University of Arizona Record

ANNOUNCEMENT
FOR THE

SUMMER SESSION
1932

First Term
June 6—July 9

Second Term
July 11—August 13

PUBLISHED BY
University of Arizona
TUCSON, ARIZONA

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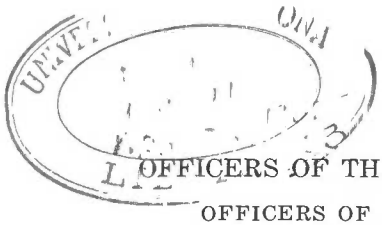

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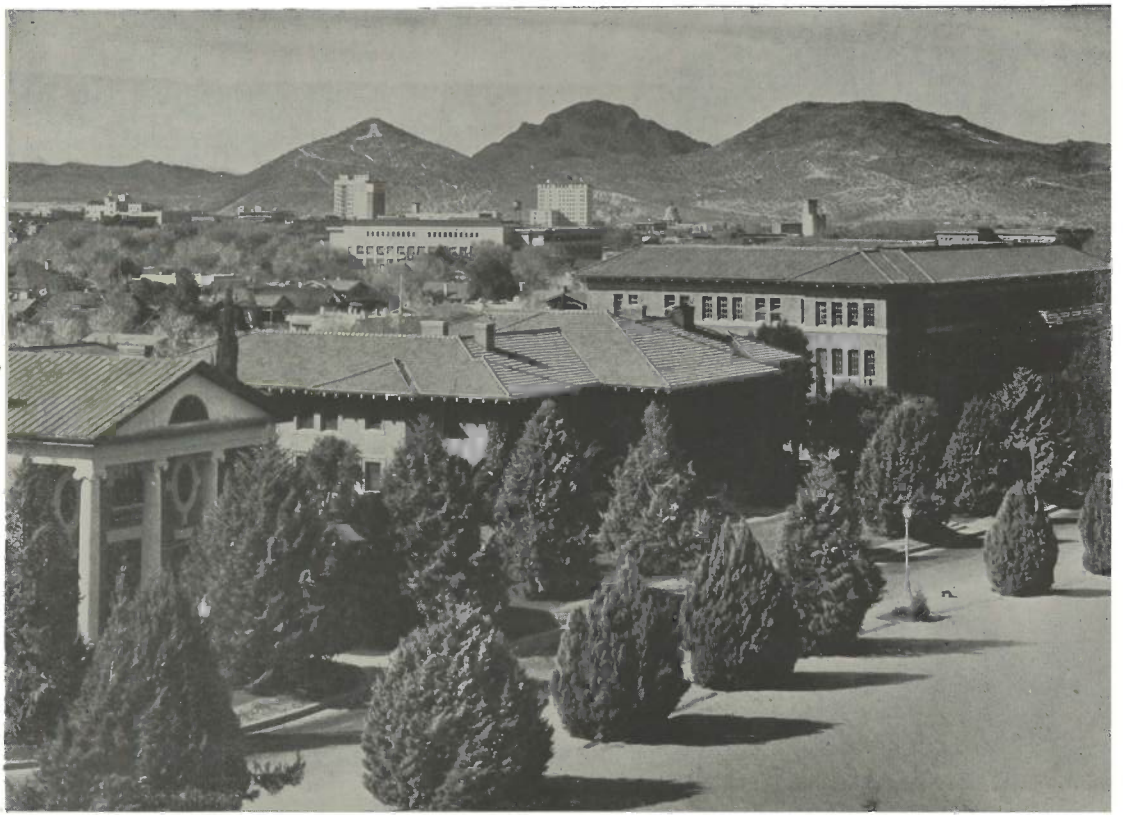


A "Million Dollar View"

UNIVERSITY OF ARIZONA

SUMMER SESSION 1932

LOCATION

The University of Arizona conducts its Summer Sessions on the University Campus at Tucson.

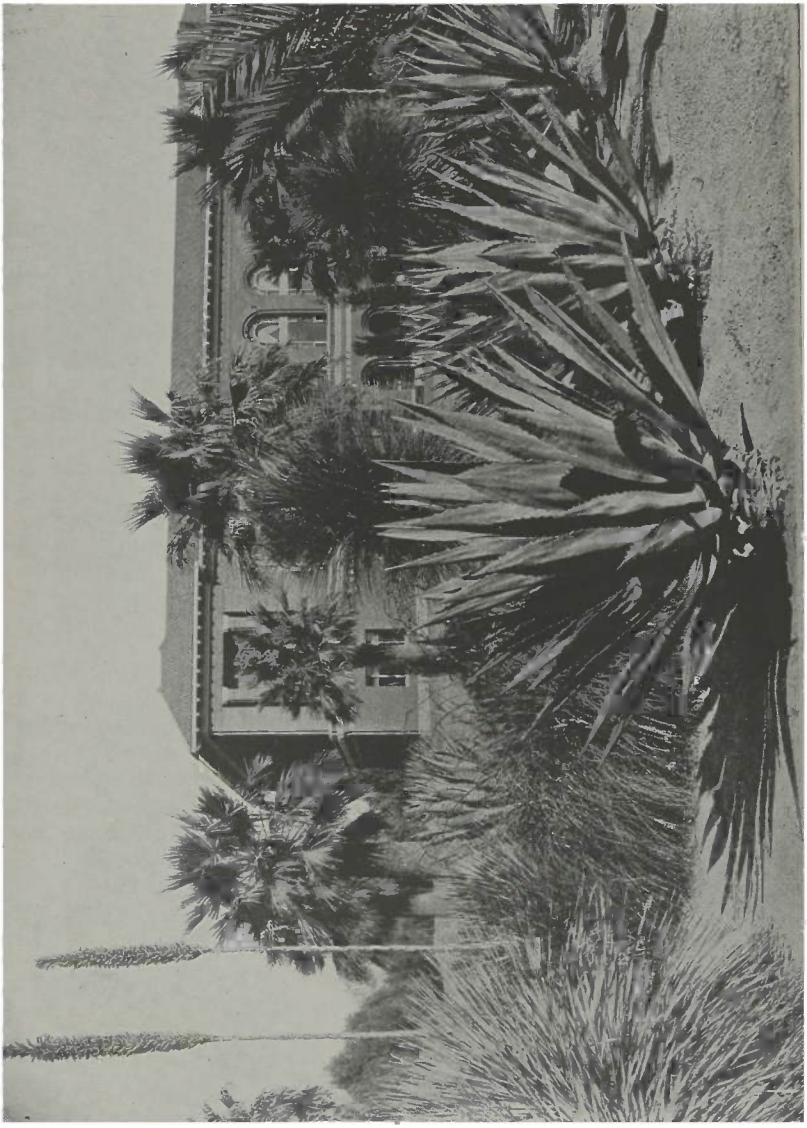
Tucson is a city of about 42,000 inhabitants and is situated on the main line of the Southern Pacific Railway. It lies in a broad valley surrounded by mountains which produce a setting of unsurpassed scenic beauty. The altitude is 2,400 feet. Its dry and equable climate makes Tucson a resort of exceptional healthfulness. The mean annual maximum temperature is 78.8° and the relative humidity is 40 percent. Though the thermometer registers high in the summer, the extreme dryness of the air makes even the highest temperatures less oppressive than considerably lower temperatures are in states where the humidity is greater. The evenings and nights are almost invariably cool and pleasant during the entire summer.

CALENDAR OF THE SUMMER SESSION

The Summer Session will continue for 10 weeks, being made up of two terms of 5 weeks each. Classes will meet 6 days a week, a two-unit course requiring six class hours a week per term. The first term will open on Monday, June 6, the second on Monday, July 11. Registration will be held on the first day of each term. A late registration fee of $2.00 will be charged in connection with registrations after that day. Registration for credit will not be granted after Monday, June 13, for the first term, or after Saturday, July 16, for the secoond term.

The calendar follows:

June 6, Monday	Registration for First Term.
June 7, Tuesday	Class work begins.
July 4, Monday	Independence Day; a holiday.
July 8, Friday	Examinations for the First Term;
July 9, Saturday	First Term ends.
July 11, Monday	Registration for the Second Term.
July 12, Tuesday	Class work begins.
Aug. 12, Friday	Examinations for the Second Term;
Aug. 13, Saturday	Second Term ends.



Agaves and yuccas near the main entrance to the campus

SUMMER SESSION COURSES

The courses of the Summer Session are designed to meet the needs of the following classes of students:

1. Regular students of this or other institutions.
2. Graduate students who are unable to attend during the regular academic year, or those who wish to continue their courses or research.
3. School administrators and teachers, who desire advanced instruction in academic or professional work looking toward advanced degrees or who wish to satisfy requirements of the various states and accrediting associations.
4. Graduates of two-year normal courses who wish to continue their academic and professional work to meet the three-year requirement for elementary certificates.
5. Students who desire to avail themselves of special cultural or professional courses.

The Summer Session courses will be offered through the following departments and divisions:

Agricultural Education
Archaeology
Botany
Chemistry
Economics
Education
English
French
Geology
History and Political Science
Home Economics
Law
Music
Philosophy
Physical Education
Psychology
Spanish
Trade and Industrial Education
Zoology

EDUCATIONAL FACILITIES

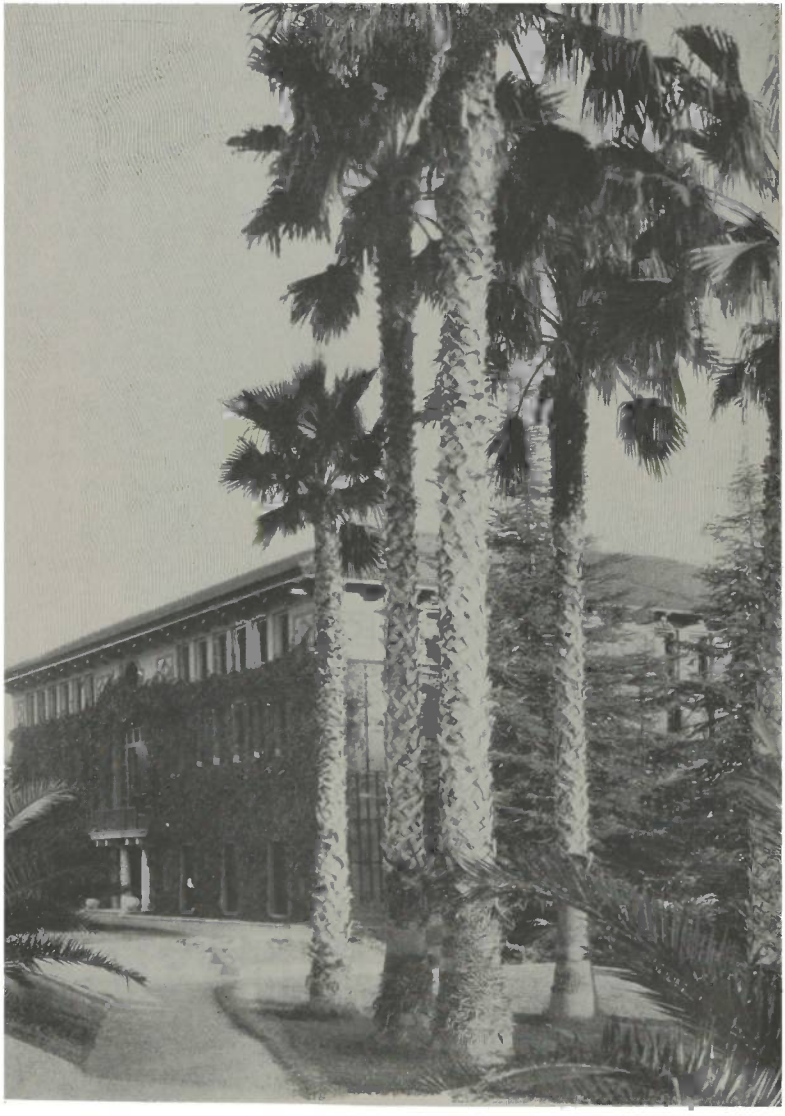
Summer Session students have the advantage of the complete facilities of the University: faculty, libraries, laboratories, classrooms, museum, observatory, and a most attractive campus. The commodious quarters of the campus dormitories and the service of the University Dining Hall also are available to Summer Session students.

THE FACULTY

The Summer Session Faculty is drawn from the general Faculty of the University, unusual opportunity being provided for study under Deans of the Colleges, heads of departments, and other outstanding teachers in the University.

LIBRARY

The University Library contains the general library, the agricultural library, and the Freeman Collection of Arizoniana. The Library contains about 69,000 accessioned volumes, and 900 serials are received by purchase, gift, and exchange. In addition to



The Law Building and environs

the accessions acquired by purchase, the Library receives as a depository the documents and publications of the United States Government, the publications of the Carnegie Institute, and a large number of university exchanges.

In the general reading room there are about 600 reference books, encyclopoedias, dictionaries, periodical guides, the current numbers of 150 magazines, and the complete dictionary card catalogue. In the reserved-book room there are nearly 600 books reserved by instructors for the use of students for collateral reading.

A unique feature of the Library Building is the open-air reading room situated in a secluded, attractive spot where students can do their library work under the most favorable conditions. This open-air reading room is available to the students of the Summer Session.

The Library is for the use of the University officers and students. Books not held in reserve for special reasons may be withdrawn for home use in accordance with the published regulations.

LABORATORIES

For students in all courses requiring laboratory work fully equipped laboratories are available providing the same facilities for scientific work as are enjoyed during the regular college year. The smaller enrollment during the Summer Session, however, allows greater freedom to the individual student in the use of these facilities.

CLASSROOMS

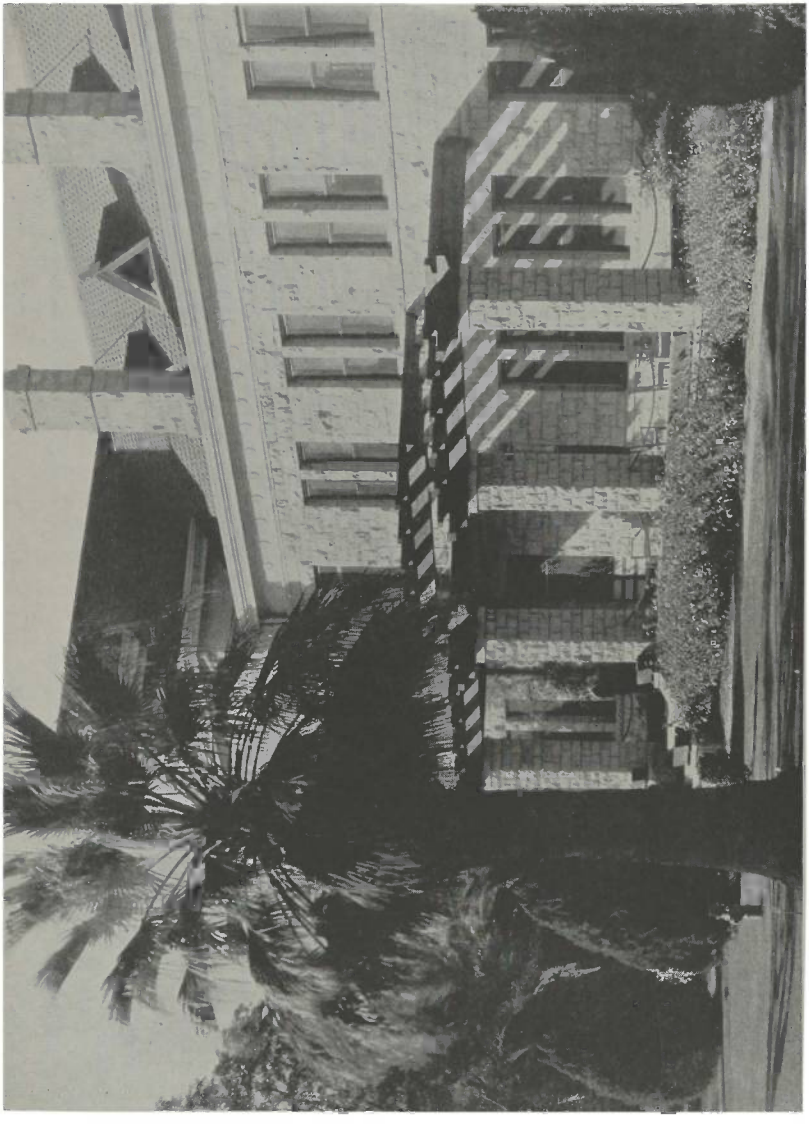
The departments of the University occupy 25 buildings. They are of masonry construction, which, with their spaciousness, renders them uniformly comfortable during the summer months. During the Summer Session especial attention is given to the selection of classrooms with reference to ventilation and shade.

THE STATE MUSEUM

The State Museum, established by law as an integral part of the State University, is maintained as an educational factor in the institution and the State. Its archaeological collections emphasize the conditions and the achievements of the ancient Cave, Cliff, and Pueblo peoples of the Southwest, and its ethnological collections present the manufactured products of the various Indian tribes. Its natural history collections show the bird life of the State and present many other forms of animal existence. The Museum is open to the public each day.

STEWARD OBSERVATORY

The Steward Observatory is splendidly equipped for astronomical observation. It houses the most modern scientific instruments including a 36-inch telescope of the reflector type, and a 4-inch telescope. The clearness of sky and atmosphere for



Pima Hall, a dormitory for women students

son and vicinity are well known, makes conditions ideal for viewing the heavens and for the study of celestial phenomena.

CAMPUS

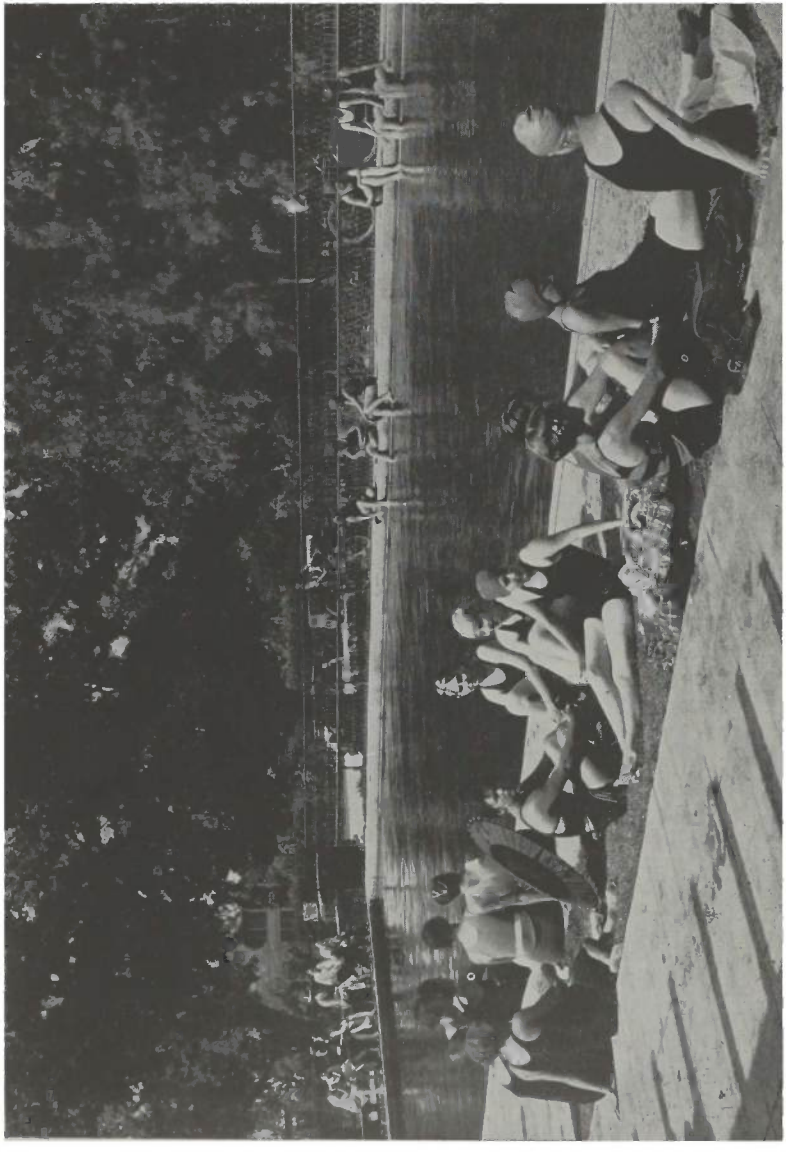
The University Campus comprises 75 acres. It is situated on high ground about a mile from the business center of Tucson, with which it is connected by auto buses, and excellent paved streets. Palm, olive, ash, umbrella, bagota, pepper, and tamarisk trees provide abundant shade, and with the paved drives and walks bordered by lawns and flower gardens make the Campus a veritable park.

LIVING ACCOMMODATIONS

Residence accommodations for both men and women are provided on the Campuus. Pima Hall, a dormitory for women, is a building of two stories which will accommodate 30 students. Arrangements have been made to secure additional rooms for women at sorority houses near the campus. These houses will be operated under University supervision. The price of rooms in the houses is from $15 to $20 a term. Cochise Hall, one of the men's dormitories, is a three-story building with a capacity of 140 students. All residence halls are thoroughly modern in every respect, and have an abundant supply of hot and cold water with adequate bath-room facilities. The students sleep on open porches, which are screened and curtained to give protection and privacy and at the same time to allow the maximum of comfort. Rooms are uniformly furnished with tables, chiffoniers, and chairs. In the women's dormitories rugs also are furnished. Beds, mattresses, and pillows are provided but students must provide their own blankets, bed linen for single beds, towels, laundry bags, and other necessities. Students may reserve rooms in the dormitories by filing applications with the Dean of the Summer Session. This should be done, if possible, prior to May 15.

Women Students: All undergraduate women not living at home are required to live either in the dormitory or in one of the recommended houses unless exception is made by the Dean of Women. During the Summer Session the dormitory is open to graduate students also. For the benefit of those who live off the Campus there is operated in the office of the Dean of Women a rooms-registry service which keeps lists of inspected and approved lodgings. All residence arrangements must be approved by the Dean of Women at the time of registration and may not be changed without her permission.

For married students and others not living on the Campus ample housing facilities are available wthin short distances of



Summer Session students find delightful recreation in two out-of-door swimming pools on the University Campus

the University. Information may be secured through the office of the Dean of Men.

DINING HALL

The Dining Hall of the University is under the management of a trained dietician. It is the aim of the University to serve substantial, wholesome, and appetizing meals at cost. The accommodations of the Dining Hall are open to all students and Faculty of the Summer Session. All residents of the dormitories are required to take their meals at the Dining Hall.

ADMISSION TO THE SUMMER SESSION

The general rules and regulations of the University relating to admission to the University for credit apply to the Summer Session.

Regular Students of the University of Arizona in good standing are admitted as at any other time.

Prospective Freshmen should file a statement of high-school credits on Certificate of Recommendation Form R25, obtained from the Registrar.

Students coming from other universities and colleges must present to the Registrar evidence that they are in good standing. Those who propose to become candidates for a degree must file a complete transcript of record.

Graduate students seeking an advanced degree must file evidence of having graduated from an approved university or college.

Other students will be permitted to pursue such courses as they are qualified to carry.

EXPENSES AND FEES

As the University is unable to extend credit, it is essential that all students have sufficient funds on entering to defray their immediate expenses.

Tuition: The Tuition fee required of all students is $25 for either 5-week term or $40 for the whole 10-week session. For registration after the first day of the term a late registration fee of $2 is charged. Each student must obtain from the Registrar's office a certification of registration showing that all fees have been paid and that the student is entitled to enter upon his class work.

Laboratory and Material Fees: In certain laboratory and other courses fees are required to cover the cost of materials and of breakage. A statement of the amount of such fees is found in the descriptions of the courses.

Dormitories: Rooms in the dormitories may be obtained for $7.50 per term per person, two in a room.

Board: Board at the University Dining Hall may be secured at a cost of $35 per term. Board is payable in advance on the

first day of each term. No rebate is allowed for absences of less than one week's duration. (As the University charges for board only a sufficient amount to cover its cost, it reserves the right to increase the rate to meet any increase in the price of foodstuffs and service.)

Trips: For recreational trips regularly arranged by the University for students of the Summer Session, and for trips required in connection with field trip courses, a fee based on mileage will be charged.

SUMMARY OF FEES

Tuition (each 5-week term)	$25.00
Tuition (full 10-week session)	40.00
Laboratory and Materials (See course announcement)	
Field trips and Excursions (Based on mileage)	
Board at Dining Hall (term in advance)	35.00
Room in Dormitory (term in advance)	7.50
Room deposit	5.00

No fees except the room deposit are returnable.

ACADEMIC CREDIT

The Summer Session is an integral part of the regular University organization, with similar standards of academic accomplishment. The courses are of the same character as those offered during the regular academic year. Credit obtained is fully recognized toward the various degrees which the University confers. All Summer Session work is counted as work in residence. The maximum credit for which students may register regularly is 12 semester hours for the 10-week session or 6 semester hours for either 5-week term. This necessitates the intensive study of a few subjects at a time. Registration may not be changed after the first week of the Session except by approval of the Dean of the Summer Session.

PROJECTED REGISTRATION

Students who have regularly registered for a full course of 12 semester hours of credit and have demonstrated their ability to do independent work, may be permitted to register for a maximum of 3 semester hours of work to be done *in absentia*. Work thus undertaken must be in the nature of an individual problem. It must be outlined and receive the written approval of the head of the department in which the work is to be done, and the Dean of the University Summer Session. The student must register for this work not later than 10 days before the close of the Summer Session and must complete it before the beginning of the Summer Session of 1933. Work done under projected registration will carry the course number 300 and will be accepted for residence credit. Graduate credit will be granted under the conditions outlined below.

GRADUATE STUDY AND ADVANCED DEGREES

The University of Arizona Summer Session gives particular attention to graduate study. Due to the increasing demand for advanced graduate work during the summer, several of the departments of the University have provided for individual research in their special fields. Such courses are listed under the respective departments. Sudents who wish to pursue any of these courses must obtain the consent of the respective instructors before registering for the courses.

In certain departments provision is made for teachers in service and others who are unable to attend the University during the regular year, to complete the requirements for the master's degree by attendance at summer sessions only.

All courses numbered from 200 to 299 are definitely organized as graduate courses and carry graduate credit. Courses numbered from 100 to 199 may be taken for graduate credit upon the recommendation of the instructor and the approval of the Graduate Study Committee. To receive graduate credit a student must receive a grade not less than 3 in graduate courses and not less than 2 in courses numbered 100 to 199.

Students registering with the expectation of becoming candidates for an advanced degree should read carefully in the general catalogue of the University of Arizona, the regulations governing the granting of that degree. Immediately after registration each prospective candidate for an advanced degree must file a petition for admission to candidacy. Blanks for the purpose may be obtained from the chairman of the Graduate Study Committee.

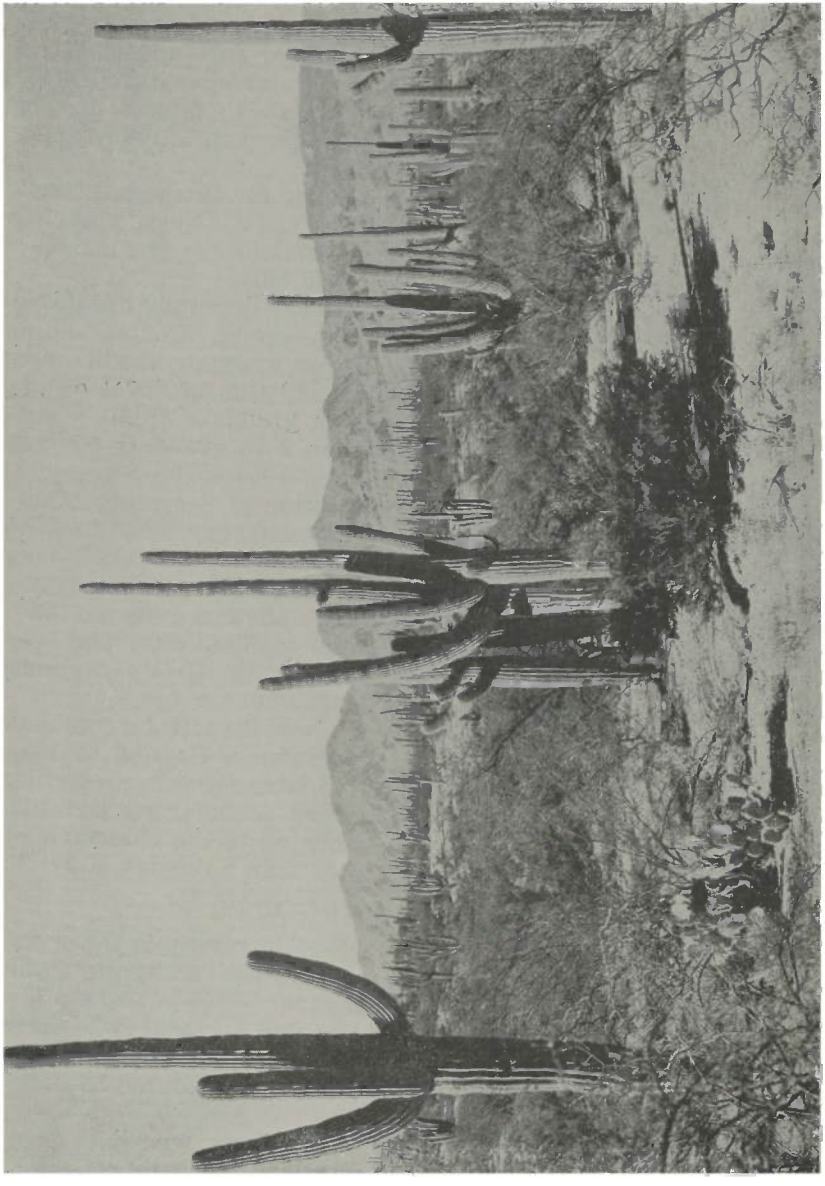
Candidates for the master's degree who expect to complete their work for the degree during the Summer Session of 1932 should have their theses completed and have them approved by the heads of the departments concerned as early as possible. The theses in final form must be presented to the chairman of the Graduate Study Committee not later than Saturday, July 30.

TEACHERS' CERTIFICATES

One of the important functions of the University is the training of teachers. All of the resources of the University are available for this work.

Secondary-school certificates are granted to those who have graduated from a standard 4-year college or university and who have had as a part of their college or university course 18 hours of professional work in education.

Elementary certificates are granted to those who have completed a regular 3-year course in a standard teachers' college or state normal school. Graduates of a 2-year normal course may qualify for an elementary certificate by completing an additional 30 semester hours of work recognized by a standard college or



Tanque Verde Sahuaro Forest near the University of Arizona

university as regular third-year college work. Teachers now holding 2-year Arizona certificates must have met this requirement prior to January 1, 1940.

Elementary and secondary-school certificates are valid for 4 years. They are renewable any number of times for periods of 4 years, upon presentation of evidence that the holder has, during the life of the certificate, completed 2 years of successful teaching and has carried to completion satisfactorily five semester hours of approved professional work at an accredited school. If it is desired, five additional semester hours of approved work may be substituted for the 2 years of teaching.

"All persons applying for certificates authorizing them to become superintendents or teachers in the public schools and colleges of this State, shall, in addition to existing requirements and before receiving such certificate, pass a satisfactory examination upon the provisions and principles of the Constitution of the United States and this State."

The University offers excellent opportunity to prospective candidates to take work leading to the satisfaction of the requirements for any of the certificates. Detailed information relating to Teachers' Certificates in Arizona may be secured from the Dean of the College of Education of the University.

FIELD COURSES AND RESEARCH

Field Research: A special feature of the Summer Session is the opportunity offered graduate students to carry on field investigations in connection with research projects already under way in Archaeology, Plant and Animal Ecology, Plant Geography, Range Ecology, Mammalogy, Forestry, and Plant Physiology.

Due to the wide variation in topography and climate available within short distances under Arizona conditions, it will be possible to become familiar with conditions prevailing in all the main floral and faunal divisions from the sub-tropical desert to the Alpine.

Similarly, Arizona offers unsurpassed opportunity to study prehistoric life, extending in some cases probably as far back as pleistocene times. The ruins of the "Cliff Dwellers" and the prehistoric Pueblos are scattered over the entire State. They present many interesting phases of human culture and introduce us to the beginnings of American industry.

Registration for any of the above work will be only by individual arrangement of properly qualified students with the leader of the line of research which it is desired to pursue. Detailed information concerning these research opportunities may be obtained by addressing the Dean of the Summer Session.

Field Geology: Arizona in general is exceptionally rich in geological phenomena of almost every type; and in many of the mountain regions a great diversity of formations, structures,

topography, ore deposits, and mines occur in relatively small areas ideally suitable and convenient for study in a summer course. The University, through the Arizona Bureau of Mines, offers such a summer course in field geology. To students of geology, inexperienced in field methods and procedure, this summer course affords an excellent opportunity to acquire the practical working knowledge necessary for the successful interpretation of the geology of any given area.

The Bagdad area, selected for study for the summer of 1932, is extremely interesting geologically and is situated in the mountainous belt bordering the Plateau region in western Yavapai County, 40 miles northwest of Prescott, Arizona. The areal geology consists of Pre-Cambrian schistose formations and granitic and porphyritic intrusive igneous rocks, Tertiary extrusives, and Quaternary valley-filled material. Gold, silver, lead, zinc, copper, and tungsten occur in deposits of various types. There are abundant opportunities for the study of physiographic and structural problems and of ore occurrences and of underground conditions connected with surface geology, for the observation of mining methods, and for practice in mine mapping and reporting. Long experience has shown that intensive field work of this type is of more practical value than many campus courses covering much longer periods of time.

The course is open only to men, and the maximum number that will be admitted is twelve. A list of necessary and useful personal articles of equipment will be sent to those interested. For fees and dates, see description of course, Geology 111. For further information, address: The Director, Arizona Bureau of Mines, Tucson, Arizona.

TRADE AND INDUSTRIAL EDUCATION

Under a cooperative arrangement with the State Department of Vocational Education, the University has inaugurated a program of training for teachers of Trades and Industries and of Mechanic Arts. It is open to experienced teachers in these fields and is organized to lead to the degree of Bachelor of Industrial Education. Provision is also made for those who already hold the Bachelor's degree to secure advanced work in their field. Details concerning the requirements for the degree of Bachelor of Industrial Education will be found in the general catalogue of the University. At present the opportunities in this field are confined to the Summer Session.

Another innovation introduced this year, one of particular interest to teachers and administrators in the Indian Service, is a course in Personnel Problems for Vocational Teachers in Indian Schools.

Instructors for all of these courses have been carefully selected from the outstanding leaders in the respctive fields. We are

fortunate to be able to number among them national and state officers. The course in Personnel Problems will be conducted by Mr. J. N. Spawn, Assistant Supervisor of Vocational Work for the Indian Service.

In 1932 this work will be offered during the First Term of the Summer Session from June 6 to July 9. Inquiries should be addressed to the Dean of the Summer Session.

ENTERTAINMENT AND RECREATION

During the Summer Session a regular weekly Auditorium Program will be provided, including lectures, concerts, dramatic productions, and other features. There will also be an outdoor recreational program to supplement the program of lectures and other entertainment.

In the early part of the first term there will be a series of lectures on comparative education by Dr. Charles T. Loram, Professor of Comparative Education at Yale University. Dr. Loram is a world traveler of extensive experience and has distinguished himself in thefields of comparative education and social anthropology.

Opportunities for diversion and recreation are numerous. Sabino Canyon, Bear Canyon, Fort Lowell, Picture Rocks, San Xavier Mission, and other places of interest near Tucson make possible many trips or picnic parties which students of the Summer Session may enjoy. For somewhat longer trips Colossal Cave, White House Canyon in the Santa Rita Mountains, and the resorts of Soldier Camp and Summerhaven on Mount Lemmon in the Catalina Mountains afford excellent opportunities for week-end excursions. Here among the great pine trees there are many ideal camp sites, where the atmosphere is invigorating and the surroundings stimulating to both the lover of nature and the student. The border city of Nogales, Sonora, within 2 hours' ride by auto, presents a very colorful Old World atmosphere to the visitor. The University will arrange trips and excursions to these points for those who wish to avail themselves of the service, for which a trip fee sufficient to cover costs of transportation will be charged.

The athletic facilities of the University will be available for organized games: tennis, baseball, volley ball, handball, horse shoes, etc. Two large out-door swimming pools, supplied constanly with fresh, running water, and kept in a sanitary condition at all times, offer pleasurable recreational opportunities to students and faculty members. Both pools are supervised. Swimming tags are obtained from the cashier. A new Municipal Golf Course within easy reach of the University is available to the devotees of this popular form of sport. There are also several miniature golf courses.

*COURSES OFFERED
IN THE
1932 SUMMER SESSION

AGRICULTURAL EDUCATION

ASSOCIATE PROFESSOR KLEMMEDSON (Head of the Department)

202. ADVANCED AGRICULTURAL EDUCATION. (2) II Klemmedson
The course in 1932 will be devoted largely to extra-curricular activities in agricultural education such as F. F. A. activities, contests, and community activities. Will be conducted on a conference and seminar basis. Open to teachers having one or more years of teaching experience. 7:00-7.50.

204. SUPERVISION AND ADMINISTRATION OF VOCATIONAL AGRICULTURE. (2) II Klemmedson
This course is designed to meet the needs of supervisors, directors and administrators of Vocational Agriculture. Promotion, organization supervision, personnel management, and other supervisory activities will be discussed. Open to Supervisors and graduate students. 8:00-8:50.

205. FIELD STUDIES IN AGRICULTURAL EDUCATION. (2) II Klemmedson
A laboratory course designed for a study of Agricultural Education in its local bearings. Will be conoducted upon a committee and seminar basis. Open to teachers of agriculture, county agents, Indian agents and others interested in efficient agricultural education. 11:00-11:50.

ARCHAEOLOGY

INSTRUCTOR Fraps

las-lbs. ANTHROPOLOGY. (2-2) I-II. Fraps
A general course, tracing the development of the human race from its earliest beginnings to the present time. It deals with the physical characteristics, the accomplishments and the consequent classification of the great groups of man so far discovered on the different parts of the earth. 1a, Primitive Man on the Eastern Hemisphere. 1b, Primitive Man on the Western Hemisphere. 1a is prerequisite to 1b. 11:00-11:50.

101as-10lbs. AMERICAN ARCHAEOLOGY. (2-2) I-II Fraps
(a) A detailed study of the prehistoric inhabitants of southwestern United States, dealing with the cave people, pithouse people, and the cliff, mesa, and valley pueblos. (b) A study of the prehistoric people of Mexico and Central America, dealing with the development of the Archaic, Toltec, Mayan, Aztec, and other lesser cultures in the republics to the south of the United States. Prerequisite, 1a-1b. 8:00-8:50.

107. ASIA. (2) I. Fraps
A study of the ruins of the chief ancient cities of western Asia, tracing their influence upon civilization. 9:00-9:50.

108. EGYPT. (2) II. Fraps
A study of the prehistory of Egypt and the development of its mighty empire as revealed by archaeological investigations. 9:00-9:50.

*NOTE: All classes meet daily unless otherwise indicated.

BOTANY

PROFESSORS Thornber, Hemenway.

1. BOTANY, GENERAL (4) II. Hemenway
A general course, intended primarily to give a view of the field of botany and its importance to man. Prerequisite to all other courses in this department. Laboratory fee, $5. 8:00-8:50. (Lab. to be arranged.)

4. TAXONOMY. (4) I Thornber
Identification and relationships of native and cultivated species. Characteristics of the more important families, with particular attention to the unique Arizona flora. Prerequisite, Botany 1. Laboratory and field trip fee, $2. 8:00-8:50. (Lab. to be arranged.)

132. MORPHOLOGY OF VASCULAR PLANTS. (4) II. Hemenway
A study of pteridophytes and seed plants. Prerequisite, Botany 2. Laboratory fee, $5. 10:00-10:50. (Lab. to be arranged.)

209. ADVANCED STUDIES IN BOTANY. (1-4) II. Hemenway
Research in plant morphology, plant anatomy, and ecological plant anatomy will be offered. Laboratory fee, $1 per unit. (Hours and credit to be arranged.)

CHEMISTRY

PROFESSOR Roberts.
ASSOCIATE PROFESSOR Sands.

1ab (2ab) GENERAL CHEMISTRY. (4-4) I-II Roberts-Sands
A course designed to train the student in scientific methods of experimentation, observation, and reasoning; to impart a knowledge of the fundamental principles of chemistry and of the properties of the metallic and non-metallic elements and their compounds. Laboratory fee, $5. 8:00-8:50. (Lab. to be arranged.)

103a-103b. GENERAL ORGANIC CHEMISTRY. (4-4) I-II. Roberts-Sands
A thorough discussion of the general principles and theories of organic chemistry accompanied by the laboratory preparation and examination of numerous important organic compounds. Prerequisites, upper-division rank and Chemistry 1b or 2b. Laboratory fee, $6. 10:00-10:50. (Lab. to be rranged.)

ECONOMICS

ASSISTANT PROFESSORS Baker, Gray

1as-1bs. INTRODUCTION TO ECONOMICS. (2-2) I-II. Baker-Gray
The nature of wealth, its production and consumption; the localization of industry; forms of business organization; influence which determines prices and price levels; money and banking systems; forces which determine the distribution of wealth and income; practical problems dealing with labor, transportation, taxation, tariff, and monopolies; plans of social reform such as profit-sharing, single tax, cooperation, and socialism. 7:00-7:50.

117bs. INTERNATIONAL TRADE AND FINANCE. (4) II. Gray
The theories of international trade, foreign exchange, balance of trade supported by an examination of related aspects of modern methods and trends in foreign trade, foreign investments, and the machinery of international finance. 9:00-10:50. (Two periods.)

145s. PUBLIC FINANCE. (4) I. Baker
Collection, administration, and expenditure of funds by governments. Taxation, public debts, budgets. 9:00-10:50. (Two periods.)

215a-215b. PROBLEMS IN ECONOMICS. (2) I-II. Baker-Gray
Open only to graduate students with the privilege of repetition upon change of subject matter. Students admitted upon consent of department. Definite requirements as to lectures, readings, or research. (Hours and credit to be arranged.)

EDUCATION

PROFESSOR Clarson (Head of the Department).
DEAN Jones.
ASSOCIATE PROFESSORS Klemmedson, Larson, Walker.
ASSISTANT PROFESSOR Garretson.

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105. PRINCIPLES OF PERSONNEL GUIDANCE. (2) I. Jones
A course designed for deans and advisers of girls and social and religious workers dealing with the adolescent girl. The position of dean or adviser of girls, its present status and function; qualifications and training; correlation with other departments; phases of activity, including the work of the adviser in relation to problems of adjustment and orientation, the social program, extra-curricular activities, vocational guidance, health, employment, academic work and discipline; case methods, office procedure and records. Special emphasis will be placed on high-school problems, including aspects of guidance in preparation for college adjustment and the relations between high-school and college personnel officers. Prerequisite, General Psychology, Education 106 or equivalent. 10:00-10:50.

106s. THE HIGH SCHOOL. (2) I. Garretson
A fundamental course for all preparing for teaching or for administrative work in secondary school. It deals with the historical development of the American high school, its relation to other divisions of the school system, the problem of college entrance requirements and proposed reorganizations; the high-school pupil, adolescent characteristics, individual differences, elimination, and guidance; the high-school program of studies, the objectives of education, methods of planning curricula, and the justification and content of various high-school courses. A brief treatment of extra-curricular activities is included. Prerequisite, 3 semester hours in education. 10:00-10:50.

107s. THE ELEMENTARY SCHOOL. (2) I. Larson
A course dealing with the purpose and curriculum of the elementary school. There will be a brief study of the accepted and proposed aims of the elementary school followed by an analysis and evaluation of objective studies and proposals concerning the elementary school course of study. Available courses will be studied and criticised in the light of sound principles, and a defensible curriculum proposed. Prerequisite, 3 semester hours in education. 8:00-8:50.

110s. SOCIAL PHASES OF EDUCATION. (2) II. Larson
A basic course in the social-civic theory of education designed to develop perspective and an understanding of administrative and other practices in the fields of education. Topics treated include education as adjustment, its relation to group life and the fundamental life needs, criteria of educational values, the place of vocational and other types of formal education in organized society, self-expression and the development of personality. 8:00-8:50.

112s. GENERAL HIGH-SCHOOL METHODS. (2) II. Garretson

A fundamental course in general methods for prospective high-school teachers. The actual problems of teaching will be treated with especial reference to the principles of educational psychology involved. The topics treated include: teaching personality and its development; a job analysis of teaching; types of teaching; discipline; lesson planning; visual instruction; supervised study; measurements; marking; questioning; appreciation, projects, socialized procedure, and other methods of teaching; teacher rating; and improvement of teachers in service. Required of all students in the College of Education. Prerequisite, a course in educational psychology. 10:00-10:50.

113s. GENERAL ELEMENTARY-SCHOOL METHODS. (2) II Larson

A course dealing with the general and special methods of the elementary grades. General topics treated include the recitation, drill, review, problem, project, socialized procedure, measurement, discipline, motivation, and visual instruction. Some time will also be devoted to the methods of teaching reading, writing, spelling, arithmetic, and other specific elementary-school subjects. Prerequisite, a course in educational psychology. 9:00-9:50.

123. EXTRA-CURRICULAR ACTIVITIES IN JUNIOR AND SENIOR HIGH SCHOOLS. (2) I. Garretson

A course designed for teachers and administrators in either the junior or senior high school. Topics treated include: the purposes of extra-classroom activities, advisers, meetings, the home room, student councils, student publications, athletics, clubs, assemblies, commencement, honor societies, parties and dances, stimulation and limitation of participation, and financial accounting and control. The technique of administraton of varous extra-curricular activities will be developed in detail. Open to upper-division and graduate students. Prerequisite, 3 semester hours in education. 9:00-9:50.

125. VOCATIONAL AND EDUCATIONAL GUIDANCE. (2) I. Walker

A study of guidance in the junior and senior high schools. Primary consideration will be given to problems confronting the teacher in organizing and administering guidance programs. 11:00-11:50.

132s. GENERAL JUNIOR HIGH-SCHOOL METHODS. (2) I. Garretson

A course in general methods for teachers in the junior high school. It includes a study of the actual problems of teaching the junior high-school subjects and the problem of dealing with junior high-school pupils. Prerequisite, a course in educational psychology. 7:00-7:50.

135s. THE JUNIOR HIGH-SCHOOL. (2) II. Garretson

A study of the junior high-school as a distinct unit of organization; the origin and development of the idea; its functions and administrative organization; the problems of guidance and student activities; curriculum development and reconstruction; and the problems of the administration and the technique of instruction. Prerequisite, 3 semester hours in education. 7:00-7:50.

139s. THE IMPROVEMENT OF TEACHING THROUGH TESTS. (2) II. Walker

This course will include a study of the principles underlying the making and using of informal objective examinations. Opportunities for practice in making and scoring such examinations will be given. A very brief study of statistical method will be followed by a study of the procedures used in standardizing test material. A survey of the standard tests now available in his teaching field will be made by each individual in the class. Prerequisite, a course in educational psychology. Material fee, $1. 11:00-11:50.

140. VOCATIONAL EDUCATION. (2) I. Klemmedson
Of interest to anyone in the educational field. A study and discussion of the social and economic conditions that form the foundation for a philosophy of education upon which the vocational education program is built. Text—"Vocational Education in a Democracy", by Prosser and Allen.

150. MENTAL HYGIENE. (2) I Walker
A study of the principles of mental hygient and their application to the needs of school and pre-school children. The roles played by natural drives and environmental factors in determining normal behavior as well as in determining disorders of adjustment leading to abnormal behavior are studied. The possibilities and means of re-education and readjustment are carefully considered. Prerequisites, a course in general and educational psychology. 7:00-7:50.

201. CURRENT EDUCATIONAL PROBLEMS. (2) I. Clarson
The object of this course is to introduce the student to the educational problems of the present time. It will include a systematic study of the nature of the problems and the methods of attacking and solving them as found in current educational literature, research studies, school reports, and school surveys. For Seniors and graduate students. Prerequisite for Seniors, 6 semester hours in education. Required of all graduate students having education as a major or a minor. 9:00-9:50.

211a-211b. STATISTICAL METHODS IN EDUCATION. (2-2) I-II. Walker
211a is designed to present to students of education and psychology the elementary methods of dealing quantitatively with school data and data resulting from experimental investigations. Various measures of central tendency, spread, reliability, and relationships are studied; methods of finding them are discovered; and practical applications and interpretations of them are made. The course ends with a study of simple correlation. Required of all students majoring in education.
211b deals with the application of the common procedures of statistics, including multiple and partial correlation, to specific school and research problems. For Seniors and graduate students. Prerequisite, Education 211a. First Term, 8:00-8:50; Second Term, 7:00-7:50.

213as. HIGH-SCHOOL ADMINISTRATION. (2) I Larson
An analysis of the administrative problems in modern high-schools. It deals primarily with the problems of organization, administration, and supervision. Open to Seniors and graduate students. Prerequisite, Education 106 or its equivalent. 11:00-11:50.

219. SCHOOL FINANCE. (2) I Larson
A study of the sources of school support, the economical and equitable distribution of school funds, systems of accounting, financial records, and reports. Open to Seniors and graduate students. Prerequisite for Seniors, 6 semester hours in education. 10:00-10:50.

237. THE PRINCIPALSHIP. (2) II. Larson
A course dealing with the administrative and supervisory problems of the principal of a ward school, or a small school system. The topics treated include organization, grading, promotion, subject matter, and school records. The content will be varied to meet the needs of the class. Prerequisite, Education 112 or teaching experience. Open to Seniors and graduate students. 11:00-11:50.

239. INVESTIGATIONS IN SECONDARY EDUCATION. (2) II. Garretson
A critical study and evaluation of the investigations and experimental evidence underlying the aims and instructional practices of the various subject matter fields of the secondary school. Fields

considered will include mathematics, physical and biological sciences, English, modern foreign languages, social sciences, and physical education. Readings, class reports, and discussions. Prerequisite, 9 semester hours in education. 9:00-9:50.

240. EDUCATIONAL RESEARCH. (2) II Walker
A seminar course for advanced students majoring in education. It includes a study of various methods of research: historical, statistical, and experimental. Representative studies of each type are reviewed. If time permits, each student will slect and pursue to a conclusion some problem involving individual research. For Seniors and graduate students. Prerequisite for Seniors, 6 semester hours in education. Required of all graduate students with education as a major. 8:00-8:50.

250. ADVANCED STUDIES IN EDUCATION. (2-4) I-II. Staff
A course designed for students who wish to carry on independent research under the supervision of a member of the staff. (Hours and credit to be arranged.)

TRADE AND INDUSTRIAL EDUCATION

STATE DIRECTOR Davis.
SUPERVISORS Klemmedson, Sanders, Spawn.
PROFESSOR Darrow.
DIRECTORS English, Gilpin, Turner.
INSTRUCTOR Stracke.

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80. RADIO CONSTRUCTION AND REPAIR. (2) I. Gilpin
To meet the demand upon mechanic arts instructors for more information in this rapidly developing type of work. The principles of radio, the construction of receiving and transmitting sets, and their upkeep and repair. Laboratory equipment will be available to actually construct sets and put them into operation, as would be done in the manual training shop.

81. AUTOMOBILE REPAIR. (2) I. Darrow
Organized primarily to instruct mechanic arts teachers in the principles of automobile repair and upkeep such as may be taught mechanic arts high-school classes. Demonstrations, lectures, and actual practice.

160.n. SPECIAL METHODS IN INDUSTRIAL EDUCATION. (2) I. ———
To assist the instructors in acquiring a better technique in the instructing process, the presentation of the formal lesson, and the application of teaching methods to type jobs. Text—"The Instructor, the Man, and the Job", by Allen. For shop teachers and supervisors of mechanic arts or vocational classes.

160o. VISUAL EDUCATION AND ILLUSTRATIVE METHODS AND TECHNIQUE. (2) I. Stracke
Various ways in which subject material may be taught more effectively in trade and mechanic arts classes, through the use of visual education devices. Actual construction of visual material. Open to all teachers and administrative members of trade and industrial and mechanic arts education.

161. PROMOTIONAL METHODS IN VOCATIONAL EDUCATION. (2) I. English
The many ways by which vocational education services may be known to those who can profit by them; the comparative efficiency of these methods; necessary salesmanship involved prior to the actual organization of the classes. Open to teachers, supervisors and directors of vocational education.

162. SAFETY AND FIRST AID METHODS. (2) I. Turner

Designed to equip teachers with the necessary knowledge of safety and first aid needed in conducting their classes, the arrangement of equipment, and its safeguarding. Open to all teachers of vocational and mechanic arts subjects.

180. OBJECTIVES IN MECHANIC ARTS. (2) I. ———

The fundamental objectives of mechanic arts work in our public school system; a discussion of ways and means by which these objectives may be obtained. Open to teachers, principals, supervisors, and superintendents who are connected with mechanic arts work.

M. A. 1. MECHANICAL DRAWING. (2) I. Darrow

This course is designed to be of assistance to teachers who are in ned of a fundamental knowledge of mechanical drawing. It will cover the principles of drafting, tracing and blue print making. Discussions will be conducted on best ways of teaching this subject in grade and high school classes.

181. PERSONNEL PROBLEMS FOR INDIAN SCHOOL VOCATIONAL TEACHERS. (2) I Spawn

Planned especially for vocational and mechanic arts teachers in the Indian School service. It will cover problems which are present and need to be solved in training in the Indian Service; especially helpful now in view of the new policies of the Indian Service relative to vocational education.

182. JOB ANALYSIS. (2) I Turner

A job analysis of the trade including—determining the divisions of blocks of the trade; listing the jobs in each block; classifying the jobs; arranging the jobs according to a learning difficulty scale. Text—"The Instructor, the Man, and the Job", by Allen. Registration limited to those who have had at least three years as wage earners in the occupation that they are to teach.

183. SHOP ORGANIZATION AND MANAGEMENT. (2) I Sanders

Designed to help teachers in their responsibilities other than that of instructing, such as students' responsibilities, shop layout, records and reports, tool-room organiation, discipline, handling supplies and equipment, and other problems of like nature. Open to teachers and supervisors of vocational or mechanic arts classes.

273. SUPERVISION OF TRADE AND INDUSTRIAL EDUCATION. (2) I Federal Board Member

An analysis and discussion of the supervisory responsibilities and problems in regard to equipment and supplies, personnel, and community relationships. Text—"The Supervision of Vocational Education", by Wright and Allen. Registration limited to administrators, supervisors, principals and directors of vocational or mechanic arts education.

274. ADMINISTRATION OF VOCATIONAL EDUCATION. (2) I Davis

Administrative and executive problems of those in charge of vocational education analyzed and discussed. Text—"Administration of Vocational Education", by Wright and Allen. Open only to administrators, supervisors and directors of vocational education.

275. ORGANIZATION AND ADMINISTRATIVE PROBLEMS OF EVENING SCHOOLS. (2) I. Federal Board Member

Organization methods, the underlying reasons for Federal and State policies, type schools, qualifications of teachers, organization plan and records and reports. Text—"Adult Education", by Prosser and Bass. Open to supervisiors, directors, school officials, and teachers who have responsibilities in conducting evening schools.

280. EFFICIENCY IN VOCATIONAL EDUCATION. (2) I. Klemmedson
Every phase of the vocational education program, such as executive administration, selection of students, qualifications of teachers, functioning curriculum, analyzed and discussed to determine ways of making them more efficient and economical. Text—"Efficiency in Education", by Wright and Allen. Open to teachers and executives concerned with the more efficient operation of trade and industriaal and mechanic arts classes.

ENGLISH

PROFESSORS Lockwood, Frazier.
ASSOCIATE PROFESSOR Solve.
ASSISTANT PROFESSOR Thrift.

1as-1bs. FRESHMAN COMPOSITION. (2-2) I-II. Thrift-Frazier
The study and practice of good writing, with emphasis on exposition. Short and long themes, collateral reading conferences. Required of all Freshmen. 10:00-10:50.

27as-27bs. SURVEY OF ENGLISH LITERATURE. (2-2) I-II Thrift-Frazier
This course is prerequisite to all upper-division courses in literature. First term, 9:00-9:50; Second Term, 8:00-8:50.

29as. AMERICAN LITERATURE. (2) II. Lockwood
Lectures on the beginnings of American literature. Critical study and interpretation of chief writers. Wide reading of both prose and poetry. A prime aim of the course will be to interpret the spirit of America through its literature; and, on the other hand, to show how American ideals have been influenced by our men of letters. 11:00-11:50.

127bs. THE ROMANTIC MOVEMENT IN ENGLISH LITERATURE. (2) II. Lockwood
Byron, Shelley, Keats, and Hazlitt. 9:00-9:50.

129bs. VICTORIAN PROSE. (2) II Frazier
Arnold, Macaulay, Carlyle, Pater, Newman, Ruskin, Huxley, Stevenson. 11:00-11:50.

142a. ENGLISH LYRICAL POETRY. (2) I. Solve
An historical study, supplemented by work in the theory and art of versification. The lyric from its beginning to the modern period. 7:00-7:50.

170as. COMPARATIVE LITERATURE. (2) I. Solve
A study of the materpieces of Europe, showing the growth and interrelations of literary forms, ideas, and moods, with special reference to their influences upon English literature. Greek, Roman, and Italian literature. 9:00-9:50.

227bs. SEMINAR IN THE ROMANTIC MOVEMENT. (2) I. Thrift
11:00-11:50.

229a. SEMINAR IN AMERICAN LITERATURE. (2) II. Lockwood
8:00-8:50.

233as. THE ENGLISH DRAMA TO 1642, OMITTING SHAKESPFARE. (2) I. Solve
Omitting Shakespeare. The origin of the drama; miracles; moralities; interludes; the predecessors of Shakespeare. 10:00-10:50.

FRENCH

ASSISTANT PROFESSOR Fenley.

1a. ELEMENTARY FRENCH. (4) I. Fenley
Aldrich, Foster, and Roule, French Grammar; Méras, Les Petits

Contes de France. Composition and oral practice. Reading of Daudet, Le petit Chose. 9:00-9:50 and 11:00-11:50.

105a. NINETEENTH CENTURY AND CONTEMPORARY FRENCH NOVEL. (2) I. Fenley

Development of the French novel as shown by the works of Mme. de Stael, Chateubriand, Hugo, Constant, Sand, Stendhal, Mérimeé, Balzac, Flaubert, Daudet, Edmond and Jules de Concourt, Zola, de Maupassant. Registration with consent of the instructor. 8:00-8:50.

GEOLOGY

PROFESSOR Leonard.
ASSOCIATE PROFESSOR Wilson.

111. SUMMER FIELD GEOLOGY. (3 to 6). Leonard-Wilson

Four to eight weeks in camp in the mountainous region west of Prescott, Arizona. The course for the summer of 1932 will include topographic surveying, mapping of areal geology, and a detailed study of the mining geology of the area.

The party will assemble at the University on Wednesday, June 8, 1932, and will leave Tucson by automobile the following morning. Prerequisites (if collegiate credit is desired), college courses in physical and historical geology and surveying. Credit, 3 or 6 units. Fees, registration $25, transportation and board, $60 for 4 weeks, $105 for 8 weeks. Each application must be accompanied by a transcript of credits earned, a brief letter of agreement to abide by the rules established for the conduct of the party, a letter of recommendation from applicant's instructor in geology, and a doctor's certificate to the effect that the applicant is physically able to engage in strenuous field work. Applications should reach the Director of the Arizona Bureau of Mines, University of Arizona, Tucson, by May 15. A certified check or draft for 25 percent of the fee must accompany each application, which will at once be returned if the applicant is not accepted. The balance of the fee is to be paid not later than June 8.

HISTORY AND POLITICAL SCIENCE

PROFESSOR Hubbard (Head of the Department).
ASSOCIATE PROFESSORS Wedel, Houghton.

100s. NATIONAL AND STATE CONSTITUTIONS. (2) I. Houghton

A course in national and state government devised to meet the state requirements for a teacher's certificate. For Seniors intending to teach. Not open to students having had 51 or 62. 11:00-11:50.

103as. MEDIEVAL HISTORY. (2) II. Hubbard

The fall of the Roman Empire in the west; the rise of the feudal states; the rise of the Holy Roman Empire; and the social, economic, and political institutions to the twelfth century. 8:00-8:50.

105as. THE NAPOLEONIC PERIOD, 1795-1815. (2) II. Hubbard

An examination of the reaction in France under the Directory. A detailed outline of the various coalitions against France. The social, economic, and political results of the coalitions in France and in Europe. 10:00-10:50.

110s. ROMAN HISTORY. (2) II. Hubbard

The history of Rome to the fall of the Empire. A survey of the political history as a basis for the study of the organization of the Republic and the Empire; the social and economic development of the people. Emphasis will be placed upon the relation of Rome to the Mediterranean world. 7:00-7:50.

115b. THE TWENTIETH CENTURY. (2) I. Wedel
A study of international relations before 1914, the cause and results of the wars of the century; the Russian Revolution; and the new map of Europe. Not for graduate credit. 7:00-7:50.

119a. LATER HISTORY OF THE UNITED STATES. (2) I Wedel
The development of the United States from the Civil War to 1890, with special emphasis on constitutional development. 8:00-8:50.

119.b. LATER HISTORY OF THE UNITED STATES. (2) L. Wedel
Te development of the United States from 1890 to the present, showing the growth of imperialism, increase of strength as one of the World Powers and entry into the Great War. 10:00-10:50.

HOME ECONOMICS

INSTRUCTOR Lynott.

2. INTRODUCTION TO NUTRITION. (2) I. Lynott
A course for men and women who desire the necessary information to guide them in selection of an adequate diet for health. The requirements of the body for energy, protein, minerals and vitamins are emphasized. Demonstrations of animal feeding experiments used as illustrative material. Required of physical education and home economics majors, elective for others. No prerequisite. 7:00-7:50.

101. MEAL PLANNING AND TABLE SERVICE. (2) I. Lynott
Practical methods in selection, preparation, and serving of meals. Types of service suitable for family meals and for special functions. Problems of production and distribution of foods and economic conditions affecting cost of foods are studied. Prerequisites, Home Economics 1b. Laboratory fee, $7.50. 9:00-11:50. (Three periods.)

122. READINGS IN NUTRITION. (2) I. Lynott
Readings and reports on nutrition topics. Registration with the consent of the instructor. 8:00-8:50.

LAW

ASSOCIATE PROFESSORS McCormick, Thomas.

33s. INSURANCE. (2) I. Thomas
Nature and legal effects of various types of insurance contracts; insurable interests—warranties, representations and concealments —recovery and subrogation—waiver, estoppal, election—assignees and beneficiaries. 7:00-8:50 M. W. F. (Two periods each day.)

117s. QUASI CONTRACT. (2) I. McCormick
Sources and scope of quasi contract; distinction between contract and quasi contract; benefits conferred by mistake; benefits conferred under a contract which has been partially performed; benefits voluntarily conferred without contract; benefits conferred under compulsion; waiver of tort. 7:00-8:50 T. Th. S. (Two periods each day.)

MUSIC

PROFESSOR Rogers.

ASSOCIATE PROFESSOR Williams.

4a. ADVANCED HARMONY. (2) I. Williams
In this course original writing will utilize chords of the ninth, and its derivatives the diminished sevenths, altered chords, and non-

harmonic tones. Related and foreign key modulation undertaken. Various styles of composition and practical writing for instrumental combinations will conclude the course. 8:00-8:50.

5as. EAR-TRAINING AND SIGHT-SINGING. (2) I. Williams
Oral and written dictation, aural recognition and sight-reading of meter, rhythm, major and minor modes, intervals, chords, melodies and two-part music. 10:00-10:50.

114a. ORCHESTRATION I. (2) I. Williams
A study of the individual instruments of the orchestra with reference to mechanism, manner of tone production, range, tone color and possibilities of combination with other instruments. Study of special terms used in writing orchestral parts played by these instruments for the securing of special effects. Study, assembling and transposing of scores. Writing for string, wood-wind, and brass sections separately, and for combination from various sections. Writing for instruments in the percussion section. Scoring for complete symphony orchestra. 11:00-11:50.

VOICE, GRADUATE OR UNDERGRADUATE. I. Rogers
(Hours and credit to be arranged.)

PHILOSOPHY AND PSYCHOLOGY

PROFESSOR Riesen (Head of the Department).
ASSOCIATE PROFESSOR Schneck
ASSISTANT PROFESSOR Simley.

1as.-1bs. ELEMENTARY PSYCHOLOGY. (2-2) I-II. Schneck-Simley
An introduction to the laws and principles underlying human behavior, the neural basis of mental activity, and the fundamental psychological processes. Prerequisite to all other courses in phychology. 10:00-10:50.

101as. HISTORY OF PHILOSOPHY. (2) I. Schneck
The story of general and scientific thought in its efforts to get at fundamental facts. The origin of philosophical thinking in Greece and its influence upon Rome and mediaeval Europe. 7:00-7:50.

140s. PSYCHOLOGY OF INTELLIGENCE. (2) II. , Simley
A critical analysis of various theories of intelligence, a study of the nature of intelligence, the methods of measurement, and practice in the use of various standardized tests and measures. Prerequisite, 6 units of psycology. 7:00-7:50.

223a-223b. RESEARCH IN PSYCHOLOGY. (1-4) I-II. Schneck-Simley
Investigation of some problem of psychology for which the student is prepared. (Hours and credit to be arranged.)

230a. PHILOSOPHICAL LITERATURE. (2) I. Riesen
Several masterpieces in world literature from the point of view of the philosophy they represent. Complete works are read in translations. Selections are made from Dante, Lucretius, Goethe, Ibsen, Nietzche, and others. Prerequisites. 6 units in upper-division philosophy or literature also graduate or Senior standing. 9:00-9:50.

PHYSICAL EDUCATION FOR MEN

PROFESSOR McKale (Head of the Department).
ASSOCIATE PROFESSOR Enke.

194s. ATHLETIC COACHING, FOOTBALL. (4) I. McKale
Rules from viewpoint of coaches, players, and officials. Discussion

of ethics of the game. value of mental attitude and sportsmanship; early practice and arrangement of material; offense and defense; generalship and strategy; kicking and passing; drills for linemen, ends, and backs; blocking and tackling; fundamental plays, trick plays, and signal systems. Theory practice, and assigned reading Open to Juniors and Seniors. 10:00-10:50. (Lab. hours to be arranged.)

195. ATHLETIC COACHING, BASKETBALL. (2) I. Enke
Rules from viewpoints of players, officials, and coaches. History of basketball. Proper equipment. Technique and individual play; floor work; catching, shooting, and passing the ball. Discussion of the different systems of offense and defense. Conditioning; organization of practice periods. Proper methods of conducting basketball tournaments. Theory, practice, and assigned reading. 7:00-7:50.

PHYSICAL EDUCATION FOR WOMEN

INSTRUCTOR Brown.

80a. DALCROZE EURYTHMICS AND RHYTHM. (2) I. Brown
Theory and practice of Dalcroze Eurythmics as a basis for rhythm work and folk dancing in public schools. 9:00-9:50.

80b. PHYSICAL RHYTHM. (2) II. Brown
Teaching and practice of rhythms, including the planning of exhibitions, programs, and pageants; discussion of rhythms, values, technique, costumes, and equipment for dancing classes. 9:00-9:50.

82. PLAY AND PLAYGROUNDS. (2) I. Brown
Theories of play; methods of organization, administration, and management of playgrounds; discussion of equipment; study of methods of producing game or play leaders. 10:00-10:50.

83. GAMES. (2)) II. Brown
This course includes practice and theory of games and play. School playground, and low organization games yill be taught. Notebook record required. Open to Sophomore, Junior, and Senior physical education majors. Prerequisite, P. E. 82. 10:00-10:50.

105ab. SWIMMING. (1-1) I-II. Brown
7:00-7:50.

SPANISH

ASSOCIATE PROFESSOR Post.

ASSISTANT PROFESSOR Nichols.

1a-1b. ELEMENTARY SPANISH. (4-4) I-II. Nichols
A beginning course that includes grammar essentials and translations, emphasizing especially accurate pronunciation and oral work. 9:00-9:50 and 11:00-11:50.

3a-3b. INTERMEDIATE SPANISH. (4-4) I-II. Post-Nichols
Introduction to systematic syntax accompanied by reading of modern books. Prerequisite, 1b or 2 years of high-school Spanish. 8:00-8:50 and 10:00-10:50.

111as-111bs. SPANISH LITERATURE OF THE NINETEENTH CENTURY. (4-4) I-II. Post
A study of the literary movements of the nineteenth century; Moratín Martínez de la Rose, Rivas, Brétón de los Herreros, Hartenbusch, Zorilla, Tamayo y Baus, Echegaray, Núñez de Arce, Pereda, Valera, Pardo Bazán, Pérez Galdós, Alarcó, Palacia Valdéz, Blasco

Ibáñez, Trueba, lyric poets, and others. Registration with the consent of the instructor. 9:00-9:50 and 11:00-11:50.

250. RESEARCH PROBLEMS. (2) Either Term. Post
(Conference hours to be arranged.)

ZOOLOGY

PROFESSOR Caldwell.

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4. ELEMENTARY ZOOLOGY. (4) I. Caldwell
An introductory course in the structure, physiology, development and behavior of animals, treated from the biological viewpoint. Laboratory fee, $5. 8:00-8:50. (Lab. to be arranged.)

120. THE BIOLOGY OF TWINNING. (2) I. Caldwell
A course of lectures on the nature, scope, and causes of twinning in the invertebrate and vertebrate animals. A study of the bilateral organization of the embryo; symmetry reversal and mirror imaging in twins and double monsters; the causes of human twinning and the biological hazards of human twins. Prerequisites, Zoology 4 and 4 additional units of biology. 11:00-11:50.

191a. ELEMENTARY ZOOLOGICAL PROBLEMS. (2 to 4) I. Caldwell
Problems of an elementary nature may be undertaken by properly qualified Seniors after consultation with instructor. Credit will be adjusted in accordance with the work accomplished. Laboratory fee, $1 per unit. (Hours and credit to be arranged.)

216a. ZOOLOGICAL RESEARCH. (2 to 4) I. Caldwell
On consultation with instructor, students may take up such research problems as the department is equipped to care for in the following lines: Physiology, vertebrate morphology and invertebrate morphology. Results must be presented as a thesis or in form of publication. Credit will be adjusted in accordance with the work accomplished. Laboratory fee, $1 per unit. (Hours and credit to be arranged.)