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**BULLETIN**

OF THE

**University of New Mexico**

WHOLE NO. 70

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CATALOGUE SERIES

MAY, 1913

VOLUME 26

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**CATALOGUE**

1912-1913

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**ANNOUNCEMENTS**

1913-1914

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**ALBUQUERQUE, NEW MEXICO**

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PUBLISHED QUARTERLY BY THE UNIVERSITY OF NEW MEXICO  
ENTERED MAY 1, 1906, AT ALBUQUERQUE, N. M., AS SECOND CLASS MATTER  
UNDER ACT OF CONGRESS OF JULY 16, 1894

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OF THE

## University of New Mexico

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*Language Series, Vol. I; No. 1-2; whole numbers 45, 53.*

*Physics Series, Vol. I; No. 1; whole number 63.*

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CATALOGUE 1912-1913

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ANNOUNCEMENTS  
1913-1914

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ALBUQUERQUE, NEW MEXICO

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ALBUQUERQUE MORNING JOURNAL  
PRINTERS

# University of New Mexico

Founded February 28th, 1889

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# CALENDAR FOR 1913

JANUARY							APRIL							JULY							OCTOBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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12	13	14	15	16	17	18	13	14	15	16	17	18	19	13	14	15	16	17	18	19	12	13	14	15	16	17	18
19	20	21	22	23	24	25	20	21	22	23	24	25	26	20	21	22	23	24	25	26	19	20	21	22	23	24	25
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# CALENDAR FOR 1914

JANUARY							APRIL							JULY							OCTOBER						
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MARCH							JUNE							SEPTEMBER							DECEMBER						
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8	9	10	11	12	13	14	7	8	9	10	11	12	13	6	7	8	9	10	11	12	6	7	8	9	10	11	12
15	16	17	18	19	20	21	14	15	16	17	18	19	20	13	14	15	16	17	18	19	13	14	15	16	17	18	19
22	23	24	25	26	27	28	21	22	23	24	25	26	27	20	21	22	23	24	25	26	20	21	22	23	24	25	26
29	30	31	.	.	.	.	28	29	30	.	.	.	.	27	28	29	30	.	.	.	27	28	29	30	31	.	.



## University Calendar

### —1913—

Sept. 8, Monday,	Registration Day.
	First Semester begins.
Sept. 12, Friday,	Latest date for entrance examinations or removing conditions of previous semester.
Nov. 7, Friday,	Mid-Semester.
Nov. 27, Thursday,	Thanksgiving Day.
Dec. 20, Saturday,	Christmas Recess begins.

### —1914—

Jan. 5, Monday,	Work resumed.
Jan. 23, Friday,	First Semester closes.
Jan. 26, Monday,	Registration Day.
	Second Semester begins.
March 27, Friday,	Mid-Semester.
	Latest date for removing conditions of previous semester.
May 24, Sunday,	Commencement Week begins.
	Baccalaureate Sermon.
May 25, Monday,	University Cantata.
May 26, Tuesday,	University Play.
May 27, Wednesday,	Conferring of Degrees.
	Commencement ends.

## **General Information**

### *Origin and History.*

The University had its origin in an act passed February 28, 1889, by the Territorial Legislative Assembly of New Mexico, the bill being introduced by Hon. B. S. Rodey, who worked faithfully for its passage, and who has remained ever since a firm friend of the institution.

The following extracts are taken from the act:

SECTION 1. There is hereby created and established within and for the Territory of New Mexico, an institution of learning to be known as "The University of New Mexico." Said institution is hereby located at or near the Town of Albuquerque, in the County of Bernalillo, within two miles north of Railroad Avenue in said town, upon a tract of good, high and dry land, of not less than twenty acres, suitable for the purpose of such institution, which said land shall, within six months from the passage of this act, be donated and conveyed free of any cost and expense, to the Territory of New Mexico, by G. W. Mylert; provided, that no improvements or buildings as hereinafter provided for, shall be made or erected upon said land until such deed is duly executed, recorded and filed in the office of the Secretary of the Territory, as hereinafter provided.

SEC. 7. The University of New Mexico, hereby created and established, is intended to be the State University, when New Mexico shall be admitted as a state into the Union, and as such is entitled to all the donation of lands and other benefits under all acts of

Congress, now in force or hereafter to be enacted, for the benefit of such educational institutions in the future state.

SEC. 8. The object of the University hereby created shall be to provide the inhabitants of the Territory of New Mexico and the future state, with means of acquiring a thorough knowledge of the various branches of literature, science and arts.

SEC. 9. The management and control of said University, the care and preservation of all property of which it shall become possessed, the creation and construction of all buildings necessary for its use, and the disbursement and expenditure of all moneys appropriated by this act, shall be vested in a board of five Regents, to consist of five qualified voters, who shall be owners of real estate in this Territory.

SEC. 11. The Regents of the University and their successors in office shall constitute a body corporate under the name and style of "The Regents of the University of New Mexico," with the right, as such, of suing and being sued, of contracting and being contracted with, of making and using a common seal, and altering the same at pleasure.

SEC. 14. The Regents shall have power and it shall be their duty to enact laws, rules and regulations for the government of the University.

SEC. 15. The University shall have departments, which shall hereafter be opened at such times as the Board of Regents shall deem best, for instruction in science, literature and the arts, law, medicine, engineering and such other departments and studies as the Board of Regents may from time to time decide upon, including military training and tactics.

SEC. 16. The immediate government of the sev-

eral departments shall be intrusted to their respective faculties, but the Regents shall have the power to regulate the course of instruction, and prescribe the books and authorities to be used in the several departments, and also to confer such degrees and grant such diplomas as are usually conferred and granted by other Universities. The Regents shall have the power to remove any officer connected with the University, when in their judgment the interests require it.

(a) The University created by this act shall be open to the children of all residents of this Territory and such others as the Board of Regents may determine, under such rules and regulations as may be prescribed by said board, whenever the finances of the institution shall warrant it, and it is deemed expedient by said Board of Regents.

SEC. 17. No sectarian tenets or opinions shall be required to enable any person to be admitted as a student or employed as a tutor or other instructor in said University, but the same shall be forever non-sectarian in character. \* \* \*

When the bill became a law, Governor L. Bradford Prince, then New Mexico's chief executive, appointed the following Board of Regents: G. W. Mylert, Henry L. Waldo, Mariano S. Otero, Elias S. Stover, Frank W. Clancy.

The Governor and the Superintendent of Public Instruction, then Amado Chaves, were ex-officio members of the Board.

The Regents who have served the University are E. S. Stover, F. W. Clancy, W. B. Childers, J. H. Wroth, J. C. Armijo, E. V. Chaves, H. L. Waldo, Fletcher Cook, A. M. Mandalari, W. D. McBee, W. J.

Johnson, R. W. Hopkins, A. W. Cooley, and R. W. D. Bryan.

The first faculty elected consisted of: President, E. S. Stover; Principal, George S. Ramsay; Alcinda L. Morrow, Marshall R. Gaines, Albert Cristy, G. R. Stuoffer and Andrew Groh.

Many changes have since occurred in the faculty. Prof. Hiram Hadley was vice-president in charge from 1894 to 1897. Dr. C. L. Herrick, the second president of the institution, served from 1897 to 1901. The third president, Dr. W. G. Tight, served from 1901 till 1909. Upon his resignation, Dr. E. D. McQueen Gray was elected by the Board of Regents. In 1912, Dr. David Ross Boyd was elected to serve as the fifth president of the institution.

After the passage of the act creating the University, the Board of Regents secured the stipulated amount of land, and the erection of a suitable building was begun as soon as the requisite funds were available. The structure was completed and accepted by the Board in May, 1892.

The Normal School of the University was the first department organized, and was opened on June 15, 1892, for a summer term. In September of the same year the Preparatory School was opened, and the Commercial School was added in November, 1893.

In 1896 a gymnasium was erected and equipped.

The Hadley Laboratory, largely the gift of Mrs. Walter C. Hadley, supplemented by donations from friends of the institution in Albuquerque and other parts of the Territory, was erected in 1899.

The administration of Dr. Tight was marked by definite advance in all departments of the University. In 1902, a start was made in providing accommoda-

tion for resident students, rooms for men being fitted up in the Administration Building, and a cottage on the campus arranged as a girls' dormitory. In 1904, the men's quarters were removed to a separate building in the neighborhood of the campus. In 1906, two dormitories, constructed in the Pueblo Indian style of architecture, were erected along the eastern border of the campus. The cottage then became the Dining Hall, and by means of an addition in the summer of 1908 was rendered capable of meeting the requirements of the increasing number of students.

In 1908, the Administration Building was entirely remodeled, and another building added, to serve as a lecture, concert and assembly hall, to the north of the Administration Building. To this new building the name Rodey Hall was given in recognition of the valuable services rendered by Delegate Rodey to the University.

On May 23, 1910, the Science Building, known as Hadley Hall, the largest and oldest building, next to the Administration Building, on the campus, was completely destroyed by fire. In addition to the Scientific and Engineering equipment the College housed the Hadley Climatological Laboratory and the Botanical and Geological collections and the Ethnological Museum. The loss to the University and to the Territory in general was severe, especially as a large portion of the collections consisted of specimens that could not be replaced; and the destruction of the museum representative of the primitive races of the region being particularly regrettable.

Steps were at once taken to provide without loss of time a building which would meet the immediate needs of the Scientific Departments, and the pres-

ent Engineering Building, a one-story structure consisting mainly of concrete, was erected and equipped before the end of the year. During its erection temporary quarters were provided for the Science Courses in the Gymnasium and the Administration Building. In the new Engineering Building are located a drafting room, a physical laboratory, an electrical testing room, a dark room, a machine shop, a biological laboratory, a geological laboratory, a lecture room and a chemical laboratory, together with the usual offices, stock-rooms, balance rooms, etc.

In the year 1910-11 a School of Music was initiated.

During the year 1911-12, co-ordinate with the change in state government, the Institution became the State University of New Mexico. With the passing of the Territory, all territorial officers resigned their offices: this concerned the Board of Regents of the University, who were replaced in February, 1912, by a new Board. On April 6, 1912, the new Board elected Dr. David Ross Boyd President of the University to succeed Dr. E. McQueen Gray.

### *Situation and Environment.*

All writers who have treated the subject of the climatic conditions of the American continent in their relation to health and disease, are agreed in admitting that the south-eastern slopes and spurs of the Rocky Mountain range, with their elevated plateaus, upland valleys, and gently sloping stretches of open country, embrace within their boundaries the most salubrious region in the United States. In the very centre of this "health zone," as it may be termed, stands the city of Albuquerque, the most populous town in New Mexico, and the commercial capitol of the State.

Albuquerque lies on the main line of the Atchison, Topeka and Santa Fe Railway System, at the junction of the lines to El Paso and Mexico on the south, Arizona and California to the west, the Pecos Valley and south-eastern Texas to the east, and through Colorado to Kansas City and Chicago to the north; so that it enjoys railroad facilities unequalled by any other town in this region.

The situation of the city is in every respect admirable. It occupies the centre of a strip of highly fertile land on the left bank of the Rio Grande—the Rio Grande del Norte of the Spanish discoverers—at an elevation of five thousand feet above the level of the sea, in the valley formed by the river as it makes its way between the mountain ranges to the east and west; and the protected situation of the city has contributed not a little to the salubrity of its climate.

On the mesa, or elevated plateau east of the city, and about a mile distant from it, stands the University, overlooking with its seven buildings the wide valley of the Rio Grande. The free, pure air of the mesa, bracing and invigorating, surrounds the spot, and lassitude and depression are unknown in this buoyant and refreshing atmosphere.

Extremes of temperature, whether of heat or cold, which not infrequently impede the progress of educational work in other localities, are unknown in this part of New Mexico. This boon of climate has proved an important factor in the growth of the institution; and while the University authorities wisely refuse to receive students suffering from pulmonary or other organic diseases, yet many of our less vigorous youths, for whom a continued course of study would be dan-



gerous or even impossible in a less favored region, have come from time to time from distant States to the University on the Rio Grande, and there gained health and strength while pursuing their studies and completing their education.

The New Town of Albuquerque—for there is also an Old Albuquerque, dating from the times of the first Spanish settlers, and still typically Spanish in appearance—is an essentially modern city, with paved streets, concrete sidewalks everywhere, electric lights, street cars, two daily papers, and important mercantile and manufacturing establishments.

It is also an educational centre, possessing in addition to the University many schools of various kinds; while the public school system of the city may compare favorably with those of much larger eastern towns.

It is also a city of churches, all the leading religious denominations being efficiently represented; and the members of all churches gladly welcome the University students to share in their religious and social life. The University's position in regard to religion is strictly non-sectarian, and the students are encouraged to attach themselves to the religious organization with which their families are connected.

A daily General Assembly is held in Rodey Hall. At this Assembly addresses are delivered on various topics of interest by the members of the faculty and by visitors to the University and the city. Opportunity is thus afforded to the students to hear many eminent speakers. Short lecture courses on special subjects are sometimes arranged in connection with the General Assembly period.

The advantageous position of the city on the main

line of passenger traffic east and west, furnishes to the citizens many opportunities of seeing and listening to persons of distinction in almost every department of public effort; and concerts, lectures, plays, musical and literary gatherings follow in almost unbroken succession throughout the year. The advantage to the young student of association and environment of this kind, can hardly be over-estimated.

In general, the aim of the University is to develop true scholarship and to maintain a high standard of thought and conduct; and the authorities of the institution believe that by regarding these requisites as the prime essentials of a university education, towards the promotion of which all academic effort must contribute, they will best fulfill their duty to the institution and to the State.

### *The Library.*

The University library contains about 9,000 volumes, exclusive of unbound pamphlets and duplicates. This includes both the main library and the departmental libraries, which are shelved in rooms adjoining the lecture rooms.

In exchange for the Bulletins of the University the library receives a large amount of valuable scientific literature. There are now more than one hundred and fifty societies and universities on the exchange list.

The University is one of the United States depositories for public documents. Many valuable reference books are received from this source. These books are accessible to the public during library hours.

A dictionary catalogue is being made, listing all ma-

terial by author, subject and title, thus making all the resources of the library readily accessible.

The library is open every day except Saturday and Sunday from 9:00 a. m. to 5:00 p. m., on Saturday from 9:00 a. m. to 12.

In addition to complimentary periodicals and exchanges, the following periodicals are subscribed for:  
American chemical society—Journal

American city

American education

American educational review

American journal of anatomy

American journal of philology

American journal of sociology

American magazine

American mathematical society—Bulletin

American naturalist

American review of reviews

Anatomical record

Astro physical journal

Atlantic monthly

Fliegende blätter

Biblical world

Book news monthly

Bookman

Botanical gazette

Century

Chemical abstracts

Classical journal

Classical review

Collier's weekly

Cumulative book index

Current literature  
Dial  
Economic geology  
Editor  
Electrical world  
Engineering magazine  
Harper's monthly  
Industrial engineering  
Journal of American history  
Journal of economic entomology  
Journal of experimental zoology  
Journal of geology  
Journal of industrial and engineering chemistry.  
Library journal  
Literary digest  
McClure's magazine  
Machinery  
Musical courier  
Musician  
Nation  
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Outlook  
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Physical review  
Plant world  
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Technical world magazine

Ueber land und meer

World's work

# Bulletins of the University of New Mexico

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v. 3 No. 1. Watson Manual of the more common flowering plants growing without cultivation in Bernalillo County, New Mexico	49
No. 2. Watson Foe of the melon aphid: hypodamia convergens in New Mexico	65

### *Geological Series*

v. 1 (Bound with Biological Series v. 1).	
No. 1. Herrick Geology of the environs of Albuquerque, New Mexico	17
No. 2. Herrick Occurrence of copper and lead in the San Andreas and Caballo Mountains	18
No. 3. Herrick Papers on the geology of New Mexico	20
No. 4. Herrick Geology of the San	



	Whole No.
Pedro and the Albuquerque districts	21
v. 2 Pt. 1.	
No. 1. Herrick & Johnson Geology of the Albuquerque sheet	23
No. 2. Herrick Miscellaneous econo- mic papers	24
No. 3. Herrick Report of a geological reconnaissance in western Socorro and Valencia Counties, New Mexico	25
No. 4. Herrick Geology of the white sands of New Mexico	26
No. 5. Herrick & Bendrat Identifica- tion of an Ohio coal measures horizon in New Mexico	27
No. 6. Clark Cyanide process in New Mexico	28
v. 2 Pt. 2. Johnson Geology of the Cerrillos hills, New Mexico	28a
v. 3 No. 1. Bryan Geology of the vicinity of Albuquerque	51

### *Physics Series*

v. 1 No. 1. Angell Thermal conductivity of metals at high temperatures	63
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### *Educational Series*

v. 1 No. 1. Hodgkin Early school laws of New Mexico	41
No. 2. Richards Management of our school lands	42

	Whole No.
No. 3. Hodgkin Study of spoken language	52
No. 4. Gray Latin in the secondary school	58
No. 5. Gray How the curriculum of the secondary school might be reconstructed	61
No. 6. Boyd Relation of the University to the state	68
No. 7. R. W. D. Bryan: a memorial	69
<i>Language Series</i>	
v. 1 No. 1. Espinosa Los Comanches	45
No. 2. Espinosa Studies in New Mexican Spanish	53
<i>Sociological Series</i>	
v. 1 No. 1. Fergusson & Clancy Making of a constitution	57
No. 2. Gray Spanish language in New Mexico: a national resource	62
No. 3. Gray Un recurso nacional en Nuevo Mexico aun no desarrollado; Lo desanollaremos?	66

### *Degrees, Diplomas and Certificates*

*College of Letters and Science.* Upon the recommendation of the President and Faculty, the degree of Bachelor of Arts or Bachelor of Science is conferred by the University upon those undergraduate students who have completed at this institution not less than

the last year of a four years' college course in accordance with the requirements and regulations of the University.

*School of Applied Science.* Subject to similar conditions, the degree of Bachelor of Science in Engineering is conferred by the University upon the recommendation of the President and Faculty.

*Educational Degree, Diploma, Etc.* The following are granted upon the recommendation of the President of the University and the Head of the School of Education:

1. The Degree of Bachelor of Pedagogy. Conferred upon those undergraduate students who hold a diploma for a complete course in the art and practice of teaching, entitling the holder to a professional certificate from a State Board of Education, and who have completed at this institution not less than the last year of a three years' college course in accordance with the requirements and regulations of the University.

- II. The Teacher's Diploma. Conferred upon students of the School of Education who have completed the curriculum of the School in accordance with the requirements and regulations of the University.

- III. Collegiate Certificates. Granted to holders of Teachers' Diplomas who are taking regular college courses. The certificates are of two grades, first and second, and are granted after the completion of the freshman and sophomore years respectively.

*College Preparatory Department.* Students enrolled in the Sub Freshman classes who complete the pre-

scribed course of work, will be provided, if they so desire, with certificates for work satisfactorily performed.

### *Committees*

The Student Standing Committee decides all matters relating to the classification of students, value of credits presented from other institutions, and all requests for other than the regular amount of work must be approved by this committee.

The Schedule and Curriculum Committee has supervision of the schedule, considers and makes recommendations to the faculty concerning all changes in the curriculum.

The Eligibility Committee decides upon the eligibility of all candidates for the different athletic games.

### *Student Organizations*

There are several societies in the University subordinate to a general Student Body Organization, which insures the careful management of each. They include the Editorial Boards of the U. N. M. Weekly and the Mirage; the Dramatic Club; the Athletic Association; and the Oratorical and Debating Associations. In addition to these organizations governed by the Student Body, there is in the Music Department a Glee Club, in the Engineering Department the New Mexico Society of Engineers, and in the History Department a History Club that at fortnightly meetings considers current issues.

### *Alumni Association*

The University of New Mexico Alumni Association was organized in 1894. Its purposes are to aid

in promoting the interests of the University of New Mexico and to cultivate sociability and good fellowship among its members. The annual meeting and annual dinner occur during Commencement Week. At this annual meeting all officers of the association are chosen.

### *The Cecil Rhodes Scholarship*

In accordance with the provisions of the will of Cecil Rhodes, awarding two scholarships every three years to each State and Territory in the United States, tenable at Oxford, England, and of the annual value of \$1,500, New Mexico has the privilege of electing a scholar from among the candidates who pass the qualifying examination set by the Oxford delegacy. The selection of scholars is made by a Committee of Selection approved by the Rhodes trustees. The scholars hitherto selected are:

1906, Thomas S. Bell; 1908, Frank C. Light; 1910, Hugh M. Bryan; 1911, Karl G. Karsten.

### *Registration*

All fees must be paid the beginning of each semester. Until this has been done, cards entitling the student to admission to class will not be issued.

The student upon entering first pays the matriculation, tuition and other fees at the office of the Secretary of the University, and receives the necessary blanks for registration. These blanks are then presented to, and made out under the direction of the student's advisor. These advisors then issue class cards which admit the students to their respective classes.

*Attendance*

It is highly desirable that students should begin their work with the first day of the semester as indicated in the calendar, since losses which are incurred then can never be fully made up and the student is at a disadvantage throughout the year. Students may be admitted at any time, but it is strongly recommended that studies begin with the fall semester. This is considered so important that the Regents have fixed a fee for late registration. Every student in the preparatory department, unless excused by the Student Standing Committee, is required to attend four recitations or laboratory exercises daily. Parents or guardians who desire information concerning the conduct, class standing, or punctuality of the student, can obtain the same at any time by application to the Registrar, as a careful record is kept of the work and character of each student. Such a report will be regularly sent at the end of each semester.

Any student who falls behind in his work will be reported to his parents or guardian, at the end of the semester, and should such failure to do good work be the result of idleness or misconduct on the part of the student, the parents may be asked to withdraw him.

*Absences*

After registration, students are required to attend their classes regularly. Absences to the number of hours per week in the subject pursued are allowed without discipline; e. g., a three-hour course allows three absences during the semester. Serious irregularity will render a student liable to dismissal. Ab-

sences amounting to twenty per cent from any class debars a student from receiving a passing grade in that class, except by special examination.

#### *Withdrawal From Classes*

Students may not drop any study for which they are registered without permission from the Instructor and their advisor or major professor.

Any student who has failed to carry a study by the middle of the semester may withdraw from that course upon the advice of his major professor or advisor; but such students will be marked "failed" in that study and will be required to make up the failure before graduation.

#### *Dismissal*

A student who leaves the University before the close of a semester without permission of the President will not be considered as having been honorably dismissed.

#### *Method of Grading*

Students are graded according to their class standing and by examination. An accurate record is kept of their work and examinations are held at the end of each semester. Students making a grade of 90-100 are marked A; 80-90, B; 70-80, C; 60-70, D; below 60, E. All students who fail to carry two-thirds of regular work satisfactorily, will not be allowed to take part in any outside function, such as athletics, dramatics, etc. College students making B in fifteen hours of credit will have one hour added to the total required for graduation for each fifteen hours of credit and C students will have one hour added for each seven hours

of C work. In college no substitution may be made for failures or conditions toward graduation.

Students falling below a grade of 70 for the semester are "conditioned". Such students reported as "conditioned" may receive credit for the study if the condition imposed by the instructor is removed by the date indicated in the calendar. Conditions must be removed by special examination and payment of the usual fee and only one examination is allowed for each course. Otherwise the student must again pursue the study in the regular class in the same manner as the student whose study is reported as "not passed".

Special examinations, taken at other times than regularly with the class, and not entrance examinations or examinations for advanced standing, can be taken only by presenting to the examiner a permit card from the Registrar and by the payment of a special fee of \$2.00.

### *Class Standing*

To obtain class standing at entrance, or to maintain class standing during the prosecution of a course, the student's conditions must not exceed one-third of the work required for that class. The Committee on Student Standing has charge of all matters pertaining to entrance, amount of work, class standing, and graduation credits.

### *Tuition, Fees, Boarding Expenses, Etc*

#### *Registration Fee.*

An annual registration fee of Five Dollars; also a fee of One Dollar for the Library and Gymnasium. Payment of these fees admits residents of the State



of New Mexico to the courses offered at the University; to non-residents a Tuition Fee of Ten Dollars per semester is charged.

### *Special Fees.*

At the beginning of the academic year (or on registration) a deposit of Ten Dollars, to cover possible breakage or damage to University property, is required from each student; said sum (or the remainder thereof after deduction) being returnable to the student at the end of the term.

All students presenting themselves for registration later than the fifth day of the semester pay a fee of One Dollar for late registration.

All students who take laboratory, field or shop courses pay a fee of One Dollar per "semester hour" of credit.

### *Board and Lodging.*

Quarters for resident students are provided in two dormitories, one for men and one for women. These dormitories are divided into suites, each consisting of two bed-rooms and a sitting room. Two students occupy a suite. The rooms are furnished and electric light and steam heat provided, but the students supply their own bedding, towels, &c., and pay their own laundry bills. The men's dormitory is in charge of a Proctor, and the women's dormitory is supervised by the Dean of Women.

Meals are taken in the Dining Hall, which is a separate building. The charge for board and lodging is twenty-two dollars per month. All regular boarders

are required to pay the full monthly rate of twenty-two dollars. Day boarders pay thirty cents per meal. Fractional parts of a month are charged at single meal rates. Luncheon is also provided at the lunch counter, at the mid-day meal, the charge being five cents per portion.

Bills for board and lodging must be paid strictly in advance, on the first of each month. The University authorities have no power to extend credit.

#### ERRATA

On page 32 omit lines 10-18.

#### *Student Employment.*

Each year a number of students make a large proportion of their expenses by means of outside work. There are positions in the dining hall, on the campus and in the buildings. In addition to this many positions, in the city, are available for the student who is willing to do good work. Persons who must earn part of their expenses should communicate with the President before they come to the University.

## **Laboratories**

The Science and Engineering laboratories are located, for the present, in the Engineering Building, which was erected in the autumn of 1910 shortly after the destruction of Hadley Hall, to meet the immediate needs of the University.

In this building are located a drafting room, a physical laboratory, an electrical testing room, dark room, machine shop, and a biological laboratory, together with the usual offices, stock rooms, etc.

The physical laboratory is large, well lighted and excellently adapted for accurate work. The equipment is completely new and is ample for college and preparatory work in Mechanics, Heat, Light, Electricity and Magnetism. The great importance of research has been recognized and equipment has been supplied for several branches of investigation.

The chemical department has a stock room, balance room, instructor's office, and a laboratory for qualitative analysis, quantitative analysis, and organic chemistry. The equipment of the department consists of a complete stock of chemicals, the usual lecture apparatus, and apparatus for qualitative and quantitative analysis in all the branches given in undergraduate work. Equipment for research is added as need arises.

The biological laboratory is well lighted for microscopic and experimental work. It is amply supplied with Bausch & Lomb, Spencer and Leitz microscopes, fitted with oil immersion lenses for high power work, and the equipment of dissecting instruments and lenses. apparatus for plant physiology, etc. Among the appar-

atus for advanced work are two microtomes, a paraffine bath, bacteriological incubators, sterilizers, camera lucida, etc. There is a large collection of slides for histological work, also a systematic collection of the insects and plants of the region.

## Departments

Within the University are comprised:

- I. THE COLLEGE OF LETTERS AND SCIENCE.
- II. THE SCHOOL OF APPLIED SCIENCE.
- III. THE SCHOOL OF EDUCATION.

### *College Entrance Requirements*

The entrance requirements for the Colleges of the University cover three qualifications of age, character and education, as follows:

- i. Age. Not under sixteen years.
- ii. Character. Certificate of honorable dismissal from the institution previously attended.
- iii. Education. Four years of High School work, covering fifteen school units as a minimum; or an equivalent to be tested by examination.

The term "school unit" signifies a course of five recitations per week, carried on during a school year of thirty-six weeks, each recitation covering not less than forty-five minutes.

Of the fifteen units required for entrance, twelve are made up as follows:

- I. English, three years; including the College Entrance requirements in English: 3 units.
- II. History, two years; including Ancient, Mediaeval and Modern History: 2 units.
- III. Language, two years in one of the following languages: Greek, Latin, French, German, Spanish: 2 units

- IV. Mathematics, three years; including School Algebra, Plane and Solid Geometry: 3 units.  
V. Science, two years, 2 units.  
Total of prescribed subjects, 12 units.

The three remaining subjects may be offered from any of the subjects included in the High School curriculum, but the student will do wisely to make them conform as far as possible with the requirements of the College he designs to enter. Thus:

Students purposing to major in Letters are advised to offer, if possible, four years in language.

Students purposing to major in Science are advised to offer two years in German.

### *Special Students*

Students, over 21 years of age, not working for a degree, may be permitted to take special studies without passing the entrance requirements upon giving satisfactory evidence that they can do so advantageously.

### *University Extension Division*

The University, as a state institution desires to be of service to the general body of citizens and to develop its extension work as much as possible. Extension courses in connection with the University may be taken without registration on payment of a small fee.

The object of the University Extension Division is three-fold:

First, to supply lectures and entertainments, either singly or in courses, to the towns of the state.

Second, to conduct correspondence courses, to fur-

nish compiled information on desired subjects to individuals and clubs.

Third, to furnish within the state expert service in making tests or standardization of commercial apparatus.

Application for University Extension Lectures should be made to the Secretary of the University.

### *Major Work*

No student may take for his major work more than one-half of his entire course nor less than one-fourth.

A student may change his major subject only by permission of the faculty, but in so doing he must complete all the work required in his major for graduation, no matter how much may have been taken in other departments.

### *Senior Limitations*

During his Senior year no student may take more than one-fourth of the minimum requirement for graduation, exclusive of Thesis, without the consent of two-thirds of the faculty.

## College of Letters and Science

### *Definition of the Undergraduate Course*

The undergraduate course in the College of Letters and Science consists of eight semesters of eighteen weeks each amounting to 124 hours of A work, 132 hours of B work, and 140 hours of C work, as the minimum required for graduation, each including 4 hours of Physical Education.

A semester hour consists of one period or conventional recitation "hour" of not less than fifty-five minutes, or its equivalent of three "hours" of laboratory, field or shop work, per week during one semester.

### *Prescribed Work*

All candidates for the degree of Bachelor of Arts must complete before graduation the following prescribed work:

English	14 hours.
History and Political Economy	16 "
Language	16 "
Science, including Mathematics	10 "

Of these credits 22 must be taken during the Freshman year, as follows:

English	6 hours.
History and Political Economy	8 "
Language	8 "

All candidates for the degree of Bachelor of Science



are required to take the following courses during their freshman year:

English 1 and 2	6 hours.
Mathematics 1 and 3	5 "
Chemistry 1 and 2	8 "
*German 11 and 12	10 "

### *Major Work*

At the beginning of the second year a major subject is selected by each student and his course of study is then made out under the supervision of the head of the department in which the major is chosen. Considerable latitude of choice is allowed the individual in the selection of electives.

### *Baccalaureate Thesis*

All candidates for the bachelor's degree may be required to prepare a graduating thesis upon a subject chosen by the Head of the Department in which their major work is being taken. If approved by the head of the department it is submitted by the student as part of his qualifications for a degree. This must be typewritten on good paper and if accepted, becomes the property of the University and, with a fee for binding, must be deposited with the Librarian.

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\* If the student does not present two units in German he will substitute Scientific German 9 and 10, and postpone German 11 and 12 until the Sophomore year.

## **School of Applied Science**

The School of Applied Science was organized in 1906 and the attendance and work done has been very encouraging. The purpose of this department is to train and prepare men to enter the various engineering professions, giving them a four years' college course, leading to the degree of B. S. in engineering. The aim is always to make entrance requirements and requirements for graduation up to the standard of leading engineering schools throughout the country. The courses have been outlined to include both professional and cultural studies, in order that the student may not only receive instruction in the theory and practice of engineering work, but may at the same time broaden his views and develop his ability to clearly and effectively present his views verbally or in written reports. Owing to the rapid development in engineering methods and practices, it is necessary that the young engineer should be trained to solve new problems and learn the general principles of applied science, rather than collect a large store of data, no matter how valuable they may be at present. The courses have been outlined so as to include enough of at least one foreign language to enable the graduate to read articles in the technical periodicals of that language. The theoretical and mathematical branches are taken up in the earlier part of the courses, while the application and specialization make up the latter part. Original investigation and experimental research will be taken up during the fourth year of the course.

### *Equipment*

In addition to the general library, which is at the disposal of all students, there are a number of engineering and other scientific periodicals and books on the reading table and in the departmental libraries of the Engineering Building.

The Engineering School has instruments for field work in surveying; there are farms laid out on the University grounds for the purpose of giving the student practice in the use of the various surveying instruments. Special attention is given to the use of the level, compass, and transit, with attachments.

The machine shops afford facilities for carpenter work, wood turning, forge work, bench and machine work in iron, pattern making, and installing and assembling of machinery.

The draughting room is equipped with desks and drawing boards, but each student is required to furnish his own instruments, T-squares, triangles, etc., for draughting work.

Realizing the value of an organization for presenting and discussing papers on engineering subjects, the students in this school have organized the University of New Mexico Society of Engineers. This organization combines club and literary society features with a study of current engineering literature.

### *Inspection Tours*

From time to time throughout the course inspection tours are made, under the direction of an instructor, to engineering and industrial establishments in the

city of Albuquerque. Through the courtesy of these concerns it is possible for the engineering students to get a much better idea of the actual process and methods in use in up-to-date, practical shops than could possibly be gained in the shops of an educational institution where the equipment must of necessity be limited and more or less obsolete. In this way the observation work in connection with the discussions and practical work at the University shops offer excellent opportunity for the student to become familiar with shop practice.

### *Special Students*

Students, over 21 years of age, not working for a degree, may be permitted to take special studies without passing the entrance requirements upon giving satisfactory evidence that they can do so advantageously.

### *Required Work*

All candidates for a degree in Engineering are required to present 140 hours of college work, and 4 hours Physical Education.

### *Thesis*

The conditions governing work on thesis will be found set forth under the Requirements for the Bachelor of Science degree in the College of Letters and Science.

Complete four-year courses are offered in Chemical, Civil and Electrical Engineering and the first three

years of a four-year course in Mechanical, Mining and Sanitary Engineering.

## FRESHMAN YEAR.

The first year is the same for all engineering students.

<i>First Semester</i>	<i>Hrs.</i> <i>Credit</i>
English 1 .....	3
German 11 .....	5
Mathematics 1 .....	3
Mathematics 3 .....	2
Chemistry 1 .....	3
Civil Engr. 1. (Mech. Dr.) .....	2
Total .....	18
<i>Second Semester</i>	<i>Hrs.</i> <i>Credit</i>
English 2 .....	3
German 12 .....	5
Mathematics 2 .....	1
Mathematics 4 .....	4
Chemistry 2 .....	5
Civil Engr. 2. (Descrip. Geom.) .....	2
Total .....	18

## Chemical Engineering Course

Leading to the B. S. Degree.

### SOPHOMORE YEAR.

	<i>Hrs.</i>	<i>Credit</i>
<i>First Semester</i>		
Chemistry 3 .....	5	
Mathematics 5 .....	5	
Physics 1 .....	5	
Mech. Engr. 1 (Shop Work.) .....	3	
	<hr/>	
Total .....	18	

	<i>Hrs.</i>	<i>Credit</i>
<i>Second Semester</i>		
Chemistry 4 .....	2	
Mathematics 6 .....	5	
Physics 2 .....	5	
Chemistry 8 .....	3	
Physics 4 (Anal. Mech.) .....	3	
	<hr/>	
Total .....	18	

### JUNIOR YEAR.

	<i>Hrs.</i>	<i>Credit</i>
<i>First Semester</i>		
Chemistry 5 .....	5	
Chemistry 9* .....	4	
Chemistry 13 .....	1	
Electr. Engr. 1. (Dynamors and Motors)...	3	
Geology .....	5	
Physics 13. (Seminar) .....	1	
	<hr/>	
Total .....	19	

	<i>Hrs.</i>	<i>Credit</i>
<i>Second Semester</i>		
Chemistry 6.....	5	
Chemistry 10**.....	4	
Civil Engr. 10. (Hydraulics).....	3	
Mech. Engr. 10. (Thermodynamics).....	3	
Physics 14. (Seminar).....	1	
Elective .....	2	
	<hr/>	
Total .....	18	

## SENIOR YEAR.

	<i>Hrs.</i>	<i>Credit</i>
<i>First Semester</i>		
Chemistry 7.....	5	
Geology 7. (Mineralogy).....	3	
Physics 5. (Electr. Meas.).....	2	
Chemistry 16. (Thesis).....	5	
Civil Engr. 3. (Surveying).....	3	
Physics 13. (Seminar) .....	1	
	<hr/>	
Total .....	19	

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\* Alternates with Chemistry 11.

\*\* Alternates with Chemistry 12,

## Civil Engineering Course

Leading to the B. S. Degree.

### SOPHOMORE YEAR.

<i>First Semester</i>	<i>Hrs. Credit</i>
Mathematics 5.....	5
Physics 11 .....	5
Civil Engineering 3.....	3
Civil Engineering 5.....	2
Civil Engineering 7.....	3
	<hr/>
Total .....	18

<i>Second Semester</i>	<i>Hrs. Credit</i>
Mathematics 6.....	5
Physics 12.....	5
Physics 4.....	3
Civil Engineering 4.....	3
Civil Engineering 6.....	2
	<hr/>
Total .....	18

### SUMMER.

Civil Engineering 8.—2 hrs. credit (optional).

### JUNIOR YEAR.

<i>First Semester</i>	<i>Credit</i>
Civil Engineering 9.....	4
Civil Engineering 11.....	2
Civil Engineering 13.....	2
Geology 9.....	5
Electrical Engineering 1.....	2



Electrical Engineering 3.....	2
Physics 13.....	1
	<hr/>
Total .....	18

	<i>Hrs.</i>
<i>Second Semester</i>	<i>Credit</i>
Civil Engineering 10.....	3
Civil Engineering 12.....	3
Civil Engineering 14.....	3
Geology 10.....	5
Mechanical Engineering 6.....	3
Physics 14.....	1
	<hr/>
Total .....	18

## SENIOR YEAR

	<i>Hrs.</i>
<i>First Semester</i>	<i>Credit</i>
Civil Engineering 15.....	4
Civil Engineering 17.....	3
Civil Engineering 19.....	2
Civil Engineering 21.....	2
Civil Engineering 23.....	2
Mathematics 15.....	3
Physics 13.....	1
	<hr/>
Total .....	17

	<i>Hrs.</i>
<i>Second Semester</i>	<i>Credit</i>
Civil Engineering 16.....	4
Civil Engineering 18.....	3
Civil Engineering 20.....	2
Civil Engineering 22.....	2

Civil Engineering 24.....	3
Biology 14.....	2
Physics 14.....	1
	<hr/>
Total .....	17

**Electrical Engineering Course**

Leading to the B. S. Degree.

## SOPHOMORE YEAR

<i>First Semester</i>	<i>Hrs. Credit</i>
Mathematics 5.....	5
Physics 11.....	5
Civil Engr. 5. (Construction) .....	2
Mech. Engr. 1. (Shop Work) .....	3
Mech. Engr. 7. (Mach. Design) .....	3
	<hr/>
Total .....	18

<i>Second Semester</i>	<i>Hrs. Credit</i>
Mathematics 6.....	5
Physics 12.....	5
Civil Engr. 6. (Construction) .....	2
Mech. Engr. 2. (Lathe Work) .....	2
Mech. Engr. 8. (Mach. Design) .....	3
	<hr/>
Total .....	17

## JUNIOR YEAR

<i>First Semester</i>	<i>Hrs. Credit</i>
Electrical Engineering 1.....	3
Electrical Engineering 3.....	2

Physics 3. (Elect. and Magn.)	3
Physics 5. (Electr. Meas.)	2
Civil Engr. 3. (Surveying)	3
Civil Engr. 9. (Str. of Materials)	3
Physics 13. (Seminar)	1

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Total ..... 17

	<i>Hrs.</i>
<i>Second Semester</i>	<i>Credit</i>
Electrical Engineering 2	3
Electrical Engineering 4	2
Physics 4. (Anal. Mech.)	3
Physics 6. (Electr. Meas.)	2
Mech. Engr. 6. (Thermodynamics)	3
Physics 14. (Seminar)	1
Elective	4
<hr/>	
Total	18

## SENIOR YEAR

	<i>Hrs.</i>
<i>First Semester</i>	<i>Credit</i>
Electrical Engineering 5	3
Electrical Engineering 7	2..
Electrical Engineering 9	1
Electrical Engineering 11	4
Civil Engineering 23	2
Physics 13. (Seminar)	1
Elective	4
<hr/>	
Total	17

<i>Second Semester</i>	<i>Hrs Credit</i>
Electrical Engineering 6.....	3
Electrical Engineering 8.....	2
Electrical Engineering 10.....	1
Electrical Engineering 14.....	5
Civil Engr. 10. (Hydraulics).....	3
Physics 14. (Seminar).....	1
Electrical Engineering 12.....	3
Total .....	<hr/> 18

## Description of Courses

Odd numbered courses are offered during the first and even numbered during the second semester.

### *Department of English*

*English 1.* 3 h.

*English Composition.* Written and oral themes and exercises in the four forms of literary discourse with a study of the general principles of rhetoric. Required of all Freshmen. Special section for Engineers.

*English 2.* 3 h.

*English Composition.* A Continuation of Course 1. Required of all Freshmen. Special section for Engineers.

*English 3.* 4 h.

Chaucer and Spencer.

*English 4.* 4 h.

Shakespeare and his Contemporaries. A study of the dramatists of the Elizabethan age.

*English 5.* 4 h.

Seventeenth Century Literature. A study of the Puritan Period of the Restoration.

*English 6.* 4 h.

Eighteenth Century Literature. A study of the Classic Age and of the Transition.

*English 7.* 4 h.

The Poetry of the Nineteenth Century. Historical

and critical survey of English poetry from Wordsworth to Browning.

*English 8.* 4 h.

History of the Novel. Historical and critical survey of the English novel from Defoe to Meredith.

*English 9.* 3 h.

*Advanced English Composition.* A study of modern periodicals with practice in essay writing. Open only to students who have completed Courses 1 and 2.

*English 10.* 3 h.

*Advanced English Composition.* A study of modern narrative writing. Open only to students who have completed Courses 1 and 2.

*English 11.* 2 h.

Browning.

*English 12.* 2 h.

The Modern Drama. A study of the drama from Goldsmith and Sheridan to the present day.

#### *Department of History*

1. *History of Greece.* 4 h.

The development, character, and expansion of Greek civilization. [Omitted 1913-1914.]

2. *History of Rome.* 4 h.

The Roman State. The growth of the Roman Imperial world. [Omitted 1913-1914.] ..

3. *History of England.* 3 h.

From the Anglo-Saxon Invasion to the close of the Tudor period.

4. *England.* 3 h.  
From the accession of James I. to the present day.
5. *Medieval History I.*  
From the barbarian invasion to the close of the Eleventh Century.
6. *Medieval History II.*  
From the Crusaders to the opening of modern history.
7. *Modern European History I.* 3 h.  
A general course covering the history of Europe from the close of the Fifteenth Century to 1715.
8. *Modern European History II.* 3 h.  
From 1715 to the present day.
9. *American Colonial History.* 3 h.  
The Colonial period through the Revolution.
10. *The Civil War and Reconstruction Period.* 2 h.  
From 1860 to 1875.

#### *Economics*

1. *Elements of Economics.* 4 h.  
An introductory course with lectures, exercises and assigned reading.
2. *Elements of Economics.* 4 h.  
A continuation of Course 1 including a survey of the chief economic problems of modern industrial society.

*Sociology*

1. *General Sociology.* 4 h.  
A study of the chief problems of social relations and institutions.
2. *Special Problems in Sociology.* 4 h.

*Political Science*

1. *General Political Science.* 3 h.  
An introductory course in comparative and historical politics.
2. *Political Science.* 3 h.  
A study of the American system of government.

Note—Only the beginning courses in Economics, Sociology and Political Science are offered during the year 1913-14, but after this year additional courses will be added as they are called for and majors may be selected in these subjects.

*Department of Latin*

1. *Beginning Latin.* 6 h.  
This course is for students who have not previously studied Latin. Grammar and Composition. The common forms, idioms, and constructions. A beginning Latin book and a Latin reader will be studied.
2. *Caesar and Latin Prose Composition.* 6 h.  
A further study of grammar and syntax. Translation of detached sentences into Latin. Selections from Cæsar to the amount of four books or the equivalent in other authors.
3. *Cicero and Composition.* 4 h.  
Six orations of Cicero or two orations of Cicero and the Catiline of Sallust. Latin Prose Com-



position. Special attention is given to the art of translating into clear, vigorous English. A brief study of Roman Political Institutions. (Given in alternate years. Not given in 1913-1914.)

4. *Continuation of 3.* 4 h.

5. *Vergil.* 4 h.

Translation of six books of Vergil's Aeneid or the equivalent. Special study of epic poetry as a species of literature. Outside reading of Homer's epics in English translation. Comparison of the religious beliefs held by the Ancients and the people of the Middle Ages, as portrayed by the Odyssey, Book xi, the Aeneid, Book vi, and the Divine Comedy of Dante. Topics for private investigation and report. (Alternates with 3 and 4. Given in 1913-1914.)

6. *Vergil. Continuation of 5.* 4 h.

7. *Freshman Latin.* 3 h.

Cicero's Essay on Old Age or on Friendship and Selections from Livy. Review of grammar and syntax. Outside readings, especially topics on Roman History. Prerequisite, four units in Latin.

8. *Freshman Latin.* 3 h.

Livy, continued. Horace, Odes and Epodes. Outside readings, especially in the Latin Lyric Poets.

9. *Latin Composition.* 1 h.

Translation into Latin of detached sentences and connected narrative. Grammar and Syntax. Intended to accompany Latin 7.

10. *Latin Composition. Continuation of Latin.* 9. 1 h.
11. *Sophomore Latin.* 3 h.  
Sallust's Jugurtha and Selections from Catullus, Propertius, and Tibullus. History of Roman Literature through the Republic and assigned readings.
12. *Sophomore Latin.* 3 h.  
Two comedies of Plautus and one of Terence. A study of the Latin Drama. Outside reading in the remaining comedies of Plautus and in the Tragedies of Seneca.
13. *Advanced Latin.* 3 h.  
Tacitus, Agricola and Letters of Pliny the Younger. Outside readings bearing on the condition of the Roman people during the first century of the Empire. Open to Juniors and Seniors who have taken Latin 7, 8, 11, and 12. (Not given in 1913-1914.)
14. *Advanced Latin.* 3 h.  
Silver and Late Latin. Apuleius, or Petronius and Latin Hymns. A study of the development of the Roman novel and romance. Assigned readings on kindred topics. Prerequisite, same as for Latin 13. (Not given in 1913-1914.)
15. *Advanced Latin.* 3 h.  
Selected readings from the philosophical writings of Cicero, Lucretius, and Seneca. Assigned readings and reports on the philosophical systems of the Greeks and Romans. Prerequisites same as for Latin 13.

16. *Advanced Latin.* 3 h.

Selections from Lucilius, Horace, Persius, and Juvenal. A study will be made of the development of Latin Satire and the works of the Satirists will be read either in the original or in translation. Prerequisite, same as for Latin 9.

17. *Advanced Latin Composition.* 2 h.

Open to Seniors, Juniors, and by permission to Sophomores.

18. *Continuation of Latin 17.* 2 h.19. *Roman Political Institutions.* 2 h.

A study of the Roman Constitution, the contribution of the Romans to modern government and political science and to the acquisition of civic rights. An investigation will be made of the Roman methods of dealing with the Initiative and Referendum, the Recall, the Tariff, the government of cities, provinces, and protectorates, etc. Lectures, outside readings, and reports. Open to all students except Freshmen. A knowledge of Latin is helpful but not essential. (Not given in 1913-1914.)

20. *Continuation of Latin 19.* 2 h.21. *Roman Antiquities and Private Life.* 2 h.

A study of the Antiquities of Rome and Pompeii, the organization of society, education, the house, furniture, dress, food, amusements, sources of income, wedding and funeral ceremonies, etc. Lectures, in part illustrated, assigned readings, and reports. Open to all students except Fresh-

men. A knowledge of Latin is helpful but not essential. (Not given in 1913-1914.)

22. *Continuation of Latin 21.* 2 h.

23. *Teachers' Course.* 2 h.

A study and criticism of various text books. Lectures on the Scope and Aim of Latin Study, a teacher's equipment and reference library, and methods of teaching. Discussions of the difficulties that confront a teacher of Latin. A special study of the Subjunctive Mood and the essentials of Classical Philology. Open to advanced students by permission of the instructor.

24. *Continuation of Latin 23.* 2 h.

#### *Department of Greek*

1. *Elementary Greek.* 5 h.

Grammar and Composition. The common forms, idioms, and constructions, and the grammatical principles of Attic Greek prose. Open to those who have not taken Greek as a preparatory subject.

2. *Elementary Greek Continued.* 5 h.

Grammar and Composition continued. Reading of Xenophon's *Anabasis*, Books I-III.

3. *Attic Greek Prose.* 3 h.

Xenophon's *Memorabilia* of Socrates. A study of Socrates and his teachings. Assigned reading in English of some of Plato's dialogues. Open to those who have had Greek 1 and 2 or their equivalent.

4. *Attic Oratory.* 3 h.  
Several orations of Lysias will be read. Assigned readings in English of the works of other Greek orators.
5. *Greek Prose Composition.* 1 h.  
Translation into Greek of detached sentences and continuous prose. Grammatical review. Intended to accompany Greek 3.
6. *Continuation of Greek 5.* 1 h.
7. *Greek History.* 3 h.  
Herodotus, Book I or VII or Selections. A study of the beginning and development of historical writing. Reading in English of other portions of Herodotus and other Greek historians. Prerequisite, Greek 1, 2, 3, 4, or their equivalent.
8. *Epic Greek Poetry.* 3 h.  
Selections from the Iliad of Homer. A study of the Epic as a species of literature and of early Greek civilization. The remainder of the Iliad and all of the Odyssey will be read in translation.
9. *Greek Drama.* 3 h.  
Several plays of Aeschylus, Sophocles, Euripides, and Aristophanes will be studied. A study of the development of the drama as a species of literature. Assigned readings on kindred topics. Prerequisite, Greek 7 and 8.
10. *Greek Drama.* 3 h.  
Continuation of Greek 9.
11. *Thucydides or Lyric Poetry.* 3 h.  
Besides translation, attention will be given to

the history of Greece for the period involved or a study will be made of the development and content of lyric poetry. History of Greek literature. (Not given in 1913-1914.)

12. *Lucian.* 3 h.

(a) Minor dialogues and a study of Greek culture in the second century A. D.

(b) The True History and a study of the precursors of the modern novel and romance. (Not given in 1913-1914.)

13. *Advanced Greek Composition.* 2 h.

14. *Continuation of Greek 13.* 2 h.

15. *Greek Architecture and Art.* 2 h.

Lectures, quizzes, assigned readings, and reports. Open to all students. No knowledge of Greek required. (Not given in 1913-1914.)

16. *Greek Public and Private Life.* 2 h.

A study of the civilization, customs, and institutions of the ancient Greeks. Lectures, assigned readings, quizzes, and reports. Open to all students. No knowledge of Greek required. (Not given in 1913-1914.)

17. *Greek in English Translation. The Drama.* 2 h.

The rise and development of the drama among the Greeks and Romans. Intensive study of several Greek plays and outside reading of other plays of Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, and Seneca. Lectures, quizzes, assigned readings, and reports. Open to all students. No knowledge of Greek required.

18. *Greek in English Translation, Continued.* 2 h.  
A study will be made of the contribution of the Greeks to other species of literature outside of the drama, especially in the realms of epic and lyric poetry, history, philosophy, and the romance. Open to all students. No knowledge of Greek required.

*Department of French*

1. *Elementary French.* 4 h.  
Beginners' Course. (Open to Seniors in College Preparatory Division.) Principles of Grammar, Fraser & Squair, Part 1. Oral and written exercises and systematic training in pronunciation, based on Matzke's Primer of French pronunciation.  
French Readings, Aldrich & Foster's French Reader, Part 1.  
From the very beginning the student is required to turn English into French, and to grasp the meaning of the French without putting it into English.
2. *Elementary French.* 4 h.  
Continuation of Course 1. (Open to Seniors in College Preparatory Division.) Principles of Grammar, completed, Fraser & Squair, Part 1. Special drill on more common irregular verbs. Dictation.  
Simple conversation.  
French Readings, Aldrich & Foster's French Reader, Part II.  
Labiche, *La Voyage de Monsieur Perrichon.*

Where the progress of the class justifies such action, a play of the character of the one mentioned will be presented in appropriate costume. Upon completion of courses 1 and 2, the student should be able to express himself in French.

3. *Second-Year French.* 3 h.

Grammatical Exercises, Fraser & Squair's Grammar completed (Part II). Dictation. Composition, Idioms.

4. *Second-Year French.* 3 h.

Continuation of Course 3. Syntax, Composition, Idioms.

French Readings, Selected Modern Texts.

Student required to give in French, and orally, synopses of works read.

Especial stress laid on the translation of English into French. Selections from standard authors chosen with this end in view.

5. *Third-Year French.* 3 h.

Advanced French Prose Composition. Translation into French of selected English texts.

A study of principal authors of the Classical Period.

Representative texts from the works of Corneille, Racine, Moliere, Voltaire, Le Sage, La Fontaine, Boileau.

6. *Third-Year French. Continuation of Course 5.* 3 h.

Study of writers of the Romantic School. Discussion of literary and colloquial forms and critical points in grammar.



7. *Fourth-Year French.* 2 h.  
History of French Literature, with readings from principal authors. From the Renaissance to the end of the Seventeenth Century.
8. *Fourth-Year French.* 2 h.  
History of French Literature, with readings from principal authors. From the beginning of the Eighteenth Century to the present time.

*Department of Spanish*

1. *Elementary Spanish.* 4 h.  
The elements of Grammar, reading, and conversation.
2. *Elementary Spanish.* 4 h.  
Grammar and reading of easy stories. Essays and translation, with drill in conversation.
3. *Intermediate Spanish.* 4 h.  
Reading of such authors as Aseni, Echegaray, Bazán, Moratín and Alarcón. Essays and stories in Spanish. Conversation continued.
4. *Intermediate Spanish.* 4 h.  
Prose composition, reading and conversation continued.
5. *Advanced Spanish.* 3 h.  
Reading of such authors as Galdós and Avellaneda. Occasional debates and discussions in Spanish.

6. *Modern Spanish Drama.* 3 h.  
Study and interpretation of the masterpieces of modern Spanish dramatic literature. Works of Echegaray, Lopez de Ayala, Galdós, Tamayo y Baus, etc.
7. *Study of the Spanish Classics.* 2 h.  
Cervantes and the dramatists of the Golden Age are given in alternate years. Cervantes for 1914.
8. *Spanish Ballad Poetry.* 2 h.  
Rise and development of Spanish Epic Poetry. Origin of Spanish Ballad Poetry and its significance in Spanish literature. Special study of certain groups.

### *Commercial Spanish*

Special attention is called to the practical courses offered in Commercial Spanish, which are open only to students who have completed two full years in Spanish.

9. *Correspondence and Conversation.*  
All letter forms and business papers used in commercial intercourse between English and Spanish-speaking peoples are made the subject of thorough class-room drill, the object of the course being to give equal facility of expression—verbal or written—in either language.
10. *Correspondence and Conversation.*  
Continuation of Course 9. Practice is given in the construction of every known type of letter. A general discussion of topics bearing on the

text, conducted in Spanish, is a part of the daily work of the class.

*Department of German*

1. *Elementary German.* 4 h.  
Grammar and translation. Conversation begun. Memorizing simple German verse. Text, Vos, Essentials of German.
2. *Elementary German.* 4 h.  
Grammar and conversation continued. Reading of about 150 pages of easy translation. Memorizing of simple German ballads. Composition. Short reports on German life and customs. Bacon's "Im Vaterland," Heyse's "L'Arrabiata."
3. *Second Year German.* 4 h.  
Translation of a prose author. Conversation. Reports on current events in German, and oral narration based on short stories. A few lyrics and ballads memorized. Composition, Osthaus and Biermann.
4. *Second Year German.* 4 h.  
Introduction to the drama, "Nathan der Weise" or "Wilhelm Tell." Prose reading, conversation, reports, and composition continued.
5. *Schiller's Life and Works.* 3 h.  
Conducted in German. Life and times of Schiller discussed. Reading of several of his dramas, and one of Lessing's for comparison of technique. Original composition based on the reading.

6. *Goethe's Life and Works.* 3 h.  
Conducted in German. Reading of Goetz, Iphigenie, Tasso, selections from Dichtung und Wahrheit, etc. Original composition.
7. *Modern German Drama.* 3 h.  
Reading and discussion of the drama from 1830 to the present time and emphasizing the naturalistic movement. Lectures and reports in German on collateral reading.
8. *Modern German Novel.* 3 h.  
Freytag, Scheffel, Storm, Sudermann, Hauptmann, Heyse, Raabe, Frenssen. Critical essays in German on subject matter submitted by students. Special attention paid to the formation of a good literary style.
13. *History of German Literature.* 2 h.  
German literature of the 18th century. Open to college students who have had at least two years of German. Discussion and reports based on the reading of typical classics. Kluge's "Deutsche Nationalliteratur" will furnish the guiding outline.
14. *History of German Literature.* 2 h.  
German literature of the 19th century. Requirements and methods the same as in Course 13.
- 15 and 16. *Special Courses.*  
Advanced students may have work in Goethe's Faust, Grillparzer, Freytag, or Hauptmann and Sudermann.

*Scientific German*

9. *Elementary Scientific German.* 5 h.  
For deficient entrance requirements in German. This and Course 10 are designed to cover two years of preparatory work for the reading of Scientific German, and hence will require of the student earnest, intensive work.
10. *Elementary Scientific German.* 5 h.  
Continuation of Course 9. Scientific terms will be introduced into the vocabulary gradually.
11. *Scientific German.* 5 h.  
All the chief divisions of science will be represented and the reading will be extensive. The chief object will be the acquirement of a good working vocabulary. Texts: Wait's "German Scientific Reader," Helmholtz's "Populaere Vortraege."
12. *Scientific German.* 5 h.  
Reading of German scientific magazines and periodicals. Assigned topics and individual reports. Students will, as far as possible, be allowed to read along lines of chosen or intended specialization.

*Mathematics*

1. *College Algebra.* 3 h.  
A rapid review of the principal parts of elementary algebra; graphical representation; ratio; pro-

portion; progressions; permutations and combinations; probability; binomial theorem, logarithms; partial fractions; determinants; theory of equations.—Ashton's College Algebra.

2. *Analytical Geometry.* 4 h.  
Rectangular and polar co-ordinates; straight line; circle; parabola, ellipse, hyperbola, and general equations of the second degree and higher plane curves.
3. *Plane Trigonometry.* 2 h.  
The six trigonometric functions and their relations; trigonometric analysis; inverse functions; graphical representations; solution of oblique triangles; theory and use of logarithms. Granville's Trigonometry.
4. *Spherical Trigonometry.* 1 h.  
Right and oblique spherical triangles; applications of spherical trigonometry to the celestial and terrestrial spheres. Prerequisite: Math. 3. Granville's Trigonometry.
5. *Differential and Integral Calculus.* 5 h.  
Differentiation of algebraic and transcendental functions; derivatives as rates; successive differentiation and integration, maxima and minima; definite integrals; applications of integration to geometry and mechanics. Prerequisite: Math. 1, 2, 3. Townsend & Goodenough's Calculus.
6. *Differential and Integral Calculus.* 5 h.  
Continuation of Course 5. Special methods of

integration; functions of two or more variables; multiple integrals; geometrical and physical applications; infinite series; approximate integration and an introduction to differential equations. Prerequisite: Math. 5. Townsend & Goodenough's Calculus.

7. *Differential Equations.* 3 h.

This course is especially designed for students in mathematics and physics. Prerequisite: Math. 6. Murray's Differential Equations.

8. *Analytical Geometry of Three Dimensions.* 2 h.

10. *Definite Integrals.* 2 h.

A study of the more difficult forms of definite integrals. Prerequisite: Courses 5 and 6.

11. *Advanced Algebra.* 3 h.

The theory of linear dependence; linear transformations and the combination of matrices; invariants; bilinear forms. Prerequisite: Course 5. Bocher's Higher Algebra.

12. *Theory of Equations.* 3 h.

General properties of equations; transformations; reciprocal and binomial equations; cubic and bi-quadratic equations.

13. *Theory of Probability.* 2 h.

15. *General Astronomy.* 3 h.

A course in general descriptive astronomy. Open

to Juniors and Seniors. Young's General Astronomy.

16. *History and Teaching of Elementary Mathematics* 3 h.

*Biology*

1. *Zoology.* 5 h.

A comparative study of the principles of structure, physiology, and development in animals. The laboratory work consists of a brief study of insects and the dissection of the frog, as an introduction to systematic work. Then follow a study of cell structure and cell division, and representatives of the chief animal phyla. Laboratory work, 3 h.

2. *Botany.* 5 h.

Laboratory and text book study of the evolution of the plant kingdom, and the underlying principles of plant life. Type studies of representatives of the principal plant groups. The life processes in the individual plant. Laboratory work, 2 h.

3. *Essentials of Embryology and Histology.* 5 h.

The development and minute structure of the animal as an organism built up of tissues combined into organs. Practice in general methods of micro-technique and the use of apparatus. Methods of reconstruction. Prerequisite, Course 1, or its equivalent. Laboratory work, 3 h.

4. *Embryology and Histology.* 5 h.

A continuation of Course 3. Laboratory work, 4 h.

5. *Essentials of Entomology.* 5 h.

The structure, physiology, development, and



economics of insects, leading up to a discussion of the principles of taxonomy and their application to the classification of insects. Prerequisite, Course 1, or its equivalent. Laboratory work, 3 h.

6. *Entomology.* 5 h.

A continuation of Course 5. Laboratory work, 3 h.

7. *Elementary Physiology.* 3 h.

A course intended primarily for those preparing to teach in the High Schools. The stress in this course will be placed upon Physiology and Hygiene, personal and civic, Anatomy and Histology being reduced to their lowest terms. Elementary Chemistry should be offered in preparation. Laboratory work, 1 h.

8. *General Physiology.* 3 h.

The physical, structural and functional features of living substance, the cell, present conditions and expressions of life, and the theories of the origin of life. The organism as a whole in relation to its surroundings. Prerequisite: Course 1, 2, or 7.

9. *Comparative Anatomy.* 5 h.

The detailed study of the anatomy of the cat, the study of the brain of the sheep, and the comparative study of other animals and man. Prerequisite, Course 1. Laboratory work, 3 h.

10. *Plant Physiology and Ecology.* 5 h.

A study of the factors which make up the home

of the plant: water, light, soil, heat, etc.; response of the plant to its home. Adaptation in plants, and the origin of new forms. Structure and development of vegetation, etc. Laboratory and field work, 2 h.

11. *Principles of Bacteriology.* 3 h.

Morphology, culture and physiology of micro-organisms. Microbiology of air, water, sewage, soil, and special industries. Diseases of plants and animals and their control. Prerequisite: Chemistry 1. Laboratory work, 1 h.

12. *Organic Evolution.* 3 h.

The history of the evolution idea, modern theories, experimental evolution, practical aspects, present-day problems in genetics. Lectures and assigned reading. Much attention will be paid to the reading of current literature pertaining to the subject matter of the course. Prerequisite: Courses 1 and 2, or their equivalent.

14. *Sanitary Biology.* 2 h.

Water supply algae and bacteria; sedimentation, filtration and purification of water in relation to these organisms. The quantitative and qualitative bacteriological and microscopical examination of water. The bacterial flora of sewage. Sanitary housing, municipal housing. Laboratory work, 1 h.

15 and 16. *Advanced work* along the lines indicated by the above introductory courses may be elected by students having the proper preparation. Details will be arranged upon consultation.

- 17 and 18. *Thesis* for students whose major has been elected in this department, or research in Biology for graduates.

*Chemistry*

1. *Inorganic Chemistry.* 3 h.

Lectures and recitations on general and theoretical chemistry, illustrated by demonstrations, charts, lantern slides, specimens, etc. Solution of chemical problems is required. Laboratory work, 1 h.

2. *Inorganic Chemistry.* .. 5 h.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc. Prerequisite: Chemistry 1. Laboratory work, 2 h.

3. *Qualitative Analysis.* 5 h.

Chemistry 3 consists of laboratory practice with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases, and to keep a full set of notes. Frequent quizzes are given. These dwell upon the theory of the work. Prerequisite: Chemistry 1 and 2.

4. *Quantitative Analysis.* 5 h.

This course consists wholly of laboratory work. Gravimetric methods are started. The analytical work is continued in Course 5. Prerequisite: Chemistry 3.

5. *Quantitative Analysis.* 5 h.  
This course gives practice in the greatest variety of manipulation. Types of the important methods are taken up. Analysis of ores, metals, slags, alloys, fuels, soils, fertilizers, dairy products, food stuffs, waters, urine, poisons, drugs, gases, and oils, are taken. The needs of the individual student will be considered in the work. Prerequisite: Chemistry 4. Laboratory work 5 h.
6. *Quantitative Analysis.* 5 h.  
A continuation of Course 5. Laboratory work, 5 h.
7. *Quantitative Analysis.* 5 h.  
A continuation of Course 6. Laboratory work, 5 h.
8. *Organic Chemistry.* 3 h.  
Lectures and recitations. A study of the chemistry of the carbon compounds. Laboratory work taken in Course 9. Prerequisites: Courses 1, 2 and 3. Given in alternate years.
9. *Organic Chemical Laboratory.* 4 h.  
This course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of qualitative organic reactions and analyses. Prerequisite: Course 8. Laboratory work, 4 h. Given in alternate years.
10. *Physical Chemistry.* 4 h.  
This work consists of advanced study of chemistry theory. Practice experiments will be per-

formed with the aid of the student in the determination of vapor density, molecular weights, specific heats, etc., and the study of isomorphisms, diffusion of gases, solutions, ionization, electrolysis, molecular and atomic volumes, thermochemistry, equilibrium, the phase rule, etc., will take up much of the time. Given in alternate years. Prerequisite: Courses 1, 2, 3 and 4.

11. *Industrial Chemistry.* 2 h.

This course consists of lectures on chemical manufactures such as sugar, sodium carbonate, fertilizers, sulfuric acid, glass, matches, paints, dyes, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern slides and charts. Given in alternate years. Prerequisite: Courses 1, 2 and 9.

12. *Metallurgy.* 2 h.

This course consists of lectures describing the processes employed in the smelting of iron, lead, copper, zinc, silver, gold, etc. Given in alternate years. Prerequisite: Courses 1, 2, and 9.

13. *Chemistry of Food and Nutrition.* 1 h.

This subject includes the composition of foods and of the animal body, the assimilation of the former by the latter and the principles underlying a rational diet. Particularly a practical course for women students.

14\* and 15\*. *Advanced Work for Individual Students.*

16 and 17. *Thesis.* 5 h.

*Physics*

1. *General Physics.* 5 h.  
Mechanics, heat and sound, with lecture demonstrations, text book and laboratory work. Open to all students. Laboratory work, 2 h.
2. *General Physics.* 5 h.  
Electricity and magnetism, light and radioactivity. Continuation of Course 1. Laboratory work, 2 h.
3. *Electricity and Magnetism.* 3 h.  
An advanced course of lectures. Prerequisite: Physics 1 and 2. Mathematics 5.
4. *Analytical Mechanics.* 3 h.  
The principles of dynamics and kinetics for engineers. Prerequisite: Physics 1, Mathematics 5 and 6.
5. *Electrical Measurements.* 2 h.  
A laboratory course in the exact determination of electrical quantities, including electromotive force, current, resistance, inductance and capacity. Required of electrical engineers. Laboratory work, 2 h.
6. *Electrical Measurements.* 2 h.  
Continuation of Course 5. Calibration, adjustment and use of instruments of precision. Laboratory work, 2 h.
- 7 and 8. *Theoretical Mechanics.* 3 h.  
An elementary course in mechanics. Jeans'

Theoretical Mechanics used as a text. Prerequisite: Physics 1 and 2, Mathematics 5 and 6.

- 9 and 10. *Theoretical Physics.* 5 h.

The mathematical study of elasticity, kinetic theory of gases and conduction of heat.

11. *Engineering Physics.* 5 h.

Mechanics, heat and wave motion, with lecture demonstrations, text book and laboratory work. Prerequisite: Mathematics 2, and Preparatory Physics. Laboratory work, 2 h.

12. *Engineering Physics.* 5 h.

Sound, light, electricity and magnetism. Continuation of Course 11. Laboratory work, 2 h.

- 13 and 14. *Science Seminar.* 1 h.

Attendance required of all science and engineering students after the first year.

- 15 and 16. *Thesis.* 5 h.

This course consists of a thorough investigation along a particular line, with both library and laboratory work directly under the supervision of the instructor.

- 17 and 18. *Research Work.*

A course designed for advanced students who wish to pursue a special line of investigation.

19. *Mathematical Physics.* 5 h.

The mechanics of rigid, fluid and elastic bodies. Prerequisite: Physics 7, 8, 9 and 10.

*Geology*

1. *Physiography.* 5 h.

A course required and designed to meet the need of all students majoring in Geology or Mining Engineering. This course includes a survey of the lands, atmosphere and oceans of the regions of the world and of the U. S. in particular, involving an areal study of their geology, topography, soil, climate, resources, and industries.

- 3 and 4. *General Geology.* 5 h.

This course consists in a general survey of Physiographic, Structural, Dynamic, and Historical Geology, combined with a consideration of minerals, rocks and fossils, with the aim of giving the student a comprehensive insight into the field covered by Geology. Several excursions to nearby geological phenomena are required of all students taking the course. Laboratory work, including the principles of map interpretation and also involving the study and mapping of areas adjacent to Albuquerque. Throughout the year.

- 5 and 6. *Economic Geology.* 4 h.

A comprehensive investigation of the occurrence, origin, and development of the metallic minerals, together with the study of the principles of Metamorphism as far as their relation to ore deposits is concerned. The course also includes a study



of the major and minor non-metallic mineral products, as coal, petroleum, natural gas, soils, and building materials. Throughout the year.

7 and 8. *Minerology*. 4 h.

The course treats in an elementary way the study of Chrystallography combined with a review of the Chemical and Physical character of minerals. This part of the course is followed by descriptive Mineralogy as taken up in the laboratory in blowpipe work and determinative Mineralogy. A year's course in Chemistry must accompany or precede this course. Throughout the year.

9. *Engineering Geology*. 5 h.

A course designed to meet the needs of those majoring in Civil Engineering. Lectures, discussions and recitations on geological subjects closely allied to the engineering profession.

10. *Mineralogy*. 5 h.

A short course in Mineralogy is designed to meet the requirements of Engineers and Chemists. The course is entirely laboratory in character.

11. *Paleontology*. 5 h.

This includes a brief study of the most important groups of animals and plants with especial attention directed toward extinct types which have been prominent in Geological history. Lectures, collateral reading, and laboratory work.

12. *Petrology*. 5 h.

This course is intended to give the student

a working knowledge of rocks of all kinds. The aim is to study the texture of rocks and to identify their constituents by the aid of the Petrologic microscope, and the foundation laid for their classification. Laboratory, 4 h.

13. *Meteorology.* 5 h.

Besides affording a broad survey of meteorology this course is designed to give especial attention to meteorological conditions of this region in particular with especial attention directed to local climatic problems here involved. This course is required of students majoring in Geology. Two hours of laboratory work accompany the course.

14. *Historical Geology.*

This course includes a survey of all the geological formations, together with a consideration of the evolution of the life and climate of the past.

15. *Map Interpretation.*

This is a laboratory course in the study and interpretation of geologic maps as printed in the folios of the U. S. G. S. The purpose of the course is to train the student in the detection and explanation of geological phenomena as shown by these folios.

*Geological Research.*

Probably no university in the United States is more favorably located for field work in geology. Nature has on exhibition about Albuquerque an unusually large collection of evidence of her dyna-

mic action, and because of the unsurpassed climate enjoyed here, outdoor work is possible during the entire year. The state at large being a wonderfully equipped natural laboratory, presents an inviting field for the study of the varied occurrences of minerals, different phases of stratigraphy, and the much unsolved, as yet, geological history.

### *Civil Engineering*

1. *Freehand Drawing and Elements of Mechanical Drawing.* Drawing from objects, shading and construction; also reference to perspective. First six weeks. Use of drawing instruments and lettering. Drawing from objects. Simple projection.
2. *Descriptive Geometry.* 2 h.  
The descriptive geometry of projections, intersection and developments. Prerequisite: 1.
4. *Land and Topographic surveying.* 3 h.  
The theory and practice of land surveying, including the computation of areas, dividing land and determining heights and distances and in making surveys of farms. Map drawings from student's field notes. Prerequisite: 1 and Math. 3.
5. *Construction.* 2 h.  
Lectures covering the history of engineering, the development of building construction, architectural history and a study of the materials of construction.
6. *Construction.* 2 h.  
Lectures planned to give the student a general

view of the various branches of civil engineering. The lectures cover the subjects of masonry construction in stone and brick foundations for bridges and buildings, water supply and sewage disposal, development and transmission of water power and the history of bridge construction.

7. *Stereotomy.* 3 h.  
Problems in stone cutting, including plans for piers, culverts and arches. Isometric drawings and linear perspective. Prerequisite: 1 and 2.
8. *Engineering Inspection.* 2 h.  
During vacation between Sophomore and Junior years each student in Civil Engineering is required to inspect some engineering work and prepare a report thereon. A brief description of the work or structure that the student desires to inspect must be presented to the Professor of Civil engineering before July 15, and after approval the report thereon must be submitted on or before September 15. These reports will contain such drawings, photographs and computations as each case may demand, and their length will usually be from twenty to thirty pages of letter paper.
9. *Strength of Materials.* 4 h.  
The elasticity and strength of timber, brick, stone and metals. Theory of beams, columns and shafts, with the solution of many practical problems. Prerequisite: Physics 11 and 12, Mathematics 5 and 6.
10. *Hydraulics.* 3 h.  
Hydrostatics and theoretical hydraulics. The

flow of water through orifices, weirs, tubes, pipes and channels. Prerequisite: Physics 1 and 2, Mathematics 5 and 6.

11. *Graphic Statics.* 2 h.

Analysis of stresses in roof trusses by the force polygon. Application of the equilibrium polygon in beams and girders: Prerequisite: Physics 11 and 12.

12. *Roofs and Bridges.* 3 h.

The theory and computation of stresses in roof and bridge trusses under dead, live and wind loads. Locomotive wheel loads on plate girders and bridge trusses. Prerequisite: 11.

13. *Roads and Pavements.* 2 h.

The location, construction and maintenance of roads and pavements. Prerequisite: 5 and 6.

14. *Railroad Surveying.* 3 h.

Reconnaissance, preliminary and local methods, with theory of curves and turnouts. Location of a line with preparation of profiles and maps. Computation of earth work and estimates of cost. Prerequisite: 2, 3 and 4.

15. *Bridge Design.* 4 h.

Lectures and drawing exercises. The design of girders and trusses. Prerequisite: 9 and 12.

16. *Bridges and Dams.* 4 h.

Higher structures, including continuous draw, cantilever and suspension bridges, also metallic arches. The theory and design of masonry walls, dams and arches. Prerequisite: 15.

17. *Hydraulic Engineering.* 3 h.  
Systems of water supply, including purification systems, reservoirs, pipe lines, pumping plants. The design of a water supply distribution system. Water power. Irrigation. Prerequisite: 10.
18. *Sanitary Engineering.* 3 h.  
Systems of sewerage and methods of sewage treatment and disposal. House drainage. Prerequisite: 17.
19. *Railroads.* 2 h.  
The construction of the road bed, including ballast, cross-ties, rails, switches, culverts and other details. Maintenance of way, and the elements of railroad operation. Visits of inspection with written reports. Prerequisite: 14.
20. *Railroads.* 2 h.  
Lectures on the economics of railroad location, the arrangement of yards, stations and terminals, train resistance, the application of electricity to the operation of railroads.
21. *Steel Buildings.* 2 h.  
Design of roof trusses and three hinged arches. Mill building construction. Prerequisite: 9 and 12.
12. *Cement and Concrete.* 2 h.  
The manufacture, properties, and testing of hydraulic cement, mortar and concrete. Reinforced concrete buildings, arches and other structures:

theory of reinforced concrete. Prerequisite: 9 and 15.

23. *Engineering Contracts and Specifications.* 2 h.

The law of contracts as applied to engineering work, including the preparation of engineering specifications.

24. *Thesis for Degree of B. S. in Civil Engineering.* 3 h.

Candidates for the degree of B. S. in Civil Engineering select the subject of their thesis in the first semester of the Senior year. Advice is given in regard to the plan of the work, and references to literature are indicated. Reports concerning the progress of the investigations are made at intervals during the second semester. The thesis is regarded as a part of the final examinations of the course.

### *Electrical Engineering*

1. *Direct Current Machinery.* 3 h.

A study of the laws of the electric and magnetic circuit. The design, construction and operation of direct current machinery.

2. *Direct Current Machinery.* 3 h.

Continuation of Course 1.

3. *Direct Current Laboratory.* 2 h.

A laboratory course designed to accompany Course 1. The calibration and use of measuring instruments. Characteristics of different types of direct current machines. Laboratory work, 2 h.

4. *Direct Current Laboratory.* 2 h.  
Continuation of Course 3.
5. *Alternating Current Machinery.* 3 h.  
The design, construction and operation of single-phase, alternating current generators, motors and transformers.
6. *Alternating Current Machinery.* 3 h.  
Continuation of Course 5. Polyphase apparatus and systems. Characteristics and regulation.
7. *Alternating Current Laboratory.* 2 h.  
The testing and operation of single-phase alternating current generators, motors and transformers. Laboratory work, 2 h.
8. *Alternating Current Laboratory.* 2 h.  
Determination of efficiencies and losses. Operation of polyphase machinery. Laboratory work, 2 h.
- 9 and 10. *Dynamo Design.* 1 h.  
The complete calculation and design of a generator.
11. *Electrical Installation.* 4 h.
12. *Applied Electrochemistry.* 3 h.  
Laws and theories of electric phenomena; the electro-deposition of metals for plating, refining, etc.



*Mechanical Engineering**Shop Work*

1. *Elementary Shop Work.* 3 h.  
Bench and lathe work in wood.
2. *Lathe Work in Metals.* 2 h.  
Turning, boring and thread cutting.
3. *Elementary Forge Work.*  
Forging, welding, tempering and brazing. 2 h.
4. *Advanced Pattern Making and Foundry Practice.*  
Building up patterns and core boxes, sweeping and moldings.
6. *Thermodynamics.* 3 h.  
Theory and principles underlying the construction, design and operation of engines and boilers,
- 7 and 8. *Machine Design.* 3 h.  
The relative motion of machine parts, belting, gears, cams, chains, cones, etc.

*Library Science*

1. *Elementary Course.* 9:00. 2 h.  
The purpose of this course is to teach students how to use the library and to give them a general idea of library work. Special emphasis will be given to the principles which should guide in the selection of books for a school library and to the relation of the public library to the public school.

2. *Elementary Course.* 9:00. 2 h.

The purpose of this course is to teach students how to care for a library. The following subjects will be included in the course: How to order books and periodicals, trade bibliography, accessioning, classification, author numbers, shelf listing, simple cataloguing, mechanical preparation of books for the shelves, how to care for gifts and exchanges.

3. *Advanced Course.* 9:00. 2 h.

Open to students who have completed Library 2. Advanced work in cataloguing, classification and reference. Other subjects included in the course are: care of serials, binding, charging systems, library legislation, organization and administration.

*Music**Preparatory Course.*

Principles of breathing, tone production, study of vowels and simple intervals; formation of scales; training of ear and sight reading; theory of music; elementary harmony; general exercises for tone placing. Abt's Singing Tutor, Book 1, and easy songs.

*Vocal 1 and 2.* 1 h.

Advanced combination of scales and general exercises; vocal studies selected from Abt's Singing Tutor, Book 2; Bondoldi, Concones' Fifty Lessons; duets and solos.

*Vocal 3 and 4.* 2 h.

Vocal studies continued, based on Spicker's Masterpieces of Vocalization, Books 1, 2, and 3; Concones' forty lessons; solos and duets of medium difficulty by standard composers.

*Vocal 5 and 6.* 3 h.

General exercises for fluency and tone coloring and vocal studies continued; Sieber's Advanced Exercises, Book 1 and 2; Concert Songs; German Lieder, studying the works of Tesca, Lassen, Jensen, Grieg and others; the easier oratorio and operatic arias.

*Vocal 7 and 8* 3 h.

General exercises and vocal studies, Advanced German Lieder, studying the works of Schubert, Schumann, Beethoven, Brahms and others. Study of the operas and oratorios.

*Choral Work.*

Choral work, including regular attendance at glee club practice is required of all students of the department of music.

*Piano Music.*

The full course in piano music will be given to those who wish to specialize in the subject. Courses are arranged on the plan of eastern Conservatories of Music. However the individual needs of each student must be taken into consideration and it is therefore impossible to publish a list of studies either in vocal or piano music that will be strictly adhered to.

Regular class work in the general Theory of

Music and Public School Music is also given. (Open to all students.) Credit may be obtained for this work in the Preparatory Department and School of Education.

### *Physical Education*

#### *Physical Training 1.* 1 h.

Course for beginners. Elementary exercises to correct slight body defects, also exercises to promote muscular tone, vigor, vitality and endurance. Dumb bell and Indian club drills, also elementary work on the apparatus. M. W. 3:30.

#### *Physical Training 2.* 1 h.

Continuation of Course 1. Advanced work on the apparatus, and a course in elementary mat work. M. W. 3:30.

#### *Physical Training 3.* 1 h.

Beginning course for women. Elementary exercises to correct slight body defects and exercises to promote tone, vigor, vitality and endurance. Marching, dumb bell, Indian club and wand drills with elementary work on the apparatus. T. Th. 3:30.

#### *Physical Training 4.* 1 h.

Continuation of Course 3. Advanced work on the apparatus. T. Th. 3:30.

At the beginning of each semester students in physical Training undergo a thorough physical examination. This examination includes the essential meas-

urements of the body, strength tests and an attempt is made to outline a proper course of exercise for the correction of abnormal deviations of form, structure or function. A careful record of these observations will be kept to show the results obtained.

## **School of Education**

The purpose of the Courses in Education is to provide thorough professional instruction for teachers. The academic work is carried on with the University classes, the students of Education thus having the advantage of scholastic work with specialists in the various departments, of ample apparatus and equipment, of the library, of lectures, of literary societies, and of all privileges incident to participation in University life.

The conscious aim of this department is to bring together the essentials of all that directly bears upon pedagogy from descriptive, physiological, and experimental psychology; from the history of education; from ethics, and from a comparative study of the present educational systems—to the end that students may gain such knowledge of the nature and function of the subjects to be taught, as will give ability and power in the process of teaching. But the primary object throughout the course is to secure for the teacher adequate intellectual and moral development, high educational ideals, and the unfolding of his own originality and resourcefulness.

The students of this department have excellent opportunities for observing regular school work in the modern and progressive schools of the City of Albuquerque, where all grades are represented, including a well-equipped and up-to-date High School. There is a decided advantage in observing work where there are several teachers of each grade. Visits are made under the direction of the Instructor in charge.

Graduates of the Preparatory School and students who have otherwise satisfied the College Entrance Requirements of the University, may be admitted to the Courses in Education; and after satisfactorily completing them, will be granted a diploma. This will entitle the holder to the three years' professional certificate issued by the State Board of Education and renewable without examination, provided the preparatory work required by the State Board has been completed.

Those students who take the work in Education subsequent to one or more years of the college course will receive in addition to the professional diploma, a certificate from the University testifying to their collegiate standing. If the courses in Education are taken subsequent to the Junior college year, the degree of Bachelor of Pedagogy may be conferred upon the student on the recommendation of the Head of the School of Education.

Students entering the College of Letters and Science with a view to a subsequent course in the School of Education, may take up majors in any department; or they may select, subject to the approval of the Head of the School of Education and the Schedule and Curriculum Committee, a combined course of study designed to prepare them for the profession they have chosen, subject to the requirements of the College.

*General Science Course.* The first year's course will be the same as the first year in the School of Science. The next two years must include Biology 1, 2, 3 and 5; Physics 1 and 2; Geology 1, 2 and 6; and a minimum of 17 hours selected with the approval of the Head of the School.

## Description of Courses in the School of Education

### *Education*

1. *History of Education.* 4 h.

Education in the Orient, the ancient classical nations, and in Europe before and after the Reformation, including discussions of great educational leaders. Special consideration given to the present school systems of England, Germany and France. Reference texts: Parker's "History of Modern Elementary Education," Monroe and Painter.

*Education in the United States.* Educational conditions in colonial, revolutionary, and reorganization periods. Study of leading educational institutions and state systems, including the school system of New Mexico. The Mowtessori schools. Dexter's History of Education in the United States, reference text.

2. *School Management.* 4 h.

The fundamental laws of the school. The law evolving the organism. The organism executing the law. Influence of social combinations. School economy. The school as a social center. Text: Sutton's School Management.

3. *Orthoepy.* 3 h.

The purpose of the work in orthoepy is to give a scientific basis for teaching the sounds of the language, an intelligent use of the dictionary, and



the cultivation of the voice. The subject is viewed under the following topics: Vocal physiology as the basis for voice production; phonology; analysis and classification of vocal elements; diacritical marking; imperfections of English orthography; noted attempts at perfect phonetic representation; orthoepic elements—syllabication, accentuation, articulation; vowels and consonants in unaccented syllables; special dictionary study; comparisons of systems of dictionary markings; onomatopy; theories of the origin of speech and language; difference between speaking and singing tones. Special reading work will involve a consideration of rhythm in human speech and animal utterances; the discovery and significance of inflection, and the employment of gesture. Text: Hodgkin's "A Study of Spoken Language."

4. *Special Methods.*

4 h.

*Geography.* The scheme of concentration with geography as the center. What it includes as a science. Logical and chronological analysis of geographical facts. The earth as a whole and as a member of the solar system. Knowledge to be gained by observation, by inference, by testimony. Study of geographic controls and type forms. Use and abuse of text-books and maps. Importance of local geography. Dynamic idea in geography. Consideration of a course of study in geography for the grades. Correlation of history with geography.

*History.* The method work in history seeks to

turn the student from the lifeless forms of memorized dates and diagrams to the dynamical interpretation of history as the movement of a people toward freedom. The two factors involved are mind and the facts of history. Historical forces. The organizing principle—the growth of institutional life. Educational and ethical value of interpretation. History in the grades. Use of biography. Historical reading for grades and comparison of text-books in history.

*Physiology and Hygiene.* The need of practical work in this important subject will be presented. Relation of health to the work of life. Study of physical defects in school children. School room hygiene. The necessity for adequate ventilation of the school room, and for rest and recreation. Suggestions for right living in the home. Discussion of tuberculosis, cause and effects, prevention and cure. Study of the work of “fresh air” schools and the general playground movement.

*Child Study.* Attention is given to different methods of studying the child, historical accounts of child study movement, records of results from experiments and observation, children of uncivilized peoples, child character in history and fiction, abnormal conditions in children, physical characteristics, plays, secret languages, fears, affections, ideas of punishment and reward. Lectures, readings, discussions.

5. *Principles of Education.*

4 h.

In the general view of the subject, consideration

is given to the nature and principles of education; the teaching process; analysis and synthesis; induction and deduction; empirical and scientific method; concentration; the educational value of apperception; the doctrine of interest; correlation; theory of the culture epochs, and the best literature on the subject of General Method. Reference texts: White's "Elements of Pedagogy," Thorndike's "Principles of Teaching," McMurray's "General Method."

6. *Grammar Review (Teachers' Course.)* 4 h.

A Review course in Grammar for teachers is given, to conform to the requirements of the State Board of Education for the three years' professional certificate.

7. *Special Methods.*

In this course application of the general principles is made, and steps pointed out in teaching the various school subjects.

*Reading.* Nature of reading, its general and comparative value. Analysis of the reading process. Mental steps in expression. Reading as a mode of thinking. Relative importance of silent and oral reading. Various methods of teaching reading. Supplementary reading.

*Language.* Theories of language origin. Means of communication preceding language development. Relation of language to thought. How the child learns his vernacular. Methods of presenting language in the grades. Technical grammar.

*Spelling and Penmanship* will receive attention from the standpoint of Method.

*Numbers.* Special stress is placed upon the development and close relation of the various phases of arithmetic. Psychical nature, origin, and development of number, which is the measurement of energy. Form, size and weight designed as results of energy. The decimal system. Roman notation, its regular varying scale. Practical presentation of the important subjects of fractions and percentage.

8. *Psychology in Education.* (*Teachers' Course.*) 4 h.

Continuation of first semester work. Course 1 or equivalent required for admission to this course. General operations of the mind—acquisition, cultivation of the acquisitive faculties; assimilation—conception, reasoning, imagining, willing; reproduction, or the creation and expression of thought and feeling in the physical, intellectual and moral life to the application of its principles in education, sociology and other subjects. Lectures and readings on psychic phenomena, and the power of suggestion as showing the relation of mind over body. Various reference texts.

9. *Arithmetic Review.* (*Teachers' Course.*) 4 h.

A review course in Arithmetic for teachers is given to conform to the requirements of the State Board of Education for the three years' professional certificate.

*Philosophy*1. *Psychology.* 4 h.

Introduction. The Anatomy and Physiology of the central nervous system. States of consciousness. Sensation. Intensity and relativity of sensation, sight; hearing; touch including temperature and pain sensations. Habit, the formation and significance of habit. Consciousness and fringe consciousness. The self; the empirical and the pure ego. Conception.

Attention; dispersed and concentrated attention. Importance of sustained attention.

This course consists of lectures, class-room discussions, and collateral reading.

2. *Psychology.* 5 h.

First semester's work continued. The course in this semester will be conducted along the same lines as Course 1, and will comprise the following topics: Association; Memory; Imagination; Perception; Illusion; Hallucination; Emotion; Instinct; Volition; Normal and Abnormal Volition.

3. *Ethics.* 4 h.

Introduction. History of Ethics. Relation of Ethics to other sciences. Ethics, sociology and politics differentiated. Theories of conduct. Conduct and character. Will. Conscience. The various schools of ethics. The various social and political institutions from the standpoint of ethics.

This course will consist of lectures, discussions and outside reading.

5. *Logic.* 4 h.  
History of Logic, nature, terms, propositions, deductive and inductive methods, logical analysis and criticism of fallacies. Text, "Elements of Logic." Jevons-Hill.

## **Preparatory Department**

While the aim of the University of New Mexico is to extend to High School graduates an opportunity for obtaining higher education, it has a duty to those communities where complete preparatory training is not available. The Preparatory Department of the University is therefore maintained in order that worthy students, from such communities, may complete their preparation for work of college grade. Students are advised to complete the high school course offered and then they will be received at the University, and credit given for work done. A minimum of four high school units must be presented in any case. It is the intention of the University to classify all the high schools of the state as soon as the information can be obtained, placing those offering four years of acceptable work on the accredited list for entrance to the College. For the present a tentative list of high schools giving four years' work is made out; some of these institutions have been inspected and others have furnished information on request. In some cases the library equipment or laboratory facilities are not sufficient for a part of the work offered. For this reason a high school diploma does not necessarily mean admission to the University without condition, but full credit will be given for all work thoroughly done.

Blanks will be mailed to all High schools in the state and principals are requested to make out a statement of the work done by each student completing his course. The amount of credit which this student can obtain at the University will then be determined on the basis of this report and the student will be given a cer-

tificate indicating the amount of credit he can receive at the University. Other prospective students may obtain blanks on application to the Registrar.

High Schools in New Mexico offering a Four-Year Course:

Albuquerque.	Farmington.
Alamogordo.	E. Las Vegas.
Artesia.	Portales.
Aztec.	Raton.
Carlsbad.	Roswell.
Carrizozo.	Santa Fe.
Clayton.	Santa Rosa.
Clovis.	Tucumcari.
Deming.	

The requirements of the Preparatory Department of the University of New Mexico are fifteen high school units as stated on page 35 of this catalogue, twelve of which are prescribed and three elective. The prescribed units are distributed as follows:

- I. English, three years; including the study of Rhetoric, Composition and Literature as laid down in the regulations of college entrance requirements. 3 Units.
- II. History, two years; the first year being applied to the study of Ancient, Mediaeval and Modern History and the second year to the study of the History of the United States and American Civics. 2 Units
- III. Language, two years; consisting of two years' study of any one of the following languages: French, German, Spanish, Latin or Greek. 2 Units.



IV. Mathematics, three years; consisting of one and one-half years of Algebra, bringing the study of the subject up to the end of School Algebra, and one and one-half years of Plane and Solid Geometry. 3 Units.

V. Science, two years; consisting of one year of Physics and one semester each of any two of the following subjects: Chemistry, Physiology, Botany, Zoology, Physical Geography. 2 Units.

The three elective units may be chosen from the list of subjects offered in the Preparatory Department.

## **Description of Courses Offered in the Preparatory Department**

### *English*

The completion of the College Entrance Requirements in English and a general survey of English Literature, binding together the classics read in the High School course.

### *Mathematics*

The courses are designed to bring the study of the subject up to the standard of the requirements of the colleges of the University. In general, they will be as follows:

#### *A. First Semester.*

*Advanced Algebra.* A rapid review of equations of the first degree, followed by a thorough course in involution and evolution and quadratic equations. Text: Slaught and Lennes, Advanced course. 3 h.

*Plane Geometry.* Lines and angles; rectilinear figures and the first fifteen propositions on the circle. 2 h.  
*Second Semester.*

*Advanced Algebra.* Complex fractions; ratio, variation, and proportion; exponents and radicals; logarithms; progressions; binomial theorem as used in the expansion of binomials having integral or fractional, positive or negative exponents. Text: Slaught and Lennes, Advanced Course. 2 h.

*Plane Geometry*.—The circle; ratio and proportion; similar polygons and areas of polygons. 3 h.

B. *First Semester.*

*Geometry*. The first four weeks are devoted to the completion of Plane Geometry which is followed by a complete course in Solid Geometry. 5 h.

*History*

A. *History*. 5 h.

Ancient History, throughout the year.  
[Omitted 1913-1914.]

B. *History*. 5 h.

History of Modern Europe, throughout the year.

*Latin*

A. *Beginning Latin and Caesar*. 6 h.

This course is designed to cover rapidly the work usually done in two years. The first semester will be devoted to a study of the common forms, idioms, and constructions and to the translation of Latin as contained in some good Primer. The second semester will be given to the reading of four books of Caesar or the equivalent, to advanced grammar and syntax and prose composition.

B. *Cicero and Composition*. 4 h.

Six orations of Cicero or two orations of Cicero and the Catiline of Sallust. Latin Prose Composition. An introduction to the study of

Roman Political Institutions. Special attention is given to the art of translating into clear vigorous English. (Given in alternate years. Not given in 1913-1914.)

C. *Vergil*. 4 h.

Translation of six books of the Aeneid or of the equivalent. Special study of epic poetry as a species of literature. Outside reading of Homer in English translation. A comparison of the religious beliefs held by the Ancients and the people of the Middle Ages, as portrayed by the Odyssey, Book XI, the Aeneid, Book VI, and the Divine Comedy of Dante. Topics for private investigation and report. (Alternates with C. Given in 1913-1914.)

*German*

- A. First steps in German. Essentials of grammar. Reading of about 200 pages of easy German stories. Conversation begun. Simple verses memorized. 5 h.
- B. Composition, conversation, and reading a prose author and one of Lessing's dramas. Reading and memorizing Schiller's ballads. 5 h.

*Spanish (2 Units)*

- A. An elementary study of Spanish covering a year's work in the language. This should comprise (1) Careful drill in pronunciation, an accurate study of inflections and conjugations, agreement of adjectives, participles and a knowledge of the regular and the more common of the irregular verbs, in the indi-

cative and subjunctive tenses. (2) Ability to translate at sight ordinary Spanish into English, and easy prose into Spanish. (3) Familiarity with at least a limited vocabulary of spoken Spanish. (4) Translation and reading of about 150 pages of simple Spanish prose. 5 h.

B. A study of the language covering a second year in the study of Spanish. This should comprise (1) An accurate pronunciation, and ability to converse in Spanish on familiar subjects. (2) A thorough knowledge of the forms of the language, with much drill in syntax. (3) The translation of about 500 pages of Spanish into English, and ability to translate with ease English prose into Spanish. (4) An accurate knowledge of the inflections and conjugations. 5 h.

### *French (2 Units)*

A. *French.* 5 h.

This course does not differ from the Beginners' Course (1 and 2) described under the heading "Elementary French—see Department of French. This is a 5-hour course when taken by the Preparatory student of the College Division, that is, while the recitations per week are but four, the amount of work done entitles the Preparatory student to a five-hour credit.

B. *French.* 5 h.

See Courses 3 and 4, Department of French. Hours of credit as explained above.

### *Physics (1 Unit)*

1. The required unit includes an amount of class

work represented by Carhart and Chute's High School Physics, or Millikan and Gale's First Course in Physics. The instruction in the class room should be supplemented by four hours per week in the laboratory throughout the school year. 5 h.

*Chemistry (1/2 Unit)*

1. To secure one-half unit credit the student must have had a semester's work in descriptive Chemistry, covering both the metals and non-metallic elements, and their common compounds. 5 h.

*Physiology and Hygiene (1/2 Unit)*

The nature of protoplasm, the cell and its contents, the tissues, the anatomy of the human body, the physiology and hygiene of digestive, circulatory, respiratory, muscular, and nervous systems. Bacteria, the conditions necessary for their growth, methods of fighting them, sanitation.

One weekly period, at least, should be devoted to dissection of the microscopic examination of tissues. Text-book: Hough and Sedgwick, Human Mechanism. 5-hour course.

*Preparatory Biology*

- A1. *Zoology*. 1/2 unit. Dissections of representative forms of the main groups of the animal kingdom. Written descriptions and drawings are required. The evidence of a gradual development of animal forms will be considered. Laboratory work, 2 h.
- A2. *Botany*. 1/2 unit. An elementary consideration of the structure, evolution and classification of plants; the elementary relations of the plant to its surroundings. Laboratory work, 2 h.

3. *Elementary Physical Geography*. 1 unit. A detailed study of the atmosphere, the ocean and the land forms, with special reference to their influence on each other and on the distribution of life. Two hours each week must be devoted to laboratory work and four hours in recitation. Field work is considered part of the course and credit will be allowed when field trips are taken and written up. Notebooks for laboratory field work will be considered part of the examination.

### *Shop Work*

*Both Semesters.*

- A. *Shop Work*. Five hours per week of bench work and work on the lathe in wood and iron. One hour lecture and four hours' work in the shop each week.  $2\frac{1}{2}$  h.

### *Mechanical Drawing*

*Both Semesters.*

- A. *Mechanical Drawing*. Five hours per week in the use of drawing instruments, lettering, geometrical and free hand drawing. One hour lecture and four hours drawing each week.  $2\frac{1}{2}$  h.

**Students**  
**THE COLLEGE**

*Graduate Students*

Roberts, George Richard

*Seniors*

Anspach, Eldred Vernon	Everitt, Evelyn
Aulick, Amos Lindsey	Kelly, Clyde
Cook, William Coburn	Kieke, Lillian May

*Juniors*

Boldt, Ira Vance	Higgins, William J.
Bright, Mary Weir	Leupold, Arno Karl
Deal, William Levi	Pease, John Goldsborough
Doran, Ed.	Seder, Edwin Stanley
Harkness, Leslie Meredith	Seder, Florence Mason
Higgins, Matthias	Spitz, Frank M.

*Sophomores*

Allott, Donald Ferguson	James, Helen Dorcas
Calkins, Fred Myron	Jordan, Goldie Evelyn
Chrisman, Oscie Drusilla	Menaul, Paul Lynn
Cooper, Mary Marlow	Nichols, James Clifford
Hall, Ernest Wilfred	Roberts, Cherange Sylvia



*Freshmen*

Arnot, Jean Lockhart	Lapraik, John Alexander
Balcomb, Kenneth Chester	Lembke, Charlotte Elizabeth
Bateman, Howard Saisse- lin	Littrell, Isaac Philip
Boldt, Irene Anna	Luthy, Frederick
Bright, Thornton Fleming	McCollum, William Ar- thur
Carlisle, Hugh Arthur	McFie, Amelia
Chaves, Katherine Isabel	Michener, Aurelia May
Dieckmann, Paul Henry	Mussenden, Ruth Isabel
Gaines, Princa Clarke	Newman, Nelson Fletcher
Gouin, Walter Frank	Pearl, Lucile
Hartmann, Treasure	Powell, Walstein
Hunt, Albert Shirley	Probert, William Henry
Hunter, Bertram, Henry	Redfield, James J.
Keir, Floyd Earl	Seligman, Morton Tinsler
Kelly, Iva Cleo	Walker, George
Kelly, Mary Kathleen	Werning, La Verne
Lackey, Lawrence Bailis	

*Special*

Herron, Jane	Oberholtzer, Mrs. Lena
McFie, Mary	Thomas, Anita

## DEPARTMENT OF EDUCATION

Armijo, Beatrice Louise	Keleher, Julia Mary
Asselin, Mary Laureen	Lawrence, Edna Willetta
Brown, Louise Josephine	Pratt, Charlotte Seymour
Cassatt, Grace Dean	Schmidt, Mary Margaret
Goodner, Claribel Mildred	Sewell, Pauline
Hesselden, Beatrice Her- mione	

## PREPARATORY DEPARTMENT

Armijo, Louis Richard	Loudon, Robert Ernest
Bixler, Mabel Allene	Loudon, Thelma Dorothy
Corson, Pearl Corinne	Lowber, Louise
Crowell, Florence Esther	McMillen, Dorothy
Flaming, Hermann Jacob	Murphy, Leo Edward
Frank, Harry McLain	Nuckles, Dora Marie
Gass, Frederick Gordon	Olds, Earl Percy
Heald, Joseph Eugene	Reed, Robert Johnson
Hinds, Olive Blanche	Ringland, Frank Glenister
Hope, Myrl	Simms, Elizabeth Helen
Lee, Chester Armstrong	

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