for admission or readmission must sign the following pledge: "I pledge myself on my honor not to encourage or participate in hazing or rushes during my attendance at the University."

SCHOLARSHIP REQUIREMENTS

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

Quantity requirements.—For admission to the College of Mines and Metallurgy fifteen units (see "Methods of Obtaining Admission Units," page 13), are required as specified below.

I. Prescribed units.—The following units are prescribed for all, 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 and make it up within two years.

Subject	Units
English	3
Social sciences (at least one of which must be history)	2
*Mathematics:	
Algebra	2
Plane geometry.....	1
One foreign language (must be Spanish for Mining Engineering students)	2
	10

II. Elective units.—In addition to the units prescribed under I, a sufficient number of units to make a total of fifteen must be offered from Groups A and B (below), not more than three units being offered from Group B. Not more than four units may be presented in history and civics together. Biology may not be presented by a student who offers either botany or zoology.

Group A

Subject	Units	Subject	Units
English	3-4	Mathematics:	
Social sciences:		Algebra	2
Early European history....	1	Plane geometry	1
Modern European history	1	*Solid geometry.....	½
English history.....	½-1	Trigonometry	½
American history.....	½-1		
Civics	½-1		
Economics	½		

*For admission to engineering, students must present also one-half unit in solid geometry, or they may be admitted without it and make it up within two years; the completion of Mathematics 202 satisfies this requirement.

Group A—(Continued)

Subjects	Units	Subjects	Units
Foreign languages:		Natural sciences:	
French	2-3	Biology	1
German	2-3	Botany	1
Greek	2-3	Chemistry	1
Latin	2-4	General science	1
Spanish	2-3	Physics	1
		Physiography	$\frac{1}{2}$
		Physiology and hygiene	$\frac{1}{2}$ -1
		Zoology	1

Group B

Subject	Units	Subject	Units
Agriculture	$\frac{1}{2}$ -2	Commercial law	$\frac{1}{2}$
Argumentation and debating	$\frac{1}{2}$	Drawing	$\frac{1}{2}$ -1
Arithmetic	$\frac{1}{2}$	Home economics	$\frac{1}{2}$ -3
Bookkeeping	1	Manual training	$\frac{1}{2}$ -1
Commercial geography	$\frac{1}{2}$	Music	1
		Shorthand and typewriting ..	1

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 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 University'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 September 10. 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 has no accredited schools outside Texas, but it 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, early in May and in the fall. The May series is given under the direction of the State Department of Education at accredited schools and at other approved places. Applications to take them 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 1929:

Wednesday, September 11: 9 to 12, English; 2 to 6, American history, early European history, and civics.

Thursday, September 12: 9 to 12, English history, modern history, and economics; 2 to 6, algebra and plane geometry.

Friday, September 13: 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.

Saturday, September 14: 9 to 12, solid geometry, trigonometry, commercial geography, and commercial law; 2 to 6, home economics, physics, and arithmetic.

It is strongly urged that applicants desiring to enter the University in September attempt the May 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 may be admitted on twelve acceptable units completed in the senior high school (the last three grades), including the prescribed units listed on page 12, plus three unspecified units from the junior high school. The entrance certificate should show only the senior high-school record.

Admission by individual approval.—At the discretion of the Registrar, an applicant over 21 years old may be admitted without examination. 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 to the satisfaction of the College.

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

Applicants are advised to send their applications and credentials 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 freshman courses only with the approval of the Dean, given because of evidence of special fitness. This approval can rarely be granted, however, because most individual approval students have less 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 Dean 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

In general.—Admission conditions may be removed (1) by taking, with the approval of the Dean, the regular admission examination in subjects not studied by the student in the College; (2) by correspondence work. A few courses for this purpose are offered by the Bureau of Extension Teaching, at the Main University, Austin; (3) by counting work done in the College. The prescribed admission units must be satisfied by work in the corresponding subjects in the College; the elective admission units may be absolved by any College work. In 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 toward a degree. If a student does not satisfy his admission conditions within two years after admission, he must present one additional unit for each year that his conditions remain unsatisfied. Conditions may not be removed by taking admission examinations later than two years

after admission. After that time they may be removed only by work done in the College.

Individual approval students.—Students admitted by individual approval to English 1 will, on completing that course, be given credit also for three admission units in English. Similarly, students admitted to freshman mathematics will, on completing that course, receive credit also for two admission units in algebra and one in plane geometry. Further, students admitted by individual approval and making, during their first Long Session, at least thirty semester hours with an average grade of *C* will in addition absolve the admission condition in the five elective units. If this average is not made, the five elective units, as well as the four other prescribed units (see "Scholarship Requirements," page 12), must be made up in one or both of the methods given in the preceding paragraph.

ADVANCED STANDING

Students from other colleges.—A student seeking admission from another college 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 September 10. Students are not allowed to register until the proper certificates are presented.

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 of Mines and Metallurgy.

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

Students from Texas State teachers colleges.—Students desiring admission from the State teachers colleges of Texas must meet the requirements made of students from other colleges as enumerated in the preceding section.

Graduates of the normal school (sub-college) department of the State teachers colleges will be regarded as graduates of an accredited school and will be accepted on the same basis as are graduates of accredited high schools. They will be required to present the prescribed units and will be limited to the elective units listed on pages 12 and 13 of this Catalogue.

Students attending the college department of a State teachers college during and after the session of 1913-1914 will receive college credit provided they were eligible, at the time of their admission to the teachers college, to enter the freshman class at the College of Mines and Metallurgy. The standard amount of credit will be thirty semester hours for one year's full work in studies paralleled in the

University and given in substantially the same order. Only specified courses as agreed upon will be accepted as "advanced."

Students who were graduated from the State normal schools before 1914 will be given full admission, and in addition six unspecified semester hours toward a degree.

As in the case of students from other colleges, all credits given to students from the teachers colleges are conditional, and may be reduced after the students matriculate in the College of Mines and Metallurgy, if their work here is of low grade.

Students from secondary schools.—Applicants, who, in addition to satisfying the admission requirements, wish to obtain advanced standing in any department, must secure, by examination or otherwise, the consent of the Dean. Surplus admission units may be counted toward a degree only in case the applicant, whether coming directly from the high school or as a college transfer, secures advanced standing in a particular subject and successfully continues that subject in the College of Mines and Metallurgy.

EXPENSES

FEES AND DEPOSITS

1. Registration fee.—In all the colleges and schools of the Main University, in the Medical Branch of the University at Galveston, and in the College of Mines and Metallurgy at El Paso, a registration fee of \$30 is required of every student each Long Session to be paid at registration, this fee being administered on the following basis:

(1) A student registered for six semester hours or less shall pay \$10; for more than six but not to exceed twelve semester hours, \$20; for more than twelve semester hours, \$30. Students registered *in absentia* belong to the first group.

(2) All registrations in the first semester shall be regarded as registrations for the entire session and will call for the fee as specified in the preceding paragraphs.

(3) A student who pays less than the full fee of \$30 because he is registered for twelve hours or less and later adds to his registration shall pay an additional amount in accordance with the scale provided above.

(4) A student registering in the second semester shall pay one-half of the amount required for the session, that is, \$5 if taking three semester hours or less, \$10 if taking more than three but not exceeding six hours, and \$15 if taking more than six hours. Students registering *in absentia* belong to the first group.

(5) A student in the first semester who reduces his registration for the second semester on or before February 1 may secure a refund

in accordance with the scale set up in (4) by applying to the Registrar.

(6) A student in the first semester who withdraws on or before February 1* may have one-half of the registration fee paid by him refunded by applying to the Registrar, otherwise this fee is not returnable under any circumstances.

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

3. Deposits.—All laboratory courses of whatever credit value require a deposit against breakage of \$2 each except in chemistry, in which the deposit shall be \$6 each. Certificates of payment of these deposits must be received from the Registrar before students can be assigned to desks in the laboratories or enrolled in their classes. A Library deposit of \$6 shall be 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.

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

5. Students' Association fee.—The students' association fee is \$10. Payment of this fee at the beginning of each session is urged. The fee is used to support student social and other activities, athletics, and publications.

BOARD AND ROOM

The College of Mines and Metallurgy maintains a dormitory and a dining hall for men. Board cost \$28 a month the past year. The rate for the coming session will be based upon the cost of supplies. The corner rooms rent for \$9 a month, the other rooms for \$6. A student occupying 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.

*A student dropped from the rolls because of failure in the first semester examinations, or for any other delinquency, whose case cannot be determined by February 1, is not entitled to this refund.

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 and room rent must be paid in advance on the first day of each month. A fine of 50 cents a day is charged for each day the student is delinquent.

Rooms will be assigned in the order of application, preference being given to students who are occupying rooms during the current session, 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 \$3 in order to be considered. Rooms thus reserved will be held only until September 20, unless special notice is given of delayed arrival.

A list of acceptable boarding and rooming places for men and women students may be obtained from the Registrar. Rates vary and may be secured to suit the individual's tastes and finances.

SCHOLARSHIP AND LOAN FUNDS

Wilson Scholarship.—The Wilson Scholarship is offered each year to the student who has made the highest average for the freshman and sophomore years' work in the mining engineering course. The scholarship pays the recipient \$45 toward the junior year's fees in the mining engineering course.

This scholarship is provided by John Weldon Wilson, M.E., class of 1919.

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 the student's graduation. After the first year following graduation the loan or the unpaid portion of it will draw three per cent interest.

REGULATIONS

REGISTRATION

Students are required to register in person for each semester.

For the Long Session of 1929-1930 the registration days are as follows:

First semester: Monday–Thursday, September 16–19.

Second semester: Saturday, February 1.

Late registration.—After the twelfth working day of any semester, students will be allowed to enter only if, in addition to fulfilling the admission requirements, they pass satisfactory examinations upon the back work of the subjects they desire to take. Absences due to late registration in any course shall count as though the student registered at the beginning of the 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 (page 18).

Attendance by a registered undergraduate as a visitor in a course is allowed only with the approval of the 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. 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, Business Administration 311 and Business Administration 811, 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.

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, Public Speaking 205 is a course running through the entire Long Session and carrying two 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.

Courses announced in this catalogue which pertain essentially to mining engineering are indicated by an asterisk (*).

AMOUNT OF WORK

Engineering students.—Freshmen may not register for more than eighteen semester hours for each semester; sophomores and juniors, for more than twenty semester hours; seniors, for more than twenty-one semester hours, except by vote of the faculty.

Students who expect to become candidates for a degree may carry not less than twelve semester hours for each semester.

Other students.—The amount of work which may be carried at one time by other students is subject to certain restrictions.

In general these limitations are as follows:

Fifteen hours a week is the standard amount of work for a student.

More than sixteen hours a week in one semester or term may not be carried except upon petition approved by the Dean.

During his first semester a freshman is not allowed to take more than sixteen hours a week. During his second semester or term he will be allowed to take eighteen hours, provided his scholastic standing warrants it.

Sophomores and juniors may carry additional work within certain limitations, provided definite scholastic requirements are met.

Less than twelve hours a week a student may not carry except upon written petition approved by the Dean, and filed with him. Without this petition filed with the Dean credit will not be given, or would even be cancelled. A student under 21 must present a written request from a parent or guardian accepting the conditions

under which the privilege is granted, and a written statement from some responsible person known to the College authorities vouching for him as mature for his age and serious-minded. In allowing this privilege, the faculty reserves the right to sever the student's connection with the College without imputation and without giving reasons for its action.

A student carrying less than twelve hours is expected to show special zeal in his work, and may remain in the College only if he passes in all his courses.

ADDING AND DROPPING COURSES

After his registration for the session, a student may add a course only with the approval of the 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 the 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 the Dean, a student may at any time be required to drop a course because of neglect or for lack of preparation.

CLASS ATTENDANCE AND ABSENCE

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. A student, however, who is absent unexcused during any semester from any subject for more than one-tenth of the total number of exercises in that subject, is dropped from the College rolls for the remainder of the session. Late registration does not exempt a student from accountability for absences before registration.

When dropped from the rolls for excessive absences in a particular subject, the student may, unless he obtains the Dean's permission to drop the course, gain readmission only by passing a special examination in the subject at a date fixed by the Dean and the instructor concerned.

For prolonged absence due to illness, a student may be excused on application to the Dean. A statement from the attending physician must be presented as evidence of the student's incapacity.

If a student is compelled to be absent from his work on account of business, he should apply to the 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 only in case the delay was due to imperative causes satisfactory to the instructor.

EXAMINATIONS

Semester examinations.—The object of examinations being primarily not to find out how much the student knows, but to lead him 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 lowered 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 the Dean, beforehand if at all possible, for permission to postpone the examination. If this permission is granted, the postponed examination may be taken within a year on any of the dates appointed therefor, provided the student petitions the Dean on or before the seventh day preceding the first day of the examination period.

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

Postponed, advanced standing, and condition examinations.—Postponed and advanced standing examinations and examinations for the removal of conditions are held at the regular examination periods in January and May. Applications for these examinations must be made to the Dean on or before the seventh day preceding the first day of the examination period. Conditions received in the second semester may, at the discretion of the Dean, be removed by a second examination the following September.

A student who fails to pass a condition examination in any subject forfeits thereby the right to ask for another examination in that subject. Absence from an examination, after once a permit has been granted, will have the same effect as failure, unless the student presents to the Dean within a week after the date for the examination a satisfactory excuse for his absence.

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.

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 seven grades: *A* (excellent), *B* (good), *C* (fair), *D* (pass), *E* failure, *F* (bad failure, with privilege to continue the course), *G* (the same as *F*, except that the student may not continue the course). To pass in a course, it is necessary to secure a grade of at least *D* both on class work and on semester examination, considered separately. Grades are given by semesters, but no course will count towards a degree until credit has been received for all the semesters covered by it.

Mid-semester reports.—About the middle of each semester, reports are sent out for students doing work below the passing grade (*D*) both to the students themselves and to their parents or guardians.

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, or the following September, at the discretion of the Dean, in case the condition is received in the second semester.

In a subject continuing beyond one semester, the instructor may, by sending to the Dean the proper credit notice, raise an *E* of an earlier semester to *D* because of good work done in a later semester, but no grade may be altered later than six months after it was handed in, unless further work has been done in the course in the meantime.

Effect of a semester grade of *F*.—A student who receives a grade of *F* for any semester, whether by reason of poor work, or absence from the semester examination without excuse from the Dean, may continue the course; but he may not obtain credit for the semester in which he failed without repeating the work of that semester in class.

Effect of a semester grade of *G*.—A student who receives a grade of *G* for any semester, whether by reason of poor work, or absence from the semester examination without excuse from the Dean, is

dropped from the course, and must, if he desires to obtain credit for it, take that semester's work over again in class.

Higher work after failure.—If a student makes an *F* or *G* 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 take up a higher course in the same subject only with the written consent of the instructor concerned, approved by the Dean.

CLASSIFICATION OF STUDENTS

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

Students are divided into freshmen, sophomores, juniors, and seniors.

Engineering students.—Until the completion of thirty-five semester hours of prescribed work in addition to the full admission requirements, regular mining engineering students are freshmen; then, until seventy semester hours are completed, sophomores; then, until one hundred and eight 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

Required minimum.—Students taking less than twelve hours must pass in all the work taken.

First-year students taking twelve or more hours per week, must make a score of 108 points, with grades of *A*, *B*, *C*, *D*, or *E* in twelve hours per week, or 126 in nine hours per week.

Second-year students taking twelve or more hours per week, must make a score of 126 points, with grades of *A*, *B*, *C*, *D*, or *E* in twelve hours.

Other students taking twelve or more hours per week must make a score of 144 points, with grades of *A*, *B*, *C*, *D*, or *E* in twelve hours.

In scoring, semester hour grades will count as follows: *A*, 21 points; *B*, 18 points; *C*, 15 points; *D*, 12 points; *E*, 6 points; *F*, 0; *G*, 0.

The grade in physical training is not counted in scoring.

To be entitled to return for the next Long Session a student in attendance during the second semester must make at the end of

that semester the score of 108 with grades of *A, B, C, D, or E* in twelve hours per week, or 126 in nine hours, if a first-year student; of 126, with grades of *A, B, C, D, or E* in twelve hours per week, if a second-year student; of 144 with grades of *A, B, C, D, or E* in twelve hours per week, in other cases; or if in attendance during the second semester and the subsequent Summer Session, the score of 144 in fifteen hours per week if a first-year student, of 162 in fifteen hours per week if a second-year student, of 180 in fifteen hours per week in other cases.

A first-year student is one who has resided less than two semesters (nine months) at a university or college. A second-year student is one who has resided more than two and less than four semesters at a university or college. A term of the Summer Session counts as a half semester.

DISCIPLINE

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 or to others, the faculty will use all appropriate means of discipline. The following penalties may be resorted to: Admonition, probation, suspension, and expulsion.

The penalties mentioned above will not necessarily be inflicted in regular gradation, but any one will be imposed as the circumstances demand.

The College has been remarkably free from such evils as hazing and class rushes; and, in order to insure the continuance of this desirable condition, the faculty has specially forbidden rushes, and announced that students engaging in, instigating, or encouraging them will be liable to suspension.

Probation.—Probation is of two kinds, disciplinary and scholastic. It will be for a definite period, during which the student, while still in attendance upon his classes, must show marked improvement in conduct or in studies, or in both, in default of which his connection with the College will terminate with the period.

A student on probation who absents himself from any class exercise, or neglects any class work, except for reasons considered imperative by the 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 the Dean within one day—beforehand, if possible—will be presumed to be without excuse and will effect the dropping above mentioned.

Suspension.—Suspension will be for a definite period, during which the student will not be allowed within the College or upon its grounds, and may be required to satisfy special conditions.

Expulsion.—Expulsion is the severest penalty, and is final separation from the College. No student, however, will be expelled except after a full hearing and by a vote of the faculty.

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 or in part, for the benefit of athletics, are under the direction of the Athletic Council, subject only to the Regents, Dean, and Faculty.

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 hours a week of regular University work. 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 hours a week of regular University work. When, however, a failure or a condition in a course shall have been removed by passing the work in the regular manner, the previous failure shall not debar the student from participating in intercollegiate athletics during the next semester. Except for the foregoing provision, by passing the work of the last semester in attendance is meant that it shall have been passed at the time the work was regularly offered.

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 ath-

letics 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 freshmen, reports shall be made October 15, November 1, and November 15 during the first semester of attendance.

Rule III. *Time of Entrance.* No person shall be eligible for intercollegiate contests who did not register within two weeks after the opening of the semester. By registering, it is understood that a 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 any 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. His total participation in all sports must not exceed five calendar years. 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 is eligible to participate, regardless of whether or not he has actually graduated upon fulfillment of these requirements.

SEC. 3. A transfer or graduate of a junior college cannot participate in college athletics for more than four years in the aggregate.

Rule VI. *Transfers.* No student who has ever participated in intercollegiate athletics, transferring from another institution which confers a bachelor's degree, is eligible to compete until he has been in residence two semesters and shall have completed twenty-four semester hours of work in the College of Mines and Metallurgy, twelve semester hours of which must be made in each of the two semesters.

Rule VII. *Eligibility Card.* SECTION 1. No student shall be eligible to participate in an intercollegiate contest until five days after his eligibility card, properly approved, has been forwarded to the Dean of the College of Mines and Metallurgy.

SEC. 2. Any false or intentionally 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 the honor system and shall be treated accordingly.

Rule VIII. *Parent's Consent.* In order to participate in intercollegiate athletics, a student must, unless he is of age, have the written consent of his parent or guardian, sent directly by mail to the Dean of the College of Mines and Metallurgy.

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 apply to members of regular teams representing the College of Mines and Metallurgy of the University of Texas, 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, the director of athletics shall report to the Dean of the College of Mines and Metallurgy the names of the probable 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 Dean a certificate from a reputable physician stating that he is physically fit to take part in athletic contests.

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

REQUIREMENTS FOR DEGREES AND CERTIFICATES

BACHELOR OF SCIENCE IN MINING ENGINEERING

The completion of the following four-year curriculum leads to the degree of Bachelor of Science in Mining Engineering.

First Year

First Semester	Semester Hours	Second Semester	Semester Hours
Chemistry 901.....	4	Chemistry 901.....	5
Drawing 204.....	2	Drawing 302.....	3
English 1.....	3	English 1.....	3
Mathematics 305f.....	3	Engineering 203s.....	2
Mathematics 306f.....	3	Mathematics 207s.....	2
Geology 1.....	3	Geology 1.....	3
	18		18
- Summer Work:			
Engineering 304: Eight hours a day for four weeks.....			3

Second Year

First Semester	Semester Hours	Second Semester	Semester Hours
Chemistry 12	3	Chemistry 12	3
English 410	2	English 410	2
Physics 414f	4	Physics 415s	4
Mining 310f	3	Mining 311s	3
Geology 16	3	Geology 16	3
Mathematics 13	3	Mathematics 13	3
	—		—
	18		18
Summer Work:			
Geology 317: Eight hours a day for four weeks			3

Third Year

Geology, Metallurgy, and Mining Option

First Semester	Semester Hours	Second Semester	Semester Hours
Chemistry 424	2	Chemistry 424	2
Economics 11	3	Economics 11	3
Engineering 32f	6	Engineering 217s	2
Engineering 219f	2	Engineering 354s	3
Geology 327f	3	Geology 320s	3
Metallurgy 21	3	Business Administration	
	—	311s	3
	19	Metallurgy 21	3
			—
			19

Petroleum Geology Option

First Semester	Semester Hours	Second Semester	Semester Hours
Economics 11	3	Economics 11	3
Engineering 219f	2	Engineering 217s	2
Engineering 32f	6	Engineering 354s	3
Geology 327f	3	Geology 320s	3
Geology 328f	3	Mining 241s	2
Chemistry 240f	2	Mining 42s	6
	—		—
	19		19

Fourth Year

Geology Option

First Semester	Semester Hours	Second Semester	Semester Hours
Geology 26	3	Mining 368s	3
Geology 23	3	Geology 26	3
Geology 30	3	Geology 23	3
Geology 328f	3	Geology 30	3
Mining 432	2	Geology 261s	2
Mining 366f	3	Mining 432	2
Mining 267f	2	Mining 223s	2
	—		—
	19		18

Petroleum Geology Option

First Semester	Semester Hours	Second Semester	Semester Hours
Geology 30	3	Business Administration	
Geology 23	3	311s	3
Mining 432	2	Geology 30	3
Geology 62	3	Geology 23	3
Geology 273f	2	Geology 261s	2
Geology 374f	3	Mining 432	2
Mining 366f	3	Mining 368s	3
	—	Geology 62	3
	19		—
			19

NOTE.—Each student anticipating a degree of Bachelor of Science in Petroleum Geology must spend at least one summer in practical work related to the finding and producing of crude oil and must furnish satisfactory evidence to the proper authorities of a summer so spent.

Metallurgy Option

First Semester	Semester Hours	Second Semester	Semester Hours
Chemistry 243f	2	Engineering 350s	3
Engineering 431f	4	Metallurgy 863	4
Metallurgy 863	4	Metallurgy 62	2
Metallurgy 62	4	Metallurgy 270s	2
Mining 432	2	Metallurgy 373s	3
Mining 267f	2	Metallurgy 371s or 352s	3
	—	Mining 432	2
	18		—
			19

Mining Option			
First Semester	Semester Hours	Second Semester	Semester Hours
Chemistry 242f	2	Engineering 350s	3
Engineering 431f	4	Metallurgy 863	4
Metallurgy 863	4	Metallurgy 270s.....	2
Metallurgy 462f.....	4	Mining 432	2
Mining 432.....	2	Mining 368s	3
Mining 267f.....	2	Mining 369s	3
	—	Geology 261s.....	2
	18		—
			19

MINING ENGINEER

The degree of Mining Engineer will be conferred upon graduates of the College of Mines and Metallurgy who have done at least two years of successful professional work in mining or metallurgy subsequent to receiving the bachelor's degree and have presented an acceptable thesis.

MINE FOREMAN'S CERTIFICATE

To meet the demand for special instruction for coal-mine foremen, the Mine Foreman's Certificate is offered. This certificate requires one year's attendance and covers fully the proposed course recommended by the State Mining Board. The mathematics is covered by the first semester of the regular freshman work. The work in geology, physics, and coal mining is the same as that offered as Geology 1, Engineering 1, and Mining 265. The course in Economics of Mining will be a briefer course than that offered under the head of "Mining." No special scholastic admission requirement will be demanded, except a common-school education and sufficient maturity. No student will be admitted who does not present a statement signed by former employers certifying to at least two years of actual working experience in a coal mine. This statement will be filed for record with the student's registration card. A certificate will not be issued unless the student, upon completion of his course, is 21 years of age or over. The cost of the course is the registration fee, and the laboratory fee in physics.

Course of Instruction

(ATTENDANCE REQUIRED)

First Semester	No. of Hrs. a Week	Second Semester	No. of Hrs. a Week
Mathematics 305f.....	3	Engineering 203s.....	2
Geology 1 (3 lectures and 3 laboratory hours).....	6	Geology 1 (3 lectures and 3 laboratory hours).....	6
Physics 1 (3 lectures and 3 laboratory hours).....	6	Physics 1 (3 lectures and 3 laboratory hours).....	6
Mining 310f.....	3	Mining 223s.....	2
Mathematics 306f.....	3	Economics of Mining (Special Course).....	3
		First Aid and Mine Rescue Work.....	1

PIT BOSS CERTIFICATE

There are ambitious men in every coal mining section of Texas and the Southwest who desire better training to fit them for their occupation as coal miners, but for whom a year at college is practically impossible. For the benefit of these men, the College of Mines and Metallurgy offers a special reading course leading to a Pit Boss Certificate. The subjects covered are practical mathematics, mining methods, mining equipment, transportation methods, mine organization and safety, boilers, engines, elementary economics, etc. On receipt of \$1.50 as a registration fee, printed instructions will be sent. The student will pay for his own books. As each section of the work is completed, a short set of examination questions and problems will be sent. On completion of the whole course, a final examination will be sent to the student's county superintendent of schools to be taken under his direction. On receipt of the student's answers, with the county superintendent's signed statement that the examination has been properly conducted, the student will be given a Pit Boss Certificate, provided he has correctly answered at least 75 per cent of the questions, is at least 18 years old, and has had at least twelve months in actual coal-mine work. The only preparation necessary to carry on this work successfully is an elementary education; that is, the ability to read and write English easily. A student under 18 will not be accepted unless he has had one year in high-school work.

Course of Instruction

(ATTENDANCE NOT REQUIRED)

- Practical Mathematics, Palmer, Parts 1, 2, and 3.
- Mining Methods and Shaft-Sinking.
- Mining Equipment, Management, and Ventilating Equipment.
- Boilers and Engines.
- Elementary Economics.

PRELIMINARY WORK FOR OTHER DEGREES

From one to three years of work may be secured toward degrees at the Main University, as, for example, the Bachelor of Arts, Bachelor of Business Administration, Bachelor of Science in Education, Bachelor of Science in Home Economics, and Bachelor of Science in Medicine.

Preliminary work covering from one to two years is offered for most engineering degrees, for law, and for 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 sophomore year, advise with either the Dean or the proper faculty committee concerning the further selection of courses.

BACHELOR OF ARTS**FRESHMAN YEAR**

1. The following work is prescribed for the freshman year:
 - (a) English 1.
 - (b) Six semester hours in mathematics or six semester hours in Latin (Latin 1) or six semester hours in Greek (Greek 1 if no units in Greek were credited toward admission; Greek 12 if two units were so credited). However, students offering either Latin or Greek in satisfaction of the foreign language requirement must choose mathematics.
 - (c) A foreign language, either ancient or modern.
 - (d) A natural science or a second foreign language, ancient or modern, or history.
 - (e) Six more semester hours, if needed to make thirty semester hours.
2. Two foreign languages may not be begun by freshmen.
3. Courses numbered from 1 to 9, inclusive, are open to freshmen.
4. Freshmen may not take more than eight semester hours in one department.

SOPHOMORE YEAR

5. The following work is prescribed for the sophomore year:
 - (a) Any unabsolved freshman requirements.
 - (b) English 12 or 13.

- (c) A foreign language, either ancient or modern. If a modern language was begun in the freshman year, it must be continued here.
- (d) A natural science.
- (e) Enough other courses to make thirty semester hours.

6. If any semester of a course taken to meet the requirements under "A. Prescribed Work," sections 1 and 2, is finished after ninety semester hours have been completed, or during the session of graduation, that semester will not count toward the required 120 semester hours. If any other course open to freshmen is finished after ninety semester hours have been completed or during the session of graduation, it will count for two semester hours less than its value.

7. If a condition in a course open to freshmen is removed during the session of graduation, that course will count for two semester hours less than its value.

BACHELOR OF SCIENCE IN EDUCATION

FRESHMAN YEAR

1. The following work is advised for the freshman year:
 - (a) English 1.
 - (b) A natural science.
 - (c) A foreign language.
 - (d) Six additional semester hours in natural science, or six semester hours in mathematics, or six semester hours in the major or minor field.
 - (e) Education 301 and 302.
2. Two foreign languages may not be begun by freshmen.

SOPHOMORE YEAR

3. The following work is advised for the sophomore year.
 - (a) Any unabsolved freshman requirements.
 - (b) English 12 or 13.
 - (c) A foreign language.
 - (d) Economics 11 or Government 11.
 - (e) Education 314 and 317.
 - (f) Six additional semester hours in natural science, or six semester hours in mathematics, or six semester hours in the major or minor field.

(NOTE.—If the second course in natural science, or the work in mathematics is taken in the freshman year, then the six semester hours in the major or minor should be selected. Otherwise, the science or mathematics requirements should be completed.)

4. If any semester of a course prescribed for freshmen is finished after ninety semester hours have been completed or during the session of graduation, that semester will not count toward the required 120 semester hours. If any other course open to freshmen is taken after ninety semester hours have been completed or during the session of graduation, it will count for two semester hours less than its value.

5. If a condition in a course open to freshmen is removed during the session of graduation, that course will count for two semester hours less than its value.

WORK PREPARATORY TO LAW

REQUIREMENTS FOR ADMISSION TO THE SCHOOL OF LAW

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

Sophomore Year: English 12 or 13, Government 11, Economics 11, History 15, Business Administration 811, or any other academic course which requires sophomore standing or completion of a freshman course as a prerequisite.

LEADING TO DEGREE OF BACHELOR OF ARTS

Completion of the following courses together with a third year of prescribed work at the Main University at Austin, leads to both the B.A. and the LL.B. degrees upon completion of the requirements for the LL.B. degree.

Freshman Year: English 1, six semester hours in a foreign language, History 4, six semester hours in mathematics, six semester hours in a natural science.

Sophomore Year: Economics 11, English 12 or 13, six more semester hours in the foreign language begun in the freshman year, Government 11, History 15.

WORK PREPARATORY TO MEDICINE

LEADING TO DEGREE OF BACHELOR OF SCIENCE IN MEDICINE

A student who completes the sixty-three semester hours of this scheme and the first two years in the School of Medicine at Galveston will receive the degree of Bachelor of Science in Medicine, to be conferred, according to his preference, at either Austin or Galveston. Thus both the B.S. in Med. and the M.D. degrees may be taken in six years. The sophomore year of this scheme must be completed in the Main University at Austin. The degree of Bachelor of Science in Medicine will not be conferred upon a student who has already received the degree of Bachelor of Arts or is a candidate for the

degree of Bachelor of Arts the year in which he applies for the degree of Bachelor of Science in Medicine.

Freshman Year: English 1, a foreign language, preferably German or French, Chemistry 1, Physics 1, Zoology 1.

Sophomore Year: English 12 or 13, the foreign language begun in the freshman year, *Economics 11 or *Government 11, Chemistry 10, Zoology 14 or Psychology 310 and Zoology 316 or 317; elective, enough to make a total of thirty-three semester hours for the year.

LEADING TO DEGREE OF BACHELOR OF ARTS

Completion of the following courses together with a third year of prescribed work at the Main University, at Austin, 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; Mathematics 301-302 or 302-303; Chemistry 1; Zoology 1.

Sophomore Year: English 12 or 13; six additional semester hours in the foreign language taken in the freshman year; Chemistry 12 (or Chemistry 10 followed by Chemistry 42 in the junior year); Physics 1; Zoology 14.

WORK PRELIMINARY TO OTHER ENGINEERING DEGREES

At least one year of work leading to practically all engineering degrees is offered. In many cases the student may be able to obtain a second year's work in several branches of engineering.

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

STATE TEACHERS' CERTIFICATES

Students expecting to apply for a four-year elementary certificate should enroll in Education 301 and 302, and students expecting to apply for a four-year high-school certificate should enroll in Education 314 and 317 after the completion of Education 301 and 302. In general the requirements for the four-year elementary certificate are thirty semester hours of credit work, including the courses in education indicated and English 1; for the four-year high-school certificate, sixty semester hours of credit including the courses in education indicated, English 1, and English 12.

*Students who have failed to pass thirty semester hours during the freshman year must remove all conditions, either by condition examination or by Summer Session work, before they are permitted to register for Economics 11 or Government 11.

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

COURSES OF INSTRUCTION

Courses marked with an asterisk (*) are essentially engineering courses.

BIOLOGICAL SCIENCES

ASSOCIATE PROFESSOR BERKMAN; INSTRUCTOR JENNESS

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.

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.

316s. *Elementary Bacteriology*.—History of bacteriology, laboratory methods, morphology, physiology, and taxonomy of bacteria, yeasts and moulds; the germ theory, immunity, and quantitative analysis of water, milk, sewage, and foods. Suitable to the needs of students in home economics. Open only to women students. Prerequisite: Chemistry 1. No previous training in botany required. Two lectures and three laboratory hours. Laboratory fee, \$2; deposit, \$2.

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.

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.

BUSINESS ADMINISTRATION

ASSOCIATE PROFESSOR BEYNON

01f. *Elementary Typewriting*.—A non-credit course, equivalent to the typewriting work of Business Administration 10, given for the benefit of those who do not desire shorthand. Laboratory fee, \$4; deposit, \$2.

10f. *Shorthand and Typewriting, First Course*.—Mastery of the principles of Gregg Shorthand and of typewriting. Credit given for the shorthand only. Prerequisite: Junior standing. Six discussion periods and six laboratory hours. Laboratory fee, \$4; deposit, \$2.

21s. *Shorthand and Typewriting, Second Course*.—Continuation of Business Administration 10 and dictation. Credit given for the shorthand only. Prerequisite: Business Administration 10 or its equivalent. Six discussion periods and six laboratory hours. Laboratory fee, \$4; deposit, \$2.

*311s. *Principles of Accounting for Engineers*.—Similar to Business Administration 811. For engineering students. Prerequisite: Sophomore standing. Two discussion periods and four laboratory hours.

811. *Principles of Accounting*.—Uses of accounting; interpretation of financial statements; the accounting process; sole owner, partnership, and simple corporation accounting. Prerequisite: Sophomore standing. Three discussion periods and three laboratory hours. The last two semester hours of this course count as advanced.

420f. *Business Correspondence*.—The use of correct and forceful English for business purposes. Prerequisite: English 1, and 12 or 13, with an average grade of at least C on the two courses (otherwise, English 1, 12, and 13), and Business Administration 811 and 01 or its equivalent.

23. *Business Law*.—General principles of the law of contracts, bankruptcy, agency, bailments, sales, mortgages, negotiable instruments, presented in practical business problems; Texas statutes affecting these subjects. Not to be included among the courses presented for admission to the School of Law. Prerequisite: Economics 11 and junior standing.

326f. *Advanced Accounting*.—Advanced theory, applied to the accounting process; partnership, corporation, and trust accounting; valuation; interpretation of reports; problems met in public accounting. Prerequisite: Business Administration 811.

327s. *Advanced Accounting*.—Accounting for inter-company relations, domestic and foreign; estate accounting; liquidation and insolvency; problems met in public accounting. Prerequisite: Business Administration 326.

340f. *Fundamentals of Advertising*.—Discussion of the part that advertising plays in business; a study of advertising campaigns,

budgets, mediums, and personnel; development of advertising principles applicable to the production of advertising. Prerequisite: Junior standing and Economics 11 or Government 11.

342s. Writing of Advertising Copy.—Preparation of layouts; gathering copy ideas; putting advertising ideas into form; study of typographical and printing effects; practice in writing advertisements. Writing exercises are accompanied by class discussions intended to develop the students' powers of ad-writing. Prerequisite: Business Administration 340.

60. Advanced Dictation and Secretarial Practice.—Prerequisite: Business Administration 21, or its equivalent and junior standing.

Psychology 316s. Business Psychology.—The application of psychological principles to business and industrial problems; personnel administration; advertising and salesmanship. Prerequisite: Psychology 310. (Counts as a course in business administration if taken in the junior year.)

CHEMISTRY

PROFESSOR SEAMON; ADJUNCT PROFESSOR LAKE

1. General Chemistry.—Fundamental principles of "pure" chemistry only. Two lectures or recitations, and two laboratory periods of two and one-half hours each. Laboratory fee, \$4; deposit, \$6.

**901. General Chemistry.*—The laws and theories of chemistry; the chemical elements and their most important compounds with special reference to their production and industrial uses. A comprehensive course is given in the solution of practical problems. Three lectures or recitations throughout the session; three laboratory hours the first semester and six laboratory hours the second semester. Laboratory fee, \$4; deposit, \$6.

10. Elementary Organic Chemistry.—For students who can afford only two years of pre-medical training. Prerequisite: Chemistry 1 or 901. Two lectures and three laboratory hours. Laboratory fee, \$4; deposit, \$6.

**12. Chemical Analysis and Its Theory.*—Gravimetric and volumetric methods. Theory and methods kept abreast of most recent advance in quantitative analytical chemistry. Prerequisite: Chemistry 901. Nine laboratory hours, lectures and quizzes. Laboratory fee, \$4; deposit, \$6.

**424. Assaying.*—The determination of gold, silver, and lead, by fire methods, in ores and products of mills and smelters. 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 12. One lecture or recitation and three laboratory hours. Laboratory fee, \$4; deposit, \$6.

*240f. *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 gone into. Prerequisite: Chemistry 12 and Physics 415. Six laboratory hours. Laboratory fee, \$2; deposit, \$6.

*242f. *Electrochemical Analysis*.—Designed to give the student a practical knowledge of the methods of analysis and the important chemical reactions obtained by the use of electricity. Prerequisite: Chemistry 12 and 424, Geology 16, and senior standing. One lecture and three laboratory hours. Laboratory fee, \$2; deposit, \$6.

*243f. *Metallurgical Analysis*.—Advanced chemical analysis; the analysis of metals, alloys, fuels, boiler feed water, and flue gases. Prerequisite: Chemistry 12 and 424, Geology 16, and senior standing. Six laboratory hours. Laboratory fee, \$2; deposit, \$6.

351s. *Physical Chemistry*.—Study of the most important fundamentals of physical chemistry, gas laws, surface tension, viscosity, theory of solution, electrochemistry, and thermochemistry. Prerequisite: Chemistry 12 and Physics 415. One lecture and six laboratory hours. Laboratory fee, \$2; deposit, \$6.

EDUCATION

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.

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

302f. *Methods and Management in the Elementary School*.—Deals with the methods for teaching elementary school subjects, and with the management of elementary school pupils.

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

311s. *Practice Teaching*.—A study of principles of teaching, observation of class work, construction of lesson plans, and teaching under supervision. Prerequisite: Education 314.

312f. *Kindergarten Methods*.—Planned to train the student to evaluate and use kindergarten materials in the light of the child's needs and interests. One hour each week is spent in direct observation of kindergarten classes. Dramatization, games, dances, and child-play are studied, and special attention is given to music and rhythm suitable for young children. A study is made of literature for small children. Prerequisite: Education 314.

313s. *Kindergarten Methods*.—Continuation of Education 312. Practice is given in telling stories to the children. Students experiment with such materials as crayolas, water colors, fresco paints,

pasteboard boxes, clay, and Bristol board, to determine their educational value with children of the kindergarten age. Prerequisite: Education 312f.

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.

314s. Child Psychology.—Repetition of Education 314f.

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.

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.

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, or their equivalent.

ENGINEERING, MATHEMATICS, AND PHYSICS

PROFESSOR KIDD; ADJUNCT PROFESSORS DURKEE, MARSH, KENNEDY;
INSTRUCTOR LILES

Engineering

**203s. 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; and the usual computations used in plane surveying. Prerequisite: Mathematics 305 and 306. Adjunct Professor KENNEDY.

**304. Field Surveying.*—Summer work; practical field course covering the topics outlined in Engineering 203. Accurate and rapid work will be insisted upon. Prerequisite: Engineering 203 and Drawing 302. Eight hours daily for four weeks preceding opening of session. Laboratory fee, \$2; deposit, \$2. Adjunct Professor KENNEDY.

217s. Railway Surveying.—Exercise in simple, reverse and transition curves; turn-outs; cross-sections; and estimates. Prerequisite: Engineering 304. One lecture and three laboratory hours. Laboratory fee, \$2; deposit, \$2. Adjunct Professor KENNEDY.

219f. Mine Surveying.—Underground surveying, mapping of underground connections, surface surveying in connection with mineral claims, and all ordinary surveying operations that the mining engineer may be called upon to perform. Prerequisite: Engineering 304. One lecture and three laboratory hours. Laboratory fee, \$2; deposit, \$2. Adjunct Professor KENNEDY.

**481f. 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 electrochemical work. Prerequisite: Physics 415 and Mathematics 13. Three recitations and three laboratory hours. Laboratory fee, \$4; deposit, \$2. Professor KIDD.

**32f. Applied Mechanics.*—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 and Mathematics 13. Four lectures and six laboratory hours. Laboratory fee, \$4; deposit, \$2. Professor KIDD.

**350s. Thermodynamics.*—The fundamental equations of gases and their application to the steam engine; the heating values of different fuels; the practical construction and operation of steam boilers; boiler feed pumps; methods of firing boilers; different types of steam engines as regards speed, valves, steam consumption, comparative cost, and relative economy; actual adjustments of valves, and determination of horsepower by the use of the indicator; steam turbines; and a large number of practical problems. Prerequisite: Mathematics 13. Professor KIDD.

**354s. 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 415 and Mathematics 13. Professor KIDD.

Drawing

301f. Engineering Drawing.—Mechanical drawing, freehand lettering, orthographic projection, pictorial methods, and working drawings. Adjunct Professor MARSH.

302s. Descriptive Geometry.—Includes developed surfaces, intersections, and auxiliary views in addition to the point line and plane problems. Prerequisite: Drawing 204 or 301. Adjunct Professor MARSH.

204f. Mechanical Drawing.—Includes lettering, geometrical constructions, isometric projection, sketching of machine parts, complete

working drawings from sketches and copy, tracing, and blue-printing. Six laboratory hours. Adjunct Professor MARSH.

Physics

1. *General Physics*.—Three lectures and three laboratory hours. Laboratory fee, \$4; deposit, \$2. Adjunct Professor DURKEE.

12. *Second-Year Physics*.—First semester: electricity and magnetism; second semester: heat, light, and sound. Prerequisite: Six semester hours in mathematics and Physics 1. Two lectures and three laboratory hours. Laboratory fee, \$4; deposit, \$2. Adjunct Professor DURKEE.

*414f. *Physics: Mechanics and Heat*.—Includes a thorough grounding in kinematics, dynamics, statics, kinetics, properties of matter, thermometry, and expansion. 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 305 and 306. Three recitations and three laboratory hours. Laboratory fee, \$4; deposit, \$2. Adjunct Professor DURKEE.

*415s. *Physics: Heat, Electricity, and Magnetism*.—A continuation of Physics 414f. The subjects treated are calorimetry, heat and work, change of state, vaporization, condensation of gases, radiation, magnetism, the magnetic field, magnetic induction, electrostatics, electrodynamics, and radioactivity. Prerequisite: Physics 414. Three recitations and three laboratory hours. Laboratory fee, \$4; deposit, \$2. Adjunct Professor DURKEE.

Mathematics

1. *Introductory Course*.—First semester consists of algebra and plane trigonometry; involution, evolution, complex fractions, general quadratic equations with graphical solutions, theory of logarithms, construction and use of slide-rule, complex numbers; trigonometric ratios, identities, equations, laws of sines, cosines, tangents, reduction and addition formulas, inverse functions, solution of triangles, radian measure. Second semester consists of plane and solid analytic geometry; curve tracing and locus problems in Cartesian and polar coordinates, straight line, change of axes, properties of conic sections involving tangents, asymptotes, etc.; parametric equations; surface and locus problems in space.

202s. *Solid Geometry*.—Required of candidates for general engineering degrees who do not present solid geometry for entrance. Counts toward academic degrees but not toward engineering degrees. Adjunct Professor MARSH.

301-302. *Plane Trigonometry and Analytic Geometry*.—A full course in mathematics for academic students. Instructor LILES.

*305f. *College Algebra*.—A rapid review of quadratic equations; radical expressions; logarithms; choice; chance; series; the binomial theorem; and the theory of limits. Adjunct Professor KENNEDY.

*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. Adjunct Professors MARSH, KENNEDY.

*207s. *Analytic Geometry*.—Cartesian coördinates of the point; polar coördinates; graphs of algebraic and transcendental functions; loci in general; and a careful consideration of the plane curves. Prerequisite: Mathematics 305 and 306. Instructor LILES.

13. *Calculus*.—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 207. Professor KIDD.

ENGLISH

ASSOCIATE PROFESSOR DRAKE; ADJUNCT PROFESSORS MCKINNEY,
MOSES, WILLETT

For the degree of Bachelor of Arts, twelve semester hours in English are, required, namely, 1 and either 12 or 13. English 1 is prerequisite to all other courses in English except 202; English 12, to all other courses in English literature except English 202; and English 64, to the higher courses in the English language. For English 64, see the University of Texas catalogue.

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, 12, 64, and at least six advanced semester hours in English literature; nor will the department give its full endorsement for 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; analysis and discussion of typical prose masterpieces; weekly essays; collateral reading. Prescribed for freshmen.

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

202s. *English Literature for Freshmen*.—Rapid reading and study of examples of English literature; written reports on this reading. Open only to freshmen with grade of C or higher in first semester of English 1; consent of chairman also required. Two hours a week during the second semester.

*410. *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.

12. *Outline History of English Literature*.—Survey of English literature from the beginning to the present time. Direct study of masterpieces in prose and poetry, selections from Old English being read in translation. Original essay each semester. Prerequisite: English 1. English 12 is prerequisite to all other courses in English literature except English 202.

12as. *Outline History of English Literature*.—Repetition of the first semester of English 12.

13. *English Composition*.—For students who have already acquired a working knowledge of composition and considerable facility in expression, but who wish to do further work in the subject. Prerequisite: English 1.

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.

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.

22. *Victorian Poetry*.—Consideration of works of Tennyson, the Brownings, Arnold, and Swinburne, the most noteworthy minor poets of the period constituting the parallel reading. Prerequisite: English 12.

324s. *Social Problems and the Realistic Novel*.—A view of the attempts of various writers of realistic novels (a) to arouse interest in social ills and (b) to explain the causes of these ills or suggest remedies for them. A comparison of the ideas of the novelists with those of the scientific students of society. Special reports and group work. Prerequisite: English 12.

427. *An Outline History of the English Novel*.—Brief history of the novel from the romance of the sixteenth century through the novel of the eighteenth century, followed by consideration of the several types of fiction down to and including Thomas Hardy, with study of typical works of Jane Austen, Scott, Dickens, Thackeray, George Eliot, Hawthorne, Meredith, and Hardy. Prerequisite: English 12. Two hours a week throughout the year.

29. *The English Romantic Movement*.—Introductory survey of romantic tendencies in the Ages of Pope and Johnson and the Pre-Romantic Group in the Age of Burns. Chief poems of Coleridge, Wordsworth, Byron, Shelley, Keats, and some of their contemporaries. Prerequisite: English 12.

31. *English Drama since 1660 in England and America*.—A study of representative plays of the Restoration Age, of the eighteenth and nineteenth centuries, and of such modern playwrights as Jones, Pinero, Shaw, and Barker in England, and the Mackayes, Fitch, Thomas, Sheldon, and O'Neill in America. Prerequisite: English 12.

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.

336s. *American Prose*.—Study of the chief American prose writers, principally those of the nineteenth century: Irving, Melville, Hawthorne, Emerson, Poe, Lowell, Thoreau. Prerequisite: English 12.

337f. *American Poetry*.—A study of the poems of Bryant, Poe, Longfellow, Lowell, and Lanier, together with a consideration of some of the lesser poets of their time. Prerequisite: English 12.

338s. *American Poetry*.—A study of the poems of Emerson and Whitman and of some of the lesser poets of their time, followed by a consideration of the chief American poets of the present century. Prerequisite: English 337.

341f. *The Short Story*.—The literature and technique of the short story; the rise and nature of its form; an intensive study of its structure together with constructive work in story writing. Prerequisite: English 12 or 13, with a grade of A or B.

351f. *The Backgrounds of English Literature*.—A study of the great literary ideas and traditions which have contributed to the English literary heritage. Material is introduced to illustrate the Classical, Oriental, Germanic, Celtic, and other streams of influence. Prerequisite: English 12.

GEOLOGY AND MINING

PROFESSOR QUINN; ADJUNCT PROFESSORS NELSON,* HAIGH

Geology

1. *General Geology: Introduction to Science*.—Three lectures and three hours of laboratory demonstration or field work a week.

*Absent on leave for the session of 1928-1929.

Laboratory fee, \$4; deposit, \$2. Professor QUINN; Adjunct Professor HAIGH.

*16. *Mineralogy*.—Beginning course in the determination of minerals. Prerequisite: Geology 1 and Chemistry 901, or consent of the instructor. Six laboratory hours and one conference period. Laboratory fee, \$4; deposit, \$2. Adjunct Professor HAIGH.

*317. *Field Geology*.—Given by the camp method; four weeks each alternate year. The area is carefully mapped and all geologic features marked. Plane tables, transits, army sketch boards, hanging compasses and Brunton compasses are used. Required of all candidates for a degree. Prerequisite: Geology 1, Geology 16, and Engineering 304. Professor QUINN; Adjunct Professor HAIGH.

*320s. *Ore Deposits*.—An exhaustive study of the occurrence and origin of all useful deposits of gold, silver, lead, copper, zinc, tin, iron, nitrates, salts, gypsum, clays, cement materials, coal, petroleum, and natural gas is made. Prerequisite: Geology 327. Professor QUINN.

*23. *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 take up in minute detail. Nine laboratory hours. Laboratory fee, \$4; deposit, \$2. Prerequisite: Geology 1 and Geology 16. Professor QUINN.

*26. *Petrography*.—This course is intended primarily for those taking the Geology Option in the senior year of work. Petrography is gone into minutely with the use of the microscope in the study of rocks. Prerequisite: Geology 327. Two lectures and three hours of laboratory work. Laboratory fee, \$4; deposit, \$2. Professor QUINN.

*327f. *Macroscopic Petrography*.—Prerequisite: Chemistry 901, Geology 1, and Geology 16. Two lectures and three laboratory hours. Laboratory fee, \$2; deposit, \$2. Professor QUINN.

*328. *Structural and Metamorphic Geology*.—The conditions, processes, and results of metamorphism; structural features resulting from deformation under varying conditions of load. Three lectures. Prerequisite: Geology 327. Professor QUINN.

*30. *Sedimentation*.—The interpretation of the history of sedimentary rocks based on the study of present sedimentation, the character of ancient sediments and experimentation. Prerequisite: Geology 327. Three lectures. Professor QUINN.

*261s. *Seminar in Ore Deposits*.—Discussions and original papers on new developments in the field of ore deposits. Laboratory work on the construction and interpretation of geologic maps consisting of methods of geologic examinations. Problems in the interpretation of geologic maps using U. S. Geological Survey topographic and geologic maps and folios as illustrative material. Prerequisite: Six advanced semester hours in geology. Professor QUINN.

*62. *Petroleum Geology*.—A progressive study of the facts, deductions, and theories of origin, migration and accumulation of petroleum as illustrated by experimental data and examples of occurrences of oil and gas in typical fields; general stratigraphic and structural conditions of the large oil provinces of the world and details of specific local structures where oil and gas have been found; studies of methods and devices used to locate oil and gas deposits; organization and presentation of field data in form of reports; studies of underground conditions in specific pools and methods of geologic work to increase ultimate recoveries of oil; types of oil structures; migration of oil and gas; relation of pools to ancient shore lines, etc.; geophysics. Prerequisite: Six advanced semester hours in geology. Three lectures.

*273f. *Sedimentary Petrography*.—Study of the physical and mineralogical character of sedimentary rocks, especially the determination of mineral grains by optical methods for the purpose of more accurate surface and sub-surface correlation. Prerequisite: Geology 327 and 328. One lecture and three laboratory hours. Laboratory fee, \$2; deposit, \$2.

*374f. *Subsurface Geology*.—Study and practice of subsurface methods in geology and other subsurface relations. Practical problems from the oil fields of Texas. Prerequisite: Geology 327 and 328. Nine laboratory hours. Laboratory fee, \$2; deposit, \$2.

Mining

*310f. *Mining Machinery*.—The methods employed in rock and placer mining are studied with reference to the various forms of machines employed in such operations. Prerequisite: Geology 1 and Chemistry 901. Three lectures. Professor GRAHAM.

*311s. *Mining Methods*.—Prospecting, exploration, development, exploitation, explosives, breaking ground, drifting, stoping, timbering, drainage, and ventilation of mines, metal and coal. Prerequisite: Mining 310. Three lectures. Professor GRAHAM.

*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 311. Two lectures. Adjunct Professor HAIGH.

*432. *Hygiene and Sanitation*.—Lectures and recitations. Prevention of communicable diseases, personal hygiene, public health, food, air, water, soil, ventilation and heating, sewage disposal, garbage disposal, disinfection, camp sanitation, mine sanitation, prevention of industrial diseases. The course is supplemented by field work in sanitary surveys, and drawing of apparatus. The course also includes work in first aid and rescue work. Prerequisite: Mining 311. Two hours. Instructor JENNESS.

*241s. *Oil Field Mapping*.—Study of the principles and practice of topographic, geologic, and general land mapping with special reference to oil field work and problems. Preparation of field and property maps. Development of geological sections and structural contour maps, both surface and sub-surface. Prerequisite: Geology 317 and Physics 415. One lecture and three laboratory hours.

*42s. *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 practice 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: Junior standing in Petroleum Geology Option. Six lecture hours.

*866f. *Oil and Gas Mining*.—An exhaustive study of the origin, distribution, migration, and accumulation of oil and gas. 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: Six advanced semester hours in geology; senior standing. Adjunct Professor HAIGH.

*267f. *Management*.—Mine examination, sampling, reporting, welfare, financing, and other interesting problems are considered in a lecture course given only to students of senior standing. Prerequisite: Mining 311, Business Administration 311, Engineering 219, Geology 320, and Metallurgy 21. Two lectures. Professor QUINN.

*368s. *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 acquirement of titles to mines are carefully considered in a course of lectures given to seniors. Prerequisite: Mining 267. Three lectures. Professor QUINN.

*369s. *Mine Plant Design*.—A study of power possibilities, costs, etc., and design of a power plant, surface equipment, and structures for a mine. Nine hours of laboratory. Prerequisite: Engineering 32 and 431. Laboratory fee, \$2; deposit, \$2. Professor GRAHAM.

HOME ECONOMICS

1. *Introductory Course in Foods*.—A general survey of the elementary principles of cookery with an introduction to the planning and serving of meals in the home. Two lectures and four laboratory hours. Laboratory fee, \$4; deposit, \$2.

302f. Design.—Costume design and the relation of the principles of line, dark and light, and color to the individual. Two lectures and four laboratory hours.

303s. Design.—House planning and the relations of the principles of design to problems relating to the home. Two lectures and four laboratory hours.

10. Institutional Cookery and Management.—Practice and observation in large quantity buying and cooking; study of institutional kitchen; administrative problems. Prerequisite: Home Economics 1 and Chemistry 1. Six hours of lecture and laboratory. Laboratory fee, \$4; deposit, \$2.

METALLURGY

PROFESSOR GRAHAM

**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 12 and Physics 415. Professor GRAHAM.

**352s. Electro-Metallurgy.*—The electric furnace, with its present-day applications and possible future uses. Prerequisite: Metallurgy 21. Three lectures per week. Professor GRAHAM. (Given in alternate years; given in 1929-1930.)

**462f, *62. Metallurgy of Leaching Processes.*—Study of the chemical and physical properties of the precious metals and of such of their compounds as are of importance in connection with the leaching processes; the cyanide process; chlorination; hyposulphite leaching; the Russell process; etc. Prerequisite: Metallurgy 21. Three lectures and three laboratory hours, first semester; six laboratory hours, second semester. Laboratory fee, \$4; deposit, \$2. Professor GRAHAM.

**863. Ore Dressing and Milling.*—Study of the principles of amalgamation, concentration, and ore dressing; laying out flow sheets; and designing plants from data given in this course. Prerequisite: Metallurgy 21. Three lectures and three laboratory hours, first semester; two lectures and six laboratory hours, second semester. Laboratory fee, \$4; deposit, \$2. Professor GRAHAM.

**270s. Metallurgy of Copper.*—The underlying principles of copper smelting are given particular attention. Prerequisite: Metallurgy 21. Two lectures a week. Professor GRAHAM.

[**371s. Metallurgy of Lead.*—The metallurgy of lead is taken up in minute detail. Drawings of furnaces and calculations for building furnaces are made. Prerequisite: Metallurgy 21. Three lectures a week. Professor GRAHAM. (Given in alternate years, omitted in 1929-1930.)]

*373s. *Metallography*.—The microscopic study of alloys and metals is carefully made. Prerequisite: Metallurgy 21. Two lectures and three laboratory hours. Laboratory fee, \$2; deposit, \$2. Professor GRAHAM.

NOTE.—Chemistry 424 (Assaying) must either precede Metallurgy 21 and 62 or be taken at the same time.

MODERN LANGUAGES

INSTRUCTORS AVRETT, ELDRIDGE, FINEAU

The admission requirement of three units is represented in Spanish, French or German by courses A and 1; 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.

Students of mining engineering must either present two units in Spanish or take Spanish A.

Spanish

*A. *Beginners' Spanish*.—Conducted in Spanish as far as possible. Drill on pronunciation. Conversation stressed. Essentials of grammar. Easy reading.

1. *Grammar, Reading, and Composition*.—The method of Spanish A is continued. Prerequisite: Spanish A.

12. *Contemporary Literature*.—Conducted in Spanish as far as possible. Reading of modern Spanish novels, plays, and poetry. Outline of Spanish literature in the modern period; composition, conversation. Prerequisite: Spanish 1, or three entrance units in Spanish.

27. *Advanced Composition*.—A formal study of the grammar; reproduction; original composition. To be conducted in Spanish as far as possible. Prerequisite: Spanish 12.

36. *Modern Spanish Drama*.—A study of the drama from the time of Moratin to the present. To be conducted in Spanish as far as possible. Prerequisite: Spanish 12.

French

A. *Beginners' French*.—The essentials of grammar with exercises in speaking and writing. Reading of easy stories.

1. *Composition and Reading.*—Composition and rapid reading of modern fiction and drama with practice in speaking. Prerequisite: French A.

12. *Composition and Reading.*—Continuation of French 1. Composition and reading of representative modern French authors. Prerequisite: French 1.

24. *Advanced Composition.*—Conversation and grammatical drill for advanced students. Formal study of grammar, reproduction, and original composition. Prerequisite: French 12.

German

A. *Beginners' German.*—Meets five times a week, but work required is the same as for a regular three-hour course, four hours instead of six being devoted to outside preparation.

1. *Grammar, Reading, and Composition.*—Continuation of German A. Prerequisite: German A or two admission units in German.

12. *Advanced Reading and Composition.*—Reading of modern German authors, syntax and free reproduction. Prerequisite: German 1 or three admission units in German.

41. *History of German Literature.*—Introductory survey of German literature, contents being stressed relatively more than form. Prerequisite: German 12 or the equivalent.

PSYCHOLOGY

310f. *Introductory Psychology.*—A survey of the field of general psychology. Prerequisite: Sophomore standing.

316s. *Business Psychology.*—The application of psychological principles to business and industrial problems; personnel administration; advertising and salesmanship. Prerequisite: Psychology 310. (Counts as a course in business administration if taken in the junior year.)

PUBLIC SCHOOL ART

1. *Applied Art.*—Study of principles and elements of art, and application to crafts and to the graphic and plastic arts. Subjects studied include design, lettering, drawing, painting, costume design, landscape gardening, architecture, house plans, interior decoration, furniture design, commercial advertising, sculpture, prints and etchings, art history and appreciation, and crafts. Six hours a week.

10. *Art Methods.*—Includes subjects covered in Public School Art 1, with stress on methods used in teaching the subjects to school children. Observation of materials, methods of presentation, assignment of problems, etc., by visits to various schools of the city. Six hours a week. Prerequisite: Public School Art 1.

PUBLIC SCHOOL MUSIC

1. *Public School Music.*—For those planning to teach in kindergarten or primary grades. Sight-singing, ear training, phrasing, notation, rhythm, scale building; methods of teaching; practice teaching; special attention to appreciation and rhythm.

2. *Harmony.*—(1) The major scale, intervals, common chords and their inversions, harmonizing melodies, original melodies, minor scale, cadences, etc. (2) The dominant seventh chord, its inversions and resolutions, secondary chords of the seventh, chords of the dominant seventh and ninth, diminished seventh and augmented sixth, modulation, altered and foreign chords. (3) Anticipations, suspensions, retardations, syncopation, seventh and eighth part harmony, analysis, harmonizing melodies, chords of the eleventh and thirteenth, fifth, sixth, seventh, and eighth part harmony. Prerequisite: Consent of instructor.

10. *History of Music.*—Takes up first primitive music and continues through Beethoven, then deals with the Romanticists and the study of modern music. Prerequisite: Sophomore standing.

PUBLIC SPEAKING

205. *Principles of Speech.*—A study of the theory of expression; exercises in developing the voice and improving stage presence; practice in speaking with special reference to distinct, direct, interesting speaking. Open only to freshmen. Two hours a week throughout the session.

12. *Dramatics.*—Principles of character interpretation, elementary technique of acting; voice, speech, line reading, action, and makeup; staging, costuming, composition, colors, and materials. Prerequisite: Sophomore standing.

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.

316s. *Teachers' Course in Argumentation and Debate.*—Methods of teaching argumentation and debate in high schools. Prerequisite: Sophomore standing.

19. *Extempore Speaking.*—Theory and methods. Training in thinking and speaking before an audience. Class exercises in speaking extemporaneously on assigned topics. The organization of original materials; composition for public speaking, and adaptation of speaking manner to subject matter. Prerequisite: Sophomore standing.

SOCIAL SCIENCES

.ADJUNCT PROFESSORS NULL, QUINN

History

4. *History of England.*—Survey of the social, economic, political, and intellectual development of Britain and the British Empire.

9. *Introduction to European History.*—General survey of the history of Europe during the medieval and modern periods.

15. *History of the United States.*—History of the United States from the discovery of America to the present time. Prerequisite: Six semester hours in history or sophomore standing.

22. *The Civilization of the Middle Ages and the Renaissance.*—The cultural development of the Middle Ages; the antecedents of the Renaissance; the economic, artistic, and intellectual phases of the Renaissance period. Prerequisite: Twelve semester hours in history.

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 Revolution. Survey of social and political problems of the Old World today. Prerequisite: Twelve semester hours in history.

Economics

11. *Introduction to Economics.*—Description of the mechanism of production, distribution, and exchange; analysis of problems arising in modern economic society, and the presentation of rational bases for solution. Designed both to lay the foundation for further work in economics and to prepare the student for business and for citizenship; considerable attention to such topics as prices, money, banking, foreign exchange, the tariff, the corporate organization of industry, monopoly, speculation, crises, labor unions, coöperation, railways, socialism, and taxation. Prerequisite: Sophomore standing.

Government

11. *Comparative Government.*—Governmental systems of England, France, other leading European countries, and the United States. Prerequisite: Sophomore standing.

Sociology

25. *Introduction to the Study of Society.*—Human nature; society and the group; nature and effects of communication; social forces; competition and the location of the individual in the community; conflict, social control; collective behavior; social progress. Prerequisite: Economics 11.

ORE TESTS, ASSAYS, AND ANALYSES**ORE TESTING MILL**

An appropriation was made by the Thirty-fourth Legislature for the erection of a mill for ore-treating at the College of Mines and Metallurgy. This mill is now completed. The construction has followed a definite idea, that idea being a mill for continuous operation and flow of ore as far as possible. The basis of capacity is 200 pounds of ore an hour, and lots of less than 1,000 pounds will not be treated. No "miniature plants" have been installed, nor any machine whose normal capacity under full loads is in excess of 250 pounds an hour.

MILL RUN TESTS ON ORE

Mill run tests on ore will be made free of charge to mine owners desiring tests for process of treatment, regardless of the location of the mine, whether within or without Texas. The mine owner will be required to prepay all freight charges and the cost of the necessary assays. This work will be done by students under the personal direction of the professors in charge of the work, and will be carefully checked to insure that the work is accurate for the lot tested. Beyond this, the College can assume no responsibility. It is the function of the shipper to see to it that the lot shipped for treatment is a representative or average sample of his ore body. If he fails to do this, the test will be worthless, except for purposes of student instruction. All ore shipped to the College of Mines and Metallurgy must be regarded as a gift to the College, and becomes the property of the College when it enters the mill building. The shipper will be expected to sign a statement that he has a body of ore developed of sufficient size to justify a treatment process test. The purpose of the work is to give instruction to students, assist in the development of the Southwest, and help to prevent the installation of processes not adapted to the ore treated. No mill runs will be made during June, July, August, or September.

ANALYSES OF ORE

The College of Mines and Metallurgy has no desire to undertake analyses of ores in competition with professional assayers. Those who for special reasons wish their work to be done at the College should write to the Dean for a statement of the conditions under which this is possible. Control work and sampling for ore shippers to the smelter will not be undertaken. Inquiries about coal should

be sent to the Bureau of Economic Geology, about water to the Bureau of Industrial Chemistry, University of Texas, Austin.

Identification, *i.e.*, information as to what a mineral is, is made free of charge, regardless of the nature of the mineral or from what state it comes. All samples or specimens sent to the College become its property, and will either be kept or thrown away, at the discretion of the authorities of the College. Supposed gems or precious stones should be sent for identification or valuation, not to the College of Mines and Metallurgy, but to a jeweler or a lapidary.

DEGREES CONFERRED IN 1928

Bachelor of Science in Mining Engineering

Claud Chilton Boykin

Henry Ezekiel Brown, Jr.

Fred Joseph Brooks

Jose Trinidad Camacho, Jr.

Louis Fisher Green

Rafael Rangel

Robert Ira Seale

REGISTER OF STUDENTS

Session of 1928-1929

Abbott, Virgil William.....	El Paso	Brieden, Marie Augusta.....	El Paso
Ackerman, Bella.....	El Paso	Brixner, Berlyn.....	El Paso
Aclin, Jack.....	Paris, Tenn.	Broderson, George Nickolay, Jr.	
Akeroyd, Margaret Stevens.....			El Paso
	El Paso	Brogniez, Fernand.....	El Paso
Akeroyd, Richard George.....	El Paso	Brooks, Mary.....	El Paso
Anderson, Helen Mae.....	El Paso	Brown, David Blanchard.....	El Paso
Anderson, Jean.....	El Paso	Brown, Mrs. Katherine Murphy	
Anderson, Joe Sweeney.....	El Paso		El Paso
Andreas, Portia Marie.....	El Paso	Brown, Louise.....	El Paso
Apple, Bonnie.....	El Paso	Brown, Philip.....	El Paso
Araujo, Arnulfo.....	Juarez, Mexico	Bryan, Mrs. Edith M.....	El Paso
Archer, Bertha Hannah.....	El Paso	Buckner, Hugh.....	El Paso
Armstrong, John Francis.....		Burdick, Mrs. Laura Breeding.	
	El Paso		El Paso
Aronstein, Margaret.....	El Paso	Burbridge, Wallace F.....	Clint
Arrington, Mrs. Empress.....	El Paso	Burgie, Mrs. Amee.....	El Paso
Arroyo, Genaro.....	El Paso	Burton, Harry Donald.....	El Paso
Ash, Mrs. Ella.....	El Paso	Bush, Mary Elizabeth.....	El Paso
Ayers, Frances.....	El Paso	Bush, Thomas.....	El Paso
Ayoub, William.....	El Paso	Butts, Gordon C.....	Piqua, Ohio
		Byrd, Clara Mary.....	Clint
Ballard, Martha De Field.....			
	El Paso	Cameron, David Molloy.....	El Paso
Balt, Jakoba F. J.....	El Paso	Campbell, John Felix.....	Abilene
Bartlett, Mrs. Alma.....	El Paso	Campbell, Louise.....	El Paso
Bartlett, William Tyler.....		Capron, Louise.....	El Paso
	La Mesa, N.M.	Carter Bryce.....	El Paso
Bearden, Fabian.....	Baird	Carter, Uell Lee.....	Hagerman, N.M.
Bennett, Donald Casad.....	Canutillo	Cassels, Inez Elizabeth.....	El Paso
Benold, August.....	El Paso	Ceballos, Lorenzo Winslow, Ariz.	
Beutell, H. P.....	El Paso	Chambers, John E.....	El Paso
Bevan, Horace Dean.....	El Paso	Christie, Mrs. Ynez Dwyer.....	
Biggs, Frasier C.....	El Paso		El Paso
Billard, Louise.....	El Paso	Clark, Lota Gass.....	El Paso
Black, Frank.....	Palestine	Clayton, Florence Anne.....	El Paso
Blanchard, Mrs. Kate P.....	El Paso	Clifton, Mrs. Minnie D.....	El Paso
Booth, Helen De Wolf.....	El Paso	Cobb, Dora Alyne.....	Waco
Boswell, Naomi Ruth.....	El Paso	Coe, Sylvia Joy.....	El Paso
Bottorff, Gene.....	El Paso	Cohen, Mildred Beatrice.....	El Paso
Brent, Claud.....	El Paso	Cole, Cloyce.....	New Castle

Register of Students

Cole, James K.....	El Paso	Dunne, Elizabeth.....	El Paso
Cole, Jesse Dillon.....	El Paso	Duty, Lucile.....	El Paso
Cole, Ralph C.....	El Paso	Dwigans, Raymond.....	Acala
Collinson, Vincent A.....	El Paso		
Colvin, Robert H.....	El Paso	Eakins, Allen, Jr.....	Dallas
Condon, Minnie Lozier.....	El Paso	Elfers, E. Burke.....	El Paso
Connell, Jess M.....	El Paso	Elliott, Hardie Bishop, Jr.....	
Conway, Geraldine.....	El Paso	.....	El Paso
Cook, Frances.....	El Paso	Emmett, Robert.....	El Paso
Cordell, Mona Grant.....	Canutillo	Encinas, Emma Catherine.....	
Cordero, Gaspar.....	El Paso	.....	Madera, Chih., Mexico
Corlett, Bill.....	El Paso	Erlich, Myer.....	El Paso
Cory, Gladys.....	Pasadena, Calif.	Escobar, Raul Antonio.....	El Paso
Cosby, Leanora.....	El Paso	Escudero, Carlos R.....	El Paso
Cowherd, Margaret Lorene.....		Ewald, Margaret Kathryn.....	
.....	El Paso	.....	El Paso
Craige, Mrs. Branch.....	El Paso	Ezell, Nancy Sue.....	El Paso
Croom, Edward M.....	El Paso		
Crosby, Foster Allen.....	El Paso	Farnsworth, Hadley Hiram.....	
Crowell, Elizabeth.....	El Paso	.....	Ysleta
Cuen, Jesus Humberto.....	El Paso	Farrell, Tom Fletcher.....	El Paso
Curd, Willa Ione.....	El Paso	Farris, Elmo Moss.....	El Paso
		Farrow, Evelyn Lucille.....	El Paso
Daggett, Ephriam B.....	Lockport	Faust, Jerry Willard.....	El Paso
DaNero, Irene.....	El Paso	Ferguson, Grace Isabelle.....	El Paso
Davidson, Paul C.....	Clint	Ferguson, Theo.....	Big Spring
Davis, Alvis O.....	Center	Ferrell, Theora Branch.....	El Paso
Davis, Charles William.....	El Paso	Fields, Mrs. Howard.....	El Paso
Davis, Harry Elmer, Jr.....	El Paso	Finley, Guy.....	El Paso
Davis, Margaret Francis.....	El Paso	Fischer, Gideon L.....	Austin
Davis, Ralph Vernon.....	El Paso	Flaum, Lawrence S.....	El Paso
Deacon, Katherine.....	El Paso	Flynn, Catherine.....	El Paso
Deakins, Glenn Evart.....	El Paso	Flynn, Richard H.....	Ysleta
Dean, Charlie Terrell.....	Ranger	Force, Charlotte M.....	El Paso
Deaver, James Marcus.....	El Paso	Foster, Frances Hubbard.....	El Paso
De la Rosa, Norberto E.....	El Paso	Friedkin, Joseph.....	El Paso
Denney, Mrs. Maude C.....	El Paso		
Dorsey, Mrs. Blanche Ritchie.....		Galatzan, Morris Abraham.....	
.....	El Paso	.....	El Paso
Douglas, Edwin Bryon.....	El Paso	Galentine, Elma.....	El Paso
Douglas, Effie A.....	El Paso	Galvin, Mary Agnes.....	El Paso
Draper, Gerald Watson.....	Valentine	Garcia, Andrew C.....	El Paso
Drummond, Claud E.....	Paducah	Gardner, Marian.....	El Paso
Dubinski, Bertha.....	El Paso	Garrett, Lena.....	El Paso
Dugan, Helen Josephine.....	El Paso	Gates, Philip Lee.....	El Paso
Dulohery, Alice.....	El Paso	Gibson, Calvin Newton.....	
Dunlap, Dora.....	El Paso	.....	Douglas, Ariz.

Gilkerson, George.....	Lubbock	Jackson, Dorothy Jean.....	El Paso
Gomez, Marie.....	El Paso	Jagoe, Ruth.....	El Paso
Goodloe, Winifred.....	El Paso	Jameson, Roy L.....	Floydada
Goodman, Archie E.....	El Paso	Jave, Irene.....	Walnut, Iowa
Goodman, Josephine Kathryn.....	El Paso	Johnson, Betty Orme.....	El Paso
Gore, Floyd F.....	Comanche	Johnson, Effie Mae.....	El Paso
Grant, Lorine.....	El Paso	Jones, Margaret Belle.....	Bastrop
Grant, Woodrow.....	El Paso	Jones, Margaret P.....	El Paso
Green, Frank Darden.....	Dallas	Judkins, Mary Pearl.....	Eastland
Greene, John Reade.....	El Paso	Kaster, James Jay.....	El Paso
Greer, John Bob.....	El Paso	Keeney, Mable V.....	El Paso
Guerro, Humberto.....	El Paso	Keffer, Anne.....	El Paso
Guerry, Edgar Lynne, Jr.....	El Paso	Kelly, Anne Word.....	El Paso
Hall, Ruth.....	El Paso	Kelly, Ellen.....	El Paso
Hamilton, Margaret.....	El Paso	Kennedy, Holcolombe.....	El Paso
Hardie, Francina.....	El Paso	Kennedy, Martin.....	Winters
Hardway, Leo Emmett.....	Columbus, Ohio	Kerr, Mrs. Elizabeth Foote.....	El Paso
Harper, Mary Elizabeth.....	El Paso	Kingelin, Walter G.....	Milwaukee, Wis.
Harris, Steve Thomas.....	El Paso	Kirkham, Helen.....	El Paso
Hartman, Donald.....	El Paso	Klassen, John.....	El Paso
Hatfield, Haskell.....	El Paso	Knotts, Margarct.....	El Paso
Hawkins, Dorothy.....	El Paso	Kramp, Alice.....	El Paso
Hawkins, Robert M.....	El Paso	Krauskopf, Nora Hines.....	Pecos
Haydon, Frankie Bee.....	El Paso	Kyriacopulas, Rebecca.....	El Paso
Head, Jack Lloyd.....	Deming, N.M.	Labbe, Owen Arthur.....	El Paso
Heath, Roland R.....	El Paso	Lance, Odis Paul.....	El Paso
Hensel, Robert E.....	El Paso	Lane, Arnold Addison.....	El Paso
Herndon, Claude.....	El Paso	Langston, Jean.....	Garrison
Herod, Tom.....	Tye	Lapsley, Mrs. Edna Johnson.....	El Paso
Homan, Mrs. Ralph.....	El Paso	Laurie, Olive Elizabeth.....	El Paso
Hudson, Paul J.....	El Paso	Leighton, Agnes Cecelia.....	El Paso
Huey, Laura Eleanor.....	El Paso	Light, Ellen McPherson.....	El Paso
Hughey, Allen Harrison, Jr.....	El Paso	Liles, Audrey Mae.....	Stamford
Huling, Bettie Dave.....	El Paso	Liles, Bulah A.....	El Paso
Hunt, Emma Mae.....	El Paso	Liles, L. D.....	Stamford
Hunter, Dorothy.....	El Paso	Link, Bennie Lee.....	El Paso
Hunter, Louise.....	El Paso	Lockridge, Patrick Lee.....	El Paso
Ivey, Rosalie.....	El Paso	Lockridge, Samuel.....	El Paso
Jackman, Alice.....	El Paso	Lochhausen, Lawrence.....	El Paso
Jackman, Royal B.....	El Paso	Long, Jayne.....	El Paso
		Long, Olive Rosamond.....	El Paso
		Loomis, Elizabeth.....	El Paso

Looney, D. L.....	El Paso	Mills, Florence Rudelle.....	El Paso
Lopez, Alexander.....	El Paso	Mireles, Rafael Plata.....	
Lorentzen, Julia Lane.....	El Paso	.....	Mexico, D.F.
Lorenze, Anita Whatley.....	El Paso	Mock, Chandler.....	
Loustaunau, Cuauhtomoc.....		.....	Cloud Chief, Okla.
.....	Douglas, Ariz.	Moore, Elizabeth Louise.....	El Paso
Lowry, Isola.....	El Paso	Moore, Max Warren.....	El Paso
Luker, John Paul.....	Comanche	Montgomery, Jack Leonard.....	
Lyons, Mrs. Velma Dudley.....		.....	El Paso
.....	El Paso	Morris, Bertie.....	Chamberino, N.M.
McClintock, Marion.....	El Paso	Morris, Dorothy.....	El Paso
McClintock, Ralph Barclay.....		Morris, Mamie.....	El Paso
.....	El Paso	Morrison, Elizabeth.....	El Paso
McCune, Harvey.....	Fabens	Morton, Mrs. Alice.....	El Paso
McDaniel, Lula Frances.....	El Paso	Mottinger, Vernon Rex.....	El Paso
McDow, Alfred L. Cabello.....		Mulcahy, Clemons Dee.....	El Paso
.....	El Paso	Munoz, Manuel.....	El Paso
McGaw, Hugh D.....	Hastings, Neb.	Munro, Georgia Juanita.....	Ysleta
McGhee, Mary Edson Carlisle.....		Murphy, Mrs. Mamie.....	El Paso
.....	El Paso	Mustain, Marshall G.....	El Paso
McGowan, Richard Raymond.....		Neugebauer, Josephine.....	El Paso
.....	Campwood	Neugebauer, Virgil Joe.....	El Paso
McKenzie, Terrell.....	El Paso	Nesom, Edith Elizabeth.....	El Paso
McLaughlin, Elvira.....	El Paso	Nelson, Harve Preston.....	El Paso
Maese, Arthur John.....	El Paso	Norman, Mrs. Lavora.....	El Paso
Madison, Zelma.....	Fabens	O'Bryan, John Edward.....	El Paso
Madrid, Lorenzo Federico.....		O'Bryan, Lois.....	El Paso
.....	San Elizario	O'Bryan, Loraine Lacy.....	El Paso
Malone, Martha.....	El Paso	O'Connor, Thomas Laurence.....	
Malone, Thomas Henry.....	El Paso	.....	El Paso
Mann, Ruth Elaine.....	El Paso	Oliver, Mrs. Hazel N.....	El Paso
March, Martha Margaret.....	El Paso	Ormsbee, Dorothy Wing.....	El Paso
Marshall, Charles Burton.....	El Paso	Ormsbee, Jessie.....	El Paso
Marshall, Robert Stephen.....	El Paso	Ostrom, Robert F.....	El Paso
Martin, Barclay.....	Coleman	Outlaw, Evelyn.....	El Paso
Mathias, Gertrude.....	El Paso	Owen, Meredith.....	Hamlin
Martinez, Joe.....	El Paso	Palmer, Richard Augustus.....	
Melton, Mrs. Elsie.....	Fabens	.....	El Paso
Melvin, Maxine Marie.....	El Paso	Parker, Virginia Anne.....	El Paso
Metz, Robert Louis.....	El Paso	Parker, Quannah Finley.....	
Michael, Mrs. Vera.....	El Paso	.....	Lordsburg, N.M.
Miller, Dorothy Evelyn.....	El Paso	Parrott, Dorothy.....	El Paso
Miller, Mary Louise.....	El Paso	Parrott, James Harold.....	El Paso
Millican, Mrs. William Francis.....		Patterson, George.....	El Paso
.....	El Paso		

Patterson, Raymond Aloysius.....	El Paso	Scaife, Dorothy Page.....	El Paso
.....	El Paso	Scarborough, Eugenia Evelyn.....	El Paso
Payne, John, Jr.....	El Paso	.....	El Paso
Payne, Leona.....	El Paso	Schaer, Arthur Jennings.....	El Paso
Pearson, Richmond Greer, Jr.....	Leroy, Ala.	Schultz, Harry Dawson.....	Palestine
.....	Fabens	Sedwick, James B., Jr.....	Monrovia, Ind.
Pennington, Marcella.....	El Paso	.....	El Paso
Perkins, Dorothy.....	El Paso	Sellers, Billie.....	El Paso
Peticolas, John Davis.....	El Paso	Sherman, Julian.....	Rochester, N.Y.
Peticolas, William Craige.....	El Paso	Shindel, George.....	El Paso
.....	El Paso	Shults, Marvin.....	Austin
Philips, Harriet.....	El Paso	Simmons, Ruby Jane.....	Dallas
Pickles, William Morley.....	El Paso	Sinclair, James.....	El Paso
Pierson, Mrs. Jewel.....	El Paso	Sneed, Richard Hilary.....	Fort Bliss
Pomeroy, Alice.....	El Paso	Smith, Charles Rinehart.....	El Paso
Ponsford, Lucille Alta.....	El Paso	Smith, Charley Myers.....	Hico
Price, Robert Edmond, Jr.....	El Paso	Smith, Esther Kate.....	El Paso
.....	El Paso	Smith, Eugenia.....	El Paso
Pritchard, Mrs. Maude.....	El Paso	Smith, Fritz R., Jr.....	Snyder
.....	El Paso	Smith, Maurine.....	El Paso
Quinn, Carolyn de Lorier.....	El Paso	Smith, Lee Cherry.....	Clark
.....	El Paso	Smith, Lottie N.....	Fort Worth
Quinn, Howard E.....	El Paso	Smith, Wallace Harrington.....	Childress
.....	El Paso	.....	Childress
Raynolds, Thomas M.....	El Paso	Smith, William Bennett.....	Anthony, N.M.
Rebeil, Laura.....	El Paso	.....	Anthony, N.M.
Redford, Mrs. Mary.....	El Paso	Smith, William Francis.....	Plainview
Reiver, Clarence J.....	Shelleyville, Ind.	.....	Plainview
.....	Richmond, Ind.	Soltner, Lucille.....	El Paso
Remley, Jacob Benjamin.....	Richmond, Ind.	Speaker, Norman Wesley.....	El Paso
.....	El Paso	Spence, William James.....	Anthony, N.M.
Richmond, Marion Thomas.....	El Paso	.....	Anthony, N.M.
.....	Fredericksburg	Stansel, Farrell Aubert.....	El Paso
Riley, Crockett W.....	El Paso	Steele, Thaddeus Avaunt.....	Pottsboro
.....	El Paso	.....	Pottsboro
Roberts, Ben David.....	El Paso	Stewart, Fred H.....	El Paso
Rodarte, Joe G.....	El Paso	Stewart, Malcolm.....	El Paso
Rosas, Ramon.....	El Paso	Stover, Raymond John.....	Smithville
Roseman, Samuel Ernest.....	Birmingham, Ala.	Stowe, Kathleen.....	El Paso
.....	El Paso	Stueber, Josephine.....	El Paso
Russell, Frances C.....	El Paso	Sullivan, George Curry.....	El Paso
Russell, John Thorne.....	El Paso	Sully, Gerard.....	El Paso
.....	El Paso	Sussin, David.....	Juarez, Mexico
Sada, William Hector.....	El Paso	.....	Juarez, Mexico
Sanchez, Maria Teresa.....	El Paso	Taff, Whit.....	El Paso
Sattler, Mary Hines.....	El Paso	Taylor, Lytton Raymond.....	El Paso
Savage, Mary Frances.....	El Paso	.....	El Paso

Taylor, Robert William.....	Watson, Elizabeth Anne..El Paso
.....Ocean Springs, Miss.	Weaver, Mrs. Margaret...El Paso
Temple, Lucille.....El Paso	Weiss, Marcus.....El Paso
Thiele, Fred Williams.....El Paso	Wells, Alonzo Moore.....El Paso
Thomas, Elsie.....El Paso	West, Georgia.....El Paso
Thomas, Sara Betty.....El Paso	West, Virginia.....El Paso
Thompson, Marjorie W.....El Paso	Whitaker, Elisha Hamilton.....
Thompson, Mrs. Roy.....El Paso	.....El Paso
Thompson, William McDowell..	Wildstein, Ida.....El Paso
.....El Paso	Wiley, Charles Hayden..El Paso
Thornal, Davey E.....Houston	Williams, Louisa.....El Paso
Tillman, James Harold..El Paso	Williams, Reginald.....
Timewell, Sara Elise.....	.....Bethany, Okla.
.....Los Angeles, Calif.	Wilson, Ruth.....El Paso
Todd, Inez.....El Paso	Wilson, Von C., Jr.....El Paso
Toomer, Harry M.....El Paso	Winston, Lucille Vivian.....
Trayler, Will Anderson, Jr.....	.....Roswell, N.M.
.....El Paso	Wonner, Celia Barbara...El Paso
Trent, Jewel Elizabeth.....	Woodward, Katherine.....El Paso
.....Columbus, N.M.	Woods, Elizabeth Mary...El Paso
Trespalacios, Adolfo.....El Paso	Woods, Mrs. Mae Eugenia.....
	.....El Paso
Vick, Olive.....Valentine	Woodul, Lewis Charles...El Paso
Viescas, Albert Hugo.....El Paso	Worthington, Hugh Carlton....
Villalobos, Alexander.....El Paso	.....El Paso
Von Brieson, Delphin.....El Paso	Wright, Mrs. Marguerite Kull..
	.....El Paso
Waddell, Margaret.....El Paso	Wright, Lawrence.....Abilene
Waite, Willis Willard.....El Paso	Wylie, Harold Augustus..El Paso
Wallace, Mrs. Angelina...El Paso	
Walshe, Robert Neill.....El Paso	Zea, Eva.....El Paso
Ward, Maude.....El Paso	Zlabovsky, Isador.....El Paso
Ward, Fred Nathaniel.....Yoakum	Zlabovsky, Vera.....El Paso
Warden, Milton.....El Paso	

STATISTICAL SUMMARIES

DEGREES CONFERRED, 1916-1928

Engineer of Mines (1916-1923).....	43
Bachelor of Science in Mining Engineering (1924-1928).....	42
Total	85

STUDENTS, 1928-1929

ENGINEERING:

	Men	Women	Total
Seniors	11	0	11
Juniors	11	0	11
Sophomores	28	0	28
Freshmen	114	0	114
Total	164	0	164

ACADEMIC:

Seniors	1	1	2
Juniors	3	9	12
Sophomores	21	37	58
Freshmen	74	93	167
Irregulars	0	102	102
Total	99	242	341

INDIVIDUAL STUDENTS IN THE COLLEGE OF MINES

AND METALLURGY, 1928-1929.....	263	242	505
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