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BULLETIN
OF THE
University of New Mexico

WHOLE NO. 67

CATALOGUE SERIES

MAY, 1912

VOLUME 25

CATALOGUE

1911-1912

ANNOUNCEMENTS

1912-1913

ALBUQUERQUE, NEW MEXICO

PUBLISHED QUARTERLY BY THE UNIVERSITY OF NEW MEXICO
ENTERED MAY 1, 1905, AT ALBUQUERQUE, N. M., AS SECOND CLASS MATTER
UNDER ACT OF CONGRESS OF JULY 16, 1894

PUBLICATIONS

OF THE

University of New Mexico

ALL the University Publications are issued as Bulletins. These are arranged in a continuous series, numbered consecutively. The Bulletins are classified according to subject matter and each class is given a separate title and carries its own volume number. These classes issued to date are as follows:

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Biological Series, Vols. I-III; whole numbers 15, 16, 19, 22, 29-39, 44, 47, 49.

Geological Series, Vols. I-III; whole numbers 17, 18, 20, 21, 23-28, 28a, 51.

Educational Series, Vol. I; No. 1-5; whole numbers 41, 42, 52, 58, 61.

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

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BULLETIN

OF

The University of New Mexico

CATALOGUE 1911-1912

ANNOUNCEMENTS

1912-1913

ALBUQUERQUE, NEW MEXICO

ALBUQUERQUE MORNING JOURNAL
PRINTERS

University of New Mexico

Founded February 28th, 1889

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Student Function—D. J. Sisler, H. H. Conwell.

Campus—G. R. Roberts, A. O. Weese.

Catalogue—W. I. Moore, M. F. Angell, E. A. Hickey.

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CALENDAR FOR 1912

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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CALENDAR FOR 1913

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University Calendar

—1912—

Sept. 9, Monday,	Registration Day.
	First Semester begins.
Sept. 13, Friday,	Latest date for entrance examinations or removing conditions of previous semester.
Nov. 8, Friday,	Mid-semester.
Nov. 28, Thursday,	Thanksgiving Day.
Dec. 21, Saturday,	Christmas Recess begins.

—1913—

Jan. 6, Monday,	Work resumed.
Jan. 24, Friday,	First Semester closes.
Jan. 27, Monday,	Registration Day.
	Second Semester begins.
March —, Friday,	Arbor Day.
March 28, Friday,	Mid-semester.
	Latest date for removing conditions of previous semester.
May 25, Sunday,	Commencement Week begins.
	Baccalaureate Sermon.
May 26, Monday,	University Cantata.
May 27, Tuesday,	University Play.
May 28, Wednesday,	Conferring of Degrees.
	Commencement ends.

General Information

Origin and History

The University had its origin in an act passed February 28, 1839, 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 several departments shall be instructed 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 persons 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 continued in office from the beginning are E. S. Stover and F. W. Clancy. Others whose names have appeared since are, W. B. Childers, J. H. Wroth, J. C. Armijo, E. V. Chaves, H. L. Waldo, Fletcher Cook, A. M. Mandalari, W. D. McBee, and W. J. Johnson.

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 accommodation 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 1808 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 of Rodey Hall was given in recognition of the valuable services rendered by Delegate Rodey to the University.

With the beginning of the academic year 1909-10, several important changes in the administration and operation of the University came into effect. The College of Science and Engineering was separated from the College of Letters and Arts and placed under the direction of a Dean and College Faculty; and three new administrative positions, Dean of the College of Science and Engineering, Dean of Women, and Principal of the Preparatory School, were created; and the office of Proctor of the Men's Dormitory was placed upon a permanent basis. The classes of the Preparatory School were reduced to three, and the completion of the ninth grade of an accredited High School (or the equivalent thereof) was fixed as the minimum requirement for entrance to the School; some addition was made to the list of prescribed studies in the College; and a systematic effort was made to provide employment, by means of a

Bureau of Student Appointments, for all needy students.

On May 23rd, 1910, the College of Science and Engineering, 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 present 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, a chemical laboratory and an assay room, together with the usual offices, stock-rooms, balance rooms, etc.

In the year 1910-11 a School of Music was initiated and placed under the charge of a director from the Royal Lyceum of Singing of Naples, Italy. Complete courses in vocal music, and finishing courses in instrumental (piano) music, were offered, and regular chorus

work under the title of the U. N. M. Glee Club, was maintained.

In the Spring Semester of 1911 the University initiated an Extension Lecture Course of seven weekly lectures given in the City Library, to which the public were invited. A short Extension Course was given towards the end of the Academic Year in the city of Santa Fe. A Summer School Session of six week was held with marked success.

The same year 1910-11 marked the termination of the Preparatory School. It was replaced by a College Preparatory Department consisting of two sub-freshman classes, A and B, two years of High School work being the minimum requirement of admission.

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 the Board named at the beginning of this catalogue. On April 6, 1912, the new Board elected Dr. David Ross Boyd President of the University to succeed Dr. E. McQueen Gray. The policies of President Boyd will be announced in a bulletin to be issued during the ensuing summer.

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 capital of the Territory.

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. The walk to and from the city is a healthful exercise; and an omnibus plies twice daily between the University and the town for the convenience of those who choose to avail themselves of this means of conveyance.

Extremes of temperature, whether of heat or cold,

which not infrequently impede the progress of educational work in other localities, are unknown in this section of New Mexico. Owing to this fortunate circumstance, all the varied activities of college life, the work and play together, pursue the even tenor of their way throughout the academic year, unhindered by stress of weather. 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 dangerous 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 well-graded streets, concrete sidewalks everywhere, electric lights, a system of tram-cars, important merchantile and manufacturing establishments, two daily newspapers, and other concomitants of modern civilization.

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 weekly General Assembly at which the attendance of the whole student body is required, 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 material 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.

In addition to complimentary periodicals and exchanges, the following periodicals are subscribed for:

American city
American education
American educational review
American journal of anatomy
American journal of philology
American journal of sociology
American magazine
American naturalist
American review of reviews
Annals of mathematics
Anatomical record
Astro physical journal
Atlantic monthly
Beiblatt der fliegenden blaetter
Biblical world
Book news monthly
Bookman

Botanical gazette
Bulletin of the American mathematical society
Century
Chemical abstracts
Classical journal
Classical review
Collier's weekly
Cumulative book index
Current literature
Dial
Economic geology
Editor
Educational foundations
Electrical world
Engineering magazine
Etude
Harper's monthly
Industrial engineering
Journal of accountancy
Journal of American chemical society
Journal of American history
Journal of economic entmology
Journal of experimental zoology
Journal of geology
Journal of industrial & engineering chemistry
Le radium
Library journal
Literary digest
Machinery
McClure's magazine
Musical courier
Musician
Nation
New York times book review

North American review
Out west
Outlook
Pedagogical seminary
Philosophical magazine
Physical review
Plant world
Popular educator
Popular science monthly
Power
Primary education
Public libraries
Reader's guide to periodical literature
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Theatre
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World's work

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University Extension Work

The University, as a territorial 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 courses already offered will be found in the lists of courses of the College of Science and Engineering.

In connection with the Extension Work of the Institution a series of University Lectures has been planned which may be offered either singly or in courses in any of the towns of the Territory, the expense of the lectures being borne partly by the University and partly by the locality applying for them. The subjects of the Courses cover the general field of Literature and Science as presented in the regular courses of the University and with special application to the practical needs of the localities.

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

The members of the University faculty hold them-

selves ready to respond to calls for lectures before institutes, clubs and assemblies, whenever such work does not interfere with the regular work of the institution. Calls for such work should be addressed to the Registrar.

The Summer School

The first Summer Session of the University opened on the 5th of June, 1911, and lasted for six weeks, terminating July 14th. In instituting the Summer School, the University planned to fulfill a double purpose; to offer class and individual instruction in various branches of education and also to present to teachers in the High Schools and to others intending to enter the teaching profession demonstration courses dealing with the main subjects offered in a High School.

The second Summer Session will be held from June 3d to July 12th, 1912.

The work of the Summer School is proportionately equivalent in credit value to that of the academic year. Teachers who would otherwise be required to attend an Institution session are excused from doing so if they attend the Summer School.

There are no formal requirements for admission to the Summer School and its courses are open to all students who can pursue them to advantage. Students of the Summer School who are not matriculated at the University will upon request receive certificates of attendance and of work satisfactorily performed. Students desiring to pursue special courses of work during this session of the School will be permitted to do so if recommended by the head of the Department.

The principal subjects offered during the Summer School session are Latin, Greek, French, German, An-

cient History, Mediaeval and Modern History, English Literature, Physics, Zoology, Physiography, Chemistry, Algebra, Geometry, Vocal and Instrumental Music.

Graduate Students

Graduates of Colleges and Universities of recognized standing, desirous of pursuing a course of work leading to the higher degrees in Letters and Arts or in Science, are received at the University of New Mexico on the same terms as at other Universities. Special facilities will be given, to the extent of the resources of the University, for individual research work. Application should be made to the Chairman of the Committee on Graduate Studies.

The Relation of the University to the High Schools of the State

As soon as possible the University will furnish a list of the accredited High Schools of the State.

Degrees, Diplomas and Certificates

College of Letters and Arts. Upon the recommendation of the President of the University and the Faculty of the College, the degree of Bachelor of Arts 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.

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

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:

I. 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 or Territorial 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.

Commercial Department. Upon the recommendation of the President of the University and the Principal of the Commercial Department, a diploma is granted to those students of the Commercial Department who have completed the course offered in accordance with the requirements and regulations of the University.

College Preparatory Department. Students enrolled in either of the Sub Freshman classes who complete the prescribed 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 Discipline Committee, to whom all students are responsible for misconduct or neglect of their duty, whether in the class room or outside, may ask the withdrawal of any student, who does not appear to be benefited by the advantages offered at the University, or manifests an unwillingness to assist in maintaining good order, or indulges in practices which are detrimental to others or to the reputation of the college.

The Athletic Committee has supervision over all athletics in the University; one member acting as manager and another as secretary and treasurer. All correspondence in relation at athletic contests should be addressed to this manager.

The Rhodes Scholarship Committee takes charge of the examinations open to candidates in this state for the Rhodes Scholarship at Oxford. All students desiring information should correspond with the chairman.

The Student Employment Committee has for its aim the aiding of needy students, who are seeking a living while attending college. Work is distributed among those students, to the full extent of University requirements and many positions are filled outside. Students wishing to benefit by this aid or persons desiring to

have work done by them should correspond with the chairman of this committee.

The Campus Committee has supervision over all improvements or changes on the campus, and co-operates with the Student Employment Committee in furnishing labor to students.

The Student Functions Committee has charge of all social activities, engaged in under the auspices and in the name of the University. It authorizes dates, places and chaperons, and exercises a general supervision over banquets, picnics, dances, etc., held by the student body as a whole, or by classes.

The purpose of this committee is to prevent a too frequent indulgence in amusements to the detriment of scholastic standing, and to see that the character of student functions be in keeping with the standards and dignity of the institution.

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. The Tuesday Assembly period each week is devoted entirely to student enterprises. In addition to these organizations governed by the Student Body, there are in the Music Department two Glee Clubs, and in the Engineering Department the New Mexico Society of Engineers. A Y. W. C. A. is successfully maintained. And in each of the two colleges a weekly Seminar is held, to which all students of their respective colleges are eligible.

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 each month, 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, and are responsible for absences to the instructor in charge, who may, if he sees fit, report them to the Discipline Committee. Serious irregularity will render a student liable to dismissal. Absences amounting to twenty per cent from any class debars a student from receiving a passing grade in

that class, except by special examination. For absence from Assembly and other general exercises, the student is accountable to the Discipline Committee.

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 and their families to all 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 two-story brick buildings, constructed in the Pueblo style, and named respectively the Kwataka (for men) and the Hokona (for women). The dormitories are divided into suites, each consisting of two bedrooms and a sitting room. Two students occupy a suite. The rooms are furnished, and electric light is provided, but the students supply their own bed-linen, towels, etc., and pay their own laundry bills. Meals are taken in the Dining Hall, which is in a separate building.

The charge for board and lodging is Twenty Dollars per month, or Ninety Dollars per semester. Except in the case of Indigent Students appointed to Territorial Scholarships, the board bills must be settled monthly.

Meals for Non-Resident Students.

Meals are furnished in the Dining Hall to non-resi-

dent students at the rate of Twenty - five Cents per meal; and luncheon is also provided at the lunch-counter at the mid-day meal on the cafeteria plan, the charge being five cents per portion.

Self-Supporting Students.

The University recognizes a definite duty toward the needy student seeking to earn his living while attending college; and a Bureau of Appointments has been established for the purpose of distributing work among such students, to the full extent of the University requirements. All applications for student employment must be made to this Bureau. Hitherto, the Bureau of Appointments has been able to furnish sufficient work to all applicants.

The Bureau of Appointments makes the tenure of a student appointment conditional upon the holder averaging a grade not lower than B in his studies, according to the monthly report of the instructors.

Departments

Within the University are comprised :

- I. THE COLLEGE OF LETTERS AND ARTS.
- II. THE COLLEGE OF SCIENCE AND ENGINEERING.
- 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; including one year of	
Physics:	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 enter the College of Letters and Arts are advised to offer, if possible, four years in language.

Students purposing to enter the College of Science and Engineering are advised to offer two years in German in any case. French is also recommended.

Prescribed Work

Each candidate for graduation must complete a certain amount of prescribed work as announced by each of the colleges, before he may receive his degree.

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 Arts

Definition of the Undergraduate Course

The undergraduate course in the College of Letters and Arts consists of eight semesters of eighteen weeks each amounting to 120 hours of A work, 128 hours of B work, and 136 hours of C work, as the minimum necessary for graduation.

A semester hour consists of one period or conventional recitation "hour" of not less than forty-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 Science	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 Science	8 "
Language	8 "

Major Work

Majors may be selected in English, History, Latin, Greek, German, French and Spanish. After the selection is made the student must consult with his major

instructor as to the elective subjects necessary to complete his requirements for graduation. No hard and fast rules are laid down for the selection of electives as it is the intention of the major instructors to develop the individual student.

Election of Science Subjects

Students enrolled in the College of Letters and Arts are permitted to elect any of the subjects offered in the College of Science and Engineering.

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. These must be typewritten on good paper and if accepted, become the property of the University and, with a fee for binding, must be deposited with the Librarian.

College of Science and Engineering

The College of Science and Engineering consists of two schools,

- (a) SCHOOL OF SCIENCE.
- (b) SCHOOL OF ENGINEERING.

The courses offered in both these Schools are carried on 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, biological laboratory, geological laboratory, lecture room, chemical laboratory and an assay room, 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 graduate work.

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 micro-

scopic 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 apparatus 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.

An assay laboratory is to be installed this year and it will be equipped with samplers, crushers, furnaces, balances, etc. Thorough work in fire assaying will be carried on.

The State Geological Survey

By a provision made by the state legislature of 1909, a survey was made possible of the geological phenomena, of the state. The Professor of Geology at the State University is Director of this survey. Provision may be made for work in the field with the Director and his party by these students in Geology who are ready to take up successfully Geological work and who plan to make Geology their life work. Such work is the most valuable in acquainting students with Geology at first hand and in training them in close observation and true interpretation of Geological problems.

School of Science

The School of Science includes the various departments of natural, physical and mathematical science. It provides a liberal education with science as a leading element and allows specialization in Physics, Chemistry, Biology, Geology and Mathematics. The courses are arranged to give the student a wide selection provided they lead to a definite result; during the first year, however, all students are required to take the same course, which is made up of subjects which should form the basis of all scientific work. After the first year students will decide upon the subject they wish to pursue as a major and this course will be made out under the direction of the instructor in charge.

All candidates for the degree of Bachelor of Science must present a graduating thesis, if required, on a subject to be approved by the head of the department in which the candidate is doing the work. The thesis must represent some phase of the student's work in his major subject. It must be typewritten on good paper, 8x10 in size, and bound according to specifications by the Librarian of the University. Having been approved, and accepted by the head of the department it becomes the property of the University and, with a fee for binding, must be deposited in the Library before May 1st.

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

In addition to Public Speaking 1 and 2, or its equivalent in Seminar Work, a minimum of 120 semester

hours of A work, 128 hours of B work or 136 hours of C work are required for graduation; at least one-third and not over one-half of this work must be in the major subject selected. The degree of Bachelor of Science, with a specific designation of the course taken, is conferred upon a satisfactory completion of the course.

Freshman Year

The requirements of the first year are: English 1 and 2, 3 hours; Mathematics 1 and 3, 5 hours; 2 and 4, 5 hours; Chemistry 1 and 2, 3 hours; Scientific German 11 and 12, 5 hours.*

Majors

Majors may be selected in Biology, Chemistry, Geology, Mathematics or Physics; but even after the selection is made, considerable latitude of choice is allowed the individual student.

Major Course

Biology Course; for a Bachelor of Science degree in Biology the student must include Biology 1, 2, 3, 4, 8, 10, 12 and 18; Chemistry 7, Geology 1, 2 and 11.

Premedical Course should include, in addition to the above, Biology 7, 9, 11; Physics 1 and 2, Chemistry 2, 3 and 12.

Physics Course; for a Bachelor of Science degree in Physics the student must include courses 1, 2, 3, 5, 6, 7, 8, 11 and 12 in Physics, Mathematics 5 and 6 and French 1 and 2.

Chemistry Course; requirements for a Bachelor of

* 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.

Science degree in Chemistry include courses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, Mathematics 5 and 6, and a thesis.

The requirements for a major in Geology are the following: Besides the regular Freshman mathematics, English, and language, Biology 1, 2, 12. Chemistry 2, 3, and 4. Physics 1, 2. Civil Engineering 4. Geology 1; 3, 4, 5 and 6, 7, 8, 11, 12, 13, 14 and 15.

Mathematics Course; for a Bachelor of Science degree courses 1, 2, 3, 4, 5, 6, 7 and 12, and Physics 1, 2, 7 and 8 must be included.

A General Science course is offered, consisting of three years in the School of Science and one in the School of Education. This course is designed especially for the training of High School teachers and leads to the degree of Bachelor of Pedagogy; for an outline of the course see School of Education.

Graduate Course

Graduate courses are offered in Biology, Chemistry, Geology, and Physics, leading to the degree of Master of Science in the particular course.

School of Engineering

The Engineering School 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 of the Engineering 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 two units in Public Speaking or an equivalent in Seminar work and 140 hours of college work.

Thesis

The conditions governing work on thesis will be found set forth under the Requirements for the Bachelor of Science degree in the School of 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	<u>18</u>

	<i>Hrs.</i>
<i>Second Semester</i>	<i>Credit</i>
English 2.....	3
German 12.....	5
Mathematics 2.....	1
Mathematics 4.....	4
Chemistry 2.....	3
Civil Engr. 2. (Desrip. Geom.).....	2
Total	<u>18</u>

Chemical Engineering Course

Leading to the B. S. Degree.

SOPHOMORE YEAR.

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

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

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

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

SENIOR YEAR.		<i>Hrs.</i>
<i>First Semester</i>		<i>Credit</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
Total		19

* Alternates with Chemistry 11.

** Alternates with Chemistry 12.

Civil Engineering Course

Leading to the B. S. Degree.

SOPHOMORE YEAR.

	Hrs.	Credit
<i>First Semester</i>		
Mathematics 5.....	5	
Physics 1.....	5	
Civil Engineering 3.....	3	
Civil Engineering 5.....	2	
Civil Engineering 7.....	3	
Total	18	

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

SUMMER.

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

JUNIOR YEAR.

	Hrs.	Credit
<i>First Semester</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	
Total	18	

	Hrs.
<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
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Total	18

SENIOR YEAR.

	Hrs.
<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
Total	17

	Hrs.
<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
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Total	17

Electrical Engineering Course

Leading to the B. S. Degree.

SOPHOMORE YEAR.

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

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

JUNIOR YEAR.

	Hrs.	Credit
<i>First Semester</i>		
Electrical Engineering 1.....	3	3
Electrical Engineering 3.....	2	2
Physics 3. (Electr. and Magn.).....	3	3
Physics 5. (Electr. Meas.).....	2	2
Civil Engr. 3. (Surveying).....	3	3
Civil Engr. 9. (Str. of Materials).....	3	3
Physics 13. (Seminar).....	1	1
Total	17	17

	Hrs.
<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
Total	<u>18</u>

SENIOR YEAR.

	Hrs.
<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
Total	<u>17</u>

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

Description of Courses

COLLEGE OF LETTERS AND ARTS

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.

English 2. 3 h.

English Composition. A continuation of Course 1. Required of all Freshmen.

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 and of the Restoration.

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

The aim of each course in this department will be to present to the student a clear and connected view of each people and period studied. Stress will be laid not only upon the political, but also upon the literary, social and cultural conditions of the times. Ample opportunity will also be offered to students who desire to specialize along the lines of history to carry on research work in the original sources.

All courses in this department will consist of lectures, collateral reading and class-room discussions.

1. *History of Greece* 3 h.
 Special attention will be given in this course to

the development of philosophy, art and literature among the ancient Greeks.

2. *History of Rome.* 3 h.
In this course the institutional life of the Romans will receive particular consideration.
3. *History of England.* 4 h.
From the Anglo-Saxon Invasion to the period of the Tudors.
4. *England.* 4 h.
The Period of the Tudors and the Stuarts from accession of Henry VIII in 1485, to the death of Queen Anne, in 1714.
5. *England.* 4 h.
The modern period from the Revolution of 1689 to the present. Omitted in 1912-1913.
6. *England.* 4 h.
The Constitutional History of England. Omitted 1912-13.
7. *History of France.* 3 h.
From Hugh Capet to Henry IV.
8. *France.* 3 h.
From Henry IV. to the Revolution.
9. *France.* 3 h.
The Revolution and the Empire. Omitted 1912-1913.
10. *France.* 3 h.
Modern France. Omitted 1912-13.

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| 11. | <i>History of Germany.</i> | 3 h. |
| | From Charlemagne to Frederick the Great. | |
| 12. | <i>Germany.</i> | 3 h. |
| | From the time of Frederick the Great to the present. | |
| 13. | <i>History of America.</i> | 4 h. |
| | Colonial history to the Revolution. | |
| 14. | <i>America.</i> | 4 h. |
| | The United States from the Revolution to 1840. | |
| 15. | <i>America.</i> | 4 h. |
| | From 1840 to the present. Omitted 1912-13. | |
| 16. | <i>America.</i> | 4 h. |
| | The Constitutional history of the United States.
Omitted 1912-13. | |
| 17. | <i>Comparative Study of History.</i> | 2 h. |
| 18. | <i>Continuation of Course 17.</i> | |

Courses 3 and 4 are required for admission to Courses 5 and 6. Courses 7 and 8 are required for admission to Courses 9 and 10. Courses 13 and 14 are required for admission to Course 15. Courses 1, 2, 16, 17, and 18 may be taken by any student of the College and by sub-freshmen students by special permission.

Department of Latin

FRESHMAN YEAR.

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| 1. | <i>Freshman Latin.</i> | 4 h. |
| | Cicero's De Senectute. Virgil's Aeneid, Books VII-IX. Latin Prose Composition. | |

2. *Freshman Latin.* 4 h.
Selections from Livy; Virgil's *Georgics*. Assigned topics in Roman History. Latin Prose Composition.
3. and 4. *Roman Antiquities.* 2 h.
A general course open to all college students. A knowledge of the Latin language advisable, but not essential.
The aim of this course is to afford a more thorough and sympathetic knowledge of Roman private life than the course in literature alone would give, through systematic lectures copiously illustrated by lantern views and photographs from the remains of Roman civilization preserved in Pompeii, Herculaneum, Rome and elsewhere.
5. *Latin.* 4 h.
The course in Selections from Livy continued; Horace; Selected Odes, Satires and Epistles. Practical application of the various metres. The Latin Lyric Poets. Latin Prose Composition.
6. *Latin.* 4 h.
Cicero; Selected Letters and Orations; The Course in Horace's Odes. Satires and Epistles continued. Latin Prose Composition.
7. and 8. *Latin.* 2 h.
Latin Literature. — Mackail's *Roman Literature* supplemented by lectures. History of Roman Literature. Cape's *Early Empire*.
9. *Latin.* 3 h.
Suetonius, Pliny, Tacitus. Such portions of the

authors will be read as will give a comprehensive view of the condition of the Roman people during the first century of the Empire.

10. *Latin.* 3 h.
Plautus and Terence; two plays each. Study of the Roman theatre and development of Latin Comedy.
11. *Latin.* 2 h.
Latin Satiric Poetry. A general course, open to all college students. A knowledge of Latin desirable, but not essential.
12. *Latin.* 2 h.
Roman Archaeology.
13. *Latin.* 2 h.
Lucretius; De Natura Rerum; study of the literary, scientific and religious aspects of the poem. Cicero; De Finibus, Academica, De Natura Deorum.
14. *Latin.* 2 h.
Latin Palaeography. A study of the manuscripts from fac-similes.
15. *Latin.* 2 h.
Roman Oratory and Philosophy. A general course open to all college students. A knowledge of Latin desirable, but not essential.

Department of Greek

1. *Greek.* 4 h.
Andocides, De Mysteriis. Lysias, Select Orations. The cause of the revolutions of 411 B. C. and 404

B. C. will be carefully studied. Collateral reading from ancient and modern historians.

2. *Greek.* 4 h.
Plato, Apology and Phaedo. Rapid reading and analysis of the Euthyphro and Crito. A study of the life and work of Socrates. General introduction to Greek Philosophy.
3. *Greek.*
Greek Life and Thought. General course, open to all college students. A knowledge of Greek recommended, but not necessary.
5. *Greek.* 4 h.
Demosthenes: De Corona, or The Philippics. Selections from other Attic orators, illustrating the development of Greek Oratory. Composition continued.
6. *Greek.* 4 h.
Homer: 12 books, selected from the Iliad and Odyssey. Special papers and lectures on the Homeric literature and age. Composition continued.
7. *Greek.* 2 h.
Greek Epic and Lyric Poetry.
9. *Greek.* 3 h.
Thucydides; Peloponnesian War. Rapid reading of the Greek; essays, translations and discussions. Comparative study of historians. Composition continued.
10. *Greek.* 3 h.
Aeschylus: Prometheus Bound. Sophocles: Oedi-

pus Tyrannus. Reading of other selected dramas.

11. *Greek.* 2 h.
The Greek Tragic Drama. General course open to all college students. A knowledge of Greek recommended, but not essential.
12. *Greek.* 2 h.
Greek Archaeology.
13. *Greek.* 2 h.
Plato: Republic, Books 1-10. Essays, reviews, and discussions by members of the class.
14. *Greek.* 2 h.
Greek Oratory and Philosophy. General course open to all college students. A knowledge of Greek advisable, but not essential.
15. *Greek.* 2 h.
Topography and Monuments of Ancient Greece. Private life of the Ancient Greeks.

Department of French

1. *French.* 4 h.
Elementary French. The principles of grammar. Reading of easy passages and simple stories, conversation and dictation, with special drill in accurate pronunciation from the outset.
2. *French.* 4 h.
Elementary French. Grammar and irregular verbs. Reading of easy authors. Translation from English into French. Dictation, conversation.

3. *French.* 4 h.
Second Year French. Reading and translation of Cozzen's "Voyage dans le Nouveau-Mexique," Maupassant, Labiche et Martin. Study of French Syntax. Conversation and dictation.
4. *French.* 4 h.
Second Year French. Reading of standard authors continued. Translation from English into French of "The Odd Number," by Maupassant. Syntax, Idioms and Dictation.
5. *French.* 3 h.
Third Year French. Study of the works of Racine, Moliere and Corneille. Conversation, Composition, Idioms.
6. *French.* 3 h.
Third Year French. Study of the writers of the Romantic School. Composition. Conversation. Discussion of literary and colloquial forms and critical points in grammar.
7. *French.* 2 h.
Fourth Year French. Literature of the French Renaissance. Critical essays in French submitted by students.
8. *French.* 2 h.
Fourth Year French. Fiction, Poetry and the drama in the latter half of the 19th century. Critical essays required from the students.
- 9 and 10. *French.* 3 h.
Scientific French. For students specializing

in science who wish to make use of the French language in research work. Rapid reading of French and scientific literature. Students will be allowed to read along the line of intended specialization. Open to students who have had one year of French.

Department of Spanish

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

matic literature. Works of Echegaray, Lopez de Ayala, Galdós, Tamayo y Baus, etc.

7. *Spanish.* 2 h.
Study of the Spanish Classics. Cervantes and the dramatists of the Golden Age are given in alternate years. Cervantes for 1914.
8. *Spanish.* 2 h.
Spanish Ballad Poetry. 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. *Spanish.*
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 classroom drill, the object of the course being to give equal facility of expression—verbal or written—in either language.
10. *Spanish.*
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, con-

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

Department of German

1. *German.* 4 h.
Elementary German. Grammar and translation. Conversation begun. Memorizing of simple German verse. Text, Vos, Essentials of German.
2. *German.* 4 h.
Elementary German. Grammar and conversation continued. Reading of about 150 pages of easy translation. Memorizing of simple German ballads. Composition. Bacon's "Im Vaterland," Heyse's "L'Arrabiata."
3. *German.* 4 h.
Second Year German. Translation of a prose author. Conversation and oral narration based on short stories like Stern's "Geschichten vom Rhein." A few lyrics and ballads memorized. Composition, Osthaus and Biermann.
4. *German.* 4 h.
Second Year German. Introduction to the drama. "Nathan der Weise" or "Wilhelm Tell." Prose reading, conversation, and composition continued.
5. *German.* 3 h.
Schiller's Life and Works. 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. *German.* 3 h.
Goethe's Life and Works. Conducted in German. Reading of Goetz, Iphigenie, Tasso, selections from Dichtung and Wahrheit, etc. Original composition.
7. *German.* 3 h.
Modern German Drama. Reading and discussion of the drama from the beginning of the naturalistic movement to the present time. Lectures and reports in German on collateral reading.
8. *German.* 3 h.
Modern German Novel. Storm, Sudermann, Raabe, Frenssen. Critical essays in German on subject-matter submitted by students. Special attention paid to the formation of a good literary style.
13. *German.* 2 h.
History of German Literature. 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 Litteraturgeschichte" will furnish the guiding outline.
14. *German.* 2 h.
History of German Literature. German literature of the 19th century. Requirements and methods the same as in Course 13.
- 15 and 16. *German.*
Special Courses. Advanced students may have work in Goethe's Faust, Grillparzer, Freytag, or Hauptmann and Sudermann.

Scientific German

9. *German.* 5 h.
Elementary Scientific German. 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. *German.* 5 h.
Elementary Scientific German. Continuation of Course 9. Scientific terms will be introduced into the vocabulary gradually.
11. *German.* 5 h.
Scientific German. 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. *German.* 5 h.
Scientific German. 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.

Department of Music

Vocal Music

Preparatory Course.

The principles and practice of tone production; breathing; sight reading; Sieber's 36 elementary vocalises; Lamperti's Daily Exercises; Abt's Singing Tutor. Theory of Music; Elementary Harmony; Notation.

1 and 2. *Vocal.* 1 h.

Vocal studies selected from: Concone's Fifty Lessons, Spicker's Masterpieces of Vocalisation Book I, Sieber's Vocalises Op. 95 and 96, Lamperti's Thirty Preparatory Exercises. Practice in easy duets and solos. Harmony continued.

2 and 3. *Vocal.* 2 h.

Vocal studies continued, based on Brodogni's 24 Easy Vocalises. Concone's 15 Vocalises. Spicker's Masterpieces of Vocalisation, Book II, or Concone's Forty Lessons. Music of the Scuola Antica. Songs, solos and duets of medium difficulty. Harmony continued.

3 and 4. *Vocal.* 2 h.

Vocal studies continued; Brodogni's Twelve Vocalises, Panofka Op. 81, or Spicker's Masterpieces of Vocalisation, Book III, or Vaccai's Vocal Method. Lyric songs, operatic arias, oratorio work. Music of the Scuola Antica. Harmony continued.

5 and 6. *Vocal.* 3 h.

Vocal; studies continued; Bordogni's 36 Vocalises, Lamperti's Studies in Bravura, or Spicker's Masterpieces of Vocalisation, Book IV, Righini's Twelve Vocalises. Study of the operas, oratorios and the Scuola Antica. Harmony continued.

Choral Work.

Choral work, including regular attendance at choir practice, is required of all students of the Department of Music.

Piano Music

No preparatory work given.

Those pupils only will be enrolled who have completed at least the second course in piano music.

Courses arranged on the plan of the European Conservatories of Music. Development of the hand, correct technique. Method used, Cesi's "Daily Exercises" on the different branches of technique, in 3 volumes.

The full course in piano music will be given to those who wish to specialize in the subject.

College of Science and Engineering

Mathematics

1. *College Algebra.* 3 h.
A rapid review of the principal parts of elementary algebra; graphical representation; ratio; proportion; 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.
Straight line, plane, and the conicoids. Prerequisite: Math 5. C. Smith, Solid Geometry.
9. *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.

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, representatives of the chief animal phyla, and the elements of embryology as illustrated by the development of the chick. 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, 3 h.
3. *Essentials of Embryology and Histology.* 3 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.* 5 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 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, 1 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 microorganisms. Microbiology of air, water, and sewage, soil, 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 hygiene. 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.
2. *Inorganic Chemistry.* 3 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.
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 performed 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 and 2.
12. *Metallurgy.* 2 h.
This course consists of lectures describing the processes employed in the smelting of iron, lead, copper, zinc, silver, gold, etc., and upon methods used in the refining of these metals. The lectures will be illustrated by lantern slides. §. 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

§ Before a chemical student is graduated an opportunity is given him to spend some time in Denver, with an instructor, in inspection and study of the varied chemical industries of that city.

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 wave motion, with lecture demonstrations, text book and laboratory work. Prerequisite: Mathematics 2, and Preparatory Physics. Laboratory work, 2 h.
2. *General Physics.* 5 h.
Sound, light, electricity and magnetism. 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.* c h.
The mathematical study of elasticity, kinetic theory of gases and conduction of heat.
- 11 and 12. *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.
- 13 and 14. *Science Seminar.* 1 h.
Attendance required of all science and engineering students after the first year.
- 15 and 16. *Research Work.*
A course designed for advanced students who wish to pursue a special line of investigation.
17. *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. This course must precede or accompany Course 2.

Practical laboratory work on all the common ores, in both the wet and dry methods. Prerequisite: Courses 7, 8 or 10. Laboratory work, 3 h.

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. *Mineralogy.* 4 h.

The course treats in an elementary way the study of Crystallography 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. *Geology.* 5 h.
A short course in Mineralogy designed to meet the requirements of Engineers and Chemists. The course is entirely laboratory in character.
11. *Geology.* 5 h.
Paleontology. 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. *Geology.* 5 h.
Petrology. 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. *Geology.* 5 h.
Meteorology. Besides affording a broad survey of Mineralogy 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 dynamic 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.

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*. The complete calculation and design of a generator.

11. *Electrical Installation*. 4 h.

12. *Applied Electrochemistry*. 3 h.

Laws and theories of electrolytic phenomena; the electro-deposition of metals for plating, refining, etc.

Civil Engineering

2 hr.

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. Mechanical drawing from objects. Simple projection.

2. *Descriptive Geometry*. 2 h.

The descriptive geometry of projections, intersections and developments. Prerequisite: 1.

3. *Land 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 drawing from student's field notes. Prerequisite: 1 and Math. 3.

4. *Land and Topographic Surveying*. 3 h.

Continuation of Course 3 and in addition the theory and use of the plane table, transit and stadia. Detailed field work in rough country, and the construction of topographic contour maps. Adjustments of instruments. Prerequisite: 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.* c 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 1 and 2, 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 to beams and girders. Prerequisite: Physics 1 and 2.
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. Prerequisite: 19.
21. *Steel Buildings.* 2 h.
Design of roof trusses and three hinged arches.

- Mill building construction. Prerequisite: 9 and 12.
22. *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.
Candidate 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 investigation are made at intervals during the second semester. The thesis is regarded as a part of the final examinations of the course.

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.* 2 h.
Forging, welding, tempering and brazing. 2 hr.
4. *Advanced Pattern Making and Foundry Practice.*
Building up of patterns and core boxes, sweeping and molding.
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.

School of Education

The purpose of the Course of Education is to provide thorough professional instruction for teachers. The academic work is carried on with the University classes, the Normal students 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 at intervals throughout the year.

Graduates of the Preparatory School and students who have otherwise satisfied the College Entrance Re-

quirements of the University, may be admitted to the Course in Education; and after satisfactorily completing the course will be granted a diploma entitling the holder to the three years' professional certificate issued by the Territorial Board of Education and renewable without examination.

Those students who take the course 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 course in Education is taken subsequently 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 Arts with a view to a subsequent course in the School of Education, may take 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.* .5 h.
Education in the Orient, the ancient classical nations, and in Europe before and after the Reformation, including discussions of great educational leaders. Reference texts: Monroe and Painter. *Education in the United States.* Educational conditions in colonial, revolutionary, and reorganization periods. Study of leading educational institutions and state systems. Influence of the church on education. Dexter's *History of Education in the United States*, reference text.
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."

2. *School Management.* 3 h.

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

5. *General Method.* 5 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, etc. Consideration is given to 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."

7. *Special Methods.* 5 h.

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 de-

velopment. 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. Psychological nature, origin, and development of number, which is the measurement of energy. Form, size and weight defined as results of energy. The decimal system. Roman notation, its regular varying scale. Practical presentation of the important subjects of fractions and percentage.

4. *Special Methods.* 5 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 type forms. Use and abuse of text-books and maps. Importance of local 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.

Philosophy

1. *Psychology.* 5 h.
The general subject matter of psychology. Prevailing methods in psychological study. Relation of psychology to other subjects. The brain and nervous system as the physical basis of conscious activity. Conditions of effective mental action—consciousness, attention, habit. Study of sensa-

tion. Investigations of the processes of knowing involving a study of presentation—perception; representation—memory and imagination; reflection—judgment. Titchner's Text-book of Psychology.

2. *Psychology*. 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. Attention is given in the study of psychology to its bearing upon character, and 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. Titchener and various reference texts.
3. *Ethics*. Theoretical ethics. Aim and motive of action, free agency, problem of evil in the world. Schools of Hedonism, Rigorism, Rationalism. Christian ethics. Application of theory through the various institutions of life, friendship, home, marriage, civil society, state, and a consideration of man's ethical relation to the lower animals. Text, Muirhead's "Elements of Ethics." Reference text, Sidgwick's "History of Ethics."
5. *Logic*. 3 h.
History of Logic, nature, terms, propositions, deductive and inductive methods, logical analysis and criticism of fallacies. Text, "Elements of Logic." Jevons-Hill.

The Commercial School

PRINCIPAL: Josephine S. Parsons.

The courses offered in the Commercial School are open, as electives, to students who have completed three years of High School work and as technical work leading to a diploma, to graduates of high schools, or of academic preparatory schools.

Experience has proved that for students in this department, thorough training in prescribed preparatory (high school) work is essential.

Immaturity has been found a serious obstacle to satisfactory progress, and for this reason the standard of requirements for entrance has been made more rigid than heretofore.

The regular courses offered are Stenography, Accounting (elementary and advanced), Commercial Spanish (correspondence and conversation) and the Elements of Business Law.

For those desiring more extended knowledge, the following courses will be given: Higher Accounting, Money and Banking, Financial History of the United States.

Under exceptional circumstances, special students are admitted to classes in this department.

A diploma is given to those fulfilling all requirements.

Description of Technical Courses

First Semester.

- A. (1.) *Stenography.* Principles; formation of outlines; sound analysis of words; unvocalized

outlines; sight reading of moderately difficult shorthand (engraved extracts from writings of good English authors); business letters 5 h.

Second Semester:

- A. (2.) *Stenography*. Open only to those who have satisfactorily completed Course A. (1.) Sight reading of engraved extracts from the works of standard English writers on law, science, history, etc.; Rapid dictation of miscellaneous matter; accurate recording of evidence; verbatim reporting. Standard of speed 100 words per minute. Special stress laid upon the reading of notes. In both courses A(1) and A(2) a typewritten transcript is required which must be accurate and correctly spelled and punctuated. 5 h.

First Semester.

- A. (1.) *Accounting*. From the fact that all book-keeping is based upon the same general principles, and the requirements of different houses necessitate a different elaboration of the system, the following points are emphasized: Introduction of practical forms from the beginning; relation of accounts and their uses; practice work illustrated by continuous business; thorough drills in ledger closing, balance sheets, statements, etc.; introduction of cash, sales, invoice and bill books as books of original entry in the early part of the work; special rulings; special drills, the receiving and giving of actual business papers. The work of the first semester embraces the keeping of records for wholesale and retail houses.

Second Semester.

- A. (2.) *Accounting.* This is a continuation of Course A(1), and instruction is given in the keeping of records for commission houses, manufacturing plants (voucher system), and national banks. Books and papers used are such as are employed in modern business life. 5 h.

- A. (1.) *Commercial Spanish — 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.

Second Semester.

- A. (2.) *Commercial Spanish — Correspondence and Conversation.* Continuation of Course A(1). 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.

Both of the above-described courses are open to students who have had one full year's previous work in Spanish.

First Semester.

Elements of Business Law. To quote from the excellent text used in this course: "An effort is made to state as concisely and clearly as possible the leading and fundamental principles of business law, and in place of extended, abstract explanation

of them, to substitute simple concrete examples, showing them in their actual application to business transactions. In order that the conclusions drawn in these examples may be verified and not rest upon mere conjecture, the examples have, for the most part, been taken from cases decided in court."

The College Preparatory Department

The Sub-Freshman Classes.

With the beginning of the academic year 1909-10 the classes of the Preparatory School were reduced to three by the excision of the first or lowest class, corresponding to the ninth grade of a Public School; and the entrance requirements thenceforward presupposed a course of at least one year at a standard High School.

This excision expressed the intention of the authorities to reduce still further the classes in the Preparatory School until the proper end of the University as a vehicle of higher education had been attained; the rate of progress in that direction being intended to be commensurate with that of the high schools themselves. In maintaining a Preparatory Department the University does not pretend to offer an educational substitute for the High Schools of the Territory, many of which are producing a grade of work equal to that maintained in the leading schools in the states and in general accordance with the entrance requirements of the State Universities, but rather to supplement the work of those High Schools which have not yet brought their curriculum up to the standard of the rest, until such time as the University authorities shall feel themselves warranted in confining the academic activities of the Institution to the work of the Colleges and their Schools.

In accordance with this intention the lowest class carried on during the year 1910-11 will for the future be removed from the courses of the University, and until further notice the College Preparatory Department will consist of two sub-freshman classes, A and B, the courses of which will correspond in the main to

the third and fourth years of a secondary school; the Department having for its definite purpose the academic preparation of students in conformity with the College entrance requirements as applying to the State Universities in general, with particular consideration of the requirements of the College of Letters and Arts and of Science and Engineering in the University of New Mexico.

The work of the College Preparatory Department, therefore, will correspond in general terms with the courses of the two last year of a High School, differed therefrom in regard to the college entrance requirements in general and those of the Colleges of the University of New Mexico in particular.

The college entrance requirements of the University of New Mexico cover fifteen high school units as stated on page 37 of this catalogue, twelve of which are prescribed and two 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.

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 Elective Subjects

The three elective units may be chosen from the list of the Languages or Science subjects or from those enumerated in the following list:

A. Either, *One* of the following subjects:

- (1) Stenography.
- (2) Bookkeeping.
- (3) Mathematics.

B. Or, *Two* of the following subjects:

- (5) Manual Training.
- (6) Mechanical Drawing.
- (7) Applied Arithmetic.
- (8) Practical Geography.

Description of Courses Offered in the Preparatory College Division

English

- A. 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. 5 h.

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: Slaughter 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: Slaughter 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 (Two-year Course).

A. General History.

First Semester.

Ancient history. The story of the nations from the earliest times up to the era of Charlemagne, with emphasis on those peoples and institutions which have contributed most directly to modern civilization. Text: Myer's General History. 5 h.

Second Semester.

From the Era of Charlemagne up to the present time. A general survey of the subject, with a somewhat closer study of European History during the last hundred and fifty years. 5 h.

B. United States History and Civics.

First Semester.

History of the United States, from the period of early colonization up to the present time. Text: Montgomery. 5 h.

Second Semester.

United States History continued, with special study of the history of the Territory of New Mexico. 2 h.

Civil Government in the United States. A course upon the constitution of the United States, with emphasis upon the various forms of civil government. 3 h.

Latin

- A. Daily drill in accidence and syntax; Latin translation three times weekly; Latin composition twice weekly. 5 h.

First Semester.

Caesar de Bello Gallico, Books I and II; accurate knowledge of the accidence of Public School Latin Primer Latin composition (First Latin Writer) continued to end of Simple Sentence.

Second Semester.

Sallust, Bellum Catilinae or Bellum Jugurthinum; Latin Syntax; Latin Composition (Compound Sentence). Texts: Bennet's First Latin Writer; Public School Primer (Longman's); Caesar de Bello Gallico; Sallust, Bellum Catilinae or Bellum Jugurthinum.

- B. Regular revision of Accidence and Syntax; Prose Translation, 2hrs.; Verse Translation, 2 hrs.; Prose Composition, 1 hr. Total, 5 hrs.

First Semester.

Cicero, in Catilinam. Vergil, Aeneid, I and II, or selections.

Second Semester.

Cicero, De Amicitia, and one of the private orations. Ovid, selected pieces. Texts: Cicero, any standard text. Vergil, any standard Text, or Shuckburgh's Selections (Macmillan). Ovid, Shuckburgh's Selections (Macmillan) or Heatley's Selections (Longmans'). Composition; Second Latin Writer (Longmans'), or Sargent's

Easy Passages for Translation (Clarendon Press).

Greek

- A. Grammar and Composition. The common forms, idioms, and constructions, and the general grammatical principles of Attic Greek Prose. Translation into Greek of detached sentences and very easy continuous prose.
- B. Grammar and Composition continued. Reading of Xenophon's Anabasis.

When Greek is not taken as a Preparatory subject, the studies described above will be included in the first two years of the College Course.

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 indicative and subjunctive tenses. (2) Ability to trans-

late 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. An elementary study of French, with emphasis on the following points: (1) Careful drill in pronunciation (Matke's Primer is strongly recommended). (2) A knowledge of the more simple inflections and conjunctions, including use of article, partitive sign, agreement of adjectives and past participles, and knowledge of the regular and the most common irregular verbs. (3) Drill in translating English into French, and ability to translate at sight easy prose from English into French. (4) Reading of about 200 pages of French prose with translation into English. 5 h.

B. An advanced study of French, for a second year. The course should include: (1) A thorough mastery of French pronunciation. (2) Careful drill in inflections and conjunctions, with study of gram-

mar completed. (3) Abundant practice in composition and conversation, based on texts read. (4) Reading and translation of about 600 pages of French. 5 h.

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 period weekly, at least, should be devoted to dissection or the microscopic examination of tissues. Text-book recommended: Conn and Budington's Advanced Physiology and Hygiene. 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*. $\frac{1}{2}$ 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 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 and 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

COLLEGE

Graduate Students

Conwell, H. H.
Roberts, G. R.
Harsch, Rose

Schrieber, Alice
Stephan, L. B.

Seniors

Allen, Matilda
De Wolf, E. V.
Fergusson, Erna
Glading, R. D.

Lembke, Chas. H.
Sewell, R. T.
Von Dorn, Ellice

Juniors

Anspach, E. V.
Aulick, A. L.
Everitt, Evelyn
Fergusson, E. M.
Kelly, Clyde
Kieke, Lillian

Miller, J. W.
Mudgett, L. H.
Odjard, Cora M.
Pease, J. G.
Seder, E. S.

Sophomores

Arens, E. H.
Boldt, Ira
Bright, Mary W.
Brown, B. O.
Chrisman, Oscie D.
Doran, Ed.
Harkness, Leslie M.

Higgins, Matthias
Higgins, W. J.
Leupold, A. K.
Munroe, D. B.
Seder, Florence
Spitz, F. M.

Freshmen

Allot, Donald F.	Probert, W. H.
Arens, W. B.	Ringland, F.
Calkins, F. M.	Roberts, Cherange
Carlisle, H. A.	Rose, Ralph
Cartwright, Pauline	Seth, J. H.
Chamberlain, W. J.	Sewell, Pauline
Crandall, C. J.	Sherman, Edith
Childers, Agnes	Stem, Eliabeth
Davis, C. C.	Stephan, Amy K.
Hill, H. J.	Steenberg, J. C.
James, Helen	Tompkins, Pearl
Jones, P. R.	Walker, George
McCollum, Laura H.	Weber, C. M.
Menaul, P. T.	Wooldridge, N. N.
Nichols, J. C.	

Special

Aulick, Marie	Shimer, James
Connelly, C.	Wellman, O. C.

NORMAL DEPARTMENT

Anson, Marguerite	Mayo, Bessie
Bratton, Loretta	Newhall, Lotta
Bright, Ruth	Pink, Mrs. E. H.
Creel, Josephine	Stern, Aline
Harrison, Helen	Sturdevant, Evelyn B.
Jordan, Goldie	Swayne, Anna M.
Loebs, Edith	Tierney, Genevieve

COMMERCIAL DEPARTMENT

Arimijo, L. R.	Kempenich, Elsie
Arens, Mrs. F. X.	Lackey, L. B.
Campbell, Dora E.	Leeds, Mary
Giegoldt, J.	Loudon, Virginia
Hall, Marianna	Murphy, Leo
Hamilton, J. G.	Parker, R. B.
Hanley, Gladys	Rolph, Inez K.
Harkey, C. T.	Skinner, Viola
Helfrich, Frances	Skinner, James
Howell, Adele	Strome, C. L.
Hinds, Ollie B.	Walton, J. K.
Imhof, Mrs. S. R.	

PREPARATORY DEPARTMENT

Allen, J. K.	Lembke, Charlotte
Bixler, Allene	Litrell, I. P.
Boldt, Irene	Nuckles, Dora M.
Bright, T. F.	Olds, Earl
Brown, Louise	O'Rielly, J. H.
Cassatt, Grace	Pratt, Charlotte
Corson, Pearl	Redfield, J. J.
Cox, Hazel	Sanchez, Adelino
Gee, W. H.	Smith, Mabel
Goodner, Claribel	Wagner, Mildred
Grunsfeld, Hilda	Ulibarri, Victor
Hunt, A. S.	Ward, Helen
Hunter, B.	Woodford, Ruth
Kelly, Cleo	Yanow, Arthur
Lawrence, Willetta	

SUMMER SCHOOL

Adams, Bernice B.	Kelly, Iva C.
Allen, Matilda	Kieke, Lillian M.
Arens, Winifred B.	Miller, C. F.
Baier, Florence	Oberholtzer, W. S.
Bixler, Allene	Nash, Vera
Boldt, Irene	Parrish, Marie
Doran, Edward	Pratt, Charlotte S.
Von Dorn, Ellice	Shimer, James M.
Fergusson, Erna	Schreiber, Alice C.
Gee, William H.	Seder, Arthur R.
Harsch, Rose	Strome, Aura F.
Hartmann, Treasure	Swayne, Alma
Herron, Jane	de Tullio, Violetta C.
Huning, Dolores	Walton, Joseph K.
Hunt, Albert S.	Ward, Helen R.

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Names repeated	17
	<hr/>
Net total	148

Alumni Association

OFFICERS FOR 1911-12

President—Violetta C. de Tullio, '10.

Secretary and Treasurer—Alice C. Schrieber, '09.

Chairman Executive Committee—Edmund Ross, '09.

-
- Adams, Bernice Brown, '10 (Teacher) .Artesia, N. M.
Adams, Katherine Orbin, '94 (Teacher Public
Schools) Los Angeles, Calif.
Alger, Mabel, '97 (Mrs. Bruce Kinney).....
.....Topeka, Kans.
Allen, Anna May, '06.....Las Vegas, N. M.
Allen, Walter R., '10.....Schenectady, N. Y.
Anderson, Mabel E., '00 (Mrs. H. B. Allen).....
.....Flushing, N. Y.
Atkeson, Walter R., '03 (Forestry Service).....
..... Bishop, Calif.
Barth, Freda, '01 (Mrs. Taylor) .. Los Angeles, Calif.
Bean, Ray, '04 (Dentist).....San Francisco, Calif.
Becker, Louis Carl, '03 (Cashier First National
Bank) Belen, N. M.
Bell, Thomas Sidney (formerly Rhodes Student,
Attorney)Tacoma, Wash.
Bendradt, Rev. T. A., M. S., '00 (Minister)....
.....Turners Falls, Mass.
Bieghler, Harriet Kyle, '03 (Teacher) ..Gallup, N. M.
Bittner, Harvey P., '01 (Newspaper Reporter)....
..... Seattle, Wash.
Bliss, S. Mabel, '01.....Albuquerque, N. M.
Boatright, Stella, '04.....Albuquerque, N. M.

- Booth, Helen, '95 (Deceased).....
- Borradaile, Grace (Teacher)....Albuquerque, N. M.
- Bowden, Bessie, '01 (Music Teacher).Lawrence, Kans.
- Bowie, Morris Ramsey, '03 (Physician).Paonia, Colo.
- Brewer, Nellie C., '02 (Attorney).Albuquerque, N. M.
- Bronson, Gilbert, '04 (Railroad Service).....
 Winslow, Ariz.
- Brooks, Herbert, '99 (Manager San Jose Market).
Albuquerque, N. M.
- Brooks, Lewis C., '98 (President Sealshipt Oyster
 System)Boston, Mass.
- Brown, Katherine D., '09 (Teacher)...Gallup, N. M.
- Bryan, Hugh M., '10 (Rhodes Scholar 1910-1913)
Oxford, England
- Bryan, Kirk, '09.....Albuquerque, N. M.
- Buchanan, Bessie, '95 (Mrs. Nelson)..Winslow, Ariz.
- Butts, Francis, '01 (Mrs. Stevenson).....
 Albuquerque, N. M.
- Childers, Gladys McCaw, '03 (Mrs. E. J. Alger)..
Albuquerque, N. M.
- Clayton, Deo M., '00.....Albuquerque, N. M.
- Clayton, Edmnud Mills, '96 (Physician).....
Albuquerque, N. M.
- Coghill, George Ellett, '99 (Professor of Biology,
 Denison University)Granville, Ohio
- Craig, Minnie E., '02.....Brooklyn, N. Y..
- Creel, Nannie Fern, '10 (Teacher Public Schools)..
Albuquerque, N. M.
- Crocker, Bertha, '01.....California
- Cunningham, Kate Carthage, '07 (Mrs. H. L. Ben-
 ham)Williams, Ariz.
- Custers, Maud E., '99 (Teacher).....St. Louis, Mo.
- Custers, Ruby, '01.....Albuquerque, N. M.

- Davis, Harriet K., '09 (Teacher High School) Las Vegas, N. M.
- De Tullio, Stella D., '09 (Teacher) . . San Jose, N. M.
- De Tullio, Violetta, '10 Albuquerque, N. M.
- Dieckmann, Bruno E., '02 (Violin Instructor) Denver, Colo.
- Dieckmann, Lisa C., '06 (Mrs. Thomas Danahy) Albuquerque, N. M.
- Duckworth, Lucile, '03 (Mrs. McCrary) Roswell, N. M.
- Edie, Lucy L., '09 (Teacher) San Jose, N. M.
- Emmons, Grover C., '09 (Law Student Vanderbilt University) Nashville, Tenn.
- Espinosa, Marie, '05 (Teacher) Barelax, N. M.
- Everitt, Edyth L., '98 (Teacher Public Schools) Albuquerque, N. M.
- Everitt, Olivia Albuquerque, N. M.
- Faber, Lena, '05 (Mrs. William Cote) Albuquerque, N. M.
- Fergusson, Erna, '06 (University of N. M.)
- Fitch, Hereford, '98 Hollywood, Calif.
- Fitch, James G., '99 Hollywood, Calif.
- Fox, Anna Isabel, '10 (Teacher) . . San Rafael, N. M.
- Fox, Florence L., '03 (Stenographer) Albuquerque, N. M.
- Graves, Maud C., '05 (Supervisor Manual Training) San Bernardino, Calif.
- Hall, Sarah M., '06 (Mrs. Harold Moore) Santa Fe, N. M.
- Halloran, Etta C., '01 (Mrs. Wm. A. Hackley) Berkeley, Calif.
- Halloran, Francis, '99 (Mrs. O. N. Marron) Albuquerque, N. M.
- Halloran, Ralph A., '02 (Chemist) . . Richmond, Calif.

- Hamm, Josephine, '95 (Mrs. Williamson).....
 Douglas, Ariz.
- Harding, Maynard C., '97 (Physician).... Ault, Colo.
- Harrison, Genevieve B., '10 (Mrs. Dunlavy).....
 Santa Fe, N. M.
- Harsch, Rose M., '07 (Stenographer U. S. Forestry
 Service) Albuquerque, N. M.
- Hazeldine, Lucy, '00 (Mrs. W. C. Dame).....
 City of Mexico, Mex.
- Hazeldine, May, '04 (Mrs. J. W. Pettyjohn)....
 Long Beach, Calif.
- Heald, Clarence S., '05 (Stenographer S. Pacific
 R. R.) San Francisco, Calif.
- Heald, Eliabeth, '05 (Assistant in Biology Univer-
 sity of California) Berkeley, Calif.
- Herrick, Harry N., '00 (Chemist, University of Cal-
 ifornia) Berekely, Calif.
- Hodgin, C. E., '94 (Principal Normal Department
 and Dean, University of N. M.).. Albuquerque, N. M.
- Hoffman, Dorothy L., '06 (Mrs. Apt) .. Belen, N. M.
- Holden, Blanche, '97 (Mrs. Morgan) .. Omaha, Neb.
- Huggett, Lillian G., '06 (Teacher Girls' School)..
 El Paso, Texas
- Hughes, Elizabeth, '00 (Mrs. Clarence French)..
 Rock Creek, Ohio
- Hughes, Lou, '02 (Stenographer Government Ser-
 vice) Washington, D. C.
- Hunt, Mabel C., '02 (Mrs. M. Summers).....
 Roswell, N. M.
- Huntzinger, Rose, '04 (Mrs. Thos. Hughes, Jr.)..
 Albuquerque, N. M.
- Ilfeld, Lawrence A., '06..... Boston, Mass.
- Irwin, Lloyd, '05 (Electrical Engineer) . Medford, Ore.

- Irwin, Sarah Frances, '03 (Mrs. Bradford) Elk City, Okla.
- James, Mary, '94 (Mrs. David Scruggs) . S. America
- Jasper, Anita M., '07 Pasadena, Calif.
- Johnson, Dr. Douglas W., '01 (Assistant Professor
Physiology Harvard University)
. Cambridge, Mass.
- Johnson, Eva W., '01 (Trained Nurse)
. Los Angeles, Calif.
- Johnson, Ida, '01 (Mrs. Linus Shields)
. James Hot Springs, N. M.
- Karsten, Karl G., '11 (Oxford Scholar)
. Oxford, England
- Keleher, Eugenia, '08 (Teacher Public Schools)
. Albuquerque, N. M.
- Keleher, Margaret M., '06 (Teacher Public Schools
. Albuquerque, N. M.
- Keleher, Thomas F., '02 (Clerk First Nat'l Bank)
. Albuquerque, N. M.
- Keller, Allan F., '08 (Postal Service)
. Albuquerque, N. M.
- Kempenich, Henry, '96 (Merchant) . Holbrook, Ariz.
- Kieth, Jessie, '94 (Mrs. Ruth) Ponoma, Calif.
- Krawinkle, Laura, '01 Los Angeles, Calif.
- Kunz, George G., '96 (Physician) . . Tacoma, Wash.
- Lee, Lawrence F., '10 (Yale University)
. New Haven, Conn.
- Lovelace, Lora M., '11 Albuquerque, N. M.
- MacDonald, May, '99 (Mrs. R. S. Goodrich)
. Los Angeles, Calif.
- Magnusson, Gustave R., '03 (University of Wisconsin)
sin) Madison, Wis.
- Maltby, Frank S., '99 (Deceased)

- Manwarin, Edna, '02 (Mrs. M. F. Mason).....
 Newkirk, Okla.
- Maxon, J. G., '01 (Physician).....Chicago, Ill.
- Mayo, Joseph G., '06 (Expert Miner)... Kelly, N. M.
- McCallum, Agnes C., '06 (Mrs. Paul Scott).....
Albuquerque, N. M.
- McClellan, Eunice, '10 (Teacher).. San Jose, N. M.
- McGuinness, Michael J., '09 (Lawyer).....
 Santa Fe, N. M.
- McLaughlin, Gladys G., '09 (Mrs. Bryson Biggs)
 Miami, Ariz.
- McMillen, Jessie, '01 (Mrs. A. B. Stroup).....
 Albuquerque, N. M.
- McMillin, Sadie M., '09 (Teacher).. San Jose, N. M.
- Menaul, Elizabeth, '94 (Mrs. Nicholson).....
 Bridgeport, Okla.
- Messenger, J. Franklin, '00 (Dean Schol of Edu-
 cation University of Vermont).... Burlington, Vt.
- Mordy, Grace, '10 (Teacher).... Hillsboro, N. M.
- Muensterman, Carl A., '96 (Chemist).... Peoria, Ill.
- Murphy, Beatrice, '07 (Teacher).... Newlon, Mont.
- Nash, Nellie E., '07 (Mrs. Lloyd Hunsaker)....
- Nelson, Raymond, '02..... South Africa
- Niles, Edith, '00..... Chicago, Ill.
- Niven, Isobel O., '07 (Mrs. Wm. Roe Murphy)...
 Pomona, Calif.
- Nowlin, Frances, '94 (Mrs. Wittmer) (Deceased) .
- Parrish, Marie L., '09..... Artesia, N. M.
- Parsons, Josephine S., '04 (Secretary University of
 N. M.) Albuquerque, N. M.
- Pearce, Lenore, '06..... Albuquerque, N. M.
- Perkins, Blanche I., '06..... Upsilanti, Mich.
- Pickard, Julia B., '11 (Mrs. Richard)
- Pinney, Vida, '07 (Teacher Public Schools).....
 Albuquerque, N. M.

- Pole, Frances, '00 (Librarian) Palo Alto, Calif.
 Powers, Elizabeth, '03 (Mrs. Peck)
 Albuquerque, N. M.
 Pratt, Helen, '04 (Mrs. Frank Kerzman)
 Albuquerque, N. M.
 Price, Robert C., '06 Santa Fe, N. M.
 Pride, Lena Myrtle, '10 Albuquerque, N. M.
 Ridley, Furn, '05 Albuquerque, N. M.
 Rogers, Clarence E., '09 (Electrical Engineer)
 Los Angeles, Calif.
 Ross, Edmund, '09 (University of Wisconsin)
 Madison, Wis.-
 Saulsberry, Joshua J., '10 Alamogordo, N. M.
 Schreiber, Alice C., (University of N. M.)
 Albuquerque, N. M.
 Seder, A. Raymond, '11 (Prin. Carlsbad H. S.)
 Carlsbad, N. M.
 Self, Wm. Dennis, '08 (Member Legislature)
 Little Rock, Ark.
 Shelds, Linus L., '02 (Superintendent San Diego
 Land Grant Jemez Hot Springs, N. M.
 Sleight, Beatrice L., '06 (Teacher Public Schools)
 Smith, Fleda E., '05 Los Angeles, Calif.
 Spicer, Eva M., '09 Monmouth, Ill.
 Spitz, Lillian, '09 (Mrs. E. N. Bigler) . Artesia, N. M.
 Stamm, Roy A., '93 (Merchant) . Albuquerque, N. M.
 Stover, Roderick, '99 (Electrical Engineer)
 Albuquerque, N. M.
 Sturges, Lloyd, '05 Albuquerque, N. M.
 Sweet, Emma Belle, '06 (Teacher Public Schools)
 Santa Fe, N. M.
 Tascher, Irma, '02 (Nurse in Michael Rees Hos-
 pital) Chicago, Ill.
 Tascher, John Ralph, '03 (Northwestern University
 Law School) Chicago, Ill.

- Telfer, Elizabeth, '06 (Teacher Public Schools) . . .
 Albuquerque, N. M.
- Terry, John B., '99 (Chemist) Richmond, Calif.
- Thompson, Hazel Dell, '10 Pittsburg, Pa.
- Towner, Norah, '02 (University of Arizona) . . Tucson
- Turner, Mary W., '01 (Mrs. C. W. Ward) (De-
 ceased)
- Tway, Mata E., '01 (Teacher Public Schools)
 Albuquerque, N. M.
- Vann, Florence, '99 Albuquerque, N. M.
- Vann, Katy, '01 (Mrs. Howard Blair)
 Albuquerque, N. M.
- Van Wagner, Oliver J., '02 Syracuse, N. Y.
- Vaughn, Ada, '05 (Teacher Public Schools)
 Albuquerque, N. M.
- Vaughn, Etta C., '95 (Mrs. W. J. Oliver)
 Black Rock, N. M.
- Wakefield, Mabel, '98 (Mrs. Moffit) . . Tucson, Ariz.
- Walker, Edith, '10 Albuquerque, N. M.
- Walker, Gertrude, '09 (University)
 Albuquerque, N. M.
- Walsh, Jennie, '09 (Teacher)
 Old Albuquerque, N. M.
- Ward, Charles W., '97 (Attorney) Las Vegas, N. M.
- Weinzirl, John, '98 (Professor of Biology Univer-
 sity of Washington) Seattle, Wash.
- Werner, Norah, '02 (Mrs. R. W. Gilchrist)
 Albuquerque, N. M.
- Winders, Lillian M., '09 (Teacher) Tularosa, N. M.
- Worth, W. H., '05 (University of Chicago)
 Chicago, Ill.
- Wroth, James S., '01 (Electrical Engineer)
 Santa Rita, N. M.
- Wroth, William B., '09 (Student Cornell Univer-
 sity) Ithaca, N. Y.

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