

UNIVERSITY OF NEW MEXICO  
COLLEGE OF LIBERAL ARTS  
OFFICE OF DEAN

BULLETIN  
OF THE  
*University of New Mexico*  
WHOLE NO. 78

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CATALOGUE SERIES

MARCH, 1915

VOLUME 28

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CATALOGUE  
1914-1915

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ANNOUNCEMENTS  
1915-1916

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ALBUQUERQUE, NEW MEXICO

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

# 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:

*Catalogue Series, Vols. I-XXVIII; whole numbers 1-14, 40, 43, 46, 48, 50, 54, 55, 56, 59, 60, 64, 67, 70, 72, 74, 77, 78.*

*Biological Series, Vols. I-III; whole numbers 15, 16, 19, 22, 29-39, 44, 47, 49, 65.*

*Geological Series, Vols. I-III; whole numbers 17, 18, 20, 21, 23-28, 28a, 51, 76.*

*Educational Series, Vol. I; No. 1-8; whole numbers 41, 42, 52, 58, 61, 68, 69, 73.*

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

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

*Sociological Series, Vol. I; No. 1-3; whole numbers 57, 62, 66.*

*Chemistry Series, Vol. I; No. 1-2; whole numbers 71, 75.*

## **INCREASED APPROPRIATIONS**

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Since the catalogue went to press, the legislature has granted an increased appropriation to the University, thus providing more liberally for maintenance, the improvement of the campus, the repair and extension of buildings and especially for the rebuilding of Hadley Hall

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*The University is now in position to  
render greater and unhampered  
service to its students*

BULLETIN

OF THE

University of New Mexico

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CATALOGUE 1914-1915

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ANNOUNCEMENTS

1915-1916

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ALBUQUERQUE, NEW MEXICO



PRESS OF THE MORNING JOURNAL

## Officers of the University

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### Board of Regents

HIS EXCELLENCY THE GOVERNOR OF NEW MEXICO,  
Ex-Officio.

THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION,  
Ex-Officio.

MR. GEORGE L. BROOKS.....Albuquerque

DR. J. A. REIDY.....Albuquerque

HON. HOWARD L. BICKLEY.....Raton

HON. NATHAN JAFFA.....Roswell

MR. W. G. HAYDEN.....Las Vegas

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### Officers of the Board

GEORGE L. BROOKS.....President

DR. J. A. REIDY.....Secretary and Treasurer

JOSEPHINE S. PARSONS....Secretary of the University

# Calendar for 1915-1916

## 1915

JANUARY							JULY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
3	4	5	6	7	8	9	1	2	3	4	5	6	7
10	11	12	13	14	15	16	11	12	13	14	15	16	17
17	18	19	20	21	22	23	18	19	20	21	22	23	24
24	25	26	27	28	29	30	25	26	27	28	29	30	31
31													
FEBRUARY							AUGUST						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
7	8	9	10	11	12	13	1	2	3	4	5	6	7
14	15	16	17	18	19	20	15	16	17	18	19	20	21
21	22	23	24	25	26	27	22	23	24	25	26	27	28
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MARCH							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
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14	15	16	17	18	19	20	12	13	14	15	16	17	18
21	22	23	24	25	26	27	19	20	21	22	23	24	25
28	29	30	31				26	27	28	29	30		
APRIL							OCTOBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
4	5	6	7	8	9	10	3	4	5	6	7	8	9
11	12	13	14	15	16	17	10	11	12	13	14	15	16
18	19	20	21	22	23	24	17	18	19	20	21	22	23
25	26	27	28	29	30		24	25	26	27	28	29	30
MAY							NOVEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
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9	10	11	12	13	14	15	14	15	16	17	18	19	20
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JUNE							DECEMBER						
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## 1916

JANUARY							JULY						
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FEBRUARY							AUGUST						
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MARCH							SEPTEMBER						
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APRIL							OCTOBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
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MAY							NOVEMBER						
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JUNE							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
4	5	6	7	8	9	10	3	4	5	6	7	8	9
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18	19	20	21	22	23	24	17	18	19	20	21	22	23
25	26	27	28	29	30		24	25	26	27	28	29	30

## University Calendar

—1915—

August 17, Tuesday—Registration Day.

August 20, Friday—Latest date for entrance examinations.

October 15, Friday—Mid-semester.

November 25, Thursday—Thanksgiving Day.

December 22, Wednesday—Close of first semester.

—1916—

January 4, Tuesday—Opening of second semester.

March 4, Friday—Mid-semester.

May 8, Sunday—Baccalaureate sermon.

May 11, Wednesday—Commencement Day.

## **Administrative Officers of the University**

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DAVID ROSS BOYD, President of the University.

CHARLES E. HODGIN, Dean of the University.

CLARENCE E. BONNETT, Director of University Extension Division.

JOSEPHINE S. PARSONS, Secretary of the University, and Registrar.

MARGARET GLEASON, Dean of Women.



## Faculty of the University

---

DAVID ROSS BOYD, Ph. D.  
*President of the University.*

123 S. High Street.

CHARLES E. HODGIN, B. Pd.  
*Dean of the University and Professor of Education.*

University Hill.

CHARLES T. KIRK, Ph. D.  
*Professor of Geology.*

406 S. High Street.

LYNN BOAL MITCHELL, Ph. D.  
*Professor of Latin and Greek.*

University Hill.

JOHN D. CLARK, Ph. D.  
*Professor of Chemistry.*

University Hill.

CLARENCE E. BONNETT, B. S., A. B., B. Pd.  
*Professor of Social Science. Director of University Extension Division.*

Occidental Building.

ASA ORRIN WEESE, B. A.  
*Professor of Biology.*

University Hill.

JOSEF FREDRIK NELSON, A. M.  
*Professor of Modern Languages.*

Occidental Building.

JOSEPHINE S. PARSONS, A. B.

*Secretary of the University, Registrar, Secretary of  
the Faculty and Associate-Professor of Modern Lan-  
guages.*

901 Tijeras Avenue.

ETHEL A. HICKEY, B. A.

*Associate-Professor of English Literature.*

111 N. Walter Street.

DELLA J. SISLER, B. L. S.

*Librarian and Associate-Professor of Library  
Science.*

University Hill

RALPH F. HUTCHINSON,

*Director of Physical Education.*

University Hill.

WILL E. EDINGTON, B. A.

*Associate-Professor of Mathematics.*

410 E. Central Avenue.

DEAN A. WORCESTER, B. A.

*Associate-Professor of Psychology and Philosophy.*

University Hill.

MARGARET GLEASON, A. B., B. S., B. Pd.

*Dean of Women and Director of Home Economics.*

University Hill.

PROCTOR F. SHERWIN, B. A.

*Associate-Professor of English Composition and  
Rhetoric and of History.*

218 S. Walter Street.

JESSE L. BRENNEMAN, B. S., E. E.

*Associate-Professor of Physics and Electrical En-  
gineering.*

ARNO K. LEUPOLD, B. S. in E. E.

*Instructor in Shop.*

University Hill.

E. STANLEY SEDER, A. B., A. A. O. G.

*Director of Music.*

South Edith Street.

A. W. WAND, C. E.

*Instructor in Engineering.*

North Walter Street.

CHERANGE ROBERTS, B. A.

*Assistant in Library and in English.*

223 W. Granite Avenue.

I. N. PRICKETT,

*Superintendent of Buildings and Grounds.*

#### COMMITTEES OF THE FACULTY, 1914-1915

*Student Standing:* L. B. Mitchell, Chairman; E. A. Hickey, J. D. Clark.

*Schedule and Curriculum:* C. T. Kirk, Chairman; C. E. Bonnett, L. B. Mitchell.

*Catalogue:* E. A. Hickey, Chairman; L. B. Mitchell, C. T. Kirk.

*Printing and Publications:* C. E. Hodgins, Chairman; E. A. Hickey, P. F. Sherwin.

*Commencement:* J. D. Clark, Chairman; A. W. Wand.

*Athletics and Eligibility:* W. E. Edington, Chairman; D. A. Worcester, R. F. Hutchinson.

*Non-Athletic Organizations:* D. R. Boyd, Chairman; J. S. Parsons, J. F. Nelson.

*Faculty Representatives on Athletic Council:* A. O. Weese, J. D. Clark.

*Library:* D. J. Sisler.

*Entertainments:* M. Gleason, Chairman; E. S. Seder.

## **General Information**

### **HISTORICAL SKETCH**

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

The following extracts are taken from the act:

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

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

donation of lands and other benefits under all acts of Congress, now in force or hereafter to be enacted, for the benefit of such educational institutions in the future state.

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

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

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

SEC. 14. The Regents shall have power and it shall be their duty to enact laws, rules and regulations for the governing 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 intrusted to their respective faculties, but the Regents shall have the power to regulate the course of instruction, and prescribe the books and authorities to be used in the several departments, and also to confer such degrees and grant such diplomas as are usually conferred and granted by other universities. The Regents shall have the power to remove any officer connected with the University, when in their judgment the interests require it.

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

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

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

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

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

The first faculty elected consisted of: President, E. S. Stover; Principal, George S. Ramsey, Alcinda L. Morrow, Marshall R. Gaines, Albert Cristy, G. R. Stouffer 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 to 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. Tipton 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 1908 was rendered capable of meeting the requirements of the increasing number of students.

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

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



replaced; and the destruction of the museum representative of the primitive races of the region was 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 and a chemical laboratory, together with the usual offices, stock-rooms, balance rooms, etc.

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

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

During the years 1912-13 to 1914-15, great progress has been made in the college work in the University. The most notable improvements have been the addition of the Department of Social Science; of the Extension Division which aims to give instruction to those, who, for various reasons, cannot attend the Uni-

versity; and of the Department of Home Economics which gives complete training in household science and arts. In addition, several departments have been enlarged, particularly the Department of Psychology and Philosophy, the Department of English, and the Department of History.

#### 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 State.

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

The situation of the city is in every respect admirable. It occupies the centre of a strip of highly fertile land on the left bank of the Rio Grande—the Rio Grande del Norte of the Spanish discoverers—at an elevation of five thousand feet above the level of the sea, in the valley formed by the river as it makes its

way between the mountain ranges to the east and west; and the protected situation of the city has contributed not a little to the salubrity of its climate.

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

Extremes of temperature, whether of heat or cold, which not infrequently impede the progress of educational work in other localities, are unknown in this part of New Mexico. This boon of climate has proved an important factor in the growth of the institution; and while the University authorities wisely refuse to receive students suffering from pulmonary or other organic disease, 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 paved streets, concrete sidewalks, electric light, street cars, two daily papers, and important mercantile and manufacturing establishments.

It is also an educational centre, possessing in addi-

tion 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 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.

### **BUILDINGS AND LABORATORIES**

The buildings of the University of New Mexico are picturesquely located on the rising mesa about a mile east of the business section of Albuquerque. They consist of the Administration Building, Rodey Hall, the Science Hall, the Women's Dormitory, the Men's Dormitory, the Gymnasium, the Dining Hall and the Power House.

In the Administration Building are found the offices, the library and a large number of class rooms. Rodey Hall, with a seating capacity of 800, is used for all student assemblies, lectures, vesper services, and Commencement exercises. The Science Hall houses the laboratories, the scientific collections, a lecture room, and several class rooms.

The dormitories are arranged so as to provide a suite of rooms, consisting of a study and two bedrooms, for every two students. Each dormitory is provided with steam heat, electric light and hot and cold water.

The Gymnasium has been recently remodeled and is now furnished with showers, lockers, and the necessary apparatus for physical training.

The laboratories of the University are found in Science Hall. They consist in general of a physical laboratory, an electrical testing room, a dark room, a machine shop, a biological laboratory, a geological laboratory and a chemical laboratory, with the usual offices and stock rooms. The physical and engineering

laboratories are fully described under the School of Applied Science.

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 laboratories are well lighted and adequately furnished for the most exacting work. There is an ample supply of Bausch & Lomb, Spencer and Leitz microscopes, fitted with oil immersion lenses for high power work, together with desirable microscopic accessories, such as mechanical stages, stage and ocular micrometers, double vision eyepieces, camera lucida, condenser for dark-ground illumination and ultra-microscopic observation, etc. The laboratory for histology and bacteriology contains two microtomes, a paraffine bath, electrically heated incubators, an autoclave, several sterilizers of different types, and a complete stock of media, chemicals and stains. There is a large collection of slides for histology and embryology, and systematic collections of plants and insects of the region, as well as the necessary material for routine laboratory work.

The best micro-photographic apparatus on the market has been purchased jointly by the departments of Biology and Geology, and the facilities for microscopic, lantern slide and opaque projection have been

greatly improved by the purchase of the most complete equipment in this line.

The Leuckert-Chun and Pfurtscheller series of Zoological charts, the Kny Botanical charts, several anatomical and embryological models by Zeigler and others, and Botanical models by Deyrolle furnish illustrative material for additional lecture and laboratory use.

During the present year, 1914-1915, a psychological laboratory has been established which is well equipped for instruction and training in experimental psychology. The apparatus has been carefully chosen with the aim of giving to the student a thorough knowledge of modern psychological methods, apparatus and results. Instruments are provided for typical experiments in sensation, perception, association, reaction. There are also models of the brain, of the eye and of the ear. Constant additions will be made to the standard equipment and many new instruments are being devised and constructed in the University shops.

The Home Economics laboratories are located in the Administration Building and are up-to-date in every respect. The cooking laboratory has an entire electrical equipment with appliances of latest model. It is unique inasmuch as it is the only laboratory in the United States having the individual meter system.

The departmental equipment of the geology laboratory has been much improved recently by accessions in various lines.

The laboratory for determinative mineralogy has been resupplied to accommodate the increasing number of students. To the glass crystal models and Kranz axial models there are added numerous natural crystals.

and a student set of minerals of wide range. Modern petrographic microscopes and an improved apparatus for the study of opaque minerals and metals by reflected light are available, as well as projectoscope with reflecting device and petrographic accessories. About 250 thin sections of rocks and minerals and as many lantern slides are used with these devices. A Westphal balance and heavy solutions and a spectroscopic make for refined determinations. Geologic slide rules are in stock for the computation of mineral and rock components. High temperature apparatus is being installed for the investigation of those geologic processes which are much accelerated in the neighborhood of 200 degrees centigrade. For field work there are both a telescopic and sight alidade with plane-table, a geologist's compass, Locke level, aneroid barometer, field kit for determinative mineralogy, hammers, etc., and it is planned soon to add a complete camping outfit.

The American Museum of Natural History, at New York, and the National Museum, at Washington, D. C., have recently shipped us extensive collections of fossils and many interesting rock specimens. Mr. Hugh Bryan, of Albuquerque, has recently collected and arranged for the University a complete collection of British types. The John Lee Clarke collection of minerals, rocks, and fossils forms a valuable lot of material. The Pratt and the John R. Lee collections of minerals are available for handling and study. The University laboratories and library are at the service of the New Mexico Geological Survey, which has its headquarters at the University, and in turn the University Museums and library are the depositaries of the State Survey collections of specimens and books. This arrangement



is of much practical mutual value to the department and Survey.

Private collections are constantly being donated or loaned, for here they can do a greater good to a much greater number than when kept in private homes or museums.

The University library is the depository for Federal Public Documents, so that the publications of the United States Geological Survey, Bureau of Mines, Reclamation Service, and Forestry Service are at hand. The first named consists of a great series of extremely high grade monographs, professional papers, bulletins, folios, and maps. To these, students and others may have free access. In the University series of bulletins are discussed many of the local geologic problems. In addition there are kept on the shelves all the latest and best books in the various branches of geology.

#### THE LIBRARY

The University library contains about 12,000 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 accessible to the public during library hours.

A dictionary catalogue is being made, listing all ma-

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

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

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

- American academy of political and social science—Annals
- American chemical society—Journal
- American city
- American education
- American educational review
- American historical review
- American journal of anatomy
- American journal of archaeology
- American journal of international law
- American journal of philology
- American journal of psychology
- American journal of science
- American journal of sociology
- American library association booklist
- American magazine
- American mathematical monthly
- American mathematical society—Bulletin
- American naturalist
- American Oxonian
- American review of reviews
- Anatomical record
- Art and archaeology
- Astrophysical journal
- Atlantic monthly
- Biblical world
- Book news monthly
- Book review digest
- Bookman
- Botanical gazette
- Bulletin of bibliography
- Century

Chemical abstracts  
Choses et autres  
Classical journal  
Collier's weekly  
Cumulative book index  
Current opinion  
Dial  
Economic geology  
Editor  
Educational review  
Electrical world  
Engineering magazine  
Engineering news  
Forum  
Harper's monthly  
Independent  
Index to dates  
Industrial engineering  
Journal of American history  
Journal of economic entomology  
Journal of educational psychology  
Journal of experimental zoology  
Journal of geology  
Journal of home economics  
Journal of industrial and engineering chemistry  
Journal of morphology  
Journal of political economy  
Library journal  
Literary digest  
McClure's magazine  
Machinery  
Modern language notes  
Modern philology  
Musical America  
Musician  
Nation  
National geographic magazine  
Nature study review  
New Mexico journal of education  
New republic

Normal instructor  
North American review  
Out west  
Outlook  
Pan American union—Bulletin (French edition)  
Pan American union—Bulletin (Spanish edition)  
Philosophical magazine  
Physical review  
Plant world  
Playground  
Political science quarterly  
Popular educator  
Popular science monthly  
Power  
Primary education  
Psychological bulletin  
Psychological index  
Psychological review  
Public libraries  
Publishers' weekly  
Quarterly journal of economics  
Reader's guide to periodical literature  
La Revue Hispanique  
Science  
Science abstracts—Physics  
Scientific American  
Scientific American supplement  
Survey  
Technical world magazine  
Ueber Land und Meer  
Wisconsin library bulletin  
World's work  
Writer

## PUBLICATIONS

**Bulletins of the University of New Mexico**  
**CATALOGUE SERIES**

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v. 1	Catalogue 1892	1
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v. 4	" 1894-95	4
v. 5	" 1895-96	5
v. 6	" 1896-97	6
v. 7	" 1897-98	7
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v. 9	" 1899-1900	9
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v. 23	Catalogue 1910-11	60
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## BIOLOGICAL SERIES

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No. 1. Herrick Physiological corollaries of the equilibrium theory of nervous action and control	15
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## GEOLOGICAL SERIES

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## EDUCATIONAL SERIES

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## STUDENT PUBLICATIONS

The students of the University issue a weekly newspaper known as the U. N. M. Weekly; and publish at the end of each school year a book called the Mirage, wherein is shown the artistic, literary and executive ability of the student body.



### THE CECIL RHODES SCHOLARSHIPS

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; 1914, W. Coburn Cook.

### STUDENT SOCIETIES

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 Board of the U. N. M. Weekly and the Mirage; the Dramatic Club; the Athletic Association; and the Oratorical and Debating Associations. In addition to these organizations governed by the Student Body, there is in the Music Department a Glee Club, and an Orchestra, and in the Engineering Department the New Mexico Society of Engineers.

For the graduates of the institution the University of New Mexico Alumni Association was organized in 1894. Its purposes are to aid in promoting the interests of the University and to cultivate good fellowship. The annual meeting and annual dinner occur during Commencement week. At this meeting, the officers of the Association are elected.

**STUDENT AID**

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

# Admission to the University

## METHODS OF ADMISSION

Students are admitted either upon examination at the University or upon certificates from accredited schools, except that adult special students are admitted in accordance with the provisions stated under the Admission of Adult Special Students.

The following high schools in New Mexico are fully accredited :

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

## TIME OF ENTRANCE

All persons who expect to attend the University for the first time should send at their earliest convenience a certified record of their past work to the Dean or Director of the College of which they expect to be members. No fee is charged and no obligation whatever is incurred in having the proper authorities pass upon the credentials of prospective students. The University will gladly accredit records of past work no matter how remote are the prospects of attendance.

## ENTRANCE REQUIREMENTS

The requirements for admission are stated in terms of units. The term "unit" means the equivalent of five recitations a week for one year in one branch of study.

Fifteen units are required for admission, of which  $9\frac{1}{2}$  are prescribed and  $5\frac{1}{2}$  are elective.

## I. The following subjects are required of all:

English .....	3 units
Mathematics .....	$2\frac{1}{2}$ units
Language .....	2 units
Laboratory Science .....	1 unit
History .....	1 unit

II. In addition to the  $9\frac{1}{2}$  units required under I,  $5\frac{1}{2}$  units shall be chosen from the following subjects:

English .....	1 unit
Mathematics .....	$\frac{1}{2}$ , 1 unit
Language .....	1, 2, 3, 4 units
Latin	
Greek	
French	
German	
Spanish	
History .....	$\frac{1}{2}$ , 1, 2, 3 units
Ancient	
Medieval and Modern	
English	
American	
Civics .....	$\frac{1}{2}$ unit
Economics .....	$\frac{1}{2}$ unit
Science .....	$\frac{1}{2}$ , 1, 2, 3 units
Botany	
Zoology	
Chemistry	
Physics	
Physiology	
Physical Geography	

Vocational Subjects.....1, 2, 3, 4 units

Agriculture

Commercial Work

Domestic Science

Manual Arts

Optional Subject .....1 unit

Limitations.—Not more than four of the required fifteen units will be accepted in any one subject. No foreign language course of less than two units will be accepted from students presenting only one foreign language.

Vocational Subjects. — Not more than a total of four units in vocational subjects may be presented.

Optional Subjects. — An optional subject is any subject of the student's high school course not specified in the last of elective subjects. One optional subject of one unit, or two of one-half units each, may be offered, but not with four units of vocational subjects.

Admission Without Foreign Language.—Students may be admitted without foreign language under the following conditions:

- (1) They must offer fifteen units subject to all the limitations stated above except that one optional unit may be offered with one vocational subject or two optional units without a vocational subject.
- (2) They must meet the language requirement before graduation; and shall not receive college credit in the first two years of the language chosen for the requirement.

#### DESCRIPTION OF SUBJECTS ACCEPTED FOR ADMISSION

The amount of work in each of the foregoing subjects which corresponds to the minimum number of credits assigned is shown by the description of subjects below:

1. **ALGEBRA.**—Fundamental operations, factoring, fractions, simple equations, involution, evolution, radicals, quadratic equations and equations reducible to the quadratic form, surds, theory of exponents, and the analysis and solution of problems involving these.

2. **BOOKKEEPING.**—The unit of work in bookkeeping for college entrance should consist of a working knowledge of both single and double entry bookkeeping for the usual lines of business. The student should be able to change his books from single to double entry and from individual to proprietorship. At least one set of transactions should be kept by single entry and at least two sets by double entry in which the uses of the ordinary bookkeeping books and commercial papers should be involved. The student should be drilled in the making of profit and loss statements and of balance sheets and should be able to explain the meanings of the items involved in both kinds of instruments. The work should be done under the immediate supervision of a teacher and the student should devote at least ten periods of not less than forty minutes full time in class each week for one academic year.

3. **BOTANY.**—A familiar acquaintance with the general structure of plants, and of the principal organs and their functions, derived to a considerable extent from a study of the objects, is required; also a general knowledge of the main groups of plants; and the ability to classify and name the more common species. Laboratory note-books and herbarium collections should be presented.

4. **BUSINESS LAW.**—The amount of business law which is accepted is indicated by the ground covered in any of the ordinary text-books on the subject, such as Spencer's Elements of Commercial Law, Burdick's Business Law, and White's Elements of Commercial Law.

5. **CHEMISTRY.**—The instruction must include both text-book and laboratory work. The work should be so arranged that at least one-half of the time shall be given to the laboratory. The course as it is given in the best high schools in one year will satisfy the requirements of the University for the one unit for admission. The laboratory notes, bearing

the teacher's indorsement, must be presented as evidence of the actual laboratory work accomplished.

6. CIVICS.—Such an amount of study of the American Government, its history and interpretation, as is indicated by any of the usual high school text-books on civil government, is regarded as sufficient for one term. The work may advantageously be combined with the elements of political economy.

7. COMMERCIAL GEOGRAPHY.—The amount and character of the work accepted in this subject is indicated by the scope of such books as Redway's Commercial Geography, Adam's smaller book on the same subject, the text-books of Brigham and McFarlane or Robinson, or Trotter's work.

8. DOMESTIC SCIENCE.—(a) An equivalent of 180 hours of prepared work with at least two recitation periods a week in foods. (b) An equivalent of 180 hours of prepared work with at least one recitation period a week in clothing. (c) An equivalent of 180 hours of prepared work with at least two recitation periods a week on the home. (Two periods of laboratory work are considered equivalent to one period of prepared work.) Of the foregoing, (a) will be accepted as a unit's work; or two half units taken from (a) and (b), or (a) and (c), or (b) and (c) will be accepted as a unit's work. The work is to be done by trained teachers with individual equipment.

9. DRAWING.—Free-hand or mechanical drawing, or both. Drawing-books or plates must be submitted. The number of credits allowed depends on the quantity and quality of the work submitted.

10. ECONOMICS.—The principles of economics, with economic history, as given in any good elementary text-book.

11. ENGLISH COMPOSITION AND RHETORIC.—Correct spelling, capitalization, punctuation, paragraphing, idiom, and definition; the elements of rhetoric.

14. ENGLISH LITERATURE.—(a) Each candidate is expected to have read certain assigned literary masterpieces. With a view to a large freedom of choice, the books provided for reading are arranged in the following groups, from which at least ten units are to be selected, two from each group. Each unit is here set off by semicolons.

I. The Old Testament, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther; the Iliad, with the omission, if desired, of Books XI, XIII, XIV, XV, XVII, XXI; the Odyssey, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVII; Virgil's Aeneid. The Iliad, the Odyssey, and the Aeneid should be read in English translations of recognized literary excellence.

For any unit of this group a unit from any other group may be substituted.

II. Shakespeare's Merchant of Venice; Midsummer Night's Dream; As You Like It; Twelfth Night; Henry the Fifth; Julius Caesar.

III. Defoe's Robinson Crusoe, Part I; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe or Quentin Durward; Hawthorne's House of Seven Gables; Dicken's David Copperfield or Tale of Two Cities; Thackeray's Henry Esmond; Mrs. Gaskell's Cranford; George Eliot's Silas Marner; Stevenson's Treasure Island.

IV. Bunyan's Pilgrim's Progress, Part I; The Sir Roger de Coverley Papers in the Spectator; Franklin's Autobiography (condensed); Irving's Sketch Book; Macaulay's Essays on Lord Clive and Warren Hastings; Thackeray's English Humorists; selections from Lincoln, including the two Inaugurals, the Speeches in Independence Hall and at Gettysburg, the Last Public Address, and the Letter to Horace Greeley, with a brief memoir or estimate; Parkman's Oregon Trail; either Thoreau's Walden or selections from Huxley's Lay Sermons; Stevenson's Inland Voyage and Travels with a Donkey.

V. Palgrave's Golden Treasury (First Series), Books II and III, with especial attention to Dryden, Collins, Gray, Cowper, Burns; Gray's Elegy in a Country Churchyard and Goldsmith's Deserted Village; Coleridge's Ancient Mariner and Lowell's Vision of Sir Launfal; Scott's Lady of the Lake; Byron's Childe Harold, Canto IV, and Prisoner of Chillon; Palgrave's Golden Treasury (First Series), Book IV, with especial attention to Wordsworth, Keats, and Shelley; Poe's Raven, Longfellow's Courtship of Miles Standish, Whittier's Snow Bound; Macaulay's Lays of Ancient Rome and Arnold's Sohrab and Rustum; Tennyson's Gareth and Lynette, Lance-



lot and Elaine, The Passing of Arthur; Browning's Cavalier Tunes, The Lost Leader, How They Brought the Good News from Ghent to Aix, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident of the French Camp, Hervé Riel, Pheidippides, My Last Duchess, Up at a Villa—Down in the City.

(b) In addition to the foregoing the candidate will be required to present a careful, systematic study, with supplementary reading, of the history of either English or American literature.

(c) The candidate will be examined on the form and substance of certain books in addition to those named under (a). For 1914 the books will be selected from the list below. The examination will be of such a character as to require a minute study of each of the works named in order to pass it successfully. The list is:

Shakespeare's Macbeth; Milton's Comus, L'Allegro, and Il Penseroso; Burke's Speech on Conciliation with America, or Washington's Farewell Address and Webster's First Bunker Hill Oration; Macaulay's Life of Johnson, or Carlyle's Essay on Burns.

The work outlined in (a), (b), and (c) counts for two units.

(d) The three units in English composition, rhetoric, and literature, as described above, are required for all students. A fourth unit may be obtained for one full year's additional work in the study of English and American authors.

12. FRENCH.—First Year's Work.—Elementary grammar, with the more common irregular verbs. Careful training in pronunciation. About 100 pages of easy prose should be read.

Second Year's Work.—Advanced grammar, with all the irregular verbs. Elementary composition, and conversation. About 300 pages of modern French should be read.

Third Year's Work.—Intermediate composition, and conversation. About 500 pages of standard authors should be read, including a few classics.

Fourth Year's Work.—Advanced composition, and conversation. Standard modern and classical authors should be read and studied to the extent of 700 pages.

13. GEOLOGY.—The student must show familiarity with the principles of dynamic and structural geology, and some acquaintance with the facts of historical geology as presented in Scott's Introduction to Geology, Brigham's Text-book of Geology, or an equivalent with note book of laboratory and field work. The laboratory and field work should follow one or more of the lines indicated below, and note books should be presented showing the character and amount of work done. (a) Studies of natural phenomena occurring in the neighborhood which illustrate the principles of dynamic geology. Each study should include a careful drawing of the object and a written description of the way in which it was produced. (b) Studies of well-marked types of crystalline, metamorphic, and sedimentary rocks which will enable the student to recognize each type and state clearly the conditions under which it was formed. (c) Studies of minerals of economic value, including the characteristic of each, its origin, and the uses to which it is put. (d) Studies of the types of soil occurring in the neighborhood, including the origin of each and the cause of differences in appearance and fertility.

14. GEOMETRY.—(a) Plane Geometry. Special emphasis is placed on the ability to use propositions in the solution of original numerical exercises and of supplementary theorems.

(b) Solid and Spherical Geometry. Applications to the solution of original exercises are emphasized.

15. GERMAN.—It is recommended that pupils be trained to understand spoken German and to reproduce freely in writing and orally what has been read. Whatever method of teaching is used, however, a thorough knowledge of grammar is expected. No attempt is made in what follows to give more than a general outline for the work of successive years, but the German department welcomes inquiries from teachers who wish further suggestions in the planning of courses.

First Year's Work.—At the end of the year pupils should be able to read intelligently and with accurate pronunciation simple German prose, to translate it into idiomatic English, and to answer in German easy questions on the passage read. A few short poems may well be memorized. Elementary grammar should be mastered up to the subjunctive as ar-

ranged in most books for beginners. Easy prose composition rather than the writing of forms will be the test of this grammatical work.

**Second Year's Work.**—About 500 pages of modern writers should be read, preference being given to material which has a distinctly German atmosphere and which lends itself readily to conversational treatment in the class-room. The regular recitations should afford constant oral and written drill on the elementary grammar of the previous year. More importance is attached to accuracy and facility in simple modes of expression than to theoretical knowledge of advanced syntax.

**Third Year's Work.**—Most of the time should still be devoted to good modern prose. There should be some work in advanced prose composition—based on German models—and the daily recitations should continue to afford abundant oral practice. Pupils ought by this time to understand spoken German fairly well.

**Fourth Year's Work.**—At the end of this year a pupil should be able to read at sight any prose or verse of moderate difficulty. He should also be able to express himself orally or in writing with considerable readiness and a high degree of accuracy. It is recommended that work in composition take the form of free reproduction of portions of the texts studied rather than translation of English selections. The reading should be divided about equally between modern and classical authors.

**16. GREEK.**—**First Year's Work.**—The exercises in any of the beginning books, and one book of the Anabasis or its equivalent.

**Second Year's Work.**—Two additional books of the Anabasis and three of Homer, or their equivalents, together with an amount of Greek prose composition equal to one exercise a week for one year.

**Third Year's Work.**—Three additional books of the Iliad, three of the Odyssey, and Books VI, VII, VII of Herodotus, or an equivalent from other authors.

**17. HISTORY.** — One, two, or three units may be presented, to be chosen from the following list:

Ancient history to 800 A. D., one unit.

Medieval and modern history, one unit.

English history, one-half or one unit.

American history, one-half or one unit.

18. LATIN.—The requirements for admission in Latin will be those recommended by the Commission on College Entrance Requirements in Latin, and are as follows: (a) In grammar and prose composition a sufficient knowledge of forms and syntax for writing simple Latin prose. (b) In reading, the amount shall not be less than Caesar, Gallic War, I-IV; Cicero, six orations; and Virgil, Aeneid I-VI, and shall be chosen from Caesar (complete), Nepos, Cicero (Orations, Letters, and de Senectute), Sallust, Ovid, and Virgil (complete). (c) Out of the above, the following reading is prescribed: Cicero's Manilian Law and Archias and the Aeneid I, II, and either IV or VI. (d) Sight translation of prose and verse of such difficulty as the scope of the above would justify.

19. MANUAL TRAINING.—The requirement for one unit is the equivalent of 360 forty-minute periods in manual training following the syllabus prepared by the manual training section of the High School Conference.

20. PHYSICS.—One year's high school work covering the elements of physical science as presented in the best of the current high school text-books of physics. Laboratory practice in elementary quantitative experiments should accompany the text-book work. The candidate's laboratory note-book will be considered as part of the examination.

21. PHYSICAL GEOGRAPHY.—The amount and character of the work required may be seen by referring to the texts of Gilbert and Brigham, Davis, Tarr and Martin, etc., the recitations must be supplemented by at least an equal amount of time devoted to laboratory work. The laboratory exercises should follow one or more lines such as are indicated below. Each student should present a note-book showing what he has done.

(a) Studies in mathematical geography in which map and scale only are used. These should embrace such topics as length of a degree in longitude in various latitudes; length and breadth of continents, etc., in degrees and miles; relative latitudes of places; distances between cities, etc., in de-

degrees and miles; difference in length of parallels and meridians; problems in time; location of time belts, etc.

(b) Studies of local topographic features which illustrate the various phases of stream work. Each study should include a drawing or topographic map of the object, and a full, clear description of the way in which it was formed.

(c) Studies of glacial deposits as shown in terminal and ground moraines, kames, eskers, etc.; distribution of dark and light colored soils; occurrences of lakes, ponds, gravel beds, clay banks, and water-bearing strips of sand and gravel.

(d) Studies of stream work as shown in the topographical sheets which may be obtained from the United States Geological Survey at a nominal cost.

(e) Studies of the form, size, direction and rate of movement of high and low barometer areas, and the relation of these to direction of wind, character of cloud, distribution of heat, and amount of moisture in the air, as shown in the daily weather maps. Later these studies should lead to the making of weather maps from the data furnished by the daily papers, and to local prediction of weather changes based on the student's own observation.

(f) Studies of the climate of various countries compared with our own, the necessary data being derived from such topographic, rainfall, wind, current, and temperature maps as are found in Sydow-Wagner's or Longman's atlases.

22. PHYSIOLOGY.—For one-half unit: The anatomy, histology, and physiology of the human body and the essentials of hygiene. For more than one-half unit, the course must include practical laboratory work.

23. SPANISH.—First Year's Work.—Elementary grammar, including thorough drill in the irregular verbs; careful training in pronunciation, and translation of simple Spanish when spoken; reading of about 100 pages of easy prose; simple composition and dictation.

Second Year's Work.—In addition to the foregoing, about 300 pages of modern prose; elementary syntax; dictation, composition, and translation of spoken Spanish continued.

24. TRIGONOMETRY.—The work should cover the field of plane trigonometry, as given in standard text-books, including the solution of right and oblique triangles. Special

emphasis is placed upon the solution of practical problems, trigonometric identities, and trigonometric equations.

25. ZOOLOGY.—The instruction must include laboratory work equivalent to four periods a week for a half-year, besides the time required for text-book and recitation work. Note-books and drawings must be presented to show the character of work done and the types of animals studied. The drawings are to be made from the objects themselves, not copied from illustrations, and the notes are to be a record of the student's own observations of the animals examined. The amount of equipment and the character of the surroundings must, of course, determine the nature of the work done and the kind of animals studied; but in any case the student should have at least a fairly accurate knowledge of the external anatomy of each of eight or ten animals distributed among several of the larger divisions of the animal kingdom, and should know something of their life histories and of their more obvious adaptations to environment. It is recommended that special attention be given to such facts as can be gained from a careful study of the living animal. The names of the largest divisions of the animal kingdom, with their most important distinguishing characters, and with illustrative examples selected, when practicable, from familiar forms, ought also to be known.

#### STUDENTS FROM OTHER COLLEGES AND UNIVERSITIES

Students from other institutions who have pursued standard college courses will be admitted and will receive credit for such courses upon the presentation of proper certificates of creditable standing and honorable dismissal.

No student from another institution will be admitted to the University as a candidate for graduation later than November 1st of the year in which he expects to graduate.

**ADMISSION OF ADULT SPECIAL STUDENTS**

Students over twenty-one years of age who are not working for a degree may register for courses of their selection without fulfilling the entrance requirements, provided they give evidence of ability to pursue such courses with profit.

**FEES AND EXPENSES****Registration Fees**

Annual registration fee .....	\$ 5.00
Library and gymnasium fee .....	1.00
Non-resident fee, per semester .....	10.00
University Extension fee—	
Each formal course .....	13.50
Each informal course .....	3.50

**Special Fees**

Breakage fee .....	\$10.00
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At the time of registration a deposit of ten dollars to cover possible breakage or damage to University property, is required of each student. This sum, or the remainder thereof after deduction for breakage or damage, is returned to the student at the end of the year or at withdrawal.

Late registration fee .....	\$1.00
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All students presenting themselves for registration later than the day appointed for registration pay an extra fee of one dollar.

Laboratory fees, per semester hour .....	\$1.00
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All students who take laboratory, field, or shop courses pay a fee of one dollar per semester hour of credit.

**Board and Lodging**

Board and lodging, per month .....	\$18.00
Single meals .....	25

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

Meals are taken in the Dining Hall, which is a separate building. The charge for board and lodging is eighteen dollars per month. All regular boarders are required to pay the full monthly rate of eighteen dollars. Day boarders pay twenty-five cents per meal. Fractional parts of a month are charged at single meal rates.

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

#### **REGISTRATION** **Registration of New Students**

All persons who expect to attend the University for the first time should send at their earliest convenience a certified record of their past work to the Dean or Director of the College of which they expect to be members. No fee is charged and no obligation whatever is incurred in having the proper authorities pass upon the credentials of prospective students. The University will gladly accredit records of past work no matter how remote are the prospects of attendance.

On the first day of the term or semester the student must first pay the matriculation, tuition, and other fees



at the office of the Secretary of the University. He shall then consult the proper committee and under their direction enroll in the courses which he is qualified to pursue.

#### **Registration of Upper Classes**

All students above the rank of Freshmen, after paying their fees to the Secretary of the University, shall enroll under the direction of the heads of the departments in which their major studies lie.

#### **Late Registration**

The first day of each semester is known as Registration Day and it is intended that all students shall completely arrange on this day their course of study for the current semester.

Registration after the day appointed for this purpose, except for reasons approved by the President or Dean, can be effected only after the payment of the late registration fee of one dollar.

#### **Class Hours and Credit Hours**

An "hour" shall consist of 53 minutes. A laboratory period is usually twice the length of a recitation and earns the same amount of credit. Any course, (Physical Education excepted) when successfully completed, earns as many credit hours as there are exercises in that course per week. Two hours per week in Physical Education earn one credit hour.

#### **Late Class-Entrance**

No student may enter a course later than four weeks from the beginning of the course, except by permission of his major professor or adviser and of the instructor of the class he proposes to enter. The instructor shall

determine the amount of credit that may be earned in such cases.

#### **Withdrawal From Class**

No student may drop a subject after the beginning of a course without the consent of his major professor or adviser and of the instructor in charge. No student may drop one course and enroll in another after the third week unless he has been passing in that course.

#### **Dismissal**

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

### **GRADING AND EXAMINATIONS**

#### **Grading**

The grades of students are based upon the work done from day to day and upon examinations. Students making a grade of 91-100 are marked A; 81-90, B; 71-80, C; 61-70, D; 60 or below, E (failed). No substitution may be made for failures or conditions toward graduation.

Students receiving a grade of D in any course are "conditioned" in that course. Such students may receive credit in that course if the condition imposed is removed in a way prescribed by the instructor under whom the condition is incurred. Any condition remaining unremoved at the end of the semester following its incurrence automatically becomes a failure. Only one opportunity is allowed to remove a condition.

Deduction in the number of credit hours may be made for late registration, for absences, or for incomplete work.

*Grades Affected by Absences.*

Students finding it necessary to be absent from a part of the recitation for any number of days must previously obtain permission from the instructor of the course.

No student is excused or permitted to be absent from any of the regular exercises of the classes for which he has registered, and in cases of failure to attend such classes the student loses the benefit of classroom or laboratory work which he has missed.

In cases of sickness or other cause beyond the control of the student, an instructor may assist the student in any manner to secure the knowledge or training which he has failed to secure because of his absence, yet he may not allow full credit if the student has been seriously irregular in his attendance at the exercises of the course.

Absences equal in number to twice the credit hours in a given course plus one debar a student from receiving full credit in that course, except by special examination.

**Examinations**

Special examinations, taken at other times than regularly with the class, except entrance examinations or examinations for advanced standing, can be taken only after the payment of a special examination fee of \$2.00 to the Registrar and the issuance by him of a permit for the special examination.

No final examination may be given to a class or to an individual previous to the time appointed by the schedule committee.

*Suspension for Dishonesty in Examinations.*

A student detected in giving or receiving aid in a quiz, test, or examination renders himself liable to suspension or expulsion.

## College of Letters and Science

### FACULTY

David Ross Boyd—President of the University.

Charles E. Hodgkin—Professor of Education.

Charles T. Kirk—Professor of Geology.

Lynn Boal Mitchell—Professor of Latin and Greek.

John D. Clark—Professor of Chemistry.

Clarence E. Bonnett—Professor of Social Science.

Asa Orrin Weese—Professor of Biology.

Josef F. Nelson—Professor of Modern Languages.

Josephine S. Parsons—Associate-Professor of Modern Languages.

Ethel A. Hickey—Associate-Professor of English Literature.

Della J. Sisler — Associate - Professor of Library Science.

R. F. Hutchinson—Director of Physical Education.

Will E. Edington, Associate-Professor of Mathematics.

Dean A. Worcester—Associate-Professor of Psychology and Philosophy.

Margaret Gleason—Director of Home Economics.

Proctor F. Sherwin—Associate-Professor of English Composition and Rhetoric and of History.

Jesse L. Brenneman, Associate - Professor of Physics and of Electrical Engineering.

Arno K. Leupold—Instructor in Shop.

E. Stanley Seder—Director of Music.

A. W. Wand—Instructor in Engineering.

## **College of Letters and Science**

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The College of Letters and Science aims to provide a liberal education as well as a thorough. It offers courses of both cultural and practical nature in various departments, including biology, chemistry, English, French, geology, German, Greek, history, Latin, library science, mathematics, physical education, physics, psychology and philosophy, social science, and Spanish. In addition, it accepts a certain amount of work from the Schools of Education, of Applied Science, and of Fine Arts. It also offers preliminary work for degrees in Law and in Medicine.

### **COURSE PREPARATORY TO LAW**

Inasmuch as most universities are now requiring at least two years' work in Letters and Science for entrance to their Law College, the University of New Mexico has prepared the following course for students who expect to take a degree in Law. Fifteen units of preparatory work are required for admission and of these Latin to the amount of three units should be offered. If Latin is not offered for entrance, it must be taken the first year.

## FIRST YEAR

First Semester		Credits
English 1 .....	English Composition .....	3
History 1 .....	European History .....	3
Social Science 1 .....	Economic History of U. S. ....	3
Social Science 3 .....	Sociology .....	3
Foreign Language ....	Elective .....	5 or 3
Total .....		17 or 15

## Second Semester

English 2 .....	English Composition .....	3
History 2 .....	European History .....	3
Social Science 2 .....	American Government .....	3
Social Science 52 .....	Labor Problems .....	3
Foreign Language ....	Elective .....	5 or 3
Total .....		17 or 15

## SECOND YEAR

## First Semester

English 51 .....	Argumentation and Debate.....	3
History 53 .....	English History .....	3
Social Science 61 .....	Economics .....	3
Latin 87 .....	Roman Political Institutions....	2
Psychology 51 .....	General Psychology .....	3
Social Science 71 .....	Political Science .....	3
Total .....		17

## Second Semester

English 52 .....	Argumentation and Debate.....	3
History 54 .....	English History .....	3
Social Science 62 .....	Business Organization .....	3
Latin 88 .....	Roman Political Institutions....	2
Philosophy 84 .....	History of Philosophy.....	3
Social Science 74 .....	Municipal Government .....	3
Total .....		17

Physical Education is required throughout both years to the amount of four hours credit.

In some universities it is possible to arrange the course for the student in such a way that in six years he is able to receive the degrees of Bachelor of Arts and Bachelor of Law. When a student desires this combination he is able to take the first three years of this course at the University of New Mexico by adding to the above outlined course a third year's work devoted especially to further courses in the departments of English, History, and Social Science.

#### COURSES PREPARATORY TO MEDICINE

All standard medical schools are now requiring for entrance at least two or three years of college work in which special emphasis is placed on the laboratory sciences and the modern languages. The following premedical courses are given under the direction of the Department of Biology, and include all subjects required for entrance by Class "A" Medical Colleges. The student should determine very early in his course which Medical College he is to enter, and any desirable modifications will be made in his course.

#### Two-Year Course

##### FIRST YEAR

First Semester		Credits
English 1 .....	English Composition .....	3
German 1 or French 1 .....	Beginning German or French...	5
or		
German 51 or French		
51 .....	Second Year German or French.	3
(For those offering the equivalent of Courses 1 and 2 for entrance.)		
Chemistry 1 .....	Inorganic Chemistry .....	3
Biology 1 .....	Zoology .....	5
Total .....		16 or 14



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## Second Semester

English 2 .....	English Composition .....	3
German 2 or French 2.	Beginning German or French...	5
or		
German 52 or French		
52 .....	Second Year German or French.	3
(For those offering the equivalent of Courses 1 and 2.)		
Chemistry 2 .....	Inorganic Chemistry .....	5
Biology 2 .....	Zoology .....	5

## SECOND YEAR

Total .....18 or 16

## First Semester

German 51 or French		
51 .....	Second Year German or French.	3
or		
Elective (if language courses 51 and 52 are taken the		
first year) .....		3
Chemistry 51 .....	Qualitative Analysis .....	5
Biology 51 .....	Histology .....	5
or		
Biology 55 .....	General Embryology .....	5
Physics 1 .....	Elementary Physics .....	5

Total .....18

## Second Semester

German 52 or French		
52 .....	Second Year German or French.	3
or		
Elective (if language courses 51 and 52 are taken the		
first year) .....		3
Chemistry 52 .....	Quantitative Analysis .....	5
or		
Biology 52 .....	Histology .....	5
or		
Biology 64 .....	Comparative Anatomy .....	5
Physics 2 .....	Elementary Physics .....	5

Total .....18

Physical Education is required throughout both years to the amount of four hours credit.

### Three- and Four-Year Courses

If the student plans to spend three or four years in his premedical work, or plans to attend a Medical College where a degree is required for entrance, he will take the regular prescribed course for Freshmen and at the beginning of the Sophomore year will declare his major in the Department of Biology. His course will include the same subjects as are listed in the two-year course, together with a large number of electives in other lines, so planned as to give a thorough and broad training as a foundation for later work.

**REGISTRATION**

(See Page 45.)

**REGISTRATION LIMITATIONS****Maximum Schedule**

No candidate for a B. A. degree from the University is allowed to carry more than seventeen hours, unless his standing for the previous semester be A in two-thirds of his work and with no mark less than B, and then only by presenting written request to the Student Standing Committee who shall grant permission to carry extra work at their discretion.

**Minimum Schedule**

No student shall be registered for fewer than twelve hours per week except by permission of the President.

**THE CURRICULUM**

A little more than one-third of the curriculum is prescribed with the intention that every student shall lay sufficiently broad foundations in English, other languages, the sciences including mathematics, psychology and philosophy, history or social science. The remainder of the curriculum is elective within the restrictions stated below.

**Prescribed for Freshmen**

English, 3 hours per semester.

History or Social Science, 3 hours per semester.

Foreign Language, 5 hours per semester (See Reg. 2).

Science or Mathematics, 5 hours per semester (See Reg. 3).

Physical Education, 2 hours per semester (1 credit hour).

**Courses Open to Freshmen**

English 1 and 2, 3 credit hours (per semester).

History 1 and 2, 3 credit hours.

Social Science 1 and 2, 3 credit hours.

French 1 and 2, 5 credit hours.

French 51 and 52, 3 credit hours (for students who enter with the equivalent of French 1 and 2).

German 1 and 2, 5 credit hours.

German 51 and 52, 3 credit hours (for students who enter with the equivalent of German 1 and 2).

Geology 1 and 2, 5 credit hours.

Geology 3 and 4, 3 and 4 credit hours respectively.

Geology 5 and 6, 3 or 2 and 2 credit hours respectively.

Greek 1 and 2, 5 credit hours.

Latin, 3 to 5 hours. (The course open depends upon the amount of work completed before entrance.)

Spanish 1 and 2, 5 credit hours.

Spanish 51 and 52, 3 credit hours (for students who enter with the equivalent of Spanish 1 and 2).

Biology 1 and 2, 5 credit hours.

Chemistry 1 and 2, 3 credit hours.

Home Economics 1 and 2, 5 credit hours.

Mathematics 1 and 2, 5 credit hours.

Library Science 1 and 2, 2 credit hours.

Shop Work 1 and 2, 3 and 2 credit hours respectively.

Piano 1, or 1 and 2, 2 or 4 credit hours.

Violin 1, or 1 and 2, 2 or 4 credit hours.

Voice 1, or 1 and 2, 2 or 4 credit hours.

Theory of Music 1 and 2, 3 credit hours.

Theory of Music 7 and 8, 2 credit hours.

Education 1 and 2, 4 credit hours.

**Prescribed for Sophomores**

English 51 and 52, 3 hours per semester.

Psychology 51 and 56 or Philosophy 84, 3 hours per semester.

Major Study, 5 hours (See Reg. 4).

Elective, 5 hours (See Regs. 2 and 3).

Physical Education, 2 hours per semester (1 credit hour).

**Prescribed for Juniors and Seniors**

Juniors and Seniors will make their courses of study under the direction of their major professors, care being taken that they meet the requirements set forth under regulations 2, 3 and 4.

**GRADUATION REQUIREMENTS****Hour Requirements**

All candidates for the degree of Bachelor of Arts must complete the full undergraduate course of eight semesters of eighteen weeks each, or 120 credit hours of A work, or 128 credit hours of B work, or 136 credit hours of C work. In addition they must take two years work (4 credit hours) in Physical Education.

At least 50 of the 120 credit hours required for graduation must be obtained in courses not open to Freshmen.

**Requirement in Foreign Language**

Sixteen hours of credit in languages other than English are required for graduation. But for students who enter with six units of credit in languages other than English, the college requirement is eight instead of sixteen credit hours. In high school and college together the student must have credit in at least two languages other than English.

Article B. If a student elects a science or mathematics as his major study, this requirement in languages must be satisfied in German, French or Spanish, ordinarily German.

Article C. This regulation affects classes to be graduated in 1918 and thereafter.

**Requirement in Science (and Mathematics)**

**Article A.** Every student is required (a) to secure credit for at least five hours in a biological science (botany, physiology, or zoology), and (b) at least six credit hours in a non-biological science (astronomy, chemistry, geology, or physics). But students who enter with one unit in botany or zoology or one-half unit in each may be excused from requirement (a) and students who enter with one unit in physics and one unit in chemistry may be excused from requirement (b), but in no case is a student excused from both requirements.

**Article B.** The above exemptions do not apply in so far as they involve University courses in science which are prerequisite to courses in which a student desires to enroll after finishing the Freshman year.

**Article C.** In order to secure exemption from either requirement (a) or (b) it is necessary for the student to present his notebooks and other evidence of completed work for the approval of the head of the department in which such exemption is sought.

**Article D.** A year's course in mathematics in the University is accepted in lieu of either requirement (a) or (b).

**Article E.** This regulation affects classes to be graduated in 1918 and thereafter.

**Major Study**

At the beginning of the Sophomore year the student shall select a major study and make out his course under the supervision of the head of the department in which this major study is chosen. The student shall devote to this major study not less than one-fourth nor more than one-half of his entire course.

The professor having supervision of the major study may, at his discretion, permit work up to ten hours taken in a correlated subject to count towards the requirements of the major study.

The student may change his major study only by permission of the faculty, and in so doing he must complete in his newly selected major study the number of credit hours required for a major study, no matter how many credit hours he may have earned in his previously declared major study.

#### **Thesis**

Candidates for the B. A. degree may be required to prepare a thesis in the Senior year upon some subject chosen by the head of the department in which the major study lies. The requirements as to typographical form may be obtained upon application to the Librarian.

#### **DEGREE**

Upon the recommendation of the President and Faculty, 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' course in accordance with the requirements and regulations of the University. It is stated in the diploma in what department the student has taken his major study.

Students who complete 100 credit hours of A work out of the total number of hours required for graduation will receive the degree of Bachelor of Arts with honors.

# Departments of Instruction in the College of Letters and Science

## DEPARTMENT OF BIOLOGY

Professor Weese

1. ZOOLOGY 5 hours

A comparative study of the principles of structure, physiology and development in animals. The laboratory work consists essentially of a detailed examination of one or more types in each phylum and a more superficial study of closely related organisms. A study of typical metazoan tissues is included. Laboratory work, 3h.

2. ZOOLOGY 5 hours

A continuation of Course 1. The second semester's work includes the study of some typical vertebrate, e. g., the frog, a survey of the embryology of the chick, and the consideration of important biological theories. Laboratory work, 3h.

14. BOTANY 5 hours

A 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, 2h.

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\*Courses numbered 1-50 are open to Freshman; 51-100 to none below Sophomore rank; 101-150, to none below Junior rank; 151-200, to none below Senior rank. Courses numbered 201 and above are graduate courses. Courses with odd numbers are given during the first semester; with even numbers, during the second.



19. PLANT IDENTIFICATION 2 or 3 hours  
A laboratory and field course in the identification and recognition of common flowering plants of New Mexico. While this is not a formal course in taxonomy, the general principles of plant classification will be briefly considered. The manuals of Coulter and Nelson, and Clements will be used. Laboratory work, 2 or 3h.
26. ELEMENTARY PHYSIOLOGY 3 hours  
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, 1h.
51. HISTOLOGY 5 hours  
The 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. Prerequisites: Courses 1 and 2 or their equivalent. Laboratory work, 3h.
52. HISTOLOGY 5 hours  
A continuation of Course 51.
54. HISTOLOGICAL TECHNIQUE 3 or 5 hours  
Practical work in the preparation of histological and embryological material. May be taken in connection with Courses 51 and 52.
55. GENERAL EMBRYOLOGY 5 hours  
The development of the individual treated from its broadly biological standpoint. The main facts of chordate development are considered in the laboratory. Prerequisites: Courses 1 and 2 or their equivalent. Laboratory work, 3h.
56. VERTEBRATE EMBRYOLOGY 5 hours  
A continuation of Course 55 in which special attention is given to the embryology of the chick. Practical work in the preparation of material for study. Reconstruction methods, etc. Laboratory work, 3h.

64. COMPARATIVE ANATOMY 5 hours  
The detailed study of the anatomy of some mammal, e. g., the cat, the study of the brain of the sheep, and the comparative study of other animals including man. Prerequisites: Courses 1 and 2 or their equivalent. Laboratory work, 3h.
71. ENTOMOLOGY 5 hours  
The structure, physiology, development and economic relations of insects. A discussion of the principles of taxonomy and their application to the classification of insects. Prerequisites: Courses 1 and 2 or their equivalent. Laboratory work, 3h.
85. GENERAL ECOLOGY 5 hours  
A study of the factors which make up the home of the organism. Response of the organism to its environment. Adaptation and the origin of new forms. Regional relations of plant and animal life. Prerequisites: Courses 1 and 14 or their equivalent. Laboratory and field work, 3h.
91. BACTERIOLOGY 3 hours  
Morphology, culture and physiology of micro-organisms. Microbiology of air, water, sewage, soil, and special industries. Plant and animal diseases and their control. Household bacteriology. Prerequisite: Chemistry 1. Laboratory work, 1h.
101. GENERAL PHYSIOLOGY 3 hours  
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. Prerequisites: Courses 1 and 2, and two other courses in the department.
104. ANIMAL BEHAVIOR 3 or 5 hours  
This course, offered in collaboration with the Department of Psychology, is listed as Course No. 104 in the statement of that department. The tropisms, instincts and intelligence of animals, and the general evolution of the animal mind. Laboratory work, 1 or 2h.

120. ORGANIC EVOLUTION 3 hours  
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 and discussion of current literature pertaining to the subject matter of the course. Prerequisites: Four courses in the department.
- 171-172. ADVANCED WORK along the lines indicated by the above introductory courses may be elected by students having proper preparation. Problems. Semi-independent work. Details must be arranged in consultation with the professor in charge.
- 191-192. THESIS for students whose major has been elected in this department, and research for graduates.

#### DEPARTMENT OF CHEMISTRY

Professor Clark

1. INORGANIC CHEMISTRY 3 hours  
Lectures and recitations on general and theoretical chemistry, illustrated by demonstrations, charts, lantern slides, specimens, etc. Solution of chemical problems is required. Laboratory work, 1h.
2. INORGANIC CHEMISTRY 5 hours  
Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc. Prerequisite: Chemistry 1. Laboratory work, 2h.
51. QUALITATIVE ANALYSIS 5 hours  
Chemistry 51 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. Prerequisites: Chemistry 1 and 2.
52. QUANTITATIVE ANALYSIS 5 hours  
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 51. Laboratory work, 5h.

101. QUANTITATIVE ANALYSIS 5 hours  
A continuation of Course 52. Laboratory work, 5h.

102. QUANTITATIVE ANALYSIS 5 hours  
A continuation of Course 101. Laboratory work, 5h.

61. ORGANIC CHEMISTRY 3 hours  
Lectures and recitations. A study of the chemistry of the carbon compounds. Laboratory work taken in Course 62. Prerequisites: Courses 1, 2 and 51. (Given in alternate years.)

62. ORGANIC CHEMICAL LABORATORY 3 hours  
This course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of qualitative organic reactions and analysis. Prerequisite: Course 61. Laboratory work, 4h. (Given in alternate years.)

111. PHYSICAL CHEMISTRY 5 hours  
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, thermo-chemistry, equilibrium, the phase rule, etc., will take up much of the time. (Given in alternate years.) Prerequisites: Courses 1, 2, 51 and 52.

112. INDUSTRIAL CHEMISTRY 2 hours  
This course consists of lectures on chemical manufactures such as sugar, sodium carbonate, fertilizers, sulfuric acid, glass, matches, paints, dyes, illuminating gases, petroleum, etc. The lectures will be illustrated by lantern slides and charts. (Given in alternate years.) Prerequisites: Courses 1, 2 and 51.

113. METALLURGY 2 hours  
This course consists of lectures describing the processes

employed in the smelting of iron, lead, copper, zinc, silver, gold, etc. (Given in alternate years.) Prerequisites: Courses 1, 2, and 51.

131. GEOLOGICAL CHEMISTRY 2 hours  
This course is intended primarily for major students of geology. The work of the course covers the main features of the chemistry of the atmosphere, hydrosphere and lithosphere, and especially those processes involved in the formation, alteration, and decay of minerals and rocks. Prerequisites: Geology 1 and 2, Geology 3 and 4, and Chemistry 111. (Given alternate years.)
- 141-142. ADVANCED WORK FOR INDIVIDUAL STUDENTS
- 171-172. THESIS 5 hours

### DEPARTMENT OF ENGLISH

Associate Professor Hickey

Associate Professor Sherwin

#### English Composition and Rhetoric

Associate Professors Sherwin and Hickey

1. COMPOSITION AND RHETORIC 3 hours  
Instruction in the fundamental principles of rhetoric and practice in writing English—use of words, sentences, paragraphs, etc.

Associate Professor Sherwin.

2. COMPOSITION AND RHETORIC 3 hours  
Training in organization and structure and the four forms of discourse—exposition, argumentation, description, and narration.

Associate Professor Sherwin.

51. ARGUMENTATION, DEBATING, AND PARLIAMENTARY LAW 2 hours  
INTRODUCTION TO ENGLISH LITERATURE 1 hour  
Two hours each week are given to practice in writing briefs and arguments, and their use in practical public speaking, and to instruction in the conduct of parliamentary assemblies, writing minutes, reports, resolutions, etc. The third hour is devoted to a general survey of the historical development of English literature

by means of readings chronologically arranged, a brief textbook, and interpretative lectures from the instructor.

Associate Professors Sherwin and Hickey.

52. ARGUMENTATION, DEBATING, AND PARLIAMENTARY LAW 1 hour  
INTRODUCTION TO ENGLISH LITERATURE 2 hours  
Continuation of the above.

Associate Professors Sherwin and Hickey.

53. SHORT-STORY WRITING 3 hours  
Open to students who have completed 1 and 2.

Associate Professor Sherwin.

54. ESSAY (OR MAGAZINE) WRITING 3 hours  
Open to students who have completed 1 and 2.

Associate Professor Sherwin.

55. JOURNALISTIC WRITING 3 hours  
Practice in newspaper writing, based partly on a study of the treatment of current events in the best newspapers and magazines and partly on first-hand observation. Open to students who have completed 1 and 2.

Associate Professor Sherwin.

56. FORMS OF PUBLIC ADDRESS 3 hours  
A study of such forms as the argument, the eulogy, the commemorative address, the dedication, the toast, the after-dinner speech, the legislative address, the political speech, accompanied by practice in oral presentation. (Alternating with 61; not given in 1915-1916.)

Associate Professor Sherwin.

Courses 53-56 are required of all students doing major work in English Composition and Rhetoric.

101. PRINCIPLES AND HISTORY OF RHETORIC AND LITERARY CRITICISM 3 hours  
Lectures and readings on the development of the principles and practice of rhetoric and literary criticism from Aristotle to the present day. (Alternating with 61; not given 1915-1916.)

Associate Professor Sherwin.

102. LITERARY CRITICISM AND BOOK REVIEWING 3 hours

Study and practice of these forms of writing. Open to students who have completed 1 and 2.

Associate Professor Sherwin.

### Medieval English

Associate Professor Sherwin.

61. CHAUCER 3 hours

An introductory course with extensive reading and discussion of the works.

62. HISTORY OF OLD AND MIDDLE ENGLISH

LITERATURE 3 hours

From the earliest remains to 1557 (exclusive of Chaucer). Lectures with selected readings, partly in translation.

### English Literature

Associate Professors Hickey and Sherwin

71. ENGLISH LITERATURE, 1557-1599 3 hours

72. ENGLISH LITERATURE, 1599-1660 3 hours

73. ENGLISH LITERATURE, 1660-1781 3 hours

74. ENGLISH LITERATURE, 1782-1832 3 hours

75. ENGLISH LITERATURE, 1833-1894 (POETRY) 3 hours

76. ENGLISH LITERATURE, 1833-1894 (PROSE) 3 hours

Associate Professor Hickey

Courses 71-76 give by periods the history of English literature with some minuteness from the beginning of the modern period to the present time. They are open to students who have completed 1 and 2, and are required of all who are doing major work in English Literature.

78. AMERICAN LITERATURE 3 hours

This course deals with American literature as Courses 71-76 deal with English literature.

Associate Professor Hickey.

121. DRAMA, 1551-1642 2 hours

History and study of the English drama from the opening of the modern period to the outbreak of the Civil War.

Associate Professor Hickey.

122. DRAMA, 1660 TO THE PRESENT DAY 2 hours

Continuation of the above from the Restoration to the

- present day, with some consideration of contemporary forms and tendencies. Associate Professor Hickey.
123. NOVEL, 1579-1832 2 hours  
The historical development of the novel from Lyly's *Euphues* to the death of Scott.  
Associate Professor Hickey.
124. NOVEL, 1832-TO THE PRESENT DAY 2 hours  
Continuation of the above to Stevenson and Kipling.  
Associate Professor Hickey.
131. SHORT-STORY 3 hours  
Historical and critical study of the short-story from Boccaccio and Chaucer to Kipling.  
Associate Professor Sherwin.
132. LITERARY ESSAY 3 hours  
Reading of masterpieces from Montaigne and Bacon to the present day.  
Associate Professor Sherwin.
141. LIFE AND WORKS OF SPENSER 2 hours  
Associate Professor Sherwin.
142. SHAKESPEARE 3 hours  
Associate Professor Hickey.
143. WORDSWORTH AND SHELLEY 2 hours  
Associate Professor Hickey.
144. MILTON 2 hours  
Associate Professor Sherwin.
145. TENNYSON AND BROWNING 2 hours  
Associate Professor Hickey.
91. GREEK 2 hours

## DEPARTMENT OF FRENCH

Professor Nelson

1. ELEMENTARY FRENCH 5 hours  
Principles of grammar, oral and written exercises, phonetics and pronunciation. Text, Fraser and Squair, Part I, and about 100 pages of reading.
2. ELEMENTARY FRENCH 5 hours  
Dictation, drill on the irregular verbs, prose composition from Fraser and Squair, Part II. Reading about 150 pages of selected prose.
51. SECOND-YEAR FRENCH 3 hours  
Reading, selected modern text. Syntax, composition,



idioms. Some works will be read at home, reports brought to class, and discussed in French.

52. SECOND-YEAR FRENCH 3 hours  
A continuation of Course 51.
101. THIRD-YEAR FRENCH 3 hours  
Advanced French prose composition. Translation into French of selected English texts. A study of the principal authors of the Classical Period. Representative texts from the works of Corneille, Racine, Molière, Voltaire, Le Sage, La Fontaine, Boileau.
102. THIRD-YEAR FRENCH 3 hours  
Continuation of Course 101. Study of the writers of the Romantic School. Discussion of literary and colloquial forms and critical points in grammar.
151. FOURTH-YEAR FRENCH 2 hours  
History of French literature, with readings from principal authors. From the Renaissance to the end of the Seventeenth Century.
152. FOURTH-YEAR FRENCH 2 hours  
History of French literature, with readings from principal authors. From the beginning of the Eighteenth Century to the present time.

A phonograph with records by Professor de Sumichrast of Harvard University, and Madame Marion, is used as an aid to accurate pronunciation, and to facilitate an early recognition of spoken French.

#### DEPARTMENT OF GEOLOGY

Professor Kirk

1. PHYSICAL GEOLOGY 5 hours  
Physiographic, structural, and dynamic processes are considered in a general way, to be applied more specifically during Course 2 in the second semester. One-fifth of the work is devoted to studies of topographic and geologic maps and the handling, identification, and interpretation of illustrative minerals, rocks, fossils, models. Occasional field trips are required to areas reasonably accessible from the campus. Elementary chemistry is necessary for progress in this course, and physics and mineralogy are desirable.

## 2. HISTORICAL GEOLOGY 5 hours

The principles of Course 1, together with the elements of paleontology, are applied to the study of the origin and development of the earth, and to the evolution of life forms as governed by their migrations and adaptations. A large collection of accurately labeled fossils is available for laboratory work. An area near the campus is mapped topographically and its geologic problems discussed by the class. Acquaintance with modern geologic field instruments and methods is insisted upon. Prerequisite: Geology 1.

## 3. MINERALOGY; INTRODUCTORY 3 hours

Crystallographic, physical, chemical, and descriptive mineralogy are given in lectures and recitations, and illustrated by specimens, models, and slides. Each student is equipped with a laboratory blowpipe and chemical set for work preliminary to determinative mineralogy. A limited number of unknowns are determined as an introduction to Course 4. Elementary chemistry is required, but may be taken along with the course. See also Course 55.

## 4. MINERALOGY; DETERMINATIVE 5 hours

Three-fifths of the work is devoted to the determination of unknowns in the laboratory. After sufficient training in this means of identification is had, sight identification is practiced, followed by use of the spectroscopic, gravity separations, and preparation and microscopic examination of opaque minerals by reflected light. Occurrence, origin, uses, conservation, and, where applicable, the principles of metallurgy of the minerals are considered in lectures and recitations. Prerequisites: Geology 3 and Chemistry 1.

## 5. PHYSIOGRAPHY 3 or 5 hours

This course is planned to supplement the usual courses in general geography and at the same time lead to an understanding of the geologic control of surficial features and products. It includes a study of the earth's astronomic relations, atmosphere, rivers, oceans, land-masses. Regional comparisons are made of Eastern

and Western physiographic features of the United States and the developments of resources and industries from a knowledge of geology, topography, soil, and climate. Extensive use is made of maps and models in the laboratory, and various short field trips are required. During these the student is acquainted with the use of compass, clinometer, plane-table, alidade, rod, and methods of constructing topographic maps and sketches. This may be elected as a general cultural course. It is required of majors in geology.

6. CLIMATOLOGY

2 hours

Recent researches into prehistoric climatic variation are opening new fields in this subject. The modern advances in the methods of the U. S. Weather Bureau are likewise of extreme interest and importance. Unusual opportunities are presented in this region for the application of theory and its checking with practical observation.

51. ECONOMIC GEOLOGY

5 hours

This may be otherwise described as applied geology. Occurrence, geographic and geologic distribution, origin, alteration, uses, and conservation of useful geologic products are investigated. Both non-metallic and metallic resources receive attention, particularly those common to the United States. The principles of mining and metallurgy are dealt with to some extent. Publications and maps of the Federal Geological Survey as well as those of state and foreign surveys are used freely. Illustrative specimens are handled, and practical field problems submitted to the class. Recourse is had occasionally to such experimental work as the examination of polished ore specimens by reflected light, and quantitative laboratory work is conducted. Elementary chemistry and mineralogy, as well as either Geology 1-2, or 102 are prerequisites.

52. ECONOMIC GEOLOGY

5 hours

Continuation of Course 51.

53. PALEONTOLOGY

5 hours

Studies of those plant and animal forms useful in representing geologic history and biologic development.

Attention is confined mainly to the extinct marine invertebrate animals. The influence of enemies, barriers, migration, and commingling are investigated. Development of species and recapitulation are considered through study of interior structure as well as of exterior form. Characteristic or index species receive especial attention. Prerequisite: Geology 1-2, or 102.

54. HISTORICAL GEOLOGY 3 or 5 hours

The origin and development of the earth and its oceans and land masses receive detailed attention. Succession of life forms, significance of faunal and floral connections and separations, likenesses and unlikenesses, climatic conditions, structural features, probable land-and-sea boundaries form subjects for discussion. Reading researches are assigned. Certain phases of oceanography as well as continental conditions are involved. Prerequisites: Geology 1-2, or 102.

55. PETROGRAPHY 2 hours

This work is intended especially to familiarize the student with applied crystallography through drills on crystal forms, crystal projection, and the use of the goniometer, both crystal models and natural crystals being used. Preliminary study of microscopic technique and the preparation of thin sections and polished surfaces of opaque minerals are taught in connection with light phenomena as seen in the petrographic microscope, and microchemical phenomena in the reflection microscope. It may be given with geology 4, in which case the latter course deals largely with blow-pipe determinations. Physics and chemistry are prerequisites. See also Course 3.

56. PETROLOGY 5 hours

The ultimate aim of this course is training in rock classification as arrived at through petrographic chemical, and field studies of the rock-forming minerals and their possible combinations. Igneous rocks are studied in particular, but the petrology of sediments and paragenesis of metalliferous minerals are also investigated. Thin sections, polished surfaces, cleavage fragments, gravity separations, and field evidences are made use of.

Much emphasis is placed upon the manipulation of petrographic and reflection microscopes, and other laboratory devices. Prerequisite: Geology 3-4 or 55 or 101, and preferably, either 1 or 102.

57. INTERPRETATION OF MAPS 3 hours

This is otherwise called indoor field geology. Topographic and geologic maps and folios are its bases. Training is had in detecting topographic and geologic from. Field operations are planned as if to meet the conditions implied by the maps. The making and criticism of contour and geologic maps and of geologic cross-sections is practiced. Prerequisite: Geology 1-2, or 101.

101. ENGINEERING MINERALOGY 5 hours

This is designed as a short course in determinative mineralogy and rock identification and classification, primarily for engineers and chemists. It consists mainly of laboratory work, but a brief treatment of crystallography is given. Microscopic observations of polished surfaces of minerals and metals is here offered. Prerequisites: Chemistry 1-2 and Physics 1-2.

102. ENGINEERING GEOLOGY 5 hours

A course intended for those majoring in civil engineering. It includes the elements of mineral and rock recognition, and the principles of weathering, erosion, sedimentation, and particularly structural geology, with brief attention to historical phases. Geologic field instruments are made use of, and reconnaissance methods and mapping practiced briefly. Prerequisites: Chemistry 1 and 2, Physics 1 and 2.

103. LOCAL GEOLOGY 2 hours

This includes the broader geologic problems of the Southwest and the geology of New Mexico as far as known. Particular attention is directed to conditions in the region of the University. Faulting, vulcanism, local water supply, soils, road metals, and other structural and economic features offer problems for solution here.

104. GEOLOGIC SEMINAR 2 to 5 hours

The departmental library is a depository for Federal Geological Survey and New Mexico Natural Resources

Survey publications, and is kept up to date in state and many foreign geologic papers. An added incentive to reading and research with these facilities is seen in the fact that the geologic problems in New Mexico are as yet blocked out in only their broadest outlines, and await investigation by those acquainted with local conditions and the published results from this and related regions. Those desiring to emphasize local phases should precede or accompany this course with Geology 103. For juniors and seniors who are adjudged prepared for the course.

151. **THESIS** 3 to 5 hours

Obviously those who major in a growing subject can best become acquainted with their line of preference by focusing efforts and ideas upon a concrete problem. As implied in the last paragraph above, this state is well nigh a virgin field for geologic research.

### DEPARTMENT OF GERMAN

Professor Nelson

1. **ELEMENTARY GERMAN** 5 hours  
Grammar, translation and conversation, and memorizing simple German verse. Text: Bierwirth, **Beginning German**; and some selected prose.
2. **ELEMENTARY GERMAN** 5 hours  
Grammar completed. Reading about 200 pages of prose. Memorizing German poetry.
51. **SECOND-YEAR GERMAN** 3 hours  
Prerequisite: One year of German in college or two years of German in high school. Prose composition, conversation, memorizing, and reading of **Wilhelm Tell**, and **Minna von Barnhelm**.
52. **SECOND-YEAR GERMAN** 3 hours  
**Die Journalisten**, **Zwischen Himmel und Erde**; or, **Dippold's Scientific German Reader**. Composition and conversation continued.
101. **SCHILLER'S LIFE AND WORKS** 2 hours  
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.

102. **GOETHE'S LIFE AND WORKS** 2 hours  
Conducted in German. Reading of Goetz, *Iphigenie*, Tasso, and selections from *Dichtung und Wahrheit*, etc. Original composition.
151. **HISTORY OF GERMAN LITERATURE** 2 hours  
German literature of the Eighteenth Century. Open to college students who have had at least two years of German. Discussion and reports based on the reading of typical classics. Kluge's *Deutsche Nationalliteratur* will furnish the guiding outline.
152. **HISTORY OF GERMAN LITERATURE** 2 hours  
German literature of the Nineteenth Century. Requirements and methods the same as in Course 151.

**DEPARTMENT OF GREEK****Professor Mitchell**

1. **ELEMENTARY GREEK** 5 hours  
Grammar and composition. The common forms, idioms, and constructions, and the grammatical principles of Attic Greek prose.
2. **ELEMENTARY READING COURSE** 3 hours  
Xenophon's *Anabasis*, Books I-III. A review of Greek history from the close of the Peloponnesian war through the time of Alexander the Great.
12. **GREEK GRAMMAR AND GREEK PROSE COMPOSITION** 2 hours  
Intended to accompany Course 2.
21. **ATTIC GREEK PROSE** 3 hours  
The life, character, and teachings of Socrates are studied by translating portions of Xenophon's *Memorabilia* and the Dialogues of Plato and by assigned library readings. Prerequisite: Greek 1 and 2 or their equivalent.
24. **EPIC GREEK POETRY** 3 hours  
Selections from the *Iliad* of Homer are translated in class. A study of the epic as a species of literature and of early Greek civilization. The remainder of the *Iliad* and all of the *Odyssey* are read in translation.
51. **GREEK HISTORY** 3 hours  
Herodotus, Book I or VII or selections. A study of the beginning and development of historical writing. Read-

ing in English of other portions of Herodotus and other Greek historians. (Not given in 1915-1916.)

54. GREEK DRAMA 3 hours  
One play of Sophocles and one of Euripides are studied. The origin and development of the drama as a species of literature are treated. Assigned readings on correlated topics. (Not given in 1915-1916.)

- 61-62. ADVANCED GREEK COMPOSITION 2 hours

73. GREEK ARCHITECTURE AND ART 2 hours  
Lectures, quizzes, assigned readings, and reports. No knowledge of Greek is required for admission to this course. (Not given in 1915-1916.)

88. GREEK PUBLIC AND PRIVATE LIFE 2 hours  
A study of the civilization, customs, and institutions of the ancient Greeks, lectures, assigned readings, quizzes, and reports. No knowledge of Greek required for admission to this course. (Not given in 1915-1916.)

91. GREEK IN ENGLISH TRANSLATION  
THE DRAMA 2 hours

The rise and development of the drama among the Greeks and Romans. Intensive study of several Greek plays and outside reading of other plays of Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, and Seneca. Lectures, assigned readings, quizzes, and reports. No previous knowledge of Greek required for admission to this course. (May be given in 1915-1916 if called for by six or more students.)

94. GREEK IN ENGLISH TRANSLATION 2 hours  
A study is made of the contribution of the Greeks to other species of literature outside of the drama, especially in realms of epic and lyric poetry, history, philosophy, and the romance.

#### DEPARTMENT OF HISTORY AND INTERNATIONAL LAW

Associate Professor Sherwin

1. EUROPEAN HISTORY: c. 4000 B. C.-476 A. D. 3 hours  
The ancient and classical periods; a rapid survey of the history of Egyptian, Oriental, Greek, and Roman civilization to the triumph of Christianity. Class textbooks: Robinson and Breasted, *Outlines of European History*,



**Part I, and Davis, Readings in Ancient History, Volumes I and II.**

2. **EUROPEAN HISTORY: 476-1300.** 3 hours  
The medieval period; from the decline of classical civilization and the triumph of Christianity in western Europe to the beginnings of the Renaissance. Class textbooks: Robinson and Breasted, **Outlines of European History, Part I**, and Robinson, **Readings in European History, Volume I.**
51. **EUROPEAN HISTORY: 1300-1715.** 3 hours  
The period of the Renaissance and Reformation; from the beginnings of these movements to the opening of the modern period. Class textbooks: Robinson and Breasted, **Outlines of European History, Part I**, and Robinson, **Readings in European History, Volumes I and II.**
52. **EUROPEAN HISTORY: 1715-1914.** 3 hours  
The modern period; the French Revolution, its causes, history, and effects, the Napoleonic wars, the industrial revolution, the development of Europe in the nineteenth and twentieth centuries, and the democratic movement. Class textbooks: Robinson and Beard, **Outlines of European History, Part II**; Robinson, **Readings in European History, Volume II**; and Robinson and Beard, **Readings in Modern European History, Volume II.**

The above four courses are intended to give a general survey of European history. They are to be taken in order by all Freshmen and Sophomores doing major work in this department. The first two are also intended to provide the minimum of hours required in this group of departments from Freshmen, who elect those hours in the Department of History.

Courses 1-52 are conducted by means of oral recitations and written quizzes, lectures, monthly tests, mid-semester and semester examinations, and either term papers or shorter fortnightly written reports; collateral reading is required.

53. **ENGLISH HISTORY: 55 B. C.-1603 A. D.** 3 hours  
Political, industrial, constitutional, and social history of England; from the Roman invasions of Britain to the

close of the Tudor period. Class textbooks: Cheyney, **Short History of England**, **Introduction to the Industrial and Social History of England**, and **Readings in English History**; Montague, **Elements of English Constitutional History**; and Beard, **Introduction to the English Historians**. Open to Juniors and Seniors, and to Sophomores electing 51 and 52.

54. **ENGLISH HISTORY: 1603-1910.** 3 hours  
Continuation of the above from the accession of James I to that of George V.

55. **AMERICAN HISTORY: 1492-1829.** 3 hours  
The colonial and early national periods. Class textbooks: Muzzey, **American History**; Thwaites, **Colonies**; and Hart, **Formation of the Union and Source Book of American History**. Open to Juniors and Seniors, and to Sophomores electing 51 and 52. (Alternating with 53 and 54; not given 1915-1916.)

56. **UNITED STATES HISTORY: 1829-1913.** 3 hours  
The period of the Republic. Continuation of the above from the administration of Jackson to that of Wilson. Class textbooks: Muzzey, **American History**; Wilson, **Division and Reunion**; and Hart, **Source Book of American History**.

Courses 53-56 are conducted by the same means as 1-52, except that term papers are always required, and the collateral reading is more extensive.

57. **CURRENT HISTORY** 1 hour  
This course is conducted as courses 53-56, and, in addition, students make weekly reports, both written and oral, of various phases of current history. Discussions and occasional debates are held in class. Open to Sophomores, Juniors, and Seniors.

58. **CURRENT HISTORY** 1 hour  
Continuation of the above.

101. **INTELLECTUAL HISTORY OF EUROPE** 3 hours  
Lectures and readings upon the general development of the history of thought in the intellectual class of Europe, taking up Hellenism, Judaism, the origin of Christianity, Scholasticism, Humanism, the Protestant Revolt, the birth and development of the modern scientific

spirit, the Industrial Revolution, and the new democracy. Term papers are required. Open to Seniors and Juniors (by permission of the instructor). (Alternating with 61; not given 1915-1916.)

102. **BIBLIOGRAPHY AND METHODS OF HISTORICAL STUDY** 3 hours  
Teachers' course. Open to Juniors and Seniors.
61. **INTERNATIONAL LAW AND DIPLOMACY** 3 hours  
This course is conducted as courses 53-56, with recitations, discussions, tests, term papers, etc. Class textbooks: Lawrence, **Principles of International Law** and **Documents Illustrative of International Law**. Open to Sophomores, Juniors, and Seniors.
- 87-88. **ROMAN POLITICAL INSTITUTIONS** 2 hours  
(See Department of Latin.)

### DEPARTMENT OF LATIN

Professor Mitchell

1. **BEGINNING LATIN** 6 hours  
This course is for students who have not previously studied Latin. Grammar and Composition. A beginning Latin book and a Latin reader will be studied.
2. **CAESAR AND LATIN PROSE COMPOSITION** 5 hours  
A further study of grammar and syntax. Translation of detached sentences into Latin. Selections from Caesar to the amount of four books or the equivalent in other authors.
3. **CICERO AND COMPOSITION** 5 or 6 hours  
Six orations of Cicero or two orations of Cicero and the Catiline of Sallust. Latin Prose Composition. Special attention is given to the art of translating into clear, vigorous English. A brief study of Roman Political Institutions.
4. **VERGIL** 5 or 6 hours  
Translation of six books of Vergil's Aeneid or the equivalent. Special study of epic poetry as a species of literature. Outside reading of Homer's epics in English translation. Comparison of the religious beliefs held by the Ancients and the people of the Middle Ages, as portrayed by the Odyssey, Book xi, the Aeneid, Book vi,

- and the Divine Comedy of Dante. Topics for private investigation and report.
21. FRESHMAN LATIN 3 hours  
Cicero's Essay on Old Age and Selections from Livy. Review of grammar and syntax. Outside readings, especially topics on Roman History. Prerequisite: Four units in Latin.
22. FRESHMAN LATIN 3 hours  
Livy continued. Horace, Odes and Epodes. Outside readings, especially in the Latin Lyric Poets.
- 31-32. LATIN COMPOSITION 1 or 2 hours  
Translations into Latin of detached sentences and connected narrative. Grammar and Syntax. Intended to accompany 21-22.
51. SOPHOMORE LATIN 3 hours  
Cicero's Essays on Friendship and Selections from Catullus, Propertius, and Tibullus. History of Roman Literature through the Republic, and assigned reading.
52. SOPHOMORE LATIN 3 hours  
Two comedies of Plautus and one of Terence are read. A study of the Roman Drama. Outside reading in other dramas.
- 61-62. ADVANCED LATIN COMPOSITION 1 or 2 hours
- 71-72. ROMAN ANTIQUITIES AND PRIVATE LIFE 1 or 2 hours  
A study of the remains of ancient Rome and Pompeii, the organization of society, education, the house, furniture, dress, food, amusements, sources of income, wedding and funeral ceremonies, etc. Lectures, in part illustrated, assigned readings and reports. Prerequisite: At least three years of high school Latin. (Not given in 1915-1916.)
- 87-88. ROMAN POLITICAL INSTITUTIONS 2 hours  
A study of the Roman Constitution, the contribution of the Romans to modern government and political science and to the acquisition of civic rights. An investigation is made of the Roman methods of dealing with the Initiative and Referendum, the Recall, the Tariff, the government of cities, provinces, and protectorates, etc.

- Lectures, outside readings, and reports. Prerequisite: Three years of high school Latin.
101. **ADVANCED LATIN** 3 hours  
Tacitus, Germania and Agricola and the Letters of Pliny the Younger. Outside readings bearing on the condition of the Roman people during the first century A. D.
102. **ADVANCED LATIN** 3 hours  
Silver and Latin. Apuleius, or Petronius and Latin Hymns. A study of the development of the Roman novel and romance. Assigned readings on kindred subjects.
105. **ADVANCED LATIN** 3 hours  
Selected readings from the philosophical writings of Cicero, Lucretius, and Seneca. Assigned readings and reports on the philosophical systems of the Greeks and Romans. (Not given in 1915-1916.)
106. **ADVANCED LATIN** 3 hours  
Selections from Lucilius, Horace, Persius, and Juvenal. A study is made of the development of Roman Satire, and the works of the Satirists will be read either in the original or in translation.
162. **TEACHERS' COURSE** 2 hours  
A study and criticism of various text books. Lectures on the scope and aim of Latin study, a teacher's equipment and reference library, and methods of teaching. Discussions of the difficulties which confront a teacher of Latin. A special study of the subjunctive mood and the essentials of classical philology. (Not given in 1915-1916.)

### DEPARTMENT OF LIBRARY SCIENCE

Associate Professor Sisler

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

2. **ELEMENTARY COURSE** 2 hours  
The purpose of this course is to teach students how to care for a library. The following subjects will be included in the course: How to order books and periodicals, trade bibliography, accessioning, classification, author numbers, shelf listing, simple cataloguing, mechanical preparation of books for the shelves, how to care for gifts and exchanges.
51. **ADVANCED COURSE** 2 hours  
Open to students who have completed Library 2. Advanced work in cataloguing, classification and reference. Other subjects included in the course are: Care of serials, binding, charging systems, library legislation, organization and administration.
52. **ADVANCED COURSE** 2 hours  
A continuation of Course 51.

### DEPARTMENT OF MATHEMATICS

Associate Professor Edington

The more elementary courses in this department are adapted to two classes of students; first, those who are enrolled in the Departments of Engineering, and second, those students who are planning to make mathematics their major study or who wish to study pure mathematics rather than applied mathematics. Certain of these courses are offered primarily for engineering students, and others for the second class of students, but all courses are open to all students who are sufficiently prepared to enter upon them.

1. **COLLEGE ALGEBRA AND PLANE TRIGONOMETRY** 5 hours  
Primarily for engineering students. A rapid review of elementary algebra is made, followed by a more careful treatment of simultaneous linear and quadratic equations, both analytically and graphically, the quadratic equation, binomial formula, logarithms, undetermined coefficients, partial fractions, and determinants. In plane trigonometry, especially emphasis is put upon

the solution of right and oblique triangles together with the applications of trigonometry to practical problems of surveying. The rapid and accurate use of logarithms in the solution of these problems is insisted upon.

3. COLLEGE ALGEBRA 5 hours  
Analytical and graphical solution of simultaneous linear and quadratic equations, quadratic equations, imaginaries, ratio, proportion, variation progressions, binomial formula, mathematical induction, logarithms, permutations and combinations, limits, convergency of series, undetermined coefficients, partial fractions, determinants, and elementary theory of equations.
6. PLANE AND SPHERICAL TRIGONOMETRY 5 hours  
Trigonometric ratios, functions, equations and identities, solution of right and oblique triangles by means of logarithms, both plane and spherical, and the applications of trigonometry to problems in surveying, navigation, and astronomy. A knowledge of solid geometry is prerequisite to this course.
12. PLANE ANALYTIC GEOMETRY 5 hours  
Co-ordinates, the straight line, conic sections, transformation of co-ordinates, problems on loci, higher plane curves, and transcendental equations, empirical equations, and an introduction to analytic geometry of three dimensions. Courses 1 or 3 and 6 are prerequisites for this course.
21. MODERN GEOMETRY 5 hours  
Principle of duality, projection, section, perspectivity, cross ratio, and general introduction to non-metric geometry.
31. MECHANICAL DRAWING 3 hours  
Same as Civil Engineering 1. Primarily for first year engineering students.
36. DESCRIPTIVE GEOMETRY 3 hours  
Same as Civil Engineering 2. Primarily for first year engineering students.
51. DIFFERENTIAL AND INTEGRAL CALCULUS 5 hours  
The fundamental rules for differentiation and integration with application to such problems as are ordinarily considered in a first course in Calculus. Prerequisite for

all higher courses in mathematics, all courses in engineering, and physics above Course 110. Courses 1 and 12, or courses 3, 6 and 12 are prerequisite for this course.

52. DIFFERENTIAL AND INTEGRAL CALCULUS 5 hours  
A continuation of Course 51.
101. LIMITS AND SERIES 3 hours  
Limits of functions of a real variable, of a continuous variable, with applications to the Calculus; convergence of infinite series, and expansions of elementary functions into infinite series, and the determination of their intervals of convergence. One year of Calculus is prerequisite for this course.
112. GRAPHICAL ANALYSIS 3 hours  
Study of number by means of space. The purpose of the course is to enable the student to apply certain fundamental space properties of number to the study of functions and equations whereby their properties are discovered. One year of Calculus is prerequisite for this course.
124. HISTORY OF MATHEMATICS 3 hours
131. DIFFERENTIAL EQUATIONS 3 or 5 hours  
The three-hour course is offered primarily for engineering students. Ordinary and partial differential equations. Text: Murray's **Differential Equations**. One year of Calculus is prerequisite for this course.
134. ADVANCED CALCULUS 3 hours  
A continuation of Course 52, with introduction to the theory of functions of the complex variable.
137. DEFINITE INTEGRALS 3 hours  
Principles of definite integrals, fundamental notion of function, its continuity, proper and improper definite integrals, Beta and Gamma functions, multiple and line integrals, computation of definite integrals by methods of approximation. One year of Calculus is prerequisite for this course.
140. ENGINEERING MATHEMATICS 5 hours  
Primarily for students in Electrical Engineering. Hyperbolic functions, introduction to vector methods, func-



tions of the complex variable applicable to engineering problems, theory of probability, method of least squares, studies in graphic papers, such as logarithmic and cosine, and practical applications to electrical problems. Mathematics 131 and Physics 51 and 52 are prerequisites for this course.

- |      |   |         |
|------|---|---------|
| 143. | THEORY OF EQUATIONS   | 3 hours |
|      | Continuation of Course 3. General properties of equations, transformation of equations, solution of cubic and biquadratic, determinants, elimination. |         |
| 144. | ADVANCED ALGEBRA  | 3 hours |
|      | Based on Bocher's <b>Introduction to Higher Algebra</b> with lectures on additional topics. Courses 21 and 143 are prerequisites.                     |         |
| 154. | SOLID ANALYTICAL GEOMETRY   |         |
|      | Lines and planes in space, quadric surfaces, and brief introduction to the theory of surfaces in general. Courses 21 and 131 are prerequisites.       |         |
| 161. | PROJECTIVE GEOMETRY   | 5 hours |
|      | Courses 21, 131 and 144 are prerequisites.  |         |
| 174. | THEORY OF FUNCTIONS OF THE COMPLEX VARIABLE   | 5 hours |
|      | Courses 131, 143, and 144 are prerequisites.  |         |
| 185. | FOURIER'S SERIES AND BESSEL'S FUNCTIONS   | 3 hours |
| 206. | THEORY OF NUMBERS   | 3 hours |
| 211. | VECTOR ANALYSIS   | 3 hours |

#### DEPARTMENT OF PHYSICS.

- |    |                    |         |
|----|--------------------|---------|
| 1. | ELEMENTARY PHYSICS | 5 hours |
|----|--------------------|---------|

**Associate Professor Brennemann**

A beginning course in physics, including mechanics, heat, electricity, sound, and light, following Millikan and Gale's **First Course in Physics**. Class work with demonstrations, three hours, and laboratory, four hours. Separate credit not given. Preparatory credit, 5 hours; college credit, 3 hours. Prerequisites: Algebra and plane geometry.

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|----|--------------------|---------|
| 2. | ELEMENTARY PHYSICS | 5 hours |
|----|--------------------|---------|

A continuation of Physics 1.

51. General Physics 5 hours  
Mechanical, molecular, physics, heat, electricity, wave motion, sound, light, and radio-activity. Recitations, and laboratory work. Laboratory, two to four hours. Half year credit not given. Prerequisites: Physics 1 and 2, or their equivalent, and Mathematics 1.
52. GENERAL PHYSICS 5 hours  
A continuation of Physics 51.
107. HEAT 3 hours  
Measurement of thermal conductivity, cubical coefficient of expansion, specific heat, radiation constants, high temperature measurements, lowering of freezing point, and raising of boiling point of solutions. Recitations and laboratory work. Prerequisites: Physics 51 and 52.
108. HEAT 5 hours  
A continuation of Course 107.
111. THERMODYNAMICS 5 hours  
Theory and principles underlying the operation of steam boilers and engines of various types, such as simple, compound, uni-flow, etc., and gas engines. Methods of analyzing the heat losses and determining their efficiencies. Operation of steam turbines, air compressors, and refrigerator plants. The course is given from the engineering standpoint. Prerequisites: Physics 51 and 52, and Mathematics 51 and 52.
112. STEAM ENGINES, BOILERS, AND AUXILIARIES 2 hours  
Intended to follow Course 111, laying more stress on the mechanical features and details of practice in construction and operation. Subjects treated are selected mainly from Gebhardt's **Steam Power Plant Engineering**. This course is open to Civil Engineers without Course 111. Prerequisites: Physics 51 and 52.
121. THEORETICAL MECHANICS 3 hours  
An advanced course taking up the mathematical treatment of the subject. Composition of forces and couples, center of gravity of areas and volumes, conditions for equilibrium, principle of virtual work, free and damped

periodic motion, motion with central forces, moment of momentum and moment of inertia. Prerequisites: Physics 51 and 52, and Mathematics 131.

425. **LIGHT** 3 hours  
Polarization, refraction, reflection, interference, absorption, and emission of light. Modern theories concerning the relation existing between electricity, magnetism, ether, and light. Recitations and laboratory. Either semester. Prerequisites: Physics 51 and 52, and Mathematics 131.

131. **ELECTRICITY AND MAGNETISM** 5 hours  
A course treating of the self-inductance, mutual inductance, capacity, resistance, and leakage of various shaped conductors, circuits, and dielectrics. Recitations and laboratory. Either semester. Prerequisites: Physics 51 and 52, and Mathematics 51 and 52.

132. **ELECTRICITY AND MAGNETISM** 5 hours  
Advanced course treating of the electrical skin effect, Hall effect, free and forced electrical oscillations, wave analysis, hysteresis, and eddy currents. Recitations and laboratory. Either semester. Prerequisites: Physics 131, and Mathematics 131.

199. **THESIS** 5 hours  
At the beginning of the first semester of the Senior year, students who are majoring in physics are required to take up some special line of investigation. The work will continue throughout the year and shall constitute a thesis for graduation.

#### DEPARTMENT OF PHYSICAL TRAINING

Mr. R. F. Hutchinson

A well-equipped gymnasium, containing locker rooms and shower baths, is open throughout the year for the use of the students of the University.

#### For Men

The gymnasium, in charge of a professional director, is open for the young men. The training and exercise are under the immediate oversight and authority of the director, and are wholly with a view to the

healthful development of the whole student body. All young men are required to be examined by the director of physical culture upon registration, and during the course, as often as the indications of the physical conditions may require.

The decision of the director will be either:

1. Advisory, indicating what course of hygiene and exercise will best sustain and improve the health of the students, or,

2. Mandatory, requiring the students to pursue the course of hygiene and physical exercise necessary for the proper care of health, and the discharge of their duties as students.

All men whose rank is below that of a Junior, are required to take the course in Physical Training. Two hours per week throughout the year are required. The required work includes a course on personal hygiene during the first semester.

#### For Women

The course in Physical Training is required of the women of the University, whose rank is below that of a Junior, as a regular part of their work.

The work consists of systematic exercises for the development of all parts of the body.

Women pursuing this course are required to provide themselves with a gymnasium suit, consisting of a blouse waist and bloomers, with the regulation shoes. In addition to the class work, sports and pastimes are open to all women of the University, such as basketball, tennis, etc.

A physical examination is made of each student, and physical measurements are taken in the fall and again in the spring.

The required work includes a course in personal hygiene during the first semester.

The following courses are given:

1. PHYSICAL TRAINING FOR MEN 1 hour  
Course for Freshmen. Elementary exercises to correct slight body defects, as well as exercises to promote muscular tone, vigor, vitality and endurance. Elementary work on the apparatus.
2. PHYSICAL TRAINING FOR MEN 1 hour  
Continuation of Course 1. Indian Club drill and a course in elementary mat work.
3. PHYSICAL TRAINING FOR WOMEN 1 hour  
Course for Freshmen. Elementary exercises to correct slight body defects as well as exercises to promote tone, vigor, vitality and endurance. Marching and setting-up exercises.
4. PHYSICAL TRAINING FOR WOMEN 1 hour  
Continuation of Course 3. Indian Club and dumb bell drills and elementary work on the apparatus.
51. PHYSICAL TRAINING FOR MEN 1 hour  
Course for Sophomores. Advanced work on the apparatus and on the mat. A course in class leading is offered.
52. PHYSICAL TRAINING FOR MEN 1 hour  
Continuation of Course 51. Specialization in the different kinds of apparatus. Class leading and advanced mat work.
53. PHYSICAL TRAINING FOR WOMEN 1 hour  
Course for Sophomores. Advanced work on the apparatus. Indian club and dumb bell drill. A course in class leading is offered.
54. PHYSICAL TRAINING FOR WOMEN 1 hour  
Continuation of Course 53. Specialization in the different kinds of apparatus, and class leading.

#### DEPARTMENT OF PSYCHOLOGY AND PHILOSOPHY

Associate Professor Worcester

- \*51. GENERAL PSYCHOLOGY 3 hours  
The aim of this course is to give a general understanding of the essential facts and of the fundamental laws

of mind. It is required of all Sophomores in the College of Letters and Science and in the School of Home Economics. It is also required in the first year of the teachers' course.

52. **ADVANCED PSYCHOLOGY** 3 hours  
May be taken as a continuation of course 51. An intensive study of selected problems. Prerequisite: Course 51.
53. **EXPERIMENTAL PSYCHOLOGY** 2 hours  
This laboratory course seeks to give an introduction to modern psychological methods and to familiarize the student with the use of apparatus. Typical experiments and demonstrations in the psychology of the senses, particular attention being given to the "personal equation", and its influence on results.
54. **EXPERIMENTAL PSYCHOLOGY** 2 hours  
A continuation of Course 53. Experiments in perception, association, reaction, etc.; mental and physical tests. Courses 53 and 54 should be taken, if possible, in connection with Course 51 and with Course 52 or its equivalent.
- \*55. **EXPERIMENTAL PEDAGOGY** 2 hours  
This is a laboratory course in which may be tested the value of the various suggested applications of psychology to education and in which new applications may be devised. Anthropometric measurements, physical and mental tests, statistical methods. Required in the teacher's course in connection with Course 51.
- \*56. **EDUCATIONAL PSYCHOLOGY** 3 hours  
Continuation of Course 51. The applications of the principles of psychology to education and the ways in which experimental psychology is modifying the curriculum and methods of instruction in the schools will be shown in this course. Required in the teacher's course and in the School of Home Economics. Prerequisite: Course 51 or its equivalent.
- \*81. **ETHICS** 4 hours  
A study of the beginnings and of the development of moral conduct; an analysis and criticism of the leading

conceptions of moral theory; and an attempt to make application of modern ethical theories to present day social and economic conditions. Required in the second year of the teacher's course.

82. LOGIC 4 hours  
The principles of deductive and of inductive reasoning. Open upon consultation.
- \*84. HISTORY OF PHILOSOPHY 3 hours  
A chronological study of the development of thought with brief discussions of the leading thinkers and of the leading philosophical systems of each period. Required of Sophomores in the College of Letters and Science.
101. SOCIAL PSYCHOLOGY 3 hours  
A discussion of the influence of the individual mind upon the group and of the influence of the group upon the individual mind; the spread of ideas; mob mind; fads; customs; conventionalities, etc. Prerequisite: Two courses in the Department.
104. COMPARATIVE PSYCHOLOGY 3 hours  
Lectures, 2 hours; laboratory, 1 hour. This course, which is given in collaboration with the Department of Biology, will be a systematic study of the development of the mind in the race and in the individual. In the biological laboratory the student may see for himself the behavior of lower organisms with reference to their instincts, habits, and evidences of intelligence. The development of the nervous impulse and the development of the mental functions in the individual in childhood and in adolescence will be discussed in the lectures. Prerequisites: Two courses in the Department.
121. INTRODUCTION TO PHILOSOPHY 3 hours  
An introductory study of the various schools of philosophical thought.
122. INTRODUCTION TO PHILOSOPHY 3 hours  
A continuation of Course 121.
151. PATHOLOGICAL PSYCHOLOGY 2 hours  
Readings and theses. A study of the disorders of sensation, memory, imagination, association, the emotions

and volition. Open upon consultation to advanced students only. (Probably not given in 1915-1916.)

152. **PATHOLOGICAL PSYCHOLOGY** 2 hours  
A continuation of Course 151.

### **SHOP WORK**

**Mr. Leupold**

1. **ELEMENTARY SHOP WORK** 3 hours  
Bench and lathe work in wood. Practice in the interpretation of working drawings
3. **ADVANCED WOOD WORK** 3 hours  
A continuation of Course 1, including pattern making and the principles of cabinet work. Prerequisite: Course 1 or its equivalent. This course may be taken by students who have had the equivalent of Course 1 in their preparatory work.
11. **LATHE WORK IN METALS** 2 hours  
Turning, boring and thread cutting in cast iron, steel, and brass.
16. **ELEMENTARY FOUNDRY** 1 hour  
The theory and practice of foundry work.

### **DEPARTMENT OF SOCIAL SCIENCE**

**Professor Bonnett**

1. **ECONOMIC HISTORY OF THE UNITED STATES** 3 hours  
The main purpose of this course is to give the student an insight into those phases of the history of the United States usually neglected, yet by far the most important—the economic. It deals with the development of industry and the origin of most of our modern economic, political and social problems.
2. **AMERICAN GOVERNMENT AND POLITICS** 3 hours  
This course offers a thorough-going study of our governmental institutions as to origin, the methods used in making and administering laws, and the means of securing an expression of the will of the people. While constitutions are here studied intensively, the actual workings of the government through the party system are given as much attention, because the actual operation is as important as the principles upon which the government is based.



## 52. SOCIOLOGY

3 hours

As an introduction to the study of society, of groups and group relations, interests, associations and conflicts, this course is designed to form a basis for the investigation of our most pressing social problems. Social conditions, problems and proposed solutions will be considered briefly.

## 61. PRINCIPLES OF ECONOMICS

5 hours

Economic principles are studied intensively in this course. It affords a comprehensive view of these principles operating in the commercial and industrial world. Consideration is given to our great economic problems.

## 53. LABOR PROBLEMS AND CONDITIONS

3 hours

Under this head, a study will be made of the conditions of labor, as to hours, wages, and the workshop; of the organizations of workmen, and of employers, and their relations; and of the various problems that have grown out of the factory system.

## 54. THE FAMILY

2 hours

As the primary group in society—the problems and their evolution, and the functions of the family in modern society—the family is here studied to gain a keener insight into sociological principles and problems.

## 62. BUSINESS ORGANIZATION AND MANAGEMENT

3 hours

The manner in which modern commercial and industrial organizations are formed and their functions in the present industrial system, form the main subjects in this course.

## 71. INTRODUCTION TO POLITICAL SCIENCE

3 hours

A study of the origin and the nature of the state, and the principles of government as found in a brief survey of the governments of the leading nations.

## 72. GOVERNMENTS OF EUROPE

3 hours

A comparison of governments in Europe with that of the United States is made in this course in order to determine the best methods of government, and the underlying principles of each.

74. MUNICIPAL GOVERNMENT 3 hours  
Such problems of city government as taxation, regulation or ownership of public utilities, health, etc., will be studied and comparisons made between American and European municipal governments. (Not given in 1915-16.)
111. MONEY AND BANKING 3 hours  
Besides dealing with standard money, and currency, this course will investigate the operation of the extended credit system of today, taking the bank as the typical credit institution.
112. GOVERNMENT OF NEW MEXICO 3 hours  
Students in this course will be given an opportunity to compare the government of New Mexico with typical other states, in regard to constitutions, law-making, and administration of laws.

## DEPARTMENT OF SPANISH

Associate Professor Parsons

1. ELEMENTARY SPANISH 5 hours  
Hills' and Ford's *Spanish Grammar*; Hills' *Spanish Tales for Beginners*. Writing from dictation and practice in speaking.
2. ELEMENTARY SPANISH 5 hours  
Grammar completed; "Tales for Beginners" finished, Zaragueta, Taboada's *Cuentos alegres*. Conversation.
51. SECOND-YEAR SPANISH 3 hours  
Prerequisite: Courses 1 and 2, or two years of high school Spanish. Composition, conversation, and extensive reading. Loiseaux' *Spanish Composition*, essays, Hills and Reinhardt's *Spanish Short Stories*; Tamayo's *Un drama nuevo*, Palacio Valdes' *La hermana San Sulpicio*.
52. SECOND-YEAR SPANISH 3 hours  
Continuation of Course 3. Plays by Echegaray, Moratin, etc.; Morley's *Spanish Ballads*.
101. SPANISH DRAMA OF THE SEVENTEENTH CENTURY 2 hours  
Prerequisite: Courses 1, 2, 51 and 52, or the equivalent. Lope de Vega's *La moza de cantaro* and *La estrella de Sevilla*; Tirso de Molina's *La prudencia en la mujer* and

**El burlador de Sevilla**; Alarcon's **La verdad sospechosa**; Moreto's **El desden con el desden**; Calderon's **La vida es sueño** and **El magico prodigioso**. In addition extracts will be assigned from Fitzmaurice-Kelly's **History of Spanish Literature** and Havelock Ellis' **The Soul of Spain**.

102. **SPANISH LITERATURE OF THE NINETEENTH CENTURY** 2 hours

Prerequisite: Courses 1, 2, and 52 or the equivalent. Study of the important drama, novel and lyric poetry of recent Spanish writers. Zorrilla's **Don Juan Tenorio**, Ayala's **Consuelo**, Galdos' **Electra**; Hills and Morley's **Modern Spanish Lyrics**. Outside reading in Fitzmaurice-Kelly's **History of Spanish Literature** and other works; two Spanish novels to be read outside.

151. **SPANISH BALLAD POETRY** 1 hour

Origin and Development of the Spanish Epic from the Middle Ages to the present day. Morley's **Spanish Ballads**; Wolf and Hofmann's **Primavera y flor de romances**. Lectures.

152. **HISTORY OF SPANISH LITERATURE**

For advanced students, a survey of Spanish Literature from the earliest times to the present day will be arranged, with wide reading of texts and of criticism bearing upon them.

The following courses from the various schools will be accepted by the College of Letters and Science:

**DEPARTMENT OF CIVIL ENGINEERING**

**Instructor Wand**

- |                             |         |
|-----------------------------|---------|
| 1. ELEMENTS OF DRAFTING     | 3 hours |
| (See page 118.)             |         |
| 2. DESCRIPTIVE GEOMETRY     | 3 hours |
| (See page 118.)             |         |
| 51. ELEMENTARY SURVEYING    | 5 hours |
| (See page 118.)             |         |
| 52. TOPOGRAPHICAL SURVEYING | 4 hours |
| (See page 118.)             |         |

The student in the College of Letters and Science may elect any other course in the department for which he has fulfilled the prerequisites.

**DEPARTMENT OF HOME ECONOMICS****Director Gleason**

- |  |         |
|--|---------|
| 1. TEXTILES AND SEWING<br>(See page 127.)  | 5 hours |
| 2. TEXTILES AND SEWING<br>(See page 127.)  | 3 hours |
| 55. FOODS: THEIR COMPOSITION AND THE<br>PRINCIPLES OF COOKERY<br>(See page 128.) | 5 hours |
| 56. FOODS: THEIR COMPOSITION AND THE<br>PRINCIPLES OF COOKERY<br>(See page 128.) | 5 hours |

The student in the College of Letters and Science may elect any other course in this department for which she has fulfilled the prerequisites.

**SCHOOL OF EDUCATION****Dean Hodgkin**

- |   |         |
|---|---------|
| 1. HISTORY OF EDUCATION<br>(See page 147.)                        | 4 hours |
| 2. EDUCATION IN AMERICA<br>(See page 147.)                        | 4 hours |
| 51. PRINCIPLES OF EDUCATION<br>(See page 148.)                    | 4 hours |
| 65. SCHOOL MANAGEMENT AND ADMINIS-<br>TRATION<br>(See page 148.)  | 4 hours |
| 15. EDUCATION AND SCHOOL LAW IN NEW<br>MEXICO<br>(See page 151.)  | 1 hour  |
| 64. SEMINAR IN CURRENT EDUCATIONAL<br>PROBLEMS<br>(See page 151.) | 1 hour  |

## SCHOOL OF FINE ARTS

Director Seder

## Piano

- |          |         |
|----------|---------|
| 1. PIANO | 4 hours |
| 2. PIANO | 4 hours |

## Voice

- |          |         |
|----------|---------|
| 1. VOICE | 4 hours |
| 2. VOICE | 4 hours |

## Violin

- |           |         |
|-----------|---------|
| 1. VIOLIN | 4 hours |
| 2. VIOLIN | 4 hours |

## Theory of Music

- |                      |         |
|----------------------|---------|
| 1. HARMONY           | 3 hours |
| 2. HARMONY           | 3 hours |
| 61. HISTORY OF MUSIC | 2 hours |
| 62. HISTORY OF MUSIC | 2 hours |

For description of these courses see page 162.

## **School of Applied Science**

### **Faculty**

- David Röss Boyd—President of the University.  
John D. Clark—Professor of Chemistry.  
Charles T. Kirk—Professor of Geology  
Clarence E. Bonnett—Professor of Social Science.  
Asa O. Weese—Professor of Biology.  
Josef F. Nelson—Professor of Modern Languages.  
Josephine S. Parsons—Associate Professor of Modern Languages.  
Ethel A. Hickey—Associate Professor of English Literature.  
Will E. Edington—Associate Professor of Mathematics.  
Dean A. Worcester—Associate Professor of Psychology and Philosophy.  
Margaret Gleason—Director of Home Economics.  
Proctor F. Sherwin—Associate Professor of English Composition and Rhetoric and of History.  
Jesse L. Brennehan—Associate Professor of Electrical Engineering and of Physics.  
A. W. Wand—Instructor in Civil Engineering.  
Arno K. Leupold—Instructor in Shop.  
R. F. Hutchinson—Director of Physical Education.

## **School of Applied Science**

The School of Applied Science, organized in 1906, comprises the Departments of Chemical, Civil, and Electrical Engineering, and the Department of Home Economics; it offers, in addition, the first two years of four-year courses in Mechanical, Mining, and Sanitary Engineering, and a two-years course for a teacher's certificate in Home Economics. The aim of each department is to make entrance requirements and requirements for graduation up to the standard of the leading scientific schools. The courses have been outlined so as to include both professional and cultural studies in order that the student may not only receive instruction in theory and practice but may also enlarge his mental horizon.

### **THE DEPARTMENTS OF ENGINEERING**

It is the endeavor of the departments of engineering to give a thorough grounding in mathematics and theoretical subjects during the earlier years, with a reasonable amount of specialization during the later years in each course. The drawing and laboratory courses continue progressively throughout the four years in each course. Sufficient foreign language is introduced to enable the graduate to read professional German, Spanish or French. In the fourth year of each course, with the exception of Electrical and Civil Engineering, some special subject for investigation is taken up as a thesis for graduation.

### Equipment

The physics and engineering laboratories are located in the Engineering Building, which was erected in the autumn of 1910 shortly after the destruction of Hadley Hall. Also in this building are located the laboratories in chemistry and geology, well equipped in these subjects and at the disposal of engineering students.

The general library contains ample reference books in physics and engineering and is growing constantly as new books come from the press. It also contains the leading technical periodicals of this and foreign countries.

The physics laboratory is large and well lighted. The equipment is new, and has been selected for the general course in physics and for special work in exact electrical measurements. However, as other courses develop a need for additional apparatus, it will be supplied as the demand necessitates. There is a good dark room for photographic work and photometry. Special apparatus for investigation will be supplied when needed.

The electrical engineering laboratories are well equipped for general electrical engineering instruction. They contain alternating and direct current motors and generators, transformers, indicating wattmeters and watt-hour meters, alternating and direct current ammeters and voltmeters of the portable and switch-board type, an electrostatic voltmeter, frequency meters, power-factor meters and all accessory equipment, making this one of the best equipped electrical engineering laboratories in the West.

Civil engineering is located at present in Main Hall. The draughting room is equipped with desks and



drawing boards, but each student is required to furnish his own instruments, T-squares, triangles, etc. There is a complete equipment for surveying.

The machine shops, located in the Engineering Building, afford facilities for carpenter work, wood and metal turning, forge work, bench work and pattern making. The shops will soon be provided with new machinery for metal work, making the equipment ample for the engineering courses offered.

Chemical engineering is well taken care of. The laboratory in chemistry is well equipped, and in addition the machine shops and other engineering laboratories are open to chemical engineers.

#### **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 offers excellent opportunity for the student to become familiar with shop practice.

#### **DEPARTMENT OF HOME ECONOMICS**

The department of home economics is organized to meet the special needs of women students. A general course extending through four years and leading to

the degree of Bachelor of Science is planned for those wishing to specialize in home economics; and this course may be varied considerably to meet the needs of the various students. Individual courses are open to all students who meet the requirements regarding prerequisites. The department offers also, in co-operation with the school of Education, a two years course for the training of teachers who find it impossible to complete the four year course.

The aim of the department is to give women students an opportunity to acquire a comprehensive knowledge of the social and economic phases of household management as well as of the primary mechanical phase.

The courses in sewing are extended to include a study of textiles, care and repair of clothing, and something of the hygiene of clothing, and cannot be considered complete without a certain amount of training along artistic and economic lines.

The care of the house leads directly into the scientific field and to the study of bacteriology, which is the basis of house sanitation as well as the foundation on which rests all our advance in sanitary science. Moreover, the housekeeper broadens her field to include municipal housekeeping because she knows that neglect of that side of the question will prevent securing health and happiness for her own family.

One of the most important phases of the work is that which deals with the food question; as a foundation for thorough work in this line, a course is given in foods, their composition and the principles of cookery. This includes experimental work on which all the food courses are based, and gives a thorough understanding of the composition of our common foods.

and their use in the body. This work is supplemented by courses in Dietetics and advanced cooking. The question of the balanced ration is carefully studied and applied. Standard dietaries are compared and the conditions affecting food requirements are discussed.

On the whole, the work in the department involves the study of chemistry, physiology and biology to such a large extent, that it places the department in the School of Applied Science.

#### **Equipment**

The Home Economics laboratories are located in the Administration Building and are up to date in every respect. The cooking laboratory has an entire electrical equipment with appliances of latest model which are satisfactory in every way. It is unique in one respect at least for it is the only laboratory in the United States having the individual meter system. The work in chemistry, biology, physiology, and bacteriology is given in the regular departmental laboratories under the heads of the various departments. The general library is provided with an admirable list of reference books all of which have been purchased this year and represent the latest authoritative work.

#### **Registration**

(See General Information, page 45.)

#### **Graduation Requirements**

All candidates for the degree of Bachelor of Science in Civil Engineering and Bachelor of Science in Electrical Engineering must complete 142 credit hours; for Bachelor of Science in Chemical Engineering, 144.

hours; and for Bachelor of Science in Home Economics, 128 hours, all exclusive of two years (4 credit hours) in Physical Education.

#### Major Study

The major of the student in the School of Applied Science is fixed by his choice of course.

The 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 he may have taken in other departments.

#### Thesis

Candidates for the B. S. degree in all courses except Civil and Electrical Engineering and Home Economics are required to prepare a thesis in the Senior year upon some subject chosen by the head of the department in which the major study is being taken. The requirements as to typographical form may be ascertained upon application.

Complete four year courses are offered in Chemical, Civil and Electrical Engineering, and the first two years of a four-year course in Mechanical, Mining, and Sanitary Engineering.

### CHEMICAL ENGINEERING COURSE

Leading to the B. S. Degree in Chemical Engineering

#### FRESHMAN YEAR

First Semester	Credits
English 1.....English Composition .....	3
Mathematic 1.....Algebra and Trigonometry....	5
Chemistry 1 .....Inorganic Chemistry .....	3
Civil Engineering 1...Mechanical Drawing .....	3
Shop Work 1 or 2....Woodworking .....	3
Total .....	17

Second Semester		Credits
English 2	English Composition	3
Mathematics 12	Analytical Geometry	5
Chemistry 2	Inorganic Chemistry	5
Shop Work 1	Metal Working	2
Civil Engineering 2	Descriptive Geometry	3
Total		18

## SOPHOMORE YEAR

First Semester		
Chemistry 51	Qualitative Analysis	5
Mathematics 51	Differential and Integral Calculus	5
Physics 51	General Physics and Laboratory Practice	5
English 51	(Or Advanced French, German or Spanish)	3
Total		18

## SOPHOMORE YEAR

Second Semester		
Chemistry 61	Organic Chemistry	3
Mathematics 52	Differential and Integral Calculus	5
Physics 52	General Physics and Laboratory Practice	5
English 52	(Or Advanced French, German or Spanish)	3
E. E. 56	Machine Design	3
Total		19

## JUNIOR YEAR

Second Semester		
Chemistry 52	Quantitative Analysis	5
Chemistry 62	Organic Chemistry Laboratory	3
Civil Eng. 103	Hydraulics	3
Civil Eng. 105	Analytical Mechanics	3
Elective		2
Total		16

# SCHOOL OF APPLIED SCIENCE

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Second Semester		Credits
Chemistry 101	Quantitative Analysis	5
Chemistry 111	Physical Chemistry	5
Civil Eng. 108	Hydraulics	3
Civil Eng. 106	Strength of Materials	3
Chemistry 113	Metallurgy	2
Total		18

## SENIOR YEAR

First Semester		
Chemistry 102	Quantitative Analysis	5
E. E. 101	Direct Current Machinery	3
E. E. 121	Direct Current Laboratory	2
Chemistry 171	Thesis	3
Physics 111	Thermodynamics	5
Total		18

First Semester		
E. E. 102	Alternating Current Machinery	3
E. E. 122	Alternating Current Laboratory	2
E. E. 181	Applied Electrochemistry	3
Social Science 62	Business Organization and Management	3
Chemistry 171	Thesis	5
Elective		2
Total		18

## CIVIL ENGINEERING /

Leading to the Degree of B. S. in Civil Engineering

## FRESHMAN YEAR

First Semester		
English 1	English Composition	3
Chemistry 1	Inorganic Chemistry	3
Mathematics 1	Algebra and Trigonometry	5
Civil Eng. 1	Mechanical Drawing	3
Shop 1 or 3	Wood Working	3
Shop 16	Foundry	1
Total		18

## Second Semester

## Credits

English 2	English Composition	3
Chemistry 2	Inorganic Chemistry	5
Mathematics 12	Analytical Geometry	5
Civil Eng. 2	Descriptive Geometry	3
Shop 12	Metal Working	2

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Total 18

## SOPHOMORE YEAR

## First Semester

Mathematics 51	Calculus	5
Physics 51	General Physics	5
Civil Eng. 51	Elementary Surveying	5
English 51	(Or Advanced German, French or Spanish)	3

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Total 18

## Second Semester

Mathematics 52	Calculus	5
Physics 52	General Physics	5
Civil Eng. 52	Topographical Surveying (4)	5
Civil Eng. 54	Railroad Curves (1)	
English 52	(Or Advanced German, French or Spanish)	3

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Total 18

## JUNIOR YEAR

## First Semester

Mathematics 131	Differential Equations	3
Civil Eng. 101	Railroad Surveying	5
Civil Eng. 105	Analytical Mechanics	5
Geology 101	Mineralogy	5

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Total 18

## SCHOOL OF APPLIED SCIENCE

109

## Second Semester

## Credits

Civil Eng. 106.....	Mechanics of Materials .....	3
Civil Eng. 108.....	Hydraulics .....	3
Civil Eng. 112.....	Graphic Statics .....	2
Civil Eng. 130.....	Road Engineering .....	2
Physics 112 .....	Steam Engines, Boilers, etc.....	2
Geology 102 .....	Engineering Geology .....	5
Total .....		17

## SENIOR YEAR

## First Semester

Civil Eng. 151 .....	Masonry Construction .....	4
Civil Eng. 155 .....	Bridge Analysis and Details.....	5
Civil Eng. 157 .....	Metal Structures .....	1
Civil Eng. 171 .....	Water Supply .....	3
Elec. Eng. 101 and 121	D. C. Machinery .....	5
Total .....		18

## Second Semester

Civil Eng. 152 .....	Reinforced Concrete Design ...	3
Civil Eng. 156 .....	Bridge Design .....	5
Civil Eng. 172 .....	Sewerage .....	3
Civil Eng. 190 .....	Seminar .....	1
Elective .....		5
Total .....		17

## Suggestive electives:

Civil Engineering, 180.....	(2)
Electrical Engineering 102 and 122.....	(5)
Social Science 52.....	(3)
Social Science, 62.....	(3)
Social Science, 5.....	(5)
Mathematics, 140 .....	(3)
Civil Engineering, 150.....	(2)



**ELECTRICAL ENGINEERING COURSE**

Leading to the Degree, B. S. in E. E.

**FRESHMAN YEAR**

First Semester	Credits
English 1 ..... English Composition .....	3
Chemistry 1 ..... Inorganic Chemistry .....	3
Mathematics 1 ..... Algebra and Trigonometry.....	5
Civil Engineering 1... Mechanical Drawing .....	3
Shop 1 ..... Wood Working .....	3
Shop 3 ..... Pattern Making .....	3
Shop 16 ..... Foundry .....	1
Total .....	18

**Second Semester**

English 2 ..... English Composition .....	3
Chemistry 2 ..... Inorganic Chemistry .....	5
Mathematics 12 ..... Analytical Geometry .....	5
C. E. 2 ..... Descriptive Geometry .....	3
Shop 12 ..... Metal Working .....	2
Total .....	18

**SOPHOMORE YEAR****First Semester**

Mathematics 51 ..... Calculus .....	5
Physics 51 ..... General Physics .....	5
C. E. 51 ..... Elementary Surveying .....	3
English 51 ..... (Or Advanced German, French or Spanish) .....	3
Total .....	18

**Second Semester**

Mathematics 52 ..... Calculus .....	5
Physics 52 ..... General Physics .....	5
E. E. 56 ..... Machine Design .....	3
E. E. 52 ..... Electrical Measurements and Meters .....	2
English 52 ..... (Or Advanced German, French or Spanish) .....	3
Total .....	18

## SCHOOL OF APPLIED SCIENCE

111

First Semester	JUNIOR YEAR	Credits
E. E. 101 and 121	Direct Current Machinery	5
Physics 111	Thermodynamics	5
C. E. 105	Analytical Mechanics	5
Optional—		
Mathematics 131	Differential Equations	
Elective		3
Total		18

Second Semester		
E. E. 102 and 122	Alternating Current Machinery	5
Physics 112	Steam Engines, Boilers, etc.	2
C. E. 106	Mechanics of Materials	3
C. E. 108	Hydraulics	3
C. E. 112	Graphic Statics	2
Optional—		
Mathematics 140	Engineering Mathematics	
Elective		3
Total		18

First Semester	SENIOR YEAR	
E. E. 103 and 123	D. C. Circuits and Laboratory	4
E. E. 151 and 161	A. C. Machinery and Laboratory	4
E. E. 171	D. C. Dynamo Design	2
E. E. 181	Electrical Applications	5
Elective		2
Total		17

Second Semester		
E. E. 152 and 162	A. C. Circuits and Machinery	5
E. E. 182	Electrical Applications	5
E. E. 191	Seminar (Reading and Discussion of Current Topics)	2
C. E. 180	Contracts and Specifications	2
Optional—		
Social Science 62	Business Organization	
Elective		3
Total		17

# MECHANICAL ENGINEERING COURSE (First two years)

## FRESHMAN YEAR

Same as Electrical Engineering

## SOPHOMORE YEAR

First Semester		Credits
Mathematics 51	Calculus	5
Physics 51	General Physics	5
English 51	(Or Advanced German, French or Spanish)	3
Shop	Advanced wood or metal work- ing	2
Elective		3
Total		18
Second Semester		
Mathematics 52	Calculus	5
Physics 52	General Physics	5
English 52	(or advanced German, French or Spanish)	3
Elec. Eng. 56	Machine Design	3
Optional—		
Physics 112	Steam Eng., Boilers, Sta. Aux.)	
E. E. 52	Elec. Measurements and Meters)	2
Total		18

## OUTLINE OF COURSE IN HOME ECONOMICS

Leading to Degree of B. S. in Home Economics

## FRESHMAN YEAR

First Semester		
English 1	English Composition	3
Chemistry 1	Inorganic Chemistry	3
Biology 1	Zoology	5
H. E. 1	Textiles and Sewing	5
Total		16

## SCHOOL OF APPLIED SCIENCE

113

## Second Semester

English 2	English Composition	3
Chemistry 2	Inorganic Chemistry	5
Biology 26	Physiology	3
Geology 5	Physiolgraphy	5
H. E. 2	Textiles and Sewing	3
Total		19

## SOPHOMORE YEAR

## First Semester

English Lit.	Elective	3
Psychology 51	General Psychology	3
Biology 91	Bacteriology	3
H. E. 55	Foods	5
H. E. 51	Advanced Sewing	2
Total		16

## Second Semester

English 52	Elective	3
Psychology 56	Educational Psychology	3
H. E. 54	Sanitation	3
H. E. 56	Foods	5
H. E. 52	Dress Making	2
Total		16

## JUNIOR YEAR

## Second Semester

H. E. 105	Dietetics	5
Social Science 61	Principles of Economics	5
History	Elective	3
Electives		3
Total		16

## First Semester

H. E. 106 .....	Dietetics .....	5
H. E. 108 .....	Household Economics .....	5
History .....	Elective .....	3
Electives .....		3
Total .....		16

## SENIOR YEAR

## First Semester

## Credits

H. E. 155 .....	Advanced Cooking .....	3
Social Science 3 .....	Sociology .....	3
Electives .....		10
Total .....		16

## Second Semester

H. E. 156 .....	Invalid Cookery .....	3
Social Science 54 .....	The Family .....	3
Electives .....		10
Total .....		16

## Electives in the Department of Home Economics

Modern Language .... (Two years required for credit)

English .....

Education ..... Subject to approval of the Dean  
of Education)

Chemistry of Food .....

Social Science .....

Psychology .....

Philosophy .....

Music .....

### Summary of Requirements in the Department of Home Economics

English .....	12 hours
Psychology .....	6 hours
Social Science .....	6 hours
Biology .....	5 hours
Non-Biological Science .....	6 hours
Major Study as prescribed .....	46 hours
Electives .....	47 hours
Physical Education .....	4 hours

132

### Two Year Course in Home Economics for Teacher's Certificate

#### FIRST YEAR

First Semester		Credits
H. E. 1 .....	Sewing and Textiles .....	5
Psychology 51 .....	General Psychology .....	3
English 1 .....	English Composition .....	3
Educ 1 .....	History of Education .....	4
Educ 9 .....	Ortheopy .....	3
Total .....		18

#### Second Semester

H. E. 2 .....	Sewing and Textiles .....	5
Psychology 56 .....	Educational Psychology .....	3
English 2 .....	English Composition .....	3
Educ 2 .....	History of Education .....	4
Biology .....	Physiology .....	3
Total .....		18

#### SECOND YEAR

##### First Semester

H. E. 55 .....	Foods .....	5
Educ 51 .....	Principles of Education .....	4
Philosophy 81 .....	Ethics .....	3
Educ 65 .....	School Management .....	4

Total ..... 16

Second Semester		Credits
H. E. 56	.....Foods	5
H. E. 60	.....Teaching of Home Economics..	3
Social Science 52	.....Sociology	3
Elective	.....	4
Total		16
Seminar: Current Problems in Education.....		1

# Department of Instruction in the School of Applied Science

## DEPARTMENT OF BIOLOGY

Professor Weese

- |                           |         |
|---------------------------|---------|
| 1. ZOOLOGY                | 5 hours |
| (See page 61.)            |         |
| 26. ELEMENTARY PHYSIOLOGY | 3 hours |
| (See page 62.)            |         |
| 91. BACTERIOLOGY          | 3 hours |
| (See page 63.)            |         |

## DEPARTMENT OF CHEMISTRY

Professor Clark

- |  |         |
|--|---------|
| 1. INORGANIC CHEMISTRY   | 3 hours |
| Lectures and recitations on general and theoretical chemistry, illustrated by demonstrations, charts, lantern slides, specimens, etc. Solution of chemical problems is required. Laboratory work, 1 hour.  |         |
| 2. INORGANIC CHEMISTRY   | 5 hours |
| Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc. Prerequisite: Chemistry 1. Laboratory work, 2 hours.   |         |
| 51. QUALITATIVE ANALYSIS   | 5 hours |
| 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. Prerequisites: Chemistry 1 and 2.                            |         |
| 52. QUANTITATIVE ANALYSIS  | 5 hours |
| 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, urine, poisons, drugs, gases, and oils, are taken. The needs of the individual student will be considered in the work. Prerequisite: Chemistry 51. Laboratory work, 5 hours. |         |



101. QUANTITATIVE ANALYSIS 5 hours  
A continuation of Course 52. Laboratory work 5h.
102. QUANTITATIVE ANALYSIS 5 hours  
A continuation of Course 101. Laboratory work, 5h.
61. ORGANIC CHEMISTRY 3 hours  
Lectures and recitations. A study of the chemistry of the carbon compounds. Laboratory work taken in Course 62. Prerequisites: Courses 1, 2 and 51. (Given in alternate years.)
62. ORGANIC CHEMICAL LABORATORY 3 hours  
This course consists mainly of laboratory practice in preparing and purifying organic compounds and a study of qualitative organic reactions and analyses. Prerequisite: Course 61. Laboratory work, 4h. (Given in alternate years.)
131. GEOLOGICAL CHEMISTRY 2 hours  
This course is intended primarily for major students of geology, the work of the course covers the main features of the chemistry of the atmosphere, hydrosphere and lithosphere, and especially those processes involved in the formation, alteration and decay of minerals and rocks. Prerequisite: Geology 1 and 2, Geology 4 and 5, and Chemistry 10. (Given alternate years.)
111. PHYSICAL CHEMISTRY 5 hours  
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.) Prerequisites: Courses 1, 2 and 51.
112. INDUSTRIAL CHEMISTRY 2 hours  
This course consists of lectures on chemical manufactures such as sugar, sodium carbonate, fertilizers, sulfuric acid, glass, matches, paints, dyes, illuminating

gases, petroleum, etc. The lectures will be illustrated by lantern slides and charts. (Given in alternate years.) Prerequisites: Courses 1, 2 and 51.

113. METALLURGY 2 hours

This course consists of lectures describing the processes employed in the smelting of iron, lead, copper, zinc, silver, gold, etc. (Given in alternate years.) Prerequisites: Courses 1, 2 and 51.

141-142. ADVANCED WORK FOR INDIVIDUAL STUDENTS -

171-172. THESIS 5 hours

DEPARTMENT OF CIVIL ENGINEERING

Instructor Wand

1. ELEMENTS OF DRAFTING 3 hours

Lettering; isometric oblique and perspective drawing; orthographic projection; working drawings. Lettering; mechanical styles and the making of name plates and titles for mechanical drawings. Mechanical drawings from parts of standard machines, with tracings of each.

2. DESCRIPTIVE GEOMETRY 3 hours

The point, line, and plane; the properties of surfaces; intersections and developments. Practical problems. Prerequisites: Solid geometry, college algebra, plane trigonometry.

51. ELEMENTARY SURVEYING 5 hours

The theory, use, and adjustment of the compass, level, and transit. Field work; the determination of distances with chain and tape; the determination of areas with the transit, plane table, and compass; profile and differential leveling; City and farm surveying; practical problems. Prerequisites: C. E. 1, and 2; mathematics 1.

52. TOPOGRAPHICAL SURVEYING 4 hours

The theory and use of the plane table, stadia, and other instruments used in making a topographical survey. The plotting of field notes for making a complete topographic map. Prerequisites: C. E. 1 and 51.

54. RAILWAY CURVES 1 hour  
An introductory course in the computation and field location of simple and compound curves as applied to railroad work. Prerequisites: C. E. 1, 2, and 51.
101. RAILROAD SURVEYING 5 hours  
The principles of economic location and the construction of railways. The theory of field and office work necessary to survey and construct a railway line. Preliminary and location survey of a line of railroad, in which the student makes a complete set of notes, maps, profiles, and estimate. Prerequisites: C. E. 51, 52, and 54.
105. ANALYTICAL MECHANICS 5 hours  
The mechanics of engineering problems; fundamental concepts; statics; kinematics; kinetics; work and energy; impulse and momentum. Prerequisite: Math. 52.
106. MECHANICS OF MATERIALS 3 hours  
The mechanics of materials and problems in engineering construction. Theory of beams, columns, and shafts. The study of requirements for structural materials. Prerequisites: C. E. 105, and Math. 52.
108. HYDRAULICS 3 hours  
The elementary principles and theory of the mechanics of fluids; pressure and flow of water through orifices, channels, weirs, turbines and water wheels. Prerequisites: C. E. 105, and Math. 52.
112. GRAPHIC STATICS 2 hours  
Elements of graphic statics; determination of stresses in bridge and roof trusses. Solution of practical problems. Prerequisites: C. E. 1 and 105. Math. 52.
130. ROAD ENGINEERING 2 hours  
Construction of earth, gravel, concrete, and bituminous macadam roads. Methods of construction, cost, and durability of roads. Street pavements; grades, kinds and costs of pavements, maintenance, and cleaning. Prerequisites: C. E. 51, 52, and Math. 2.
151. MASONRY CONSTRUCTION 4 hours  
The study of the nature of stone, brick, lime, cement, sand, gravel, and concrete as applied to engineering.

The theory of masonry structures; foundations, culverts, retaining walls and arches. Prerequisites: C. E. 105, 106, and 112.

152. **REINFORCED CONCRETE.** 3 hours  
The principles of reinforced concrete beams, slabs, columns, retaining walls, dams, arches, and other masonry structures. The design of reinforced concrete structures. Prerequisites: C. E. 105 and 151.
155. **BRIDGE ANALYSIS AND DETAILS.** 5 hours  
Computation of stresses in various forms of bridge trusses. Investigation of a bridge from a detailed shop drawing; standard details for bridges; estimate of cost. Prerequisites: C. E. 105, 106, and 112.
156. **BRIDGE DESIGN.** 5 hours  
The design of a railroad plate girder and truss span; sections and details drawn, and a complete set of drawings. - Prerequisite: C. E. 155.
157. **METAL STRUCTURES.** 1 hour  
The design and calculation of stresses in mill and steel-skeleton buildings; standard details. Complete design of a mill building. Prerequisites: C. E. 112 and 155.
158. **ADVANCED BRIDGE ANALYSIS.** 2 hours  
The theory of continuous, cantilever, draw, suspension, and metal arch bridges. The history of large bridges of the world, erection and cost. Prerequisite: C. E. 155.
171. **WATER SUPPLY.** 3 hours  
Source of supply; hydraulics of wells; stream flow; reservoirs, conduits and pipe lines; pumps and pumping machinery; stand-pipes and elevated tanks; water supply systems. Prerequisites: C. E. 105 and Physics 112.
172. **SEWERAGE.** 3 hours  
The design and methods of construction of sewerage systems; surveys and general plans; hydraulics of sewers; house sewerage and its removal; sanitary necessity of sewers; sewage disposal; estimate and specifications. Complete design and estimate of a small system. Prerequisites: C. E. 105, 108, and 171.
180. **CONTRACTS AND SPECIFICATIONS.** 2 hours  
The law of contracts as applied to engineering work; the study of engineering specifications. Each student

prepares a contract and a complete set of specifications for some engineering structure. Prerequisites: C. E. 105, 151, and 155, or E. E. 101 and 102.

190. Seminar 1 hour  
Reading and discussion of important articles on engineering topics. Each student presents papers upon assigned topics and participates in the discussions of others. Prerequisite: Full senior standing in Civil Engineering.

### DEPARTMENT OF ELECTRICAL ENGINEERING

Professor Brenneman

52. ELECTRICAL MEASUREMENTS AND METERS 2 hours  
A laboratory course treating of the measurement of various electrical quantities, together with methods of checking and calibrating the instruments and meters used in Electrical Engineering. Prerequisites: Physics 51 and 52, or may be taken simultaneously with Physics 52.
56. MACHINE DESIGN 3 hours  
The relative motions of machine parts, belting, gears, cams, chains, etc. Prerequisites: Mathematics 1 and 12, Physics 51 and Civil Engineering 2.
101. DIRECT CURRENT MACHINERY 3 hours  
The construction, operation, and efficiencies of direct current dynamos and motors. The effects of changes in speed, load, connections, and temperature upon the operation of generators. The effects of changes in voltage, load, connections, and temperature upon the operation of various types of motors. For both Civil and Electrical Engineers. Prerequisites: Physics 52 and Electrical Engineering 52.
102. ALTERNATING CURRENT MACHINERY 3 hours  
The construction, operation, and efficiencies of alternating current motors and generators of the synchronous and induction types. Study of the effects of power factor, speed, saturation, and current or voltage harmonics in the different types. Operation of transfor-

ers For both Civil and Electrical Engineers. Prerequisites: Electrical Engineering 101 and 121; and Mathematics 51 and 52.

103. DIRECT CURRENT CIRCUITS AND MAGNETISM 3 hours

Intended to supplement course 101 for Electrical Engineering students. Calculation of the voltage at various points in a complex system of conductors, generators, motors, and storage batteries. Calculation of the resistance of various shaped conductors, and the magnetic field about various shaped circuits. Division of load between direct current motors and generators running in parallel or series. Prerequisites: Electrical Engineering 101, and Mathematics 51 and 52.

121. DIRECT CURRENT LABORATORY 2 hours

Testing of direct current generators and motors. Illustrative of the problems discussed in course 101. For both Civil and Electrical Engineering students. prerequisite: Course 101 must be taken before or simultaneously.

122. ALTERNATING CURRENT LABORATORY 2 hours

Testing of alternating current generators, synchronous and induction motors. For both Civil and Electrical Engineering students. Prerequisite: Course 102 must be taken before or simultaneously.

123. DIRECT CURRENT LABORATORY 1 hour

Some additional methods of determining efficiencies and analyzing losses of direct current motors and generators. Operation of motors and generators in series and parallel. Prerequisite: Course 103 must be taken before or simultaneously.

151. ALTERNATING CURRENT MACHINERY 3 hours

Intended to supplement course 102 for Electrical Engineering students. Combinations of inductances, resistance, and capacity in single phase, three phase, and quarter phase circuits. Operation of alternating current motors and generators in parallel. Theory and operation of the rotary converter, induction repulsion motor, single phase series motor, three phase commutator motor,

inductor and induction generators. Prerequisite: Courses 102 and 122.

152. ALTERNATING CURRENT CIRCUITS AND AUXILIARIES 3 hours

Design of a transformer. Combinations and connections of transformers. Operation of transmission lines and distribution circuits. Changes of voltage and current along line as caused by changes in resistance, inductance, power factor, capacity, etc. Resonance in circuits, protective devices for lightening, short circuits, overload, etc. Prerequisite: Course 151.

161. ALTERNATING CURRENT LABORATORY 1 hour

Generator and induction motor tests continued. Combinations of inductance, resistance, and capacity. Prerequisite: Course 122. Course 151 must be taken before or simultaneously.

162. ALTERNATING CURRENT LABORATORY 2 hours

Testing rotary converters, alternating current commutator motors, induction regulators, potential and current transformers. Wave form. Prerequisite: Courses 151 and 161. Course 152 must be taken before or simultaneously.

171. DIRECT CURRENT DYNAMO DESIGN 2 hours

The student is given the problem of designing a direct current motor or generator to meet given requirements. Prerequisite: Courses 101 and 121.

181. ELECTRICAL APPLICATIONS 5 hours

(a) Electro-chemistry and electro-metallurgy.  
(b) Illumination and photometry.  
(c) Electric railways. A study of the various direct current and alternating current systems. Prerequisite: Course 151 must be taken before or simultaneously.

182. ELECTRICAL APPLICATIONS 5 hours

(a) Design of insulation for high voltages.  
(b) Central stations and sub-stations; their equipment and arrangement; protective and emergency devices.  
(c) The application of electric motors to industries; their competition with other forms of power, and the competition of electricity with other forms of

transmitting power. Cost analysis of electrical power. Prerequisite: Courses 103 and 151.

191. SEMINAR 2 hours

The student is given or selects several topics along Electrical Engineering lines for special reading and report to class. Also discussion of current articles in the technical journals. Prerequisite: Courses 103 and 151.

199. SEMINAR

Students may choose with the consent of the major professor special topics in Electrical Engineering for reading and report. Hours credit is dependent upon the amount and quality of the work done.

### DEPARTMENT OF ENGLISH

Associate Professors Sherwin and Hickey

1. COMPOSITION AND RHETORIC 3 hours

(See page 66.)

2. COMPOSITION AND RHETORIC 3 hours

(See page 66.)

51. ARGUMENTATION, DEBATING AND PARLIAMENTARY LAW 2 hours

INTRODUCTION TO ENGLISH LITERATURE 1 hour  
(See page 66.)

52. ARGUMENTATION, DEBATING AND PARLIAMENTARY LAW 1 hour

INTRODUCTION TO ENGLISH LITERATURE 2 hours

The student in the School of Applied Science may elect any other course in this department for which he has fulfilled the prerequisites.

### DEPARTMENT OF FRENCH

Professor Nelson

1. ELEMENTARY FRENCH 5 hours

(See page 69.)

2. ELEMENTARY FRENCH 5 hours

(See page 69.)

51. SECOND-YEAR FRENCH 3 hours

(See page 69.)



52.	SECOND-YEAR FRENCH (See page 70.)	3 hours
101.	THIRD-YEAR FRENCH (See page 70.)	3 hours
102.	THIRD-YEAR FRENCH (See page 70.)	3 hours
151.	FOURTH-YEAR FRENCH (See page 70.)	2 hours
152.	FOURTH-YEAR FRENCH (See page 70.)	2 hours

## DEPARTMENT OF GEOLOGY

Professor Kirk

## 5. PHYSIOGRAPHY 5 hours

This course is planned to supplement the usual courses in general geography and at the same time lead to an understanding of the geologic control of surficial features and products. It includes a study of the earth's astronomic relations, atmosphere, rivers, oceans, land-masses. Regional comparisons are made of Eastern and Western physiographic features of the United States and the developments of resources and industries from a knowledge of geology, topography, soil, and climate. Extensive use is made of maps and models in the laboratory, and various short field trips are required. During these the student is acquainted with the use of compass, clinometer, plane-table, alidade, rod, and methods of constructing topographic maps and sketches. This may be elected as a general cultural course. It is required of majors in geology.

## 101. ENGINEERING MINERALOGY 5 hours

This is designed as a short course in determinative mineralogy and rock identification and classification, primarily for engineers and chemists. It consists mainly of laboratory work, but a brief treatment of crystallography is given. Microscopic observation of polished surfaces of minerals and metals is here offered. Prerequisites: Chemistry 1 and 2, and Physics 1 and 2.

**102. ENGINEERING GEOLOGY 5 hours**

A course intended for those majoring in civil engineering. It includes the elements of mineral and rock recognition, and the principles of weathering, erosion, sedimentation, and particularly structural geology, with brief attention to historical phases. Geologic field instruments are made use of, and reconnaissance methods and mapping practiced briefly. Prerequisites: Chemistry 1 and 2, Physics 1 and 2, and Geology 101.

The student in the School of Applied Science may elect any other course in this department for which he has fulfilled the prerequisites: (See page 70.)

**DEPARTMENT OF GERMAN****Professor Nelson**

- |                                   |         |
|-----------------------------------|---------|
| 1. ELEMENTARY GERMAN              | 5 hours |
| (See page 75.)                    |         |
| 2. ELEMENTARY GERMAN              | 5 hours |
| (See page 75.)                    |         |
| 51. SECOND-YEAR GERMAN            | 3 hours |
| (See page 75.)                    |         |
| 52. SECOND-YEAR GERMAN            | 3 hours |
| (See page 75.)                    |         |
| 101. SCHILLER                     | 2 hours |
| (See page 75.)                    |         |
| 102. GOETHE                       | 2 hours |
| (See page 76.)                    |         |
| 151. HISTORY OF GERMAN LITERATURE | 2 hours |
| (See page 76.)                    |         |
| 152. HISTORY OF GERMAN LITERATURE | 2 hours |
| (See page 76.)                    |         |

**DEPARTMENT OF HISTORY AND INTERNATIONAL LAW****Associate Professor Sherwin**

- |                                |         |
|--------------------------------|---------|
| 1. EUROPEAN HISTORY (ANCIENT)  | 3 hours |
| (See page 77.)                 |         |
| 2. EUROPEAN HISTORY (MEDIEVAL) | 3 hours |
| (See page 78.)                 |         |

- |                               |         |
|-------------------------------|---------|
| 51. EUROPEAN HISTORY (MODERN) | 3 hours |
| (See page 78.)                |         |
| 52. EUROPEAN HISTORY (MODERN) | 3 hours |
| (See page 78.)                |         |

The student in the School of Applied Science may elect any other course in this department for which he has fulfilled the prerequisites.

### DEPARTMENT OF HOME ECONOMICS

Director Gleason

- |   |         |
|---|---------|
| 1. TEXTILES AND SEWING  | 5 hours |
| A brief study of the textile industries with an intensive study of the principal textile fibers together with a thorough study of the principles which underly the work in sewing; practice work in both machines and hand serving, with emphasis on the handwork. Laboratory work: 2 two-hour periods and 1 one-hour period.   |         |
| 2. TEXTILES AND SEWING  | 3 hours |
| Continuation of Course 1. Consideration of working conditions, in mills and factories and the efforts made by individual owners, by organizations, and by legislation, to improve them. In the practical work the emphasis is on machine sewing.  |         |
| 51. ADVANCED SEWING   | 2 hours |
| A laboratory course consisting of two two-hour periods. Practical work in garment making with lessons on the use of commercial patterns and a study of materials from the standpoint of suitability, advantages of various fibers and weaves, cost and durability. The materials used are selected and furnished by the students. Laboratory fee to cover incidental expenses, \$1.00. Prerequisite: Courses 1 and 2. |         |
| 52. DRESS MAKING  | 2 hours |
| Continuation of Course 51. Work on wool and silk with emphasis on the problems which develop in making dresses. A laboratory course giving two two-hour periods. Laboratory fee \$1.00. Prerequisites: 1 and 2 and 51 or their equivalents.   |         |

54. **SANITATION** 3 hours  
Application of the discoveries of Sanitary Science to the problems of the home and the community. It includes personal hygiene, house sanitation and public hygiene. Prerequisite: Bacteriology. (Probably not given in 1915-1916.)
55. **FOODS: THEIR COMPOSITION AND THE PRINCIPLES OF COOKERY** 5 hours  
A qualitative study of foods to determine what food principles they contain and a classification of the common foods on the basis of the five food principles, together with the application of this knowledge to the preparation of food for use. Laboratory work: 3 two-hour periods; class work, 2 one-hour periods. Prerequisite: One year of general chemistry. A fee not to exceed \$5.00 will be charged to cover the actual cost of supplies.
56. **FOODS: THEIR COMPOSITION AND THE PRINCIPLES OF COOKERY** 5 hours  
Further experimental work with additional practice in the application of the principles of cookery which have been worked out experimentally. Laboratory work: 3 two-hour periods; class work, 2 one-hour periods. Prerequisite: Course 55. Laboratory fee not to exceed \$5.00.
60. **TEACHING OF HOME ECONOMICS** 3 hours  
Offered especially for students in the School of Education. Embraces a study of aims and purposes of work in rural, elementary, and high schools; the equipment necessary in various types of work; content of courses offered and methods of presenting the lessons. Outlines will be made and criticised in class. Each student will be required to present at least one lesson. Open only to those who have taken some courses in Home Economics.
105. **DIETETICS** 5 hours  
A study of the quantitative requirements of the human body with the necessary study of food materials from the same standpoint, together with problems involved in the calculation of food values and food requirements.

Also the study of Standard Dietaries with the construction of daily dietary. Laboratory work: 2 two-hour periods. Class work: 3 one-hour periods. Prerequisites: Home Economics 55 and 56. Laboratory fee, not to exceed \$5.00.

106. **DIETETICS.** 5 hours  
Continuation of Course 105 which is a pre-requisite for this course. Laboratory work: 2 two-hour periods. Class work: 3 one-hour periods. Laboratory fee, not to exceed \$5.00.
108. **HOUSEHOLD ECONOMICS** 5 hours  
The application of the principles of economics to the problems of the home. It requires a knowledge of the leading facts and principles of economics, including such subjects as factors of production, demand and supply, division of labor, wages; wealth and its consumption, value and price; markets, credit; also money and the monetary system. Prerequisite: Principles of Economics. (Given second semester 1915-16.)
155. **ADVANCED COOKING** 3 hours  
Practice in the preparation of food, using the Preparation of Meals as basis for work. Advanced course for those who have had experimental work of the first courses. Laboratory work: 2 two-hour periods. Class work: 1 one-hour period. Laboratory fee, \$4.00.
156. **INVALID COOKERY** 3 hours  
A short course which emphasizes the differences in food required by the invalid or the convalescent. An advanced course. Prerequisites: 55, 56 and 105. Laboratory: 2 two-hour periods. Class: 1 one-hour period. Laboratory fee, not to exceed \$5.00. (Probably not given in 1915-16.)

### DEPARTMENT OF MATHEMATICS

Associate Professor Edington

The more elementary courses in this Department are adapted to two classes of students, first, those students who are enrolled in the School of Engineering, and, second, those students who are planning to make mathematics their major study or who wish to study pure mathematics rather than

applied mathematics. Certain of these courses are offered primarily for engineering students, and others for the second class of students, but all courses are open to all students who are sufficiently prepared to enter upon them.

1. COLLEGE ALGEBRA AND PLANE TRIGONOMETRY 5 hours

Primarily for engineering students. A rapid review of elementary algebra is made, followed by a more careful treatment of simultaneous linear and quadratic equations, both analytically and graphically, the quadratic equation, binomial formula, logarithms, undetermined coefficients, partial fractions, and determinants. In plane trigonometry especial emphasis is put upon the solution of right and oblique triangles together with the applications of trigonometry to practical problems of surveying. The rapid and accurate use of logarithms in the solution of these problems is insisted upon.

3. COLLEGE ALGEBRA 5 hours

Analytical and graphical solution of simultaneous linear and quadratic equations, quadratic equations, imaginaries, ratio, proportion, variation, progressions, binomial formula, mathematical induction, logarithms, permutations and combinations, limits, convergency of series, undetermined coefficients, partial fractions, determinants, and elementary theory of equations.

6. PLANE AND SPHERICAL TRIGONOMETRY 5 hours

Trigonometric ratios, functions, equations and identities, solution of right and oblique triangles by means of logarithms, both plane and spherical, and the applications of trigonometry to problems in surveying, navigation and astronomy. A knowledge of solid geometry is prerequisite to this course.

12. PLANE ANALYTIC GEOMETRY 5 hours

Coordinates, the straight line, conic sections, transformation of coordinates, problems on loci, higher plane curves and transcendental equations, empirical equations and an introduction to analytical geometry of three dimensions. Courses 1 or 3 and 6 are prerequisites for this course.

21. **MODERN GEOMETRY** 5 hours  
Principle of duality, projection, section, perspectivity, cross ratio, and general introduction to non-metric geometry.
31. **MECHANICAL DRAWING** 3 hours  
Same as Civil Engineering 2. Primarily for first year engineering students.
36. **DESCRIPTIVE GEOMETRY** 3 hours  
Same as civil engineering 2. Primarily for first year engineering students.
51. **DIFFERENTIAL AND INTEGRAL CALCULUS** 5 hours  
The fundamental rules for differentiation and integration with application to such problems as are ordinarily considered in a first course in Calculus. Prerequisite for all higher courses in mathematics, all courses in engineering, and physics above course 110. Courses 1 and 12 or 3, 6 and 12 are prerequisites for this course.
52. **DIFFERENTIAL AND INTEGRAL CALCULUS** 5 hours  
A continuation of course 51.
101. **LIMITS AND SERIES** 3 hours  
Limits of functions of a real variable, of a continuous variable, with applications to the Calculus; convergence of infinite series, and expansions of elementary functions into infinite series and the determination of their intervals of convergence. One year of Calculus is prerequisite for this course.
112. **GRAPHICAL ANALYSIS** 3 hours  
Study of number by means of space. The purpose of the course is to enable the student to apply certain fundamental space properties of number to the study of functions and equations whereby their properties are discovered. One year of Calculus is prerequisite for this course.
131. **DIFFERENTIAL EQUATIONS** 3 or 5 hours  
The three hour course is offered primarily for engineering students. Ordinary and partial differential equations. Text: Murray's **Differential Equations**. One year of Calculus is prerequisite for this course.

134. ADVANCED CALCULUS 3 hours  
A continuation of course 52, with introduction to the theory of functions of the complex variable.
137. DEFINITE INTEGRALS 3 hours  
Principles of definite integrals, fundamental notion of function, its continuity, proper and improper definite integrals, Beta and Gamma functions, multiple and line integrals, computation of definite integrals by methods of approximation. One year of Calculus is prerequisite for this course.
140. ENGINEERING MATHEMATICS 3 hours  
Primarily for students in electrical engineering. Hyperbolic functions, introduction to vector methods, functions of the complex variable applicable to engineering problems, theory of probability, method of least squares, studies in graphic papers such as logarithmic and cosine, and practical applications to electrical problems. Mathematics 131 and Physics 51 and 52 are prerequisite for this course.
143. THEORY OF EQUATIONS 3 hours  
Continuation of course 3. General properties of equations, transformation of equations, solution of cubic and biquadratic, determinants, elimination.
144. ADVANCED ALGEBRA 3 hours  
Based on Bocher's **Introduction to Higher Algebra** with lectures on additional topics. Courses 21 and 143 are prerequisites.
154. SOLID ANALYTICAL GEOMETRY  
Lines and planes in space, quadric surfaces, and brief introduction to the theory of surfaces in general. Courses 21 and 131 are prerequisites.
161. PROJECTIVE GEOMETRY 5 hours  
Courses 21, 131 and 144 are prerequisites.
174. THEORY OF FUNCTIONS OF THE COMPLEX VARIABLE 5 hours  
Courses 131, 143 and 144 are prerequisites.
185. FOURIER'S SERIES AND BESSEL'S FUNCTIONS 3 hours
206. THEORY OF NUMBERS 3 hours
211. VECTOR ANALYSIS 3 hours



**DEPARTMENT OF PHYSICS****Associate Professor Brenneman**

1. **ELEMENTARY PHYSICS** 5 hours  
A beginning course in physics, including mechanics, heat, electricity, sound and light. Following Millikan and Gale's **First Course in Physics**. Class work with demonstrations, three hours, and laboratory four hours. Separate credit not given. Preparatory credit, 5 hours; college credit, 3 hours. Prerequisites: Algebra and plane geometry.
2. **ELEMENTARY PHYSICS** 5 hours  
Continuation of Physics 1.
51. **GENERAL PHYSICS** 5 hours  
Mechanics, molecular physics, heat, electricity, wave motion, sound, light and radio-activity. Recitations, demonstration and laboratory work. Laboratory, two to four hours. Half year credit not given. Prerequisites: Physics 1 and 2 or its equivalent, and Mathematics 1.
52. **GENERAL PHYSICS** 5 hours  
Continuation of Physics 51.
107. **HEAT** 3 hours  
Measurement of thermal conductivity, cubical coefficient of expansion, specific heat, radiation constants, high temperature measurements, lowering of freezing point, and raising of boiling point of solutions. Recitations and laboratory work. Prerequisites: Physics 51 and 52.
108. **HEAT** 3 hours  
A continuation of course 107.
111. **THERMODYNAMICS** 5 hours  
Theory and principles underlying the operation of steam boilers and engines of various types, such as simple, compound, uni-flow, etc., and gas engines. Methods of analyzing the heat losses and determining their efficiencies. Operation of steam turbines, air compressors, and refrigerator plants. The course is given from the engineering standpoint. Prerequisites: Physics 51 and 52, and Mathematics 51 and 52.

112. STEAM ENGINES, BOILERS, AND STATION  
AUXILIARIES 2 hours

Intended to follow Course 111, laying more stress on the mechanical features and details of practice in construction and operation. Subjects treated are selected mainly from Gebhardt's **Steam Power Plant Engineering**. This course is open to civil engineers without Course 111. Prerequisites: Physics 51 and 52.

121. THEORETICAL MECHANICS 3 hours

An advanced course taking up the mathematical treatment of the subject. Composition of forces and couples, center of gravity of areas and volumes, conditions for equilibrium, principle of virtual work, free and damped periodic motion, motion with central forces, moment of momentum and moment of inertia. Prerequisites: Physics 51 and 52, and Mathematics 131.

125. LIGHT 3 hours

Polarization, refraction, reflection, interference, absorption and emission of light. Modern theories concerning the relation existing between electricity, magnetism, ether and light. Recitation and laboratory. Either semester. Prerequisites: Physics 51 and 52, and Mathematics 131.

131. ELECTRICITY AND MAGNETISM 5 hours

A course treating of the self-inductance, capacity, resistance, and leakage of various shaped conductors, circuits, and dielectrics. Recitation and laboratory. Either semester. Prerequisites: Physics 51 and 52, and Mathematics 51 and 52.

132. ELECTRICITY AND MAGNETISM 5 hours

Advanced course of the electrical-skin effect, hall effect, free and forced electrical oscillations, wave analysis, hysteresis, and eddy currents. Recitation and laboratory. Either semester. Prerequisites: Physics 131, and Mathematics 131.

199. THESIS 5 hours

At the beginning of the first semester of the Senior year, students who are majoring in physics are required to

take up some special line of investigation. The work will continue throughout the year and shall constitute a thesis for graduation.

### DEPARTMENT OF PHYSICAL EDUCATION

Director Hutchinson

- |                                 |        |
|---------------------------------|--------|
| 1. PHYSICAL TRAINING FOR MEN    | 1 hour |
| (See page 90.)                  |        |
| 2. PHYSICAL TRAINING FOR MEN    | 1 hour |
| (See page 90.)                  |        |
| 3. PHYSICAL TRAINING FOR WOMEN  | 1 hour |
| (See page 90.)                  |        |
| 4. PHYSICAL TRAINING FOR WOMEN  | 1 hour |
| (See page 90.)                  |        |
| 51. PHYSICAL TRAINING FOR MEN   | 1 hour |
| (See page 90.)                  |        |
| 52. PHYSICAL TRAINING FOR MEN   | 1 hour |
| (See page 90.)                  |        |
| 53. PHYSICAL TRAINING FOR WOMEN | 1 hour |
| (See page 90.)                  |        |
| 54. PHYSICAL TRAINING FOR WOMEN | 1 hour |
| (See page 90.)                  |        |

### DEPARTMENT OF PSYCHOLOGY AND PHILOSOPHY

Associate Professor Worcester

- |                            |         |
|----------------------------|---------|
| 51. GENERAL PSYCHOLOGY     | 3 hours |
| (See page 90.)             |         |
| 56. EDUCATIONAL PSYCHOLOGY | 3 hours |
| (See page 91.)             |         |
| 81. ETHICS                 | 1 hour  |
| (See page 91.)             |         |

The student in the school of Applied Science may elect any other course in this department for which he can fulfill the prerequisites.

### SHOP WORK

Instructor Leupold

- |   |         |
|---|---------|
| 1. ELEMENTARY SHOP WORK   | 2 hours |
| Bench and lathe work in wood. Practice in the interpretation of working drawings. |         |

**2. ADVANCED WOOD WORK** 3 hours

A continuation of course 1, including pattern making and the principles of cabinet work. Prerequisite: Course 1, or its equivalent. This course may be taken by students who have had the equivalent of Course 1 in their preparatory work.

**11. LATHE WORK IN METALS** 2 hours

Turning, boring and thread cutting in cast iron, steel, and brass.

**16. ELEMENTARY FOUNDRY** 1 hour

The theory and practice of foundry work.

**DEPARTMENT OF SOCIAL SCIENCE**

**Professor Bonnett**

**61. PRINCIPLES OF ECONOMICS** 5 hours

Economic principles are studied extensively in this course. It affords a comprehensive view of these principles operating in the commercial and industrial world. Consideration is given to our great economic problems.

**53. LABOR PROBLEMS AND CONDITIONS** 5 hours

Under this head a study will be made of the conditions of labor, as to hours, wages, and the workshop; of the organizations of workmen, and of employers, and their relations; and of the various problems that have grown out of the factory system.

**62. BUSINESS ORGANIZATION AND MANAGEMENT** 3 hours

The manner in which modern commercial and industrial organizations are formed and their functions in the present industrial system, form the main subjects in this course.

Students in the School of Applied Science may elect any other course in this department for which they have fulfilled the prerequisites.

**DEPARTMENT OF SPANISH****Associate Professor Parsons**

1. ELEMENTARY SPANISH. (See page 95.)	5 hours
2. ELEMENTARY SPANISH (See page 95.)	3 hours
51. SECOND-YEAR SPANISH (See page 95.)	3 hours
52. SECOND-YEAR SPANISH (See page 95.)	3 hours
101. SPANISH DRAMA, 17th CENTURY (See page 95.)	2 hours
102. SPANISH LITERATURE, 19th CENTURY (See page 96.)	2 hours
151. SPANISH BALLAD POETRY (See page 96.)	1 hour
151. HISTORY OF SPANISH LITERATURE (See page 96.)	

## **School of Education**

### **FACULTY**

David Ross Boyd—President.

Charles E. Hodgkin—Dean and Professor of Education.

Charles T. Kirk—Professor of Geology.

Lynn Boal Mitchell—Professor of Latin and Greek.

John D. Clark, Professor of Chemistry.

Clarence E. Bonnett, Professor of Social Science.

Asa O. Weese, Professor of Biology.

Joseph F. Nelson, Professor of Modern Languages.

Josephine S. Parsons—Associate-Professor of Modern Languages.

Ethel A. Hickey—Associate-Professor of English Literature.

Will E. Edington—Professor of Mathematics.

Dean A. Worcester—Associate-Professor of Psychology and Philosophy.

Margaret Gleason—Director of Home Economics.

Proctor F. Sherwin—Associate-Professor of English Composition and Rhetoric and of History.

E. Stanley Seder—Director of Music.

R. F. Hutchinson—Director of Physical Education.

## **School of Education**

### **GENERAL INFORMATION**

The purpose of the Courses in Education is to provide thorough professional instruction for teachers.

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; sociology, ethics, and 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 an exceptionally well-equipped and up-to-date High School with an enrollment of 350 students.

Visits are made under the direction or assignment of the professor in charge.

Students entering the College of Letters and Science with a view to a subsequent course in the School of

Education, may take up majors in any department; or they may select, subject to the approval of the Professor of Education and the Student Standing Committee, a combined course of study designed to prepare them for the profession they have chosen, subject to the requirements of the College.

#### **ADMISSION OF STUDENTS**

Graduates of the Preparatory School, of four-year high school courses and students who have otherwise satisfied the Entrance Requirements of the University as outlined on pages 33-44 are admitted to the School of Education.

#### **REGISTRATION OF STUDENTS**

For Plan of Registration see page 45.

#### **COURSES OF STUDY**

The School of Education offers two courses, a four-year course leading to the degree of Bachelor of Pedagogy on the same scholastic basis as a B. A. degree, and a two-year course leading to a professional certificate, from the University, for work covered, and a three-year State Certificate.

#### **THE FOUR-YEAR COURSE**

This course is intended to afford adequate training for prospective high school teachers and principals, for teachers and principals of elementary schools, supervisors of special subjects and for superintendents of school systems.

The preparation for teaching which is afforded by this course includes a thorough grounding in the correct use of English, both spoken and written. No student should enter the teaching profession without



adequate training of this kind, whatever subjects he may expect to teach, and graduation from the School of Education requires the attainment of a satisfactory standard in this particular.

The professional preparation of the teacher is found in the educational courses—psychology in education, history and theory of education, school management and administration, special methods in teaching, etc.

Another phase of the teacher's preparation is the knowledge of subjects to be taught. The four-year course makes provision for ample training in the languages, history, mathematics and the sciences including Home Economics.

#### **THE DEGREE OF BACHELOR OF PEDAGOGY**

The degree of Bachelor of Pedagogy is conferred upon candidates who fulfill the requirements set forth below:

1. The completion of 120 credit hours in subjects of college grade in addition to 4 credit hours in Physical Education. For every 15 credit hours of B work and every 7 credit hours of C work one extra credit hour is required. No student may carry more than 18 hours nor less than 12 hours without approval of the Head of the School of Education.

2. Candidates must have completed at least 25 credit hours in the group of psychology and philosophy, and the history and principles of education.

3. A sufficient number of courses must be taken in the subject or the two closely allied subjects which the candidate expects to teach in an elementary or high school, to satisfy the requirements of a major study, namely 30 credit hours.

The diploma received upon the completion of these courses entitles the holder to the degree of Bachelor of Pedagogy and to a professional State Certificate.

#### **CERTIFICATE FOR HIGH SCHOOL TEACHERS**

The State Board of Education at its next meeting will probably provide a special certificate for University graduates prepared to specialize in high school subjects. This certificate will require only the more general of the pedagogical subjects, such as psychology, history of education, principles of education, etc.

#### **PROFESSIONAL STATE CERTIFICATES**

(Issued by the State Board of Education.)

A professional three-year certificate may be granted to a candidate presenting any five credits (a credit shall consist of forty-five minute recitations a week for a period of thirty-six weeks, or its equivalent), named in Group II following, and all credits named in Group I, except "Observation ( $\frac{1}{2}$ ), Practice (1)"; provided, however, that equivalents of like kind will be accepted for any credit in Group II, and for any credit in Group I, except "Psychology (1), History of Education, including a general knowledge of the following school systems,—the German, the French, the United States, the New Mexico—( $\frac{1}{2}$ ), School Management ( $\frac{1}{2}$ ), Principles of Education ( $\frac{1}{2}$ ), Special Methods in Reading, Geography, Language, Spelling and Primary Arithmetic (1)," Arithmetic Review ( $\frac{1}{2}$ ), Grammar Review ( $\frac{1}{2}$ ), Physiology ( $\frac{1}{2}$ ), U. S. History ( $\frac{1}{2}$ ), Civics ( $\frac{1}{2}$ ).

After three years of successful experience, the holder of a professional three-year certificate may be granted a professional five-year certificate.

A person who has all the credits in Group I following, and any five credits selected from Group II, shall be considered as having the legal qualifications for a professional five-year certificate; provided, however, that equivalents will be accepted for any credit in Group II, and for any credit in Group I, except "Psychology (1), History of Educa-

tion including a general knowledge of the following school systems,—the German, the French, the United States, the New Mexico—( $\frac{1}{2}$ ), School Management ( $\frac{1}{2}$ ), Principles of Education ( $\frac{1}{2}$ ), Special Methods in Reading, Geography, Language, Spelling and Primary Arithmetic (1), Arithmetic Review ( $\frac{1}{2}$ ), Grammar Review ( $\frac{1}{2}$ ), Physiology ( $\frac{1}{2}$ ), U. S. History ( $\frac{1}{2}$ ), Civics ( $\frac{1}{2}$ ). Practice teaching should be construed to consist of actual teaching in an elementary school under the supervision of a critic teacher. Five-year certificates which are not extensions of three-year professional certificates may be renewed for three years.

Twenty-seven school months of four weeks each of successful teaching will be accepted in lieu of the half year of observation and the one year of practice teaching specified in Group I.

On presentation of four credits in addition to those upon which the five-year certificates are granted, approved by the State Board of Education, a holder of a professional five-year certificate, after five years of successful experience, may be granted a professional life certificate.

An applicant will not be granted a county certificate or a professional certificate, except a life certificate, unless his application is accompanied by a statement of the grades received in the branches prescribed, certified to by the proper authorities.

A fee of three dollars (\$3.00) is charged for the three-year certificate, five dollars (\$5.00) for five-year certificate, and ten dollars (\$10.00) for the life certificate. Do not remit until after having received notice of favorable action on your application.

### Group I

Arithmetic Review ( $\frac{1}{2}$ ), Geometry, Plane or Plane and Solid (1), Zoology ( $\frac{1}{2}$ ), Algebra (1), English Grammar Review ( $\frac{1}{2}$ ), Composition and Rhetoric (1), History of English Literature and English and American Classics (2), United States History ( $\frac{1}{2}$ ), Civics ( $\frac{1}{2}$ ), General History (1), Psychology (1), History of Education, including a general knowledge of the following school systems—the German, the French, the United States, and the New Mexico. ( $\frac{1}{2}$ ), School Manage-

ment ( $\frac{1}{2}$ ), Principles of Education ( $\frac{1}{2}$ ), Special Methods in Reading, Geography, Language, Spelling and Primary Arithmetic (1), Observation ( $\frac{1}{2}$ ), Practice (1).

#### Group II

Latin (2), (3) or (4), Spanish (2), Greek (2), German (2), Trigonometry ( $\frac{1}{2}$ ), Sociology ( $\frac{1}{2}$ ), Ethics ( $\frac{1}{2}$ ), Geology ( $\frac{1}{2}$ ), Astronomy ( $\frac{1}{2}$ ), Commercial Law ( $\frac{1}{2}$ ), English History ( $\frac{1}{2}$ ), Chemistry (1), Bookkeeping ( $\frac{1}{2}$ ), Calculus ( $\frac{1}{2}$ ), Electives.

Industrial Science, Vocal Music, Drawing and Painting may be accepted as credits in Group II, but the total credits allowed in such subjects shall not exceed two units.

The sum of credits in the professional studies for a state professional certificate shall not be less than five (5) units distributed respectively as follows: Psychology 1 unit, History of Education  $\frac{1}{2}$  unit, School Management and Supervision  $\frac{1}{2}$  unit, Principles of Education  $\frac{1}{2}$  unit, Special Methods 1 unit, Observation and Practice  $1\frac{1}{2}$  unit. (Twenty-seven months successful teaching shall be accepted in lieu of Observation and Practice,  $1\frac{1}{2}$  units.) No credit shall be counted in Psychology for less than 18 weeks. In other professional subjects no credit shall be accepted for less than 12 weeks. When the total credits in professional subjects do not equal 5 units, the Board of Education reserves the right to designate in what particular subject or subjects the candidate shall make his or her additional credits in order to meet these requirements. Substitutions for any subject must be of like kind, Mathematics for Mathematics, History for History, Science for Science, but there shall be no substitution for Arithmetic Review  $\frac{1}{2}$  unit, Grammar Review  $\frac{1}{2}$  unit, English 3 units, Psychology and Hygiene  $\frac{1}{2}$  unit, Civics  $\frac{1}{2}$  unit, United States History  $\frac{1}{2}$  unit.

Credits not to exceed 2 units for work done in New Mexico Normal summer school shall be accepted for professional certificates with the same value as is given to such credit toward graduation in said institutions; provided said credits shall be earned by an attendance of not less than eight consecutive weeks.

Recently added—History and Civics of New Mexico, and  $\frac{1}{2}$  unit in Domestic Science, Manual Training or Agriculture.

**CURRICULUM OF FOUR-YEAR COURSE**

- (a) English 1 and 2 ..... (3-3) 6 hours  
 English 51 and 52 ..... (3-3) 6 hours

(b) One of the following languages which must be continued through both the first and second years:

- Greek 1 and 2 ..... 16 credit hours  
 Latin ..... 16 credit hours  
 French 1 and 2 ..... 16 credit hours  
 German 1 and 2 ..... 16 credit hours  
 Spanish 1 and 2 ..... 16 credit hours

The second year will not be required of students who offer six entrance units in foreign languages.

- (c) Mathematics 1 and 2 ..... 10 credit hours

This requirement is waived for students not electing mathematics as a major study.

- (d) One out of each of the following groups:

**Biological**

- Physiology ..... 3 credit hours  
 Zoology ..... 5 credit hours  
 Botany ..... 5 credit hours

**Non-Biological**

- Physics ..... 10 credit hours  
 Chemistry ..... 6 or 8 credit hours  
 Geology ..... 10 credit hours  
 Home Economics ..... 10 credit hours

Taking into account his preparatory course, the student, at the end of his second year, must have completed both one biological and one non-biological science. If neither physics nor chemistry is offered for entrance, one of these subjects must be taken in the University.

- (e) One of the following:

- History (American) ..... 6 credit hours  
 Social Science 1 and 2

Physiology ..... 8 credit hours

Physical Education ..... 4 credit hours

(f) Psychology ..... 8 credit hours

(g) Physical Education ..... 4 credit hours

### THE TWO-YEAR COURSE

Students who complete the two-year course will be granted a certificate indicating the amount of work completed. This certificate will entitle the holder to the three years' professional certificate, issued by the State Board of Education, and renewable without examination, *provided*, the preparatory work required by the State Board has been completed. For this certificate no substitution is allowed for U. S. History, Civics and Physiology, all of a high school grade.

### OUTLINE OF TWO YEARS' COURSE

#### FIRST YEAR

##### First Semester

Phys. Ed. 1 ..... Physical Education ..... 2 hours

Psychology 51 and 55..General Psychology ..... 5 hours

Education 1 ..... History of Education ..... 4 hours

Education 9 ..... Orthodoxy ..... 3 hours

Education 15 ..... Education and School Law in  
New Mexico ..... 1 hour

Music ..... Public School Music ..... 1 hour

##### Second Semester

Phys. Ed. 2 ..... Physical Education ..... 2 hours

Psychology 56 ..... Educational Psychology ..... 3 hours

Education 2 ..... Education in America ..... 4 hours

Education 10 ..... Professional Course in Gram-  
mar ..... 4 hours

Education 18 ..... Child Study ..... 1 hour

Music ..... Public School Music ..... 1 hour

## SECOND YEAR.

## First Semester

Phys. Ed. 51	Physical Education	2 hours
Philosophy 81	Ethics	4 hours
Education 51	Principles of Education	4 hours
Education 57	Special Methods	4 hours
Education 65	School Management	4 hours
Manual Training-Drawing.		

## Second Semester

Phys. Ed. 52	Physical Education	2 hours
Social Science 52	Sociology	3 hours
Education 52	Professional Course in Arith.	4 hours
Education 58	Special Methods	4 hours
Education 64	Seminar in Current Problems	1 hour
Education 72	Observation and Conference	1 hour

The required professional courses in the School of Education may be taken in the Freshman and Sophomore years, or may be intercolated with the entire University course.

Special adjustment of courses will be made for students who elect Home Economics.

Elective subjects will be considered upon application of individual students.

### DESCRIPTION OF COURSES IN THE SCHOOL OF EDUCATION

1. HISTORY OF EDUCATION 4 hours  
Education in the Orient, of the ancient classical nations, and in Europe from the beginning of Christian Education to the present, with special consideration of the school systems of England, Germany and France. The course includes a study of the great educational theorists and leaders.

Special texts—Monroe's *Brief Course in the History of Education* and Painter's *History of Education*.

2. EDUCATION IN AMERICA 4 hours  
This course makes a survey of the educational conditions in colonial, revolutionary and reorganization pe-

iods. It takes into account the development and influence of academies, high schools, and includes a study of the leading educators, of the higher educational institutions, State systems, educational extension work and modern systems including the Montessori method.

Reference texts: Dexter's **History of Education in the United States** and Brown's **Making of Our Middle Schools**.

51. **PRINCIPLES OF EDUCATION** 4 hours

Consideration is given to education as physiological, sociological and psychological adjustment; the nature and principles of education; analysis and synthesis; induction and deduction; concentration; the educational value of apperception; the doctrine of interest; correlation and the "culture epochs" theory.

Text: Klapper's **Principles of Educational Practice**.

65. **SCHOOL MANAGEMENT AND ADMINISTRATION** 4 hours

The fundamental laws of the school. The different factors to be held in unity. School incentives. School economy. The ideal school building and study roof. The class and the class individual system of grading. The Batavia plan. Relation of the school and the home.

Special texts: Dutton's **School Management** and Holme's **School Organization and the Individual Child**.

57. **SPECIAL METHODS** 4 hours

In this course application of the general principles is made, and steps pointed out in the following 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 Supplementary reading.

**Language.** Theories of language origin. Means of communication preceding language development. Re-



lation of language to thought. How the child learns his vocabulary. Methods of presenting language in the grades.

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

**Arithmetic.** Special stress is placed upon the development and close relation of the various phases or arithmetic. Psychical 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. Merits and demerits of the "Grube Method" of numbers. Practical presentation of the subjects of fractions; decimals, percentage, interest and other phases.

**Physiology and Hygiene.** The need of practical work in this subject. Relation of health to the work of life. Study of physical defects. School room hygiene. Need of exercise, rest and recreation. Suggestions for right living in the home. Cause and effect of common diseases and precautions to be taken.

58. **SPECIAL METHODS**

5 hours

General principles applied to the following subjects:

**Geography.** The scheme of concentration with geography as a center. Logical and chronological analysis of geographical facts. The earth as a whole and as a member of the solar system. Knowledge to be gained by observation, by inference, by testimony. Study of geographic controls, responses and type forms. Use and abuse of text books and maps. Importance of local geography. Dynamic ideas in geography. Value of newspapers and government publications in geography teaching. 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.

10. PROFESSIONAL COURSE IN GRAMMAR 4 hours

In view of the importance of the subject for teachers, and to conform to the requirements of the State Board of Education for the professional State certificate this special review course in grammar is given.

9. ORTHOEPEY

3 hours

The purpose of the work in orthoepey is to give a scientific basis for teaching the sounds of the language and an intelligent use of the dictionary. The subject is viewed under the following topics: Vocal physiology as the basis for the voice production; phonology; analysis and classification of vocal elements; diacritical marking; imperfections of English orthography; noted attempts at perfect phonetic representation; orthoepeic elements—syllabication, accentuation, articulation, vowels and consonants in unaccented syllables; special dictionary study; comparisons of systems of dictionary markings; onomatopoey; 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*.

52. PROFESSIONAL COURSE IN ARITHMETIC. 4 hours

Conforming to the requirements of the State Board of Education for the professional State certificate, this special course is given as a review in arithmetic with reference to teaching the subject.

18. CHILD STUDY

1 hour

This course considers the value of child study for educators, 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 characteris-

tics, plays, secret languages, fears, affections, ideas of punishment and reward, and religious notions. Lectures, readings, discussions.

15. EDUCATION AND SCHOOL LAW IN NEW MEXICO

1 hour

History of education in New Mexico as a territory. Early school laws. The change of education with statehood. The present school laws. The modern school system. Its organization, rural schools, city graded schools, high schools, State Institutions and summer institutes. Early work of the denominational schools. Growth and influence of the State Educational Association. The library movement and educational extension work.

64. SEMINAR IN CURRENT EDUCATIONAL PROBLEMS

1 hour

This course will discuss modern ideas and tendencies in education, and current problems. Some of the subjects considered will be: The changed conception of the school and its function, recent tendencies in correlating home work with that of the school, rural school development, socializing school centers, the modern playground movement, open air schools, vocational education and guidance, work of the Bureau of Education of the United States, and studies in current educational literature.

72. OBSERVATION AND CONFERENCE

1 hour

The course will consist of observation of class room work in various grades and schools under the direction of the professor in charge, or by special assignment.

Conferences will be held for discussion of school visits, and for studying standards for judging class work. Prescribed readings and written reports will be required.

The assignment for observation will be made with special reference to the particular interests of the individual students.

For courses in Psychology see page 90.

For courses in Ethics see page 91.

For courses in Sociology see page 93.

For courses in Home Economics see page 127.

For courses in Manual Training see page 93.

For courses in Drawing see page 118.

## **School of Fine Arts**

### **FACULTY**

David R. Boyd—President of the University.

E. Stanley Seder—Director of Music.

Charles J. Andrews—Instructor in Voice.

I. L. Tello—Instructor in Violin, Viola and Violoncello.

Lynn B. Mitchell—Professor of Latin and Greek.

Clarence E. Bonnett—Professor of Social Science.

Josef F. Nelson—Professor of Modern Languages.

Josephine S. Parsons—Associate-Professor of Modern Languages.

Ethel A. Hickey—Associate-Professor of English Literature.

Dean A. Worcester—Associate-Professor of Psychology and Philosophy.

Proctor F. Sherwin—Associate-Professor of English Composition and Rhetoric and of History.

R. F. Hutchinson—Director of Physical Education.

## **School of Fine Arts**

The School of Fine Arts offers thorough courses in instrumental and vocal music, and in the theory of music. At a later date it is planned to incorporate courses in painting, drawing, oratory and allied subjects coming within the field of this School. Full four-year courses are offered in piano, voice and violin, leading to the degree of Bachelor of Music. These courses embrace four years' study of an instrument or voice, together with a study of theoretical music and cultural subjects included in the curriculum of the College of Letters and Science, thus combining specific musical study with the advantages of a liberal university course.

### **ENTRANCE REQUIREMENTS**

The requirements for entrance to this School are the same as for entrance to any other College or School of the University, viz., fifteen units of high school. For entrance requirements to course 1 in the Piano Department, see page 165.

### **RULES GOVERNING REGISTRATION**

#### **Method**

The student, upon entering the University, must pay the matriculation, tuition and other fees at the office of the Secretary of the University, and receive the necessary blanks for enrollment. He shall then fill out

these blanks under the direction of the Director of Music, who will issue class cards admitting the student to respective classes.

#### **LATE REGISTRATION**

The first day of each semester is known as Registration Day and it is intended that all students shall completely arrange on this day their course of study for the current semester.

Registration after the day appointed for this purpose, except for reasons approved by the President, can be effected only after the payment of the late registration fee of one dollar.

#### **MAXIMUM SCHEDULE**

No candidate for the degree of Bachelor of Music is allowed to carry more than seventeen hours, unless his standing for the previous semester be A in two-thirds of his work and with no mark less than B, and then only by presenting written request to the Student Standing Committee who shall grant permission to carry extra work at their discretion.

#### **MINIMUM SCHEDULE**

No student shall be registered for fewer than twelve hours per week except by permission of the President.

#### **LATE CLASS ENTRANCE**

No student may enter a course later than four weeks from the beginning of the course, except by permission of the Director of Music and of the instructor of the class he proposes to enter. The instructor shall determine the amount of credit that may be earned in such cases.

#### **WITHDRAWAL FROM CLASS**

No student may drop a subject after the beginning of a course without the consent of the Director of

Music and of the instructor in charge. No student may drop one course and enroll in another after the third week unless he has been passing in that course.

#### **DISMISSAL**

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

#### **SPECIAL STUDENTS**

Students over twenty-one years of age who are not working for a degree may register for courses of their selection without fulfilling the entrance requirements, provided they give evidence of ability to pursue such courses with profit.

#### **EXPENSES**

In addition to the usual fees for entrance to the University, students enrolled in Piano, Voice, Violin, Viola or Violoncello are required to pay the following fees:

Per semester, one lesson-hour per week.....	\$12.50
Per semester, two lesson-hours per week.....	25.00

#### **REQUIREMENTS FOR GRADUATION**

All candidates for the degree of Bachelor of Music must complete the courses as outlined below, consisting of 122 credit hours in Piano course, and 120 credit hours in Voice and Violin Courses. In addition they must complete four credit hours in Physical Education.

#### **CLASS HOURS AND CREDIT HOURS**

An "hour" shall consist of 53 minutes. But two hours per week in Physical Education, Chorus, or Orchestra earn one credit hour. Two hour lessons per week in Piano, Voice and Violin with a passing grade in the required work of the course earn 4 credit hours. A laboratory period is usually twice the length of a recitation and earns the same amount of credit. Other



courses earn as many credit hours as there are exercises in that course per week.

### **GRADING AND EXAMINATIONS**

The grades of students are based upon the work done in recitations and examinations. Students making a grade of 91-100 are marked A; 81-90, B; 71-80, C; 61-70, D; 60 or below, E (failed). No substitution may be made for failures or conditions toward graduation.

Students receiving a grade of D in any course are "conditioned" in that course. Such students may receive credit in that course if the condition imposed is removed in a way prescribed by the instructor under whom the condition is incurred. Any condition remaining unremoved at the end of the semester following its incurrence automatically becomes a failure. Only one opportunity is allowed to remove a condition.

Deductions in the number of credit hours may be made for late registration, for absences, or for incomplete work.

Special examinations, taken at other times than regularly with the class, except entrance examinations or examinations for advanced standing, can be taken only after paying a special examination fee of \$2.00 to the Registrar and the issuance by him of a permit for the special examination.

No final examination may be given to a class or to an individual previous to the time appointed by the schedule committee.

# **COURSE OF STUDY LEADING TO DEGREE OF BACHELOR OF MUSIC**

## **FRESHMAN YEAR**

<b>First Semester</b>	<b>Piano, Violin and Voice</b>	<b>Credits</b>
Physical Education 1 .....		1
Piano 1, or Violin 1, or Voice 1.....		4
Theory of Music 1 .....	Harmony .....	3
Modern Language .....		5
English 1 .....	English Composition ...	3
Chorus or Orchestra .....		1

Total, excluding Physical Education.... 16

### **Second Semester**

Physical Education 2 .....		1
Piano 2, or Violin 2, or Voice 2 .....		4
Theory of Music 2 .....	Harmony .....	3
Modern Language .....		5
English 2 .....	English Composition ...	3
Chorus or Orchestra .....		1

Total, excluding Physical Education.... 16

NOTE.—In case the student has already taken elementary course in Modern Language, he will enroll for a 3-hour course in Modern Language and elect 2 or 3 hours from the following: History 1 and 2, Social Science 1 and 2, or Foreign Language.

## **SOPHOMORE YEAR**

### **Piano, Violin and Voice**

<b>First Semester</b>		
Physical Education 51 .....		1
Piano 51, or Violin 51, or Voice 51 .....		4
Theory of Music 51 .....	Advanced Harmony...	2
Theory of Music 61 .....	History of Music.....	2
Psychology and Philosophy 51..	General Psychology ...	3
Modern Language .....		3
Chorus or Orchestra .....		1

Total, excluding Physical Education.... 15

## Second Semester

Physical Education 52 .....	1
Piano 52, or Violin 52, or Voice 52 .....	4
Theory of Music 52 .....Advanced Harmony....	2
Theory of Music 62 .....History of Music.....	2
Psychology and Philosophy 84..History of Philosophy..	3
Modern Language .....	3
Chorus or Orchestra .....	1
Total, excluding Physical Education....	15

## JUNIOR YEAR

## Piano.

## First Semester

Piano 101 .....	4
Theory of Music 121 .....Counterpoint .....	2
Theory of Music 125 .....Composition .....	1
Theory of Music 141 .....Normal Class .....	1
History .....	3
Second or Modern Language .....	5
Chorus or Orchestra .....	1
Total .....	17

## Second Semester

Piano 102 .....	4
Theory of Music 122 .....Counterpoint .....	2
Theory of Music 126 .....Composition .....	1
Theory of Music 142 .....Normal Class .....	1
History .....	3
Second or Modern Language .....	5
Chorus or Orchestra .....	1
Total .....	17

## SCHOOL OF FINE ARTS

161

**Violin and Voice.****First Semester**

Violin or Voice 101 .....	4
Piano 1 (half semester) .....	2
Theory of Music 121 ..... Counterpoint .....	2
Theory of Music 125 ..... Composition .....	1
Theory of Music 141 ..... Normal Class .....	1
History .....	3
Chorus or Orchestra .....	1
<b>Total</b> .....	<b>14</b>

**Second Semester**

Violin 102 or Voice 102 .....	4
Piano 1 (half semester) .....	2
Theory of Music 122 ..... Counterpoint .....	2
Theory of Music 126 ..... Composition .....	1
Theory of Music 142 ..... Normal Class .....	1
History .....	3
Chorus or Orchestra .....	1
<b>Total</b> .....	<b>14</b>

**SENIOR YEAR****Piano****First Semester**

Piano 151 .....	4
Theory of Music 175 ..... Advanced Composition .....	1
Theory of Music 171 ..... Canon and Fugue .....	1
Theory of Music 191 ..... Musical Analysis .....	1
English .....	2
History .....	3
Chorus or Orchestra .....	1
<b>Total</b> .....	<b>13</b>

## Second Semester

Piano 152 .....	4
Theory of Music 176 .....	1
Theory of Music 182 .....	1
Theory of Music 192 .....	1
English .....	2
History .....	3
Chorus or Orchestra .....	1
Total .....	13

## Violin and Voice

## First Semester

Violin 151 or Voice 151 .....	4
Piano 51 (half semester) .....	2
Theory of Music 175 .....	1
Theory of Music 171 .....	1
Theory of Music 191 .....	1
English .....	2
History .....	3
Chorus or Orchestra .....	1
Total .....	15

## Second Semester

Violin 152 or Voice 152 .....	4
Piano 51 (half semester) .....	2
Theory of Music 176 .....	1
Theory of Music 182 .....	1
Theory of Music 192 .....	1
English .....	2
History .....	3
Chorus or Orchestra .....	1
Total .....	15

All students registered for courses in music must enroll for chorus or orchestra, unless excused by the director of music.

# **Description of Courses in the School of Fine Arts**

## **DEPARTMENT OF THEORY OF MUSIC**

**Director Seder**

- |     |  |                |
|-----|--|----------------|
| 1.  | <b>HARMONY</b>   | <b>3 hours</b> |
|     | Study of scales, intervals, triads, close and open harmony, dominant ninth and diminished seventh chords and inversions. - Harmonization of melodies and basses. Chadwick, <b>Harmony</b> .  |                |
| 2.  | <b>HARMONY</b>   | <b>3 hours</b> |
|     | Continuation of course 1.  |                |
| 41. | <b>PUBLIC SCHOOL MUSIC</b>   | <b>1 hour</b>  |
|     | Study of the child voice; methods of drilling grade children; study of rote songs of various grades of difficulty. Lectures and demonstrations.  |                |
| 42. | <b>PUBLIC SCHOOL MUSIC</b>   | <b>1 hour</b>  |
|     | Continuation of course 41.   |                |
| 51. | <b>ADVANCED HARMONY</b>  |                |
|     | Study of modulations, irregular resolutions, altered chords, suspensions, passing tones, organ point. Chadwick <b>Harmony</b> , for reference, Prout, <b>Harmony</b> , and Hull, <b>Modern Harmony</b> . Prerequisite: Course 2.     |                |
| 52. | <b>ADVANCED HARMONY</b>  | <b>2 hours</b> |
|     | Continuation of course 51.   |                |
| 61. | <b>HISTORY OF MUSIC</b>  | <b>2 hours</b> |
|     | Comprehensive study of the evolution of music from ancient to modern times, with special attention given the periods of Palestrina, Bach, Mozart, Beethoven and the Romantic composers. Hamilton, <b>Outlines of Music History</b> . |                |
| 62. | <b>HISTORY OF MUSIC</b>  | <b>2 hours</b> |
|     | Continuation of course 61.   |                |

121. COUNTERPOINT 2 hours  
Different species of single counterpoint in two, three, four and five or more parts. Double counterpoint at the octave, twelfth and fifteenth. Modern counterpoint. Bridge, **Counterpoint**. Prerequisite: Course 2.
122. COUNTERPOINT 2 hours  
Continuation of course 121.
125. COMPOSITION 1 hour  
Simple song and dance forms. Theme with variations, analysis of classical models and original work. Stainer, **Composition**, for reference, Stanford, **Musical Composition**. Prerequisite: Course 52.
126. COMPOSITION 1 hour  
Continuation of course 125.
141. NORMAL CLASS 1 hour  
Methods of arranging and presenting courses in theoretical and practical music. Lectures and demonstrations.
142. NORMAL CLASS 1 hour  
Continuation of course 141.
171. CANON AND FUGUE 1 hour  
Various forms of canon and their use; fugue in two, three and four parts; analysis of Bach fugues and original work. Bridge, **Double Counterpoint and Canon**; Higgs, **Fugue**. Prerequisite: Course 122.
175. ADVANCED COMPOSITION 1 hour  
Sonata and rondo forms; analysis of classical works, and original works in larger forms. Prerequisite: Courses 122 and 126.
176. ADVANCED COMPOSITION 1 hour  
Continuation of course 175.
182. INSTRUMENTATION 1 hour  
Nature and treatment of the orchestral instruments; analysis of classical and modern scores; original work in orchestration. Prout, **Instrumentation**. Prerequisite: Course 126.
191. MUSICAL ANALYSIS 1 hour  
Analysis from standpoints of form and content of Bach

fugues, Beethoven sonatas and symphonies, compositions of Schumann, Schubert, Chopin, Brahms, Tschai-kowsky and others.

192. MUSICAL ANALYSIS

1 hour

Continuation of course 191.

DEPARTMENT OF PIANO

Director Seder

Requirements for entering Piano 1 are the ability to play correctly, with proper style and phrasing, major scales in all keys in octaves, and Mozart, First Sonata or Loeschorn, Op. 52, or the equivalent. Any deficiency must be made up before entering Course 1.

1. FRESHMAN COURSE

4 hours

Exercises for independence of fingers; scales in thirds and sixths, parallel and contrary motion; arpeggios; chord playing; octaves begun. 12 studies from Loeschorn, Op. 66, Heller, Op. 46 and 47, Czerny, Op. 636' and 299, and 12 pieces by standard classic and modern composers. 2 hour lessons per week.

2. FRESHMAN COURSE

4 hours

Continuation of course 1.

51. SOPHOMORE COURSE

4 hours

Octaves continued; scales in double thirds; special technical exercises suited to the student. 10 studies selected from Cramer *Etudes*, Kullak, *Octave School*, Bach, *Easy Preludes and Fugues*, 10 sonatas and pieces by Beethoven, Mozart, Mendelssohn, Grieg and others. 2 hour lessons per week.

52. SOPHOMORE COURSE

4 hours

Continuation of course 51.

191. JUNIOR COURSE

4 hours

Advanced technical work, greater velocity in scales and arpeggios. 8 studies from Clementi, *Gradus ad Parnasum*, Bach, *Two and Three Part Inventions*, Phillipps, *School of Double Notes*. 8 sonatas and pieces by Beethoven, Weber, Henselt, Moszkowski and modern composers. 2 hour lessons per week.



102. JUNIOR COURSE 4 hours  
Continuation of Course 101.
151. SENIOR COURSE 4 hours  
Special technical exercises. 6 studies from Bach, **Well-Tempered Clavichord**, Chopin **Etudes**, Philipp **School of Octaves**. 6 sonatas and concert pieces by Beethoven, Schumann, Chopin, Liszt, McDowell and others. 2 hour lessons per week.
152. SENIOR COURSE 4 hours  
Continuation of course 151.

## DEPARTMENT OF VOICE

Mr. Andrews

1. FRESHMAN COURSE 4 hours  
Principles of breathing, tone production, study of vowels and simple intervals; formation of scales, ear-training and sight reading; theory of music; elementary harmony, general exercises for tone placing. Randegger, **Singing Primer**, Sieber, **Elementary Vocalises**. 2 hour lessons per week.
2. FRESHMAN COURSE 4 hours  
Continuation of course 1.
51. SOPHOMORE COURSE 4 hours  
Advanced work in tone-sustaining. Randegger, **Singing Primer**, Marchesi, **Advanced Exercises**, Spicker, **Masterpieces of Vocalization I**. Easy songs, German lieder and duets. 2 hour lessons per week.
52. SOPHOMORE COURSE 4 hours  
Continuation of course 51.
101. JUNIOR COURSE 4 hours  
Advanced work in breath control. Spicker, **Masterpieces of Vocalization, II and III**. Concert songs, classic opera and oratorio; ensemble work. 2 hour lessons per week.
102. JUNIOR COURSE 4 hours  
Continuation of course 101.
151. SENIOR COURSE 4 hours  
Special attention given to interpretation. Henschel, **Studies**. Modern songs, oratorio and modern opera. 2 hour lessons per week.

152. SENIOR COURSE 4 hours  
Continuation of course 151.

## DEPARTMENT OF VIOLIN

Mr. Tello

1. FRESHMAN COURSE 4 hours  
Exercises for the foundation of violin technic, and studies from Beriot, **Method**, Hollman, **50 Exercises Finger Mechanism**, Dancla, **50 Finger Velocity**. 2 hour lessons per week.
2. FRESHMAN COURSE 4 hours  
Continuation of Course 1.
51. SOPHOMORE COURSE 4 hours  
Intermediate technical exercises. Studies from Second Beriot **Method**; Kreutzer, **Etudes**; Second Piott **Method**, with easy pieces. 2 hour lessons per week.
52. SOPHOMORE COURSE 4 hours  
Continuation of Course 51.
101. JUNIOR COURSE 4 hours  
Advanced technical work. Studies from Fiorillo, **60 Etudes**; Rode, **50 Exercises**. More difficult pieces by standard composers. 2 hour lessons per week.
102. JUNIOR COURSE 4 hours  
Continuation of course 101.
151. SENIOR COURSE 4 hours  
Special technical work and interpretation. Studies from Markees, **Technique**; Spohr, **55 Etudes**; Paganini, **Celebrated Etudes**. Advanced sonatas and pieces by classic and modern composers. 2 hour lessons per week.
152. SENIOR COURSE 4 hours  
Continuation of course 151.

## Viola and Violoncello.

Full courses will be offered in both of these instruments. Detailed outlines will be furnished on request to anyone interested.

Chorus. All students registered in the music courses of this School are required to enroll in either Choral or Orchestra work, unless excused by the Dean. Thor-

ough training in part-singing, secular and sacred, is given by the University Choral Club, which appears in concert several times during the year. Director Seder.

Orchestra. An orchestra of some twelve or fourteen pieces is maintained, in which training in the routine of orchestral playing is offered. Music is furnished for assemblies, plays, concerts and other public occasions. Director Seder.

#### **DEPARTMENT OF ENGLISH**

Associate Professors Hickey and Sherwin

Courses 1, 2, 53, 54, 55, 56, 121, 122, 123, 124, 141, 142, 143, 144. For detailed description of courses, see page 66.

#### **DEPARTMENT OF FRENCH**

Professor Nelson

Courses 1, 2, 51, 52, 101, 102, 451, 152. For detailed description of courses, see page 69.

#### **DEPARTMENT OF GERMAN**

Professor Nelson

Courses 1, 2, 51, 52, 101, 102. For detailed description of courses, see page 75.

#### **DEPARTMENT OF GREEK**

Professor Mitchell

Courses 1, 2, 21, 24, 73, 88, 91, 94. For detailed description of courses, see page 76.

#### **DEPARTMENT OF HISTORY**

Associate Professor Sherwin

Courses 1, 2, 51, 52, 55, 56, 101. For detailed description of courses, see page 77.

#### **DEPARTMENT OF LATIN**

Professor Mitchell

Courses 71, 72, 87, 88. For detailed description of courses, see page 80.

**DEPARTMENT OF PHYSICAL EDUCATION**

**Director Hutchinson**

Courses 1, 2, 51, 52. For detailed description of courses, see page 88.

**DEPARTMENT OF PSYCHOLOGY AND PHILOSOPHY**

**Associate Professor Worcester**

Courses 51, 84. For detailed description of courses, see page 90.

**DEPARTMENT OF SOCIAL SCIENCE**

**Professor Bonnett**

Courses 1, 2, 3, 52, 54, 62, 71, 72, 74, 111, 172. For detailed description of courses, see page 93.

**DEPARTMENT OF SPANISH**

**Associate Professor Parsons**

Courses 1, 2, 51, 52, 101, 102. For detailed description of courses, see page 95.

## **Extension Division**

### **DEPARTMENTS AND ACTIVITIES OF THE EXTENSION DIVISION**

**Professor Bonnett, Director**

*Correspondence Study* in college and vocational subjects under the direction of the University Faculty.

*Lectures* in series, with syllabi, for study-club; single lectures for special groups and general audiences.

*Extension Teaching* in co-operation with educational institutions conducting continuation and evening schools.

*Debating and Public Discussions* stimulated and organized by, state contest, bulletins containing formulated questions with briefs and bibliographies, and library loan material.

*General Information* on matters pertaining to education, state and local government, public health, civic improvement and other subjects of special but common interest.

*Surveys, Research, and Investigation* in fields and on subjects of community and state importance.

*Suggestive Aid* for county, town and municipal boards, commissions and councils; school boards, commercial clubs, civic and economic betterment associations.

*Exhibits, Conférences and Instituts* for public information upon vocational, educational and social welfare matters.

For further information about the above, address the Director of the Extension Division.

**CORRESPONDENCE STUDY COURSES CONDUCTED BY  
UNIVERSITY PROFESSORS**

The University offers this year to non-residents a large number of courses by correspondence. These courses enable the ambitious to pursue studies anywhere in the state. Spare moments may thus be utilized to the best advantage. The papers sent in by the student are read and corrected by head instructors only; no student-assistants are assigned to do this work. This assures the very highest and best instruction. The charge for tuition in these courses is \$4.50 per credit hour. A full year's preparatory course costs \$13.50, a half year's \$6.75.

All courses carry a credit of three hours, unless otherwise indicated.

MR. BONNETT:

(Preparatory Courses.)

- (1) Elements of Economics,  $\frac{1}{2}$  unit.
- (2) Civil Government,  $\frac{1}{2}$  unit.
- (3) Elements of Sociology,  $\frac{1}{2}$  unit.

(University Courses.)

- (1) Principles of Economics.
- (2) American Government and Politics.
- (3) Principles of Sociology.
- (4) Money and Banking.
- (5) Labor Problems.
- (6) Employers' Associations in Industrial Peace and Warfare.
- (7) Municipal Government.

- (8) Taxation.
- (9) Governments in Europe.
- (10) Political Parties.
- (11) Introduction to Political Science.

MR. BRENNEMAN:

- (1) General Physics.

MR. CLARK:

- (1) Foundations of Chemistry.

MR. EDINGTON:

- (1) College Algebra.
- (2) Analytical Geometry.
- (3) Plane Spherical Trigonometry.
- (4) Differential and Integral Calculus.
- (5) Differential and Integral Calculus, 5 hours.
- (6) Differential Equations.
- (7) Analytical Geometry of Three Dimensions.
- (8) Definite Integrals.
- (9) Advanced Algebra.
- (10) Theory of Equations.
- (11) History and Teaching of Elementary Mathematics.

MISS HICKEY:

- (1) English Literature, 1557-1599.
- (2) English Literature, 1599-1660.
- (3) English Literature, 1660-1781.
- (4) English Literature, 1782-1832.
- (5) English Literature, 1833-1894 (Poetry).
- (6) English Literature, 1833-1894 (Prose).
- (7) American Literature.
- (8) Short History of the Novel.

MR. HODGIN:

- (1) History of Education.
- (2) Education in the United States.
- (3) Principles of Education.

MR. KIRK:

- (1) Mineralogy.
- (2) Physiography.
- (3) Economic Geology.

## MR. MITCHELL:

Greek Language and Literature.

- (1) Elementary Greek.
- (2) The Anabasis of Xenophon.
- (3) Attic Greek Prose.
- (4) The Drama.

Latin Language and Literature.

- (1) Elementary Latin, six hours.
- (2) Caesar, De Bello Gallico and Latin Composition, six hours.
- (3) Cicero's Orations and Composition, six hours.
- (4) Sallust's Catiline and Composition.
- (5) Vergil's Aeneid, six hours.
- (6) Latin Prose Composition.
- (7) Advanced Composition.

## MR. NELSON

- (1) German, Schiller's Dramas.
- (2) French, Moliere's Dramas.
- (3) Spanish, Dramas of the Nineteenth Century.
- (4) Advanced Spanish Composition and Grammar.

## MR. SEDER:

- (1) Harmony, two hours.
- (2) History of Music.

## MR. SHERWIN:

English.

- (1) English Composition and Rhetoric.
- (2) English Composition and Rhetoric.
- (3) Short-Story Writing.
- (4) Essay Writing.
- (5) Literary Criticism and Book-reviewing.

History.

- (1) Ancient History.
- (2) Medieval History.
- (3) Period of Renaissance and Reformation.
- (4) Modern European History.
- (5) English History, 55 B. C.—1603 A. D.
- (6) English History, 1603—1910.
- (7) American History, 1492—1829.
- (8) American History, 1829—1913.



**MR. WAND:**

- (1) Shop Sketching.
- (2) Reinforced Concrete Construction.
- (3) Elements of Structures.
- (4) Steam Boilers.
- (5) Shop Arithmetic.
- (6) Shop Mathematics.

**MR. WEESE:**

- (1) General Biology.
- (2) Elementary Physiology.
- (3) Zoology.
- (4) Botany.

**MR. WORCESTER:**

- (1) General Psychology.
- (2) Social Psychology.
- (3) Child Psychology.

**LECTURE COURSES PROVIDED BY THE UNIVERSITY**

Prompted by the idea of being of real service to all the citizens of New Mexico, the University has prepared a list of lectures which will be given in any locality in the state whenever suitable arrangements can be made.

Cities may arrange lecture courses during the fall, winter and spring. By organizing a circuit, cities can reduce the expenses of the lectures to a minimum.

The lectures given cover a wide range of thought. These lectures will be presented in a popular way for the general public, and made interesting and instructive.

The University makes no charge for these lectures. It does, however, require the locality or group of cities to pay the traveling expenses of the lecturer. Communities which desire these lectures should write early

to the Director of the Extension Division and state their wants. Then if circuits can be organized, the applicants will be notified.

The following is a partial list:

By MR. BONNETT:

1. Is Our Democracy in Danger?
2. What is a Progressive?
3. The Economic Law of Efficiency.
4. Our Labor Wars.
5. Regulation or Public Ownership.
6. The Prospects for a World-Wide Peace.

By MR. BRENNEMAN:

1. How We Measure the Size of an Electron.
2. The Electric Theory of Energy and Matter.
3. How We Analyze the Sun.

By MR. CLARK:

1. Matter in the Making.
2. The Air We Breathe.
3. The Great Iron and Steel Industry.
4. Madame Curie and the Discovery of Radium.
5. Ptomaines and Leucomaines.
6. The Adulteration of Foods.
7. Dangers of Fire and Explosions.

By MISS GLEASON:

1. The Business of Home-Making.
2. Business Methods in the Home.
3. Home Economics As it Has Developed From Recipes to Receipts.
4. The Home as a Center of Consumption.
5. Household Finance.
6. The Consumer's Responsibility.
7. Home Economics at the University of New Mexico. (Purposes, plans and progress.)
8. The Relation of the Home to the Community.
9. Civil Problems Which are of Vital Interest to the Home-maker: Clean Streets, Clean Market, Clean Air, Clean Milk.

10. A Survey of the Field of Home Economics.
11. Practical Application of the Results of Recent Researches in Dietetics.

By MR. HODGIN:

1. Seven Hundred Miles Up the Nile.
2. The Holy Land.
3. Greece—"Yesterday and Today."
4. Modes of Travel and Customs of the People.
5. Removing Limitations.
6. The Emotional Life.
7. Rousseau—"The Strangest Man of France."
8. "The Story of the Stars."

By MR. KIRK:

1. Origin of Surface Features of New Mexico and the Southwest.
2. The Derivation of Soils From Rocks.
3. The Canyons and Buried Channels of Western Streams.
4. The Place and Effect of Man in Nature.
5. Underground Waters.
6. The Coal Resources of New Mexico and Their Conservation.

By MR. MITCHELL:

1. Illustrated Lecture on Pompeii.

By MR. SHERWIN:

1. Celts in the British Isles.
2. Folk-Lore and Mythology.
3. A Reading on the Present War in the Eastern Hemisphere.
4. The Renaissance in Italy.
5. The French Revolution.
6. English Seamen in the Sixteenth Century.
7. The Development of Arthurian Romance.

By MR. WEESE:

1. Modern Aspects of Heredity.
2. Some Physico-Chemical Properties of Living Matter.
3. The Origin of Life.
4. The Philosophy of Science.

By MR. WORCESTER:

1. The United States in the Philippines.
2. What We Do and Why We Do It. (A study of reflexes and habits.)
3. Are You Sure of It? (Some peculiarities of sense perception.)

## **Preparatory Department**

While the aim of the University of New Mexico is to extend to High School graduates an opportunity for obtaining higher education, it has a duty to those communities where complete preparatory training is not available. The Preparatory Department of the University is therefore maintained in order that worthy students, from such communities, may complete their preparation for work of college grade. Students are advised to complete the high school course offered and then they will be received at the University, credit being given for work done. In some cases the library equipment or laboratory facilities are not sufficient for a part of the work offered. For this reason a high school diploma does not necessarily mean admission to the University without condition, but full credit will be given for all work thoroughly done. A minimum of four high school units must be presented in any case.

Blanks will be mailed to all high schools in the state and principals are requested to make out a statement of the work done by each student completing his course. The amount of credit which this student can obtain at the University will then be determined on the basis of this report and the student will be given a certificate indicating the amount of credit he can receive at the University. Other prospective students may obtain blanks on application to the Registrar.

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

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

The requirements of the Preparatory Department of the University of New Mexico are fifteen high school units,  $9\frac{1}{2}$  of which are prescribed and  $5\frac{1}{2}$  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, one year. 1 unit.
- III. Language, two years; consisting of two years' study of any one of the following languages: French, German, Spanish, Latin or Greek. 2 units.
- IV. Mathematics,  $2\frac{1}{2}$  years; consisting of one and one-half years of algebra, bringing the study of the subjects up to the end of school algebra, and one year of plane geometry.  $2\frac{1}{2}$  units.
- V. Science, 1 year; consisting of one year of physics or one semester each of any two of the following subjects: chemistry, physiology, botany, zoology, physical geography. 1 unit.

The  $5\frac{1}{2}$  elective units may be chosen from the list of subjects offered in the Preparatory Department.

For detailed description of requirements, see page 33-43.

# DESCRIPTION OF COURSES OFFERED IN THE PREPARATORY DEPARTMENT

## Biology

- A<sub>1</sub>. ZOOLOGY ½ 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 hours.
- A<sub>2</sub>. BOTANY ½ unit  
 An elementary consideration of the structure, evolution and classification of plants; the elementary relations of the plant to its surroundings. Laboratory work, 2 hours.

## English

The completion of the College Entrance Requirements in English and a general survey of English literature, binding together the classics read in the high school course.

1 unit.

## French

- A. FRENCH 1 unit  
 This course does not differ from Courses 1 and 2 described under the Department of French, Collège of Letters and Science.
- B. FRENCH 1 unit  
 The same as Courses 3 and 4 in the Department of French in the College of Letters and Science.

## Geology

- A. PHYSIOGRAPHY ½ unit  
 See course 5 under Department of Geology, College of Letters and Science.

## German

- A. ELEMENTARY GERMAN 1 unit  
 Grammar and translation. Conversation begun. Memorizing simple German verse. Texts: Bierwirth's **Beginning German**, Hewett's **German Reader**, and **Germelshausen**.

**B. SECOND YEAR GERMAN** 1 unit

Conversation. Reports on current events in German, and oral narration based on short stories. A few lyrics and ballads memorized. Composition, Thomas's German Grammar and Wilhelm Tell and Minna von Barnhelm.

**History****A. ANCIENT HISTORY** 1 unit**B. ECONOMIC HISTORY OF THE UNITED STATES** 1 unit

See Department of Social Science, College of Letters and Science.

**Latin****A. BEGINNING LATIN AND CAESAR.** 2 units

This course is designed to cover rapidly the work usually done in two years. The first semester will be devoted to a study of the common forms, idioms, and constructions and to the translation of Latin as contained in some good Primer. The second semester will be given to the reading of four books of Caesar or the equivalent, to advanced grammar and syntax and prose composition. 6 hours.

**B. CICERO AND COMPOSITION** 1 unit

Six orations of Cicero or two orations of Cicero and the Catiline of Sallust. Latin Prose Composition. An introduction to the study of Roman Political Institutions. Special attention is given to the art of translating into clear, vigorous English. 5 hours, half year.

**C. VERGIL** 1 unit

Translation of six books of the Aeneid or of the equivalent. Special study of epic poetry as a species of literature. Outside reading of Homer in English translation. A comparison of the religious beliefs held by the Ancients and the people of the Middle Ages, as portrayed by the Odessey, Book XI, the Aeneid, Book VI, and the Divine Comedy of Dante. Topics for private investigation and report. 5 hours, half year



**Mathematics**

- A. BEGINNER'S COURSE IN ALGEBRA 1 unit  
Covering the requirement of the College Entrance Board for Algebra.
- B<sub>1</sub>. PLANE GEOMETRY ½ unit
- B<sub>2</sub>. SOLID GEOMETRY ½ unit

**Mechanical Drawing**

- A. MECHANICAL DRAWING ½ unit  
See Department of Civil Engineering, School of Applied Science.

**Physics**

- A. PHYSICS 1 unit  
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.

**Shop**

- A. ELEMENTARY SHOP WORK ½ unit
- B. ADVANCED WOOD WORK ½ unit  
This course is open only to those students who have completed Course A or its equivalent.

**Spanish**

- A. ELEMENTARY SPANISH 1 unit  
Hill's and Ford's **Spanish Grammar**, Hill's **Spanish Tales for Beginners**, Zaragueta, Taboada's **Cuentos Alegres**. Writing from dictation and practice in speaking.
- B. SECOND YEAR SPANISH 1 unit  
Prerequisite, Course A. Composition, conversation, and extensive reading. Loiseaux' **Spanish Composition**. Hill's and Reinhardt's **Spanish Short Stories**. Tamayo's **Un drama nuevo** Palacio Valdes' **La hermana San Sulpicio** plays by Echegaray, Moratin, etc. Morley's **Spanish Ballads**.

# Students

## Graduate Students

Leupold, Arno K., B. S. in E. E. Albuquerque

## College of Letters and Science

Allen, Bland B. Junior Silver City  
 Allen, Laura C. Extension Puerto de Luna  
 Arnot, William. Unclassified Albuquerque  
 Baldridge, Alma. Unclassified Albuquerque  
 Barnes, Robt. Freshman Indianapolis, Ind.  
 Beals, Carolyn. Sophomore Lake Valley  
 Bixler, Allen. Sophomore Albuquerque  
 Blom, Harvey T. Freshman Roswell  
 Boldt, Irene A. Sophomore Albuquerque  
 Borrein, Carl D. Sophomore Beulah  
 Brown, B. Oscar. Senior Albuquerque  
 Bruce, Allen F. Sophomore Roswell  
 Burns, P. L. Junior Ponca, Okla.  
 Butler, George L. Sophomore Farmington  
 Calkins, Fred M. Senior Barton  
 Claves, Katherine. Junior Albuquerque  
 Clarke, Charles R. Freshman Albuquerque  
 Cooper, Mary M. Senior Roswell  
 Cox, Abel. Unclassified Clovis  
 Craig, Jessie. Extension Roswell  
 Currie, Leslie. Unclassified Albuquerque  
 Dennis, Howard O. Freshman Clovis  
 Dieckmann, Paul C. Junior Albuquerque  
 Simmons, Glenn. Freshman Albuquerque  
 Espinosa, Rosalina. Sophomore Albuquerque  
 Feather, Adlai. Junior Artesia  
 Portney, Daphne. Sophomore Albuquerque  
 Portney, Thelma. Sophomore Albuquerque  
 Fraze, Joseph. Special Albuquerque  
 Gass, Gordon F. Freshman Albuquerque  
 Gouin, W. Frank. Junior Silver City

Greenfield, Walter	Freshman	Dexter
Gustafson, Lillian V	Freshman	Albuquerque
Hall, Ernest W	Junior	Albuquerque
Hallenbeck, Geoffrey	Freshman	Albuquerque
Hannum, Emmett	Freshman	Albuquerque
Higgins, Mary	Sophomore	Albuquerque
Higgins, William J	Senior	Albuquerque
Hope, Myrl	Freshman	Albuquerque
Hunt, Albert S	Junior	Albuquerque
Johnson, Katherine	Freshman	Ruidosa
Keegan, Jas. C	Special	Albuquerque
Kelly, Iva Cleo	Special	Albuquerque
Keke, Ethel L	Freshman	Albuquerque
Kerter, Floyd	Sophomore	Joliet, Ill.
King, Edward E	Freshman	Gypsum, Kans.
Kraxberger, Lydia	Junior	Albuquerque
Lee, Chester A	Sophomore	Albuquerque
Lee, Floyd	Freshman	Albuquerque
Long, Kathlyn	Freshman	Albuquerque
Louden, Robert	Freshman	Albuquerque
Louden, Thelma	Freshman	Albuquerque
Lowber, Louise L	Freshman	Albuquerque
Mabry, Eula	Freshman	Clovis
McCanna, Joseph	Sophomore	Albuquerque
McCanna, Ray	Sophomore	Albuquerque
McDonough, Eleanor	Freshman	Deming
McKowen, Ruth	Junior	Albuquerque
McLaughlin, Jno. H	Unclassified	Albuquerque
McMillen, Dorothy	Freshman	Albuquerque
Menaul, Paul	Senior	Albuquerque
Miller, Harriett	Special	Albuquerque
Miller, J. Claude	Freshman	Albuquerque
Murphy, LeClaire	Sophomore	Rushville, Ill.
Murphy, Leo	Sophomore	Albuquerque
Newman, Nelson F	Sophomore	Manila, P. I.
Nords, Earl P	Freshman	Albuquerque
Parker, Charles K	Freshman	Raton
Pennewille, J. M	Freshman	Silver City
Pinney, George L	Sophomore	Albuquerque
Porterfield, Earl C	Freshman	Albuquerque

<del>Redfield, Jas. J.</del>	Freshman	Albuquerque
<del>Reeves, Fern</del>	Sophomore	Las Cruces
<del>Rabin, T. Fred</del>	Special	Albuquerque
<del>Streets, Grace G.</del>	Sophomore	Albuquerque
<del>Shields, Adelaide</del>	Freshman	Dawson
<del>Spivey, Gale G.</del>	Special	Albuquerque
<del>Statson, Ruth</del>	Freshman	Albuquerque
<del>Stowell, Marjorie</del>	Unclassified	Albuquerque
<del>Treat, Jessie G.</del>	Sophomore	White Oaks
<del>von Wachenhusen, H. S.</del>	Freshman	Silver City
<del>Walker, John Lee</del>	Freshman	Cloudcroft
<del>Walker, Lee W.</del>	Freshman	Alamogordo
<del>White, George W.</del>	Freshman	Albuquerque
<del>Wilkinson, Louise</del>	Sophomore	Albuquerque
<del>Wilkinson, Myrtle</del>	Sophomore	Sapulpa, Okla.
<del>Wiegler, E. Ruth</del>	Extension	Belen

## School of Applied Science

<del>Balcomb, Ken. C.</del>	Junior	Albuquerque
<del>Bateman, Howard S.</del>	Junior	Albuquerque
<del>Bentley, Edw. B.</del>	Freshman	Chattanooga, Ten.
<del>Bright, Thornton F.</del>	Sophomore	Albuquerque
<del>Claborne, Geo. R.</del>	Unclassified	Albuquerque
<del>Claborne, Leon. J.</del>	Freshman	Indianapolis, Ind.
<del>Doering, Milan F.</del>	Sophomore	Albuquerque
<del>Friday, Elmer E.</del>	Freshman	Santa Fe
<del>Harrison, H. R.</del>	Sophomore	Philadelphia, Pa.
<del>Gallagher, Edw. J.</del>	Freshman	Brooklyn, N. Y.
<del>Hanley, J. L.</del>	Freshman	Albuquerque
<del>Johnson, Edward</del>	Freshman	Albuquerque
<del>Lapraik, John A.</del>	Junior	Albuquerque
<del>McClellan, Pelham</del>	Freshman	Albuquerque
<del>McCollum, Laura</del>	Sophomore	Albuquerque
<del>McGary, Orie</del>	Freshman	Roswell
<del>Shelton, G. Herbert</del>	Freshman	Alamogordo
<del>Shields, Hastings M.</del>	Sophomore	Dawson
<del>Simmons, Paul C.</del>	Freshman	Belen
<del>Winking, Clifford</del>	Freshman	Albuquerque

## School of Education

<del>Colgan, Laura</del>	Albuquerque
<del>Cornell, Margaret S.</del>	Fort Sumner

Graham, Mary R.	Monument
Maharam, Rose	Albuquerque
Platt, Ruth D.	Albuquerque
Osborne, Mrs. Julia B.	Albuquerque
Polk, James K.	Special Albuquerque
Reeves, Leetha	Las Cruces
Rooney, Edna M.	Albuquerque
Severn, Lorene	Albuquerque
Weiser, Henrietta	Albuquerque
Yrisarri, Sofia	Albuquerque

### Preparatory Department

Boone, Jennie	Capitan
Brown, E. Foster	Espanola
Buford, Rooney E.	Mescalero
Eastham, Maraquita	Sugarita
Eldoldt, Joseph	Chamita
Heald, Josiah	Special Albuquerque
Little, Clinton	Roswell
McGowan, Gertrude	Taos
Nohl, Louis E.	Espanola
Pfingsten, Helen	Lincoln
Phillips, Elsie D.	Albuquerque
Ray, Russell	Aztec
Ritch, Ola C.	Yazoo City, Miss.
Simms, Elizabeth	Special Albuquerque
Smith, Chas. C.	

### Summary

Students of College rank; Graduate

students	1
College of Letters and Science	89
School of Applied Science	20
School of Education	12

Total.....122

Students under College rank—

Preparatory	15
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Total.....137

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