UNIVERSITY OF ARIZONA RECORD

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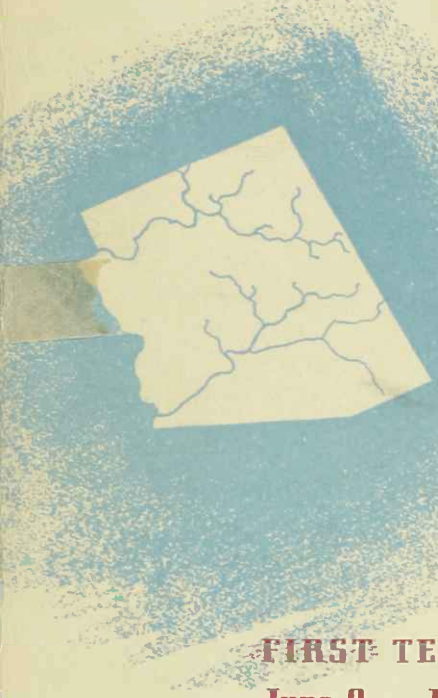
16

Announcement

for the

Summer

Session



1952

FIRST TERM
June 9 — July 12

SECOND TERM
July 14 — August 16

Published by University of Arizona, Tucson, Arizona

University of Arizona Record

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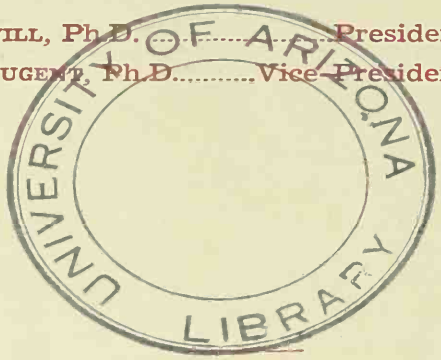

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ANNOUNCEMENT

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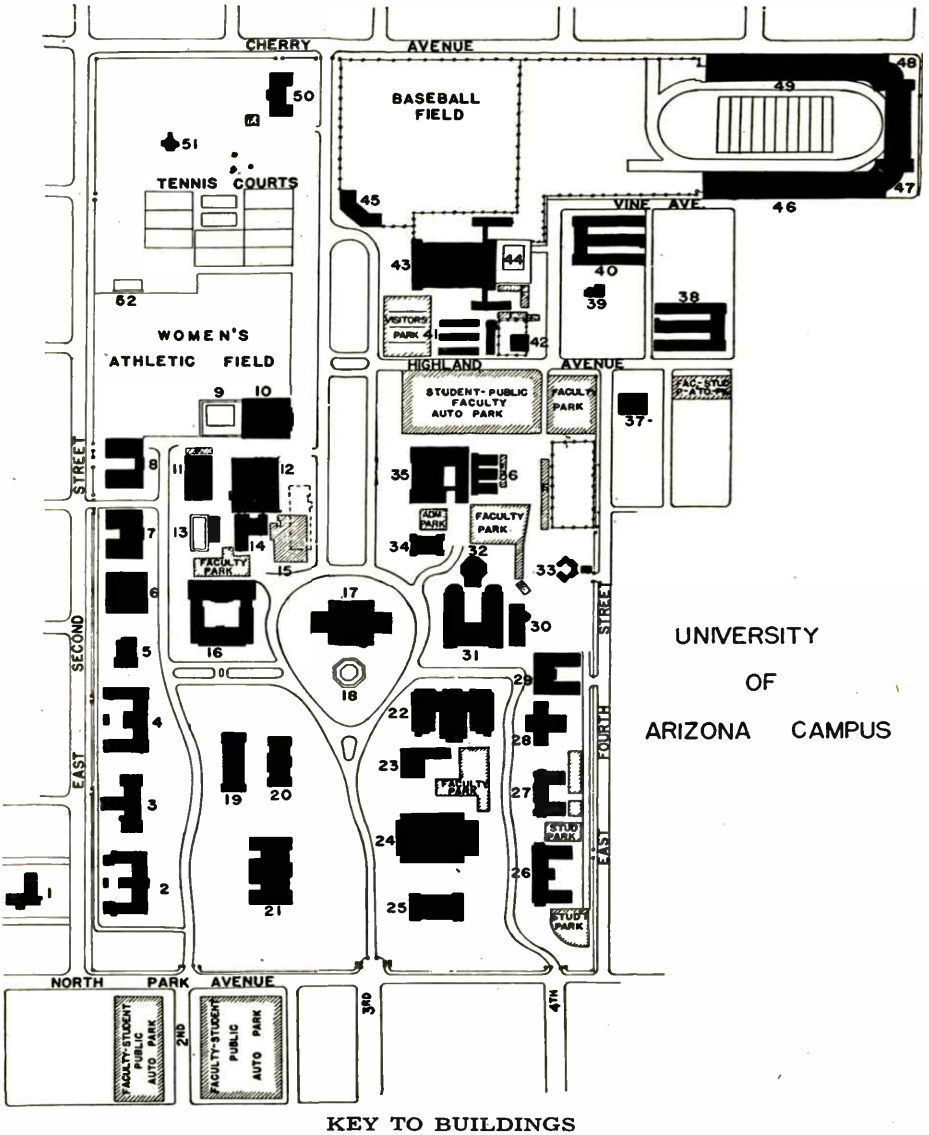

KEY TO BUILDINGS

1 Pima Hall
2 Gila Hall
3 Maricopa Hall
4 Yuma Hall
5 Business & Publ. Adm.
6 Mines & Metallurgy
7 Mechanical Arts
8 Gen. Stores & Garage
9 Women's Swim. Pool
10 Women's Building
11 Aeronautical
12 Student Union
13 Reservoir
14 Power House
15 Cafeteria
16 Engineering
17 Old Main
18 Memorial Fountain
19 Humanities
20 Education
21 Library
22 Liberal Arts
23 Law
24 Auditorium
25 Museum
26 Cochise Hall
27 Arizona Hall
28 Fine Arts & Music
29 Yavapai Hall
30 Herring Hall
31 Agric. & Home Ec.
32 Agric. Hall
33 Greenhouse
34 Administration
35 Chem.-Physics-Pharm.
36 Greenhouse
37 Physical Plant Whse.
38 Papago Lodge
39 Home Management
40 Hopi Lodge
41 Temporary Bldgs.
42 Nursery School
43 Gymnasium & Military
44 Men's Swimming Pool
45 Baseball Stadium
46 West Stadium
47 Pinal Hall
48 Navajo Hall
49 East Stadium
50 Infirmary
51 Steward Observatory
52 Outdoor Theater

"F" Denotes Faculty Auto Park

FACULTY OF THE SUMMER SESSION

ADMINISTRATION

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CHARLES ZANER LESHER, M.A.
Registrar

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Instructor in English

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Instructor in Economics

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Editor and Author; Visiting Professor of Education

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Instructor in English

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Assistant Professor of Psychology

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MARTIN, DOUGLAS D.....Journalism
Professor of Journalism, Head of the Department

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Assistant Professor of Education

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Instructor in Zoology

MILLER, HALBERT W., M.S.....Agricultural Education
Specialist in Farm Mechanics, Arizona State Department of Vocational Education; Visiting Lecturer in Agricultural Education

MILTHALER, WALTER C., M.A. ..... German
Instructor in German

MUIR, A. LAURENCE, Ph.D. ..... English
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MUNDINGER, GERHARD H., Ph.D. ..... German
Assistant Professor of German

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Instructor in Business Administration

NATONEK, ANNE G. ..... Physical Education for Women
Assistant Professor of Physical Education for Women

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Assistant Professor of Education

NETTLETON, ALVRED B., M.S. ..... Business Administration
Assistant Professor of Business Administration

NEWTON, LYDIA H., M.A. ..... Education
Arizona State Consultant in Speech, Hearing, and Special Education; Visiting Lecturer in Education

PARNELL, ROBERT C., LL.B. ..... Business Administration
Lecturer in Business Law

PERCY, GARNET D., Ph.D. ..... Classics and Humanities
Professor of Classics, Head of the Department

PILGRIM, MARY, M.S. ..... Physical Education for Women
Associate Professor of Physical Education for Women

POWELL, DESMOND S., Ph.D. ..... Humanities
Professor of English, Head of the Department

QUINN, ROBERT M., B.A. ..... Art
Assistant Professor of Art

REHNBERG, REX D., Ph.D. ..... Agricultural Economics
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ROBERTS, LATHROP E., Ph.D. ..... Chemistry
Professor of Chemistry

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RUFF, WESLEY K., Ed.D. ..... Physical Education for Men
Assistant Professor of Health Education

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SANDS, LILA, Ph.D. ..... Chemistry
Professor of Chemistry

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Professor of Economic History, Iowa State College; Visiting Professor of Economics

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SOUDEN, JAMES G., B.F.A.....Art
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Professor of Anthropology

STANLEY, ROENE I., M.S.....Physical Education for Women
Assistant Professor of Physical Education for Women

STERLING, EDNA L., Ph.B.....Education
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Professor of Education, Indiana University; Visiting Professor of Elementary Education

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SVOB, ROBERT S., M.A.....Physical Education for Men
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TAYLOR, RICHARD W., Ph.D.....Chemistry
Instructor in Chemistry

TEPFER, SANFORD S., Ph.D.....Botany
Instructor in Botany

THOMPSON, ETHEL M., Ph.D.....Home Economics
Professor of Home Economics

TIPTON, GLADYS, Ed.D.....Music
Associate Professor of Music, University of California at Los Angeles; Visiting Professor of Music

TOLAND, FLORENCE W., M.S.....Secretarial Studies
Instructor in Secretarial Studies

TREMBLAY, NAPOLEON J., Ph.D. ..... French
Professor of French

TRIFAN, DEONISIE, Ph.D. ..... Mathematics
Assistant Professor of Mathematics

TUCKER, WILLIAM J., Ph.D. ..... English
Professor of English

VORIS, MARK ..... Art
Assistant Professor of Art

WADE, LENA L., M.A. ..... Secretarial Studies
Instructor in Secretarial Studies

WALLRAFF, CHARLES F., Ph.D. ..... Philosophy
Associate Professor of Philosophy and Psychology

WARNER, EARLE H., Ph.D. ..... Physics
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WEBB, DONALD L., Ph.D. ..... Mathematics
Associate Professor of Mathematics

WEDEL, OSWALD H., Ph.D. ..... History
Professor of History and Political Science, Head of the Department

WILSON, ANDREW W., M.B.A. ..... Business Administration
Instructor in Business Administration

WONDER, JOHN P., M.A. ..... Spanish
Instructor in Spanish

WOOD, ELWIN G., Ph.D. ..... Business Administration
Professor of Business Administration

UNIVERSITY OF ARIZONA
SUMMER SESSION, 1952

LOCATION

The University of Arizona conducts its Summer Session on the University campus at Tucson.

Tucson has an altitude of 2,400 feet. It lies in a broad valley surrounded by rugged mountains that constitute a setting of unsurpassed beauty. The campus itself with its masses of common and exotic trees, shrubs, and cacti is a veritable park of unique character.

CALENDAR OF THE SUMMER SESSION

The Summer Session is made up of two terms of 5 weeks each. Unless otherwise specified classes will meet 5 days a week, a 2-unit lecture course requiring 5 clock hours per week per term. Laboratory periods are 3 hours. Registration will be held on the first day of each term. A late registration fee of $2 will be charged in connection with registration after that day. Registration for credit lar academic year or those who wish to continue their courses or after Monday, July 21, for the Second Term.

The calendar follows:

June 8, Sunday, 8 a.m.	Residence halls open
June 9, Monday	Registration for First Term
June 10, Tuesday	Classwork begins
July 4, Friday	Independence Day; a holiday
July 11, Friday	Examinations for the First Term begin
July 12, Saturday	First Term ends
July 14, Monday	Registration for the Second Term
July 15, Tuesday	Classwork begins
Aug. 15, Friday	Examinations for the Second Term begin
Aug. 16, Saturday	Second Term ends

SUMMER-SESSION COURSES

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

1. Entering Freshmen who may wish to accelerate their college work.

2. Regular students of this or other institutions.

3. Graduate students who are unable to attend during the regular academic year or those who wish to continue their courses or research.

4. School administrators and teachers who desire advanced instruction in academic or professional work looking toward advanced degrees or renewal of certificates or who wish to satisfy requirements of the various states and accrediting associations.

5. Prospective teachers desiring to meet certification requirments for all grades above the kindergarten.

6. Students who desire to avail themselves of cultural or professional courses.

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

Agricultural Economics
Agricultural Education
Anthropology
Art
Botany
Business Administration
Chemistry
Civil Engineering
Classics
Dramatic Arts
Economics
Education
Electrical Engineering
English
French
Geology
German
Guidance
Health Education
History
Home Economics
Home Economics Education
Humanities
Journalism
Library Science
Mathematics
Music Education
Music Theory
Philosophy
Physical Education
Physics
Piano
Political Science
Psychology
Secretarial Studies
Sociology
Spanish
Special Education
Speech
Voice
Zoology

ARIZONA 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. The exhibits illustrate the story of Man in the Southwest over a period of some 10,000 years. The geological displays show examples of outstanding minerals and fossils of extinct animals; the natural history collections show the bird life of the state and present other forms of animal existence. The Museum is open to the public.

LIVING ACCOMMODATIONS

Residence accommodations for men and women are provided on the campus. Yuma Hall will be used for women and Cochise Hall for men. Additional halls will be opened if the need arises. Rooms are uniformly furnished with tables, dressers, and chairs. Beds, mattresses, pillows, and bed linens are provided, but students must provide their own blankets, towels, laundry bags, and other necessities. The laundering of all bed linens is cared for by the University. Students are advised to provide a warm blanket for the cooler nights.

Women students.—Yuma Hall is one of the newest of the five women's residence halls. It represents the latest in construction and facilities. Running water in every room, an electric hair dryer and a laundry and ironing room on every floor, and elevators are modern conveniences provided to meet the needs of the students. Sun decks, a spacious lounge, and an inclosed patio with barbecue pit add much to the pleasure of group life.

During the Summer Session the residence halls are open to both graduate and undergraduate students. All unmarried undergraduate women not living at home are required to live in the residence hall unless exception is made by the Dean of Women before or at registration. All residence arrangements for women must be approved by the Dean of Women at the time of registration and may not be changed without her permission.

Men students.—Cochise Hall is modern in every respect.

Off-campus housing.—Information concerning housing facilities off the campus may be secured from the Department of Residence.

The Department will render every assistance possible. Students should, however, inspect accommodations before making definite agreements with householders.

Residence-hall reservations.—Accompanying the Registrar's notification that admission has been granted is an application form for reservation of residence-hall space. This should be filled out immediately and mailed to the Director of Residence with a deposit of $10. Checks should be made payable to the University of Arizona. This deposit is security against damage to or loss of University property. It will be returned if there are no charges against the student. *Applications for room reservation should not be made until notice of admission is received from the Registrar.*

Only registered students may use the residence halls.

Board.—The University Dining Hall, located in the Student Union Memorial Building, is operated on a self-sustaining basis for the convenience of the students.

AIR-COOLED BUILDINGS

The University Library and the Liberal Arts Building are completely air-cooled, making study and class conditions ideal. The air-cooled attractive new Student Union Memorial Building offers excellent facilities for dining and for recreation.

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 with the Director of Admissions a complete, official transcript of high-school credits, with a statement of graduation.

Students coming from other universities and colleges must present to the Director of Admissions evidence that they are in good standing. Those who propose to become candidates for a degree at the University of Arizona, or who wish to continue in the fall semester must file a complete transcript of record.

Graduate students seeking graduate credit must file a transcript of the complete academic record, including evidence of having been graduated from an approved university or college. Preliminary inquiry should be made to the Dean of the Graduate College.

Other students eligible to enter the University will be permitted to pursue such courses as they are qualified to carry.

Note: All new students except those of graduate standing should apply to the Director of Admissions for appropriate admission blanks. Admission to the Summer Session does not imply admission in the regular year. For fall registration a separate application must be made.

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 work in residence. **The maximum number of units for which students may register regularly for credit 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 each term except by approval of the Dean of the Summer Session.

Students who receive failing grades in 50 per cent of the total number of units for which they were registered during the Summer Session are subject to denial of registration in the first semester of the next academic year.

EXPENSES AND FEES

Tuition.—The tuition fee is $6.50 per semester hour of credit for either 5-week term. There is no nonresident fee for out-of-state students. The tuition fee for registration for thesis only is $5. For registration after the first day of the term a late registration fee of $2 is charged. The tuition fee for those attending classes without credit (auditors) is $10 for either term. The fee for courses audited in addition to those taken for credit is $3.25 per unit. For students registering for 6 or fewer units of credit, the maximum cost for both credit and audited courses is $39. Each student before attending classes must obtain a receipt showing that all fees have been paid and that the student is entitled to enter upon his classwork.

Physical education courses.—Students registering for courses in physical education (except theory) pay a locker and towel fee of $2 and a deposit of $1. The deposit is returnable if there are no charges against the student.

Music.—For individual instruction in voice or instrumental music a fee is charged in addition to the regular tuition fee, as follows: for two ½-hour lessons a week for 5 weeks the fee is $20, with 1 unit of credit. For four ½-hour lessons a week for 5 weeks the fee is $30 with 2 units of credit. The rental fee for practice instruments is: for 1 hour per day, 5 weeks, $1.50; for 2 hours per day, 5 weeks, $2.

Laboratory and material fees.—In certain laboratory courses fees and deposits are required to cover the cost of materials and of breakage. Statements of the amounts of such fees and deposits are found in the descriptions of the courses.

Residence halls.—Rooms in Cochise Hall, the residence hall for men, may be obtained for $20 per 5-week term, per person, two in a room. To the extent that rooms are available, single occupancy will cost $32.50 per term. Rooms in Yuma Hall, the women's residence hall, will cost $24 per term, per person, two in a room. Single occupancy, when available, will cost $40 per term. All students occupy separate single beds.

Trips.—For all field trips required in connection with courses additional fees will be charged as stated in the descriptions of the courses.

Recreation.—To provide funds for recreational and social activities a nominal fee of 50 cents per term is charged.

Student Union fee.—A fee of $2.50 each term is paid on the day of registration by each student registered for 3 or more units of work.

SUMMARY OF FEES AND DEPOSITS

Tuition (either 5-week term, per unit)	$ 6.50
Tuition for auditors (either 5-week term)	10.00
Tuition (courses audited in addition to credit courses, see above) per unit	3.25
Tuition (registration for thesis only)	5.00
Late registration fee	2.00
Music (individual instruction) (see statement above)	
Courses in physical education (except theory)	2.00
Deposit (returnable if there are no charges)	1.00
Laboratory and materials (see course descriptions)	

Field trips (see course descriptions)	
Room in residence hall (term in advance) (See statement above)	$20.00 to $40.00
Room deposit (Returnable if there are no charges)	10.00
Recreation	.50
Student Union fee	2.50
Library fee	1.00
Change of program fee	1.00
Credit by examination, per unit	2.00

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

Refunds.—Students withdrawing from the University during the first week of either term (June 9 to 16, inclusive, and July 14 to 21, inclusive) will be refunded all fees except a registration fee of $5 and the late registration fee of $2, if any.

After the first week no fees of any kind will be refunded.

Room reservation deposits will not be returned in case of cancellation unless notice of cancellation reaches the Department of Residence by the Saturday preceding registration for either term. Other deposits will be returned if there are no charges against the student. Students moving from a dormitory before the end of the term will forfeit the entire amount of rental for the term.

GRADUATE STUDY AND ADVANCED DEGREES

The University of Arizona Summer Session offers opportunity for graduate study. Several of the departments of the University have specifically provided for individual research in their respective fields. Individual research may be carried on in any department authorized to offer such work, by eligible students who secure the approval of the head of the department and the instructor.

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. Residence during one Summer Session of 10 weeks is equivalent to a semester of residence.

Admission.—Admission to the Graduate College is open to persons who hold the bachelor's degree from the University of Arizona or from a college or university approved by the University of Arizona. Admission in any case is granted only after approval of the candidate's previous academic record by the Director of Admissions, the Dean of the Graduate College, and the heads of the two departments in which the candidate proposes to do the greater portion of his work. An additional number of undergraduate courses may be required when previous work has not approximated the general requirements for the corresponding bachelor's degree at the University of Arizona or the special requirements for the field in which the candidate proposes to specialize; and prospective graduate students are urged to determine from the Dean of the Graduate College their status in this regard. Students whose preparation is such that they are unable temporarily to elect any work for graduate credit should register in the appropriate undergraduate college.

Admission should be arranged prior to the date of registration. Application forms may be obtained from the Dean of the Graduate College. Applicants from other institutions must submit complete transcripts of all undergraduate work done and degrees received. Transcripts should be sent by the institutions involved directly to the Director of Admissions, University of Arizona. When the appli-

cant's previous academic record is approved, the applicant will receive an official certificate of admission from the Director of Admissions. Inquiries concerning admissions should be directed to the Dean of the Graduate College. Early application is advised.

General prerequisites for major and minor graduate credit.—The undergraduate major, or its equivalent, in any field of study is prerequisite to major graduate work in that field. In some cases a field of concentration in the undergraduate work different from but suitably related to the graduate major may be acceptable. The minimum requirement in education is 15 units, of which 3 may be in general psychology.

Supporting or minor courses have as a prerequisite for graduate credit a minimum of 12 units basic to the subject, including all course prerequisites stated in the description of the course.

Deficiencies in undergraduate preparation must be satisfied by the completion of prescribed courses for undergraduate credit.

Graduate credit for seniors and unclassified students.—A student of senior standing who is within 16 units of completing all requirements for graduation may register for graduate work if recommended by the head of the department and approved by the Dean of the Graduate College. For such registration a petition for graduate credit in excess of senior requirements must be filed with the Dean at the time of registration, or within 10 days thereafter, for the action of the Committee on Graduate Study. This petition must be endorsed by the professor in charge of the course and the student's major professor. The Committee will not approve a petition unless the senior has a grade average of 2.5 or better on all work already completed in the University; is proceeding toward graduation as directly as possible; and does not propose a total load to exceed 6 units per term.

A student who holds the bachelor's degree but who is not registered in the Graduate College may petition for permission to take courses for graduate credit. His petition must be filed within 10 days following registration, be recommended by the instructor of the course and the head of the department concerned, and be approved by the Committee on Graduate Study.

Graduate credit courses.—All courses numbered from 200 to 299 are definitely organized as graduate courses and carry graduate credit. Certain courses numbered from 100 to 199, designated by the letter G following the title, may be taken for graduate credit.

Scholarship requirements.—No student will be recommended for the award of an advanced degree unless he has achieved a grade average of 2.0000 or higher on all course work taken for graduate credit. The grade average will be computed on all work for which the student has enrolled for graduate credit, whether or not it is offered in satisfaction of requirements for an advanced degree. The grade of 4 does not carry graduate credit but is computed with the general average.

Residence requirement.—Two semesters of residence, involving completion of not less than 23 semester hours of graduate credit are required, except as thesis work in absentia may be approved; the remaining 7 units may be units either transferred from another accredited graduate school or earned in extension courses offered by the University of Arizona.

Completion of degree requirements.—Students registering with the expectation of completing requirements for advanced degrees during the Summer Session should inform the Dean of the Graduate College of this intention not later than the second week of their enrollment in the Summer Session. Completion is subject to observance of all formal requirements as specified in the general catalogue of the University. Attention is directed especially to the following:

1. **Graduate study program.** A program of studies for an advanced degree submitted on forms provided by the office of the Graduate College must be approved by the Committee on Graduate Study.
2. **Proposed thesis subject.** If a thesis is required, the thesis title and a statement of the problem and the method of treatment must be filed with the office of the Graduate College and approved by the Committee on Graduate Study.
3. **Advancement to candidacy.** A petition for advancement to candidacy must be submitted for approval of the Committee on Graduate Study.
4. **Thesis and oral examination.** One copy of the thesis in final form must be filed with the Dean of the Graduate College not later than 4 days prior to the defense of the thesis in a final oral examination.
5. **Fees.** Following completion of the oral examination, students should obtain a statement of graduation fees from the Registrar.

THE DEGREE OF MASTER OF EDUCATION

The University has instituted the degree of Master of Education, which will be conferred upon professional students in the field of Education who have met the admission requirements of the Graduate College and who have completed the stipulated graduate studies and met all other requirements for the degree. All general regulations for graduate work and all requirements of the M.A. and M.S. degrees apply to this degree, except as they may be modified by the following requirements. (A thesis is not a part of the requirements for this degree.)

Course requirements.—Course work required shall be not less than 32 units, including 17 to 20 units in the major subject and 15 to 12 units in the minor subject.

Major and Minor.—Either the major or minor must be Education. In either case the remaining choice may be in a different field of Education or any of the subjects, such as History, English, Mathematics, which are teaching fields in the public schools. Subjects not taught in the public schools may be chosen as the major or minor when, in the opinion of the Education and graduate deans, that would strengthen the student's preparation as a teacher.

Research project.—All candidates for the degree, whether the major or the minor is in Education, are required to complete a research project of a kind to warrant 2 units of credit. Students will register for Education 290 to receive credit for this project.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF EDUCATION

The Department of Education of the Graduate College accepts prospective candidates for the degree of Doctor of Education. The

degree is granted only to those who demonstrate a high degree of proficiency in Education and who present a dissertation of a professional nature.

Residence and credit requirements.—Not less than six semesters of full-time graduate study are required. At least one regular semester in residence, not including work offered in meeting requirements for the Master's degree, is required. During this semester the student must be registered for twelve or more semester hours of credit. The minimum hour requirement is seventy semester hours at the graduate level. Research for the dissertation, for which no credit is given, usually requires the equivalent of one academic year of full-time work, exclusive of any work accomplished in connection with a master's thesis. All requirements for the degree must be met within a period of six calendar years after the qualifying examination.

Qualifying examination. — For the purpose of demonstrating fitness to undertake work leading to candidacy for the doctorate, each applicant must pass a qualifying examination. It is expected that this examination will be taken after thirty hours and before forty-five hours of graduate work have been completed. The examination will be either oral or written, or both, at the discretion of the department. In addition, a personal interview, a review of the applicant's college record, and evidence of the applicant's ability to write in a scholarly manner are required. Applicants may offer the master's thesis or an equivalent paper to the examining committee for its use in evaluating the student's ability to write in acceptable fashion.

Teaching experience. — Candidates for the degree of Doctor of Education are required to furnish evidence of having successfully completed at least three years of teaching or administrative experience in the public schools.

Program of study.—A program of study, recommended by the Dean of the College of Education, must be submitted for the approval of the Graduate Committee at the beginning of the second year of graduate study. The student will major in Education but must have a minor in a department other than Education. Not less than forty-six units of work must be in Education. An outline of the proposed dissertation, approved by the Dean of the College of Education, must be submitted for the approval of the Committee on Graduate Study not later than October 1 of the last year of study. The appropriate forms are available in the office of the Dean of the Graduate College.

Foreign language requirement.—A reading knowledge of a foreign language will be required when such knowledge is necessary for the successful completion of the dissertation.

Preliminary examination. — Before admission to candidacy for the degree, a comprehensive examination must be passed. This examination shall be both written and oral and will cover work which the applicant has taken in Education and in minor fields. The examination will be held toward the end of the second year of graduate work or not later than November 1 of the last year.

Advisory committee.—When the student has successfully passed the qualifying examination and has outlined a tentative dissertation problem, the Dean of the Graduate College, after consultation with the Dean of the College of Education, will appoint an advisory committee. Two members from the student's major field of study and one from his minor field of study will constitute the committee. The

chairman will be the student's major professor and thesis director. The duties of this committee are to review the proposed dissertation problem, to evaluate the student's program of study, to make recommendations to the Dean of the College of Education concerning the adequacy of the dissertation problem and the program of study, and to be available to the student when guidance is necessary.

Advancement to candidacy.—When the preliminary examination has been passed and evidence shown of ability to carry on professional studies of a high grade, the student will be recommended to the Committee on Graduate Study for acceptance as a candidate for the doctorate. These regulations must be met on or before November 1 of the academic year in which the degree is to be conferred.

Final examination.—When the required standards of scholarship have been met and the required ability in research has been shown, the candidate shall submit to an oral examination in defense of his dissertation, as well as any general questioning related to the field of study which may develop therefrom. This examination shall be conducted before a committee appointed by the Dean of the Graduate College upon consultation with the Dean of the College of Education, the exact time and place to be announced at least one week in advance, and shall be open to the public.

Dissertation.—Two weeks prior to the final examination, one copy of the dissertation must be submitted to the Committee on Graduate Study. Two copies of the completed dissertation, approved and accepted by the major department, must be filed with the dean, following the final examination, and a library binding fee of $5 must be paid to the University Comptroller. At the same time, there must be filed two copies of an abstract of the dissertation approved by the Dean of the College of Education and the Dean of the Graduate College.

Publication of dissertation.—Dissertations are published by University Microfilms, Ann Arbor, Michigan, and a fee of $25 is charged to cover this expense. Upon certification by the student's major professor, members of the committee for his final examination, and the Dean of the Graduate College, the typed first copy and an abstract of 700 words or less are forwarded to University Microfilms. The manuscript is microfilmed, the negative inspected, and put in vault storage. The manuscript is catalogued and this information is sent to the Library of Congress, for printing and distribution of cards to depository catalogues and libraries. The abstract is printed in the forthcoming issue of Microfilm Abstracts and distributed to leading libraries here and abroad, and to a selected list of journals and abstracting services. The first copy with one positive microfilm is then returned to the University Library.

Publication by microfilm does not preclude publication by other methods later, and successful candidates are urged to submit dissertation material for publication in a journal of its field. Suitable acknowledgment must always indicate the publication to be a dissertation, or portion of a dissertation, submitted in partial fulfillment of the requirements for the degree of Doctor of Education at the University of Arizona.

CANDIDATES FOR DEGREES

All candidates for degrees who expect to complete their work for a degree at the end of either term must file an application during the first week of the term. Blanks are available at the Registrar's office.

TEACHERS' CERTIFICATES

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

Secondary certificates are granted to the holders of the bachelor's degree from an accredited university or college authorized to prepare secondary-school teachers who present, in addition, evidence of the satisfactory completion of not less than 30 semester hours of graduate work at the University of Arizona or at other accredited institutions.

Pre-secondary certificates entitle the holders to qualify for the regular secondary certificate by in-service preparation while they are teaching. Such certificates have a preliminary requirement of 6 semester hours of graduate work.

Elementary certificates are granted to holders of the bachelor's degree from an accredited university or other teacher-preparation institution authorized to prepare elementary teachers.

Elementary and secondary certificates are valid for 4 years. They are renewable any number of times for periods of 6 years, upon presentation of evidence that the holder has, during the life of the certificate, completed 4 years of successful teaching and has carried to completion satisfactorily 5 semester hours of approved professional work at an accredited school or 10 semester hours when the teaching experience has been deficient. For the initial renewal 2 years' teaching and 5 semester hours are required.

ADMINISTRATIVE CERTIFICATE

After September 1, 1953, administrative certificates will be granted upon evidence of at least three years of successful teaching experience in the public schools, eligibility for an elementary or a secondary certificate, and a Master's Degree with a minimum of 15 semester hours in Education taken subsequent to the Bachelor's Degree, including the courses listed below:

School Administration
Supervision of Instruction
Statistical Methods in Education
Curriculum Determination and Construction
Arizona School System, Laws and Records
School Finance
School House Planning and Maintenance
History or Philosophy of Education

The certificate will be required of any administrator in charge of a school or school system with five or more teachers, or of a supervisor of non-special instruction.

APPLICATION FOR CERTIFICATES

All persons applying for certificates authorizing them to become superintendents (or principals) or teachers in the public schools and junior colleges in this state must, in addition to existing requirements, take a course in the provisions and principles of the Constitution of the United States and of this state. Candidates for certificates may satisfy this requirement by taking the course, Political Science 100, or the courses Political Science 51a and 51b (or 100-C).

Certificates for teachers and school administrators are not granted automatically; formal application must be made. As considerable

time is sometimes required to secure the necessary data, candidates should file the application early in the term in which they expect to qualify. Necessary blanks and detailed information relating to teaching and administrative certificates may be secured at the office of the Dean of the College of Education.

WORKSHOPS AND CLINICS

An outstanding service which the University offers to teachers and other school officials is the opportunity to work in small homogeneous groups on problems common to the respective groups. This is carried on through workshops under the direction of specialists in the fields. The following workshops are available:

Arithmetic (Education 124cs)
Conservation (Education 192s)
Language Arts (Education 122s)
Library Science (Library Science 101b, 182s, 183)
Music Education (Music 270s)
Social Studies (Education 124ds)

Another valuable professional opportunity is offered through work in the following clinics:

Clinic in General Remedial Techniques (Education 221s)
Observation and Study of Exceptional Children (Education 228s)
Reading Clinic (Education 222s)
Speech Correction (Education 184s)

In these clinics the students not only study the techniques but under the direction of the instructors actually apply them in the diagnosis and treatment of the difficulties of pupils selected for the purpose.

Teachers interested in this work should register for the courses indicated in parentheses.

SPECIAL EDUCATION FOR EXCEPTIONAL CHILDREN

The College of Education of the University of Arizona is offering this summer for the first time a major in the field of Special Education. In addition to Education 151, 157, and either 124a,b,c,d or 131 and 134, the major consists of a minimum of 17 units selected from the following:

The Exceptional Child in the Regular Classroom (Education 103s)
Abnormal Psychology (Psychology 118)
Remedial Techniques in Teaching (Education 221s)
Mental Health in the Classroom (Education 150)
Child Growth and Development (Psychology 113 or 114)
Guidance for the Handicapped
Problems in the Teaching of the Mentally Retarded (Education 155)
Reading Clinic: Remedial Techniques (Education 222)
Arts and Crafts for Exceptional Children
Observation and Study of Exceptional Children (Education 228s)
Discovery and Diagnosis of the Exceptional Child

FINE ARTS SUMMER SESSION FOR HIGH-SCHOOL STUDENTS

The University of Arizona offers an unusual opportunity for High School students (entering grades 9-12) to participate in the major

fields of the Fine Arts in the Fine Arts Summer Session, to be held on the campus June 9 to June 20. A faculty of outstanding High School and University instructors has been selected to provide leadership. Students may participate in one field of their major interest (art, drama, or music) and, in addition, elect one minor field (plays, painting and drawing, music ensembles, or speech). A course in "Exploring the Arts" will be offered. Students may participate in ensembles and receive class instruction in the applied fields of music.

A supervised recreational program, including sports, picnics, dancing, recitals, swimming, games, movies, and plays, will be provided. Housing will be arranged in special dormitories under capable adult direction.

The tuition fee of $12.50 will be charged for the entire session; the cost of room and board for the session is $30.

For further information and for application blanks, please write to Dr. Hartley D. Snyder, College of Fine Arts, University of Arizona, Tucson, Arizona.

ACCELERATED PROGRAMS

Entering Freshmen may speed up their college work by starting in the summer. There will be a broad choice of required and elective courses. **Sophomores, Juniors,** and **Seniors** will find many courses available to enable them to accelerate their programs.

INFORMATION FOR VETERANS

Veterans with educational entitlement under Public Law 16 (the Rehabilitation Law) or under Public Law 346 (the G.I. Bill) are invited to use the Summer-Session facilities. The University Veterans' Coordinator, a member of the Registrar's staff, assists the student veteran in every way possible in his relationship with the institution.

The Veterans' Administration has announced that teacher veterans who are employed during the academic year and who have commenced their training before July 25, 1951, must attend school during the full session of two terms each summer as long as they wish to maintain their eligibility for government assistance.

INDIVIDUAL STUDIES

Individual study is work done independently by the student under the guidance of an instructor. In the summer it consists of three types of work with course numbers as follows:

Special Problems (199, for undergraduates)
Research (300, for graduate students)
Thesis (310)

With the approval of the head of the department concerned and of the Dean of the Summer Session, any department may offer such work whether or not it is listed in the departmental offerings.

CREDIT BY EXAMINATION

Credit by examination is available to all Summer-Session students under the provisions described on page 54 of the current Biennial Catalogue. The fee is $2 per unit.

ENTERTAINMENT AND RECREATION

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, the Casa Grande Monument, the Tumacacori Mission, and the resort of Soldiers' Camp and Summerhaven on Mount Lemmon in the Santa Catalina Mountains afford excellent opportunities for week-end excursions. In the Santa Catalina Mountains, among the great pine trees there are many ideal camp sites where the atmosphere is invigorating and the surroundings stimulating to both student and the lover of nature. The border city of Nogales, Sonora, within 2 hours' drive from Tucson, presents a very colorful Old World atmosphere to the visitor. The University will endeavor to arrange trips and excursions to these points for those who wish to avail themselves of the service. A trip fee sufficient to cover costs of transportation will be charged.

The excellent recreational facilities of the beautiful new Student Union Memorial Building will be available for Summer-Session students. Students may enjoy ping-pong, billiards, cards and checkers in the game rooms, hear recordings of their choice in the listening rooms, or examine the new publications in the browsing room. A series of motion pictures of outstanding merit will be presented weekly, without charge, in the Ballroom. Several campus dances will also be given there.

There are excellent tennis courts and a large outdoor swimming pool on the campus. Swimming tags are obtained from the Cashier. A municipal golf course within easy reach of the University is available to the devotees of this popular form of sport. Bowling and dancing are always easily available.

STUDENT UNION POST OFFICE

For the convenience of the students, the Student Union Post Office will be open during the Summer Session.

COURSES OFFERED*

IN THE

SUMMER SESSION, 1952

AGRICULTURAL ECONOMICS

Assistant Professor Rehnberg

110s. Problems in Farm and Ranch Accounting. (2) I. G. Rehnberg

Procedures in keeping and using farm records for analyzing and planning the farm business, securing and using agricultural credit, and making Federal Income Tax reports. Prerequisite, 105. Fee, $1. (June 9 to 25. Hours to be arranged.)

Role and Techniques of Agrarian Movements in the United States. (2) II. G. Schmidt

(See Economics 109s.)

AGRICULTURAL AND HOME ECONOMICS EDUCATION

Professor Cline (Head of the Department).
Associate Professor Jones.
Assistant Professor Schafer.
Visiting Lecturer Miller.

AGRICULTURAL EDUCATION

121s. Introduction to the Teaching of Agriculture (3) II. Cline, Schafer

Observation and participation in the activities of a teacher of agriculture under the direction of a supervising teacher for a period of four weeks. Readings, conferences, and written reports. Prerequisite, Ed. 109. (Hours to be arranged.)

191s. Teaching Agricultural Practices (2) I. G. Cline

The development of information, materials, and techniques for teaching farm and ranch practices. Organization of field classes, teaching kits, and special materials for selected units in the course guides for Arizona departments of vocational agriculture. Prerequisite, 189. Fee, $2.50. (June 9 to June 25.) 9:20-11:20.

213s. Equipment and Facilities for Teaching Vocational Agriculture. (2) I. Schafer

Problems in planning new buildings and remodeling departments. Sources and specifications of equipment including shop tools, field, and power machinery. Procedures and standards for arranging and maintaining facilities and supplies in efficient working order. Prerequisite, 189. Fee, $2.00. (June 25 to July 12. Hours to be arranged.)

*Unless otherwise specified, all classes meet for 1 clock hour daily from Monday to Friday, inclusive.

The Arabic numerals in parentheses indicate the number of units of credit.

The Roman numerals indicate the term in which the course is offered. The letter "G," in courses numbered below 200, indicates that graduate credit is permissible. Where prerequisites are given in terms of numbered courses, equivalents of these courses are acceptable.

The University reserves the right to withdraw any course for which there is an insufficient registration.

217bs. Advanced Procedures in Teaching Farm Mechanics. (2) I. Schafer, Miller

Teaching efficient use of farm machinery with practice in operation, maintenance, and repair, including tractor ignition and fuel systems. Organizing teaching units and using student manuals. Prerequisites, 195, Agricultural Engineering 1 and 101. Fee, $4. (June 9 to June 25. Hours to be arranged.)

225s. Conducting Student Organizations. (2) I. Cline

Organizing and directing group educational activities for students of vocational agriculture with special reference to programs for Future Farmer Chapters and the responsibilities of advisers. Prerequisite, 189. (June 25 to July 12. Two hours daily to be arranged.)

HOME ECONOMICS EDUCATION

202s. Creative Procedures in Teaching Home Economics. (2) I. Jones

Planning new and evaluating existing procedures and learning experiences to be used in teaching the areas of Home Economics that constitute a complete program. Special emphasis will be placed on developing procedures for specific purposes. Prerequisite, Education 139h. 8:10-9:10.

206s. Techniques for Evaluating Teaching and Learning in Home Economics. (2) I. Jones

A study of ways of measuring the effectiveness of teaching and learning. Various forms of objective tests will be prepared as class problems and devices for measuring other kinds of growth will be studied. Emphasis will be given to evaluating a complete program, including units of work and daily lessons. Prerequisite, Education 139h. 10:30-11:30.

ANTHROPOLOGY

Professors Haury (Head of the Department), Spicer.
Assistant Professors Danson, Kraus, Tanner.

1a-1b. Introduction to Anthropology. (3-3) I-II. Tanner-Kraus

A survey designed to give the student a general knowledge of the field of anthropology.
1a. A consideration of man as an organic being and a preview of archaeology in the Old and New World.
1b. Living groups, their distribution, arts, sociology, religion, and language. 1a is not prerequisite to 1b. 7:00-8:30.

120. Minority Peoples of the United States. (3) I. G. Spicer

History, present status, and problems of racial and cultural minorities in the United States; American Indian, Negro, Oriental, Spanish-American, and Jewish groups. Prerequisite, 1a-1b or Sociology 81. (Identical with Sociology 120.) 10:30-12:00.

134as-134bs. Indians of the Southwest (3-3) I-II. Tanner-Spicer

A consideration of the history, arts and crafts, economic and social institutions, religion, and mythology of the present-day Indians of the Southwest. This course may not be substituted for any required course in the major in Anthropology. Credit will not be allowed for both 134as-134bs and 130a-130b. Prerequisite, upper-division standing and consent of the instructor. 10:30-12:00.

174as-174bs. Comparative Social Systems. (3-3) I-II. G. Spicer

Social organization of representative primitive groups and non-urban contemporary peoples in the Orient, Latin America, and the United States. Comparative analysis of types of social structure. Prerequisite, six upper division units in anthropology, sociology, or other social science. 8:50-10:20.

180s. Field Course in Anthropology. (6) I-II. Haury, Danson

Open to undergraduates who have had introductory courses in anthropology. Enrollment limited. For detailed information write to Dr. Emil W. Haury, Department of Anthropology.

220s. Advanced Field Course in Anthropology. (6) I-II. Haury, Danson

Advanced problems in field techniques and interpretation. Students will be expected to undertake independent research. Open to students of graduate standing who have had 180s or an equivalent field course. Enrollment limited. For detailed information write to Dr. Emil W. Haury, Department of Anthropology.

ART

Associate Professor Scott.
Assistant Professors Quinn, Voris.
Instructor Souden.

3a-3b. Art Fundamentals. (2-2) I-II. Quinn-Souden

Elements of design and pictorial composition; theory and application in problems introducing the use of various mediums and techniques. Laboratory fee, $1 each term.
1st Term: 8:10-11:10.
2nd Term: 7:00-10:00.

7a-7b. History and Appreciation of Art. (2-2) I-II. Quinn-Voris

World art from prehistoric times to the present; intellectual bases for aesthetic evaluation of art expression.
1st Term: 7:00-8:00.
2nd Term: 10:30-11:30.

55a-55b. Painting I. (2-2) I-II. Scott-Voris

Elementary course in pictorial organization and in methods and techniques of oil painting. Fee, $1 each term. 7:00-10:00.

110a. History of Modern Art. (2) I. Scott

Analytical study of the modern schools of art in Europe and America. 8:10-9:10.

155a-155b. Painting II (2-2) I-II. G.

Study of materials and composition in relation to the modern painter's problems. Exploration and specialization in water color, gouache, tempera, casein, encaustic, mixed techniques, and mural painting. Prerequisite, 6a-6b. Fee, $3 each term. 7:00-10:00.

165a,b,c,d. Commercial Design. (2) II. G. Voris

Advanced study of design as related to commerical usage; practical approach to lettering, layout, the psychology of visual design, and the methods of graphic reproduction. Prerequisite, 60a-60b. Fee, $1 each term. 7:00-10:00.

199. Special Problems. (1 to 4) I, II. Staff

(Hours to be arranged)

300. Research. (1 to 4) I, II. Staff

(Hours to be arranged)

Lecture and Recital Critique. (1 or 2) I. G. Snyder, Staff

(See Music 104)

Fine Arts Summer Session for High-School Students.

(See page 21 of this Announcement.)

BOTANY

Instructors Hoshaw, Tepfer.

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1. General Botany. (4) II. Hoshaw
The elements of botany, with emphasis upon the structure, function, and development of the plant. Fee, $4. 8:10-9:10. (Lab. 9:20-12:20.)

2. Survey of the Plant Kingdom. (4) I. Tepfer
A study of plant groups with emphasis upon life history and relationships. Botany 2 is a beginning course and may be taken before Botany 1. Fee, $4. 8:10-9:10. (Lab. 9:20-12:20.)

BUSINESS ADMINISTRATION

Professors Howard (Head of the Department), Herrick, Wood.
Associate Professors Hudson, Strickler.
Assistant Professors Bogart, Nettleton.
Lecturer Parnell.
Instructors Culbertson, Myers, Wilson.

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6. Introduction to Business. (3) II. Wilson
A survey of the fundamental characteristics, functions, and problems of modern business. Not open to those with credit in 171a-171b. 8:50-10:20.

11. Economic Geography. (3) I. Herrick
Geographic fundamentals; distribution and use of the world's raw materials; the relationship between changes in world geography and current economic problems. Fee, $1. 8:50-10:20.

12s. Survey of Geography. (2) I. Herrick
Stressing maps, latitude and longitude, time, weather, climate, physical and political geography of the various continents with emphasis on current political problems. Credit not allowed for both 11 and 12s. 7:00-8:00.

31a-31b. Principles of Accounting. (4-4) I-II. Nettleton-Myers
A beginning course in basic principles of accounting, including sole proprietorships, partnerships and corporations at retail, wholesale, and manufacturing levels. Fee, 50 cents each term. 7:00-8:30. (Lab. 1:30-4:30 M.W.F.)

32. Accounting for Engineers. (3) I. Bogart
Background and mechanisms of accounting; emphasis on industrial and cost accounting. For engineering students only, except by special permission of instructor. 10:30-12:00.

120a-120b. Business Law. (3-3) I-II. G. Culbertson-Parnell
120a: Introduction to sources of commercial law, with emphasis on contracts, property rights, and remedies.
120b: Negotiable instruments, credit instruments, and sales; law of the business unit, agency, partnership, and corporation. Prerequisites, 31b, Economics 1b or 2b. Not open to students who have completed 6 or more units of law. 7:00-8:30.

131a-131b. Intermediate Accounting. (3-3) I-II. Howard-Bogart
Fundamental processes of accounting; form and content of balance sheets and income statements; valuation theory and practices; problems of accounting for liabilities, capital stock, surplus, and reserves of corporate enterprises; income determination, special problems of consignments, installment sales, and insurance; analysis and interpretation of financial statements. Prerequisite, 31b. 10:30-12:00.

141. Business Finance. (3) II. G. Strickler
Financial problems involved in the organization and conduct of a business. Prerequisites, 31b, Economics 1b or 2b. 8:50-10:20.

155. Statistical Methods in Business. (4) II. G. Hudson
A nonmathematical approach to methods of statistical synthesis and analysis; interpretation of results secured by use of such methods. Prerequisites, Mathematics 69a, 20, or 22. 8:50-10:20. (Lab. 1:40-4:30 M.W.F.)

161. Marketing Principles and Problems. (3) I. G. Wood
Functions, organizations, and methods involved in the marketing process; solution of marketing problems of various types of business concerns. Prerequisites, 31b, Economics 1b or 2b. 8:50-10:20.

164s. Retail Advertising and Sales Promotion. (2) I. G. Wood
Organization and operation of the advertising and sales promotion work in retail stores. A study of media used by retailers. Research as a basis for determining what and how much to promote. Prerequisite, Economics 1b or 2b. 11:40-12:40.

173s. Real Estate. (2) II. G. Strickler
Title and transfer of title; determination of value; problems of appraisal, liens, taxation, and zoning of real estate. Prerequisite, Economics 1b or 2b. 11:40-12:40.

CHEMISTRY

Professors Anderson (Head of the Department), Rhodes, Roberts, Sands.
Assistant Professor Seeley.
Instructor Taylor.

1a-1b. Introductory General Chemistry.
(4-4) I-II. Roberts-Rhodes
Principles of chemistry; properties of elements and compounds. For students without credit in high-school chemistry. Fee, $7 each term; deposit, $2.50. 7:00-8:30. (Lab. 9:20-12:20 M.W.F.)

2a-2b. General Chemistry. (4-4) I-II. Seeley-Taylor
Principles of chemistry; properties of elements and compounds. For students with 1 unit of high-school chemistry. Fee, $7 each term; deposit, $2.50. 7:00-8:30. (Lab. 9:20-12:20 M.W.F.)

140a-140b. General Organic Chemistry.
(4-4) I-II. Anderson-Sands
General principles of organic chemistry, accompanied by laboratory preparation of organic compounds. Prerequisite, 1b, 2b, or 5. Fee, $7 each term; deposit, $2.50. 10:30-12:00. (Lab. 1:40-4:30 M.W.F.)

CIVIL ENGINEERING

Professor Hall.
Instructor Shell.

112a. Analytical Mechanics—Statics. (3) I. Shell
The fundamental principles of statics, including a discussion of forces, moments, equilibrium and moments of inertia of areas. Graphical solutions of force systems are included. Prerequisites, Mathematics 81, 95a, and Physics 2a or 10a. 7:00-8:30 M.-F.; 7:00-8:00 S.

114R. Mechanics of Materials (3) I. Hall
Analysis and computation of stresses and strains in bodies subjected to tension, compression, and shear; equation of the elastic curve; deflections in beams, column formulas and design. Prerequisites, 112a, Physics 10a, Mathematics 95b. 7:00-8:30 M.-F.; 7:00-8:00 S.

CLASSICS

Professor Percy (Head of the Department).

128a. Greek Tragedy. (2) I. G. Percy
Introductory course: the rapid reading in English of several representative plays. Prerequisite, Introduction to Humanities. 10:30-11:30.

DRAMATIC ARTS

Associate Professor Marroney (Head of the Department).

135a-135b. Problems of Dramatic Arts in the Schools. (2-2) I-II. G. Marroney

Problems of the elementary and high-school teachers in planning and producing dramatic programs, assemblies and holiday events for special occasions. Prerequisite, senior or graduate standing with 12 units of education, including 129 or 139; or senior or graduate standing in the Department of Dramatic Arts. 8:10-9:10.

140a-140b. History of the Modern Theater. (2-2) I-II. G. Marroney

Study of modern trends in drama through class analyses and reports on leading modern dramatists, from Ibsen to the present day. Prerequisite, 40a-40b. 9:20-10:20.

Lecture and Recital Critique. (1 or 2) I. G. Snyder, Staff

(See Music 104s.)

Fine Arts Summer Session for High-School Students.

(See page 21 of this Announcement.)

ECONOMICS

Professor Gray (Head of the Department).
Visiting Professor Schmidt.
Associate Professor Hudson.
Instructors Boland, Linger.

1a-1b. Introduction to Economics. (3-3) I-II. Boland-Linger

1a: Methods of logical economic analysis and the derivation of fundamental economic principles. 1b: The application of methods of reasoning and principles to the actual problems of economic life. 8:50-10:20.

105. Labor Problems and Trade Unionism. (3) I. G. Gray

The labor movement; problems and risks of wage-earners in modern economic society; structural and functional types of unions; union policies and practices; unions and the law. Prerequisites, 1b or 2b, and junior standing. 8:50-10:20.

109s. Role and Techniques of Agrarian Movements in the United States. (2) II. G. Schmidt

Agrarian problems and modern industrialism; American Farm Bureau Federation, National Farmers' Union, National Grange; Government and agricultural policy; federal and state agencies for the promotion of a sound agriculture; some significant trends in agrarian economy; democracy in agricultural policy. 7:00-8:00.

148. Money and Banking. (3) II. G. Linger

A comparison of various standards of value; the nature of money and credit; the essential functions of commercial banks and the Federal Reserve System; foreign exchange and the Monetary Fund; the International Bank. Prerequisites, 1b or 2b and junior standing. 10:30-12:00.

191. Advanced Economic Theory. (3) I. G. Boland

Survey of economic theory with special emphasis on value and distribution. Required of all graduating seniors in Economics and Business Administration. Prerequisites, 1b or 2b, and senior standing. 10:30-12:00.

192. Economic Investigation. (2) I, II. G. Gray-Hudson

Methods of locating, classifying, and evaluating data, and writing a report on the findings. Prerequisites, 1b or 2b, and senior standing. 11:40-12:40.

EDUCATION

Professors Kelley, Larson.
Visiting Professors Bursch, McKown, Sterling, Strickland.
Associate Professor Lynn.
Assistant Professors Burress, Crowell, Danielson, Hughes, Kraus, Merritt, Nelson, Ruff.
Visiting Lecturers Case, Ganoung, Newton.
Instructors Foster, Toland.

101s. The Teaching of Children's Literature (2) I. G. Burress

A study of methods and techniques available to the classroom teacher in the presentation of literature to children. Special attention will be given to problems of individual differences in ability and interests. 11:40-12:40.

103s. The Exceptional Child in the Regular Classroom. (2) I. G. Newton

The fundamentals of special education for the classroom teacher. How to discover the exceptional child. The causes, prevention, and treatment of physical and mental handicaps in children. Handling the mentally gifted children and those who are behavior problems. 7:00-8:00.

112s. History of Education in the United States. (2) I. G. Nelson

The development of our educational system from colonial foundations to the present. 10:30-11:30.

117s. Visual and Auditory Aids in Teaching. (2) I. G. McKown

Use and management of motion pictures, stereoscopes, slides, charts, radio programs, blackboard techniques; actual instruction in the use of equipment. Prerequisite, 151; recommended, 124a,b,c,d or 134. 7:00-8:00.

122s. Workshop in Language Arts.(4 or 6) I. G. Strickland, Sterling, Burress
(The Elementary Curriculum and Methods)

The role which spelling, handwriting, speaking, listening, and correct English usage play in the elementary school. Consideration of problems which teachers have in teaching language arts. Study of language characteristics of elementary-school children. Prerequisite, 151. This course meets the certification requirement in the elementary curriculum.
6 units: 8:10-11:30.
4 units: 8:10-10:20.

124as. The Teaching of Reading. (2) I. G. Burress
(The Elementary Curriculum and Methods)

Basic course for those preparing to teach in the elementary school. Functions, curriculum, methods of teaching, and plans for organizing elementary-school reading. Education 151 or the equivalent must precede or accompany this course. This course meets the certification requirement in the elementary curriculum. 8:10-9:10.

124cs. The Teaching of Arithmetic (2) II. G. Burress
(The Elementary Curriculum and Methods)

Basic course for those preparing to teach in the elementary school. Functions, curriculum, methods of teaching, and plans for organizing elementary-school arithmetic. Education 151 or the equivalent must precede or accompany this course. This course meets the certification requirement in the elementary curriculum. 7:00-8:00.

124ds. The Teaching of Social Studies and Science. (2) II. G. Burress
(The Elementary Curriculum and Methods)

Basic course for those preparing to teach in the elementary school. Functions, curriculum, methods of teaching, and plans for organizing elementary-school social studies and science. Education 151 or the equivalent must precede or accompany this course. This course meets the certification requirement in the elementary curriculum. 9:20-10:20.

131s. The High School as an Institution. (2) I. G. Crowell

Historical development of the high school; aims, functions, and outcomes; the curriculum; relation to other divisions of the school system. Prerequisite, 3 units in education. 8:10-9:10.

134s. General High-School Methods. (2) II. G. Crowell

Teaching techniques based on principles of educational psychology. Prerequisites, 131 or concurrent registration therein and 151. 7:00-8:00.

140s. Principles and Techniques of Guidance. (2) I. G. Danielson

Introductory course for those who expect to specialize in student guidance or for the teacher to whom some functions of guidance are assigned. Prerequisites, 131, Psychology 1a. 9:20-10:20.

141s. Counseling Techniques. (2) II. G. Danielson

The functions and techniques of educational and vocational counseling. Prerequisite, 140. 9:20-10:20.

142. Occupational Information. (2) I. G. Danielson

Occupational information and its interpretation and use for purposes of counseling. Prerequisite, 141 or concurrent registration therein. 8:10-9:10.

143s. Testing Instruments for School Counselors. (2) II. G. Danielson

Study, analysis and evaluation of standardized tests used in counseling; quantitative aspects of the guidance program; use of results of specific tests. Prerequisite, 157; recommended, Psychology 150. Fee, $2. 7:00-8:00.

151s. Educational Psychology. (2) I. Nelson

The study of the learning process with attention given to motivation, guidance, and control of children of school age. Prerequisite, Psychology 1a. 9:20-10:20.

154. Statistical Methods in Education. (4) II. G. Merritt

Elementary methods of dealing quantitatively with school data and data resulting from experimental investigations. Required of all graduate majors in education. Prerequisite for undergraduates, 9 units in education or psychology. 9:20-11:20.

155s. Problems in the Teaching of the Mentally Retarded. (2) I. G. Ganoung

Problems created by the limitations and potentialities of the mentally retarded and the development of a curriculum to meet their specific needs will be discussed and demonstrated. Methods and techniques of determining subject matter for the mentally handicapped will be explored. Designed to train teachers and prospective teachers of mentally retarded children. 7:00-8:00.

157s. Educational Tests and Measurements. (2) I, II. G. Merritt-Kelley

The principles underlying the making and using of informal objective examinations; practice in making and scoring such examinations; surveys of standard tests in the respective fields. Prerequisite, 151. Fee, $1. 1st Term: 11:40-12:40. 2nd Term: 8:10-9:10.

159s. Physical Growth and Development of the Child. (3) II. G. Kraus

The nature of growth; the genetic and physiological bases of growth; the measurement of physical growth; the assessment of progress in physical growth; skeletal and dental growth; the relation between physical growth and the behavior in the child. 8:50-10:20.

184s. Speech Correction for Classroom Teachers. (2) I. G. Lynn

A survey of the common disorders of speech in order that teachers and parents may recognize those which can be handled in the school and home, and those that need to be referred to experts. 10:30-11:30.

190s. Safety Education. (2) I. Case

Designed for elementary- and high-school teachers and school administrators. It will include a study and discussion of means to prevent accidents and to promote safety in the home, on the farm, and on the highway. Laboratory work involving instruction in safe driving will be offered. 7:00-8:00.

192s. Conservation Workshop. (4) II. G. Nelson, Staff

The Conservation Workshop is designed to help teachers, supervisors, and administrators gain an understanding and appreciation of Arizona's natural resources, and the necessity of their conservation to meet social and economic needs. 8:10-10:10. (Lab. to be arranged.)

194s. Principles and Problems of Business Education. (2) I. G. Toland

A study of past, current and probable future business education practices and problems. 8:10-9:10.

210s. Philosophy of Education. (2) II. Larson

A critical study of the data which recent scientific research has furnished with reference to the nature of the learning process; determination of the leading objectives in teaching. Open to seniors and graduates. Prerequisite for seniors, 6 units in education. 8:10-9:10.

214. Arizona State School System and School Law. (2) II. Larson

The principles and problems of public education in Arizona. The code relating to schools and a comparison of this code with other state codes and ideal codes. Open to seniors. Prerequisite for seniors, 6 units in education. 7:00-8:00.

221s. Remedial Techniques in Teaching. (2) I. Hughes

Designed to aid teachers in recognizing learning difficulties and discovering their causes; ways and means for correcting different types of difficulty at all grade levels. Demonstrations where possible. Open to seniors. Prerequisites, senior or graduate standing and one or more courses in elementary-school methods and curriculum. Fee, $1. 8:10-9:10.

222s. Reading Clinic: Remedial Techniques. (3) I, II. Ganoung-Hughes

Practical experience in dealing with problems in remedial reading; laboratory experience in diagnostic reading tests; clinical practice and remedial reading techniques applicable to individual or group needs; actual practice in remedial work. Education 221 is recommended as a prerequisite or to be taken concurrently. 9:20-11:20.

227. Elementary-School Administration and Supervision. (2) II. Hughes

The administrative and supervisory problems of the principal of an elementary school or of a small school system. Special emphasis will be placed on teacher participation in planning and administering the educational program. 11:40-12:40.

228s. Observation and Study of Exceptional Children. (3) I. Newton

A course designed for the study of exceptional children through observation and practice in a workshop with children. The classroom teacher will work with specific problems with exceptional children that occur in the regular classroom. Specific techniques and methods of working with children with speech and hearing disorders will be studied by and demonstrated for classroom teachers. Education 103s must precede or accompany this course. 9:20-11:20. (Lab. to be arranged.)

233s. Extra-Classroom Activities. (2) I. McKown

The purposes of extra-classroom activities. The technique of administration of various extracurricular activities. Open to seniors. Prerequisites for seniors, 131 and 134 or equivalents. 9:20-10:20.

236s. High-School Administration and Supervision. (2) II. Crowell

The problems of organization, administration, and supervision of the modern high school. For seniors and graduates. Prerequisite, 131. 9:20-10:20.

238s. The Curriculum. (2) I. Crowell

The curriculum and its relationships; basic theories and techniques of curriculum construction discussed, evaluated, and applied to both the elementary and the secondary levels. Prerequisite, one or more courses in elementary or secondary school methods and curriculum. 11:40-12:40.

271. School Finance. (2) I. Bursch

Sources and distribution of school funds; accounting and reports. Open to seniors. Prerequisite for seniors, 6 units in education. 7:00-8:00.

273s. Planning and Maintenance of School Buildings. (2) I. Bursch

A comprehensive treatment of the problems involved in the planning, construction, and maintenance of school buildings. An opportunity will be afforded to visit and evaluate some of the newer and more adequate school buildings. Prerequisite, 12 units in education. 10:30-11:30.

276s. Supervision: Its Organization and Administration. (2) I. Hughes

Qualifications and preparation of supervisors; essential activities in supervision; organization and administration. Open to seniors. Prerequisite for seniors, 6 units in education. 11:40-12.40.

290. Techniques in Educational Research. (2) I. Merritt

For advanced students majoring in education. Various methods of research; representative studies of each type. Open to seniors and graduates. Prerequisite for seniors, 6 units in education. Required of all graduate students with education as a major. 8:10-9:10.

299s. Seminar. (2) II. Nelson

Studies in current educational literature. Open to seniors and graduates. Prerequisite for seniors, 6 units in education. Required of all graduate students in education. 7:00-8:00.

Individual Studies. I, II. Staff
(Hours and credit to be arranged.)

Literature for Children. (2) I. G. Foster
(See Library Science 101b.)

Organization of Library Materials. (2) I. G. Foster
(See Library Science 182s).

Library Services and Special Problems. (2) I. G. Foster
(See Library Science 183.)

ELECTRICAL ENGINEERING

Instructor Hochdorf.

126aR-126bR. Elements of Electrical Engineering. (2-2) I-II. Hochdorf

Direct and alternating current circuits and machinery. For students in nonelectrical branches of engineering. Prerequisites, Physics 10b, Mathematics 95b.
1st Term: 9:20-10:20.
2nd Term. 7:00-8:00.

126aL-126bL. Electrical Laboratory. (1-1) I-II. Hochdorf
Illustrating 126aR-126bR. Prerequisites, Physics 10b, Mathematics 95b. Fee, $3 each term.
1st Term: Section A, 10:30-12:30 M.W.F.
Section B, 10:30-12:30 T.Th.S.
2nd Term: Section A, 8:10-10:10 M.W.F.
Section B, 10:30-12:30 M.W.F.

ENGLISH

Professors Hamilton, Muir, Tucker.
Associate Professor Gegenheimer.
Assistant Professor Huggins.
Instructors Beebe, Fleming, Garritson, Hoskins, Irmscher, Ketcham, Kiefer, McNiece.

1a-1b. Freshman Composition. (3-3) I-II. Staff
The study and practice of good writing, with emphasis on exposition; short and long themes, collateral reading, conferences. Required of all freshmen. 1b will be given both terms.
1st Term: 1a. Section A, 7:00- 8.30.
Section B, 10:30-12:00.
1b. Section A, 7:00-8:30.
Section B, 10:30-12:00.
2nd Term: 1b. Section A, 7:00- 8:30.
Section B, 10:30-12:00.

124s. Literature of the Southwest. (2) I. G. Huggins
The last frontier in fact and fiction; the accounts of early travelers, the stock western, the true regional novel, poetry. Useful bibliography. 10:30-11:30.

125s. The Novel in America. (2) II. G. Gegenheimer
A study of the American novel from the Colonial period to the twentieth century. Reading of representative novels from the different periods. 10:30-11:30.

126a-126b. Survey of English Literature. (3-3) I-II. G. Muir-Tucker
Required of majors and teaching minors. 126a is not prerequisite to 126b.
1st Term. 10:30-12:00
2nd Term: 8:50-10:20.

131a. Shakespeare. (3) I. G. Hamilton
Introductory course. The life and times of Shakespeare; rapid reading of several representative plays. 8:50-10:20.

134s. Modern Drama. (2) I. G. Irmscher
The chief dramatic writers of the last half century. 9:20-10:20.

148s. John Donne and His Circle. (2) I. G. Irmscher
A study of the poetic tradition of the seventeenth century, exclusive of Milton, with emphasis upon Donne and those poets who have particularly influenced contemporary writers. 11:40-12:40.

160. History of the English Language. (3) II. G. Gegenheimer
Required of all graduate English majors. 8:50-10:20.

185. Types of Folklore. (3) I. G. Ketcham
A study of types, including tales, legends, riddles, proverbs, folk songs, children's games and rhymes. Training in methods of collection and analysis. Prerequisite, 6 units of literature and 6 units of related social science. 7:00-8:30.

215as. Literary Criticism. (2) I. Muir
The theory of criticism; important critical documents; preparation of papers applying the principles of criticism. 8:10-9:10.

FRENCH

Professor Tremblay.
Instructor Gryting.

3a-3b. Intermediate French. (4-4) I-II. Tremblay-Gryting
Review grammar, composition, conversation, reading. Prerequisite, 1b or 2 years of high-school French. The class meets twice daily. 7:00-8:00 and 9:20-10:20.

GEOLOGY

Assistant Professors Anthony, Lance.

1a. Elementary Geology. (4) I. Anthony
Fundamentals of physical and historical geology. Fee, $4. 8:50-10:20. (Lab. 1:40-4:30 M.T.Th.)

112s. Field Geology: Summer Camp. (3) II. G. Lance
Field methods of geologic mapping and the preparation of geologic reports. Laboratory comprises daily field work. Required of mining engineers, geologic engineers, and geology majors, but 105 may be substituted. 45 L, three briefing sessions. Prerequisites, 51 or 1a, 102 or 1b, 21R, 111, Mineralogy 114, Civil Engineering 51. Graduate credit permitted if student has completed 6 units of Field Geology. (July 16 to August 6.) For further information write to Professor E. D. McKee, Department of Geology and Mineralogy.

113s. Geologic Mapping: Summer Camp. (3) II. G. Lance
Field methods of geologic mapping and the preparation of geologic reports. Laboratory comprises daily field work. Required of geologic engineers and geology majors, but 106 may be substituted. 45 L, three briefing sessions. Prerequisites, 51 or 1a, 102 or 1b, 21R, 111, Mineralogy 114, and Civil Engineering 51. Graduate credit permitted if student has completed 6 units of Field Geology. (August 7 to August 28.) For further information write to Professor E. D. McKee, Department of Geology and Mineralogy.

GERMAN

Professor Schmitz (Head of the Department).
Assistant Professor Mundinger.
Instructors Matson, Milthaler.

1as-1bs. Elementary German. (4-4) I-II. Mundinger-Schmitz
Grammar, pronunciation, class, and collateral reading. The class meets twice daily. 8:10-9:10 and 10:30-11:30.

2a-2b. Elementary German Conversation. (2-2) I-II. Milthaler-Matson
Designed to be taken concurrently with 1a-1b. 9:20-10:20.

108a, 108b. Individual Readings in Science. (2) I, II. Milthaler-Matson
Individual reading programs in the student's field of specialization. Open to majors in German only upon consent of the head of the department. Prerequisite, 12 units in German. 108a is not prerequisite to 108b. (Conference hours to be arranged.)

HEALTH EDUCATION

School and Community Health. (2) I, II. Ruff
(See Physical Education for Men 71s.)

HISTORY AND POLITICAL SCIENCE

Professors Wedel (Head of the Department), Ewing, Hubbard.
Associate Professor Kelso.
Assistant Professor Gomez.

1a. History of the United States. (3) II. Ewing
A broad survey from the period of discovery and settlement through the Civil War. 8:50-10:20.

110s. Roman History. (2) II. G. Hubbard
The organization of the Republic and the Empire; the social and economic development of the people; the relation of Rome to the Mediterranean world; the fall of the Empire. 7:00-8:00.

115b. The Twentieth Century. (2) I. G. Wedel
International relations since 1914; the causes and results of the wars of the century; the Russian Revolution; the new Europe. 10:30-11:30.

122. The Latin-American Republics. (2) I. G. Ewing
Progress toward stability, prosperity, and international recognition; geography and resources; social, political, and financial situation. 9:20-10:20.

128s. The Southwest under Spain and Mexico. (2) I. G. Ewing
Spanish exploration and colonization; international rivalry; cultural, political, and economic institutions. 7:00-8:00.

137b. Studies in the Far East. (2) II. G. Hubbard
The entrance of the European powers and the United States in the Far East; the rivalry, diplomatic relations, and the resulting wars incident to the western occupation of the Orient. 10:30-11:30.

141s. Soviet Russia since 1917. (2) I. G. Wedel
Rapid survey of the Revolution; retrenchment under the New Economic Policy; struggle for leadership between Stalin and Trotsky; organization of the Soviet system; constitution of 1936. 8:10-9:10.

100s. National and State Constitutions. (2) I, II. Gomez-Kelso
Meets the state requirement for the teacher's certificate. Not open to students with credit in 51a or 51b. 11:40-12:40.

131as. English and European Governments. (2) I. G. Gomez
Governments of England, France, and Scandinavia in present critical setting with some emphasis upon ideological patterns. 9:20-10:20.

154s. American Parties and Party Methods. (2) II. G. Kelso
Origin, development, and functioning of our political parties. 9:20-10:20.

HOME ECONOMICS

Professor Thompson.

112s. Nutrition Work with Children. (2) I. G. Thompson
Nutritional requirements during growth; standards for judging and methods of improving nutritional status. Planning adequate dietaries and teaching aids for children. Admission by consent of instructor. 9:20-10:20.

132s. Diet Therapy. (2) I. G. Thompson
Dietary problems in disease. A study of clinical deficiency symptoms and diseases which are prevented or treated mainly by diet. Film strips and slides. Admission by consent of instructor. 11:40-12:40.

HOME ECONOMICS EDUCATION

(See Agricultural and Home Economics Education.)

HUMANITIES

Professors Percy (Head of the Department), Powell, Schmitz.
Assistant Professor Huggins.
Instructor Aubrey.

Introduction to Humanities. (4-4) I-II. Staff
The cultural life of the Western World as it developed in literature, art, and philosophy from the Greeks to the present. Lectures and discussion. Required of sophomores in Business Administration and Liberal Arts. Fee, $1 first term.
1st Term. Sections A and B, 7:00-8:00 and 9:20-10:20.
Section C, 8:10-9:10 and 10:30-11:30.
2nd Term: Section A, 7:00-8:00 and 9:20-10:20.
Section C, 8:10-9:10 and 10:30-11:30.
Each section meets twice daily.

JOURNALISM

Professor Martin (Head of the Department).

5a. News Writing. (3) I. Martin
Principles and practice of evaluating, gathering, and writing news. Prerequisites, English 1b and Secretarial Studies 6 or 7 or equivalent. Fee, $1. 7:00-8:30.

105s. Journalism for High-School Supervisors. (3) I. G. Martin
Theory and practice of news gathering and writing, editing and make-up, the use of pictures, staff organization; presented so as to be serviceable to teachers who supervise student publications. 10:30-12:00.

LIBRARY SCIENCE

Instructor Foster.

101b. Literature for Children. (2) I. G. Foster
An evaluation of available books and materials in terms of the interests, abilities, and needs of the elementary and junior high school pupil. 8:10-9:10.

182s. Organization of Library Materials. (2) I. G. Foster
Purpose and principles of cataloguing and classification. The card catalogue, shelf list, filing, vertical files. Organization of materials for use, particularly in school libraries; weeding, maintenance, etc. 9:20-10:20.

183. Library Services and Special Problems. (2) I. G. Foster
Workshop centered on the use of the school library in the instructional program; individual guidance, readers' advisory service, and other special aspects of school and public library work. Discussion of problems encountered by working librarians. Previous library experience desirable. 10:30-11:30.

MATHEMATICS

Professor Graesser (Head of the Department).
Associate Professor Webb.
Assistant Professors Duncan, Fowler, Trifan.
Instructor Foster.

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20. College Algebra. (3) I. Fowler
Fundamental operations, logarithms, progressions, binomial theorem, simultaneous equations, theory of equations, approximation of irrational roots. Prerequisite, 1½ entrance units in algebra. Credit is allowed for only one of the following courses: 20, 22, 69a, 70. 10:30-12:10.

24. Plane Trigonometry. (2) I. Trifan
Trigonometric functions, trigonometric identities, solution of trigonometric equations, solutions of right and oblique triangles. Prerequisites, 1½ entrance units in algebra and 1 entrance unit in geometry. 7:00-8:00.

25. Analytic Geometry. (4) II. Foster
Cartesian and polar co-ordinates, lines and planes, conics, higher plane curves, quadric surfaces. Prerequisites, 20 or 22, 24. 7:00-8:00 and 10:30-11:30. The class meets twice daily.

69a-69b. Mathematics of Commerce (2-2) I-II. Trifan-Graesser
Elementary algebra and logarithms with applications to discount, simple and compound interest, annuities certain, and commercial problems. Prerequisite, 1 entrance unit in algebra. Credit is allowed for only one of the following courses: 20, 22, 69a, 70. 9:20-10:20.

81. Slide Rule. (1) II. Graesser
Theory and practice of the slide rule including the trigonometric scales and the log-log scales. Prerequisites, 20 or 22 or 69b, and concurrent registration in 24. 11:40-12:40 M.W.F.

95a-95b. Calculus. (4-4) I-II. Webb-Duncan
Methods of differentiation and integration with applications to geometry, physics, and mechanics; series. Prerequisite, 25. The class meets twice daily. 8:10-9:10 and 10:30-11:30.

MUSIC

Professors Crowder, Fain, Snyder.
Visiting Professors Bloom, Tipton.
Associate Professor Buchhauser.
Assistant Professor Kalis.
Instructor Gray.
Visiting Instructors Goodman, Shelley.

1a-1b. Music Appreciation. (2-2) I-II. Bloom-Buchhauser-Snyder
For students with no technical knowledge of music. Music of the various periods studied in relationship to other arts; development of the critical attitude through aural training. 1a is offered each term.
1st. Term: 1a, 9:20-10:20.
2nd Term: 1a, 9:20-10:20; 1b, 10:30-11:30.

7. Elementary Keyboard Harmony. (2) I. Gray
Practical application of harmony through the keyboard. Prerequisite, 2a or the equivalent. This course may be substituted for 2b. 8:10-9:10.

103. Contemporary Music. (2) I. G. Gray
A study of modern and new music with considerable time devoted to the contributions of contemporary American composers. Prerequisites, 1a-1b, 3a-3b. 10:30-11:30.

104s. Lecture and Recital Critique. (1 or 2) I. G. Snyder, Staff
Critical review of art, drama, and music through ten recitals. Background gained through appropriate reading and listening. Students registered for one credit will omit the Tuesday and Wednesday periods. Prerequisite for graduate credit, 12 units in music, art and/or drama. 2:30-3:30 M.T.W.; 7:30-8:30 p.m. M.Th.

108a-108b. Form and Analysis. (2-2) I-II. G. Buchhauser
A course in the technic of harmonic and contrapuntal analysis; a study of formal design and method of structural treatment in representative scores of the standard symphonic repertoire. Prerequisite, 4b.
1st Term: 7:00-8:00.
2nd Term: 8:10-9:10.

114a-114b. Orchestration I. (2-2) I-II. G. Buchhauser
Individual and combined possibilities of orchestral instruments; original work and transcriptions for various combinations. Prerequisite, 4b.
1st Term: 8:10-9:10.
2nd Term: 7:00-8:00.

161. Band Materials and Techniques. (2) I. G. Fain

Techniques and materials for the high-school band. Special attention given to techniques of drilling the marching band. Prerequisites, 160 and Education 197m. 11:40-12:40.

162s. Selection and Repair of Band and Orchestral Instruments. (1) I. Fain

Designed to give a practical knowledge of techniques in the selection, care and repair of band and orchestral instruments. 9:20-10:20.

176R. Fundamental Music Education. (2) I. G. Snyder

The singing, rhythmic, and listening activities of the music lesson; the philosophy and learning processes fundamental in the teaching of music. Prerequisite, 2a-2b. Not for credit toward the Master of Music degree. 8:10-9:10.

176L. Fundamental Music Education Demonstration. (1) I. G. Snyder

Demonstration of music lessons. Prerequisite, concurrent registration in 176R. Not for credit toward the Master of Music degree. 9:20-10:20.

179bs. Orchestral Materials and Techniques. (2) II. G. Kalis

Problems and materials relating to the organization and direction of the orchestra. 11:40-12:40.

181a. Music Materials for Elementary Grades. (2) II. G. Snyder

Vocal and instrumental materials for the elementary school. Special attention will be given to recordings which supplement the music program. Prerequisite, 176R. 8:10-9:10.

184s. Comparative Instruction and Materials for String Classes. (2) II. G. Kalis

An examination and evaluation of the currently available materials designed for teaching stringed instruments. 8:10-9:10.

198a-198b. Orchestration II. (2-2) I-II. G. Buchhauser

Application of orchestration in original work in the larger forms: overture, concerto, symphonic poem, chamber music, symphony, or vocal forms with orchestral accompaniment. Prerequisites, 111a-111b, 112a-112b, 114a-114b.
1st Term: 8:10-9:10.
2nd Term: 7:00-8:00.

199. Individual Studies in Theory. (1 or 2) I, II. Buchhauser

(Hours to be arranged.)

270s. General Music Education Workshop. (2 to 4) I. G. Tipton, Snyder, Shelley, Goodman

General Music Education Workshop for elementary teachers and special teachers of music. Two or more hours may be selected to meet credit requirements. (June 9 to June 28.)
General Individual Problems, 7:00-8:00.
Techniques of Playing Social Instruments, 1:30-2:30.
General Music Classroom Techniques, 2:30-3:30.
Fundamentals of Music Through the Piano, or Music Materials Research, 3:30-4:30.

275s. Advanced Problems in Conducting. (2) II. Bloom

Advanced problems in choral and instrumental conducting. 10:30-11:30.

276. Modern Tendencies in Music Education. (2) II. Snyder

The trend in objectives; criticism of current music education; curriculum analysis and evaluation. Prerequisite, 177 or the equivalent. 9:20-10:20.

278s. Music Education Demonstration. (2) I. Snyder
Section A: A demonstration of the elementary general music class will be observed and evaluated. 9:20-10:20.
Section B: A demonstration and evaluation of music classes in the secondary school. (Hours to be arranged.)

299s. Music Education Seminar. (2) II. Snyder
Special problems in music education for graduate students. 1:00-2:00.

Applied Music in Piano

25a-25b. Elementary Piano Class. (1) I-11. Buchhauser-Kalis
Beginning piano instruction. 25a may be substituted for 2a. Fee, $10.
1st Term: 10:30-11:30.
2nd Term: 7:00-8:00.

Piano. Individual Instruction. (1 or 2) I, II. Crowder
(Hours and credit to be arranged.)

Applied Music in Voice

56a-56b. Elementary Voice Class. (1-1) I-II. Bloom
Beginning voice instruction. Fee, $10 each term.
1st Term: 1:00-2:00.
2nd Term: 9:20-10:20.

Voice. Individual Instruction. (2) I, II.
(Hours to be arranged.)

157a,b. Advanced Voice Class. (2) I, II. G. Bloom
Problems related to advanced voice training. Fee, $10. each term.
1st Term: 10:30-11:30.
2nd Term: 7:00-8:00.

Applied Music in Wood-Wind and Brass and String Instruments

21. Elementary Wood-Wind Class Instruction. (1) I. Fain
Fee, $10. (Hours to be arranged.)

22. Elementary Brass Class Instruction. (1) I. Gray
Fee, $10. (Hours to be arranged.)

121s. Advanced Wood-Wind Class Instruction. (2) I. G. Fain
Fee, $10. (Hours to be arranged.)

122s. Advanced Brass Class Instruction. (2) I. G. Gray
Fee, $10. (Hours to be arranged.)

Band or Orchestral Instruments.
Individual Instruction. (1 or 2) I. Fain, Gray
(Hours and credit to be arranged.)

Cello. Individual Instruction. (1 or 2) II. Kalis
(Hours and credit to be arranged.)

Music Ensembles

11. Wood-Wind Ensemble. (1) I. Fain
(Hours to be arranged.)

12. Brass Ensemble. (1) I. Gray
(Hours to be arranged.)

63. A Capella Choir. (1) I, II. Bloom
1st Term: 3:00-4:00.
2nd Term: 11:40-12:40.

118. String Ensemble. (1) II. G. Kalis
(Hours to be arranged.)

Fine Arts Summer Session for High-School Students.
(See page 21 of this Announcement.)

PHILOSOPHY AND PSYCHOLOGY

Professor Simley.
Visiting Professor Kauffman.
Associate Professor Wallraff.
Assistant Professors Barnes, Marquart.

11a. Introduction to Philosophy. (3) I. Wallraff
Man's interpretation of the nature and meaning of reality, of conduct, and of his own thinking. 7:00-8:30.

134s. Social Philosophies. (2) I. G. Wallraff
Contemporary, social, and political movements in the light of human values involved. Prerequisites, 6 units in philosophy other than 12a-12b and 128, and 6 units in anthropology, economics, history, political science, or sociology. 10:30-11:30.

1a-1b. Elementary Psychology. (3-3) I-II. Kauffman-Simley
Fundamental principles of human behavior. Applications of principles are stressed. 8:50-10:20.

15. Social Psychology. (3) II. Barnes
Foundations of social behavior. Personality and its social basis. Crowds, suggestion, propaganda, motivation, competition, imitation, war. Prerequisite, 1a-1b. 7:00-8:30.

113s. Development of Human Behavior—Childhood. (2) I. G. Kauffman
The principal changes in human beings from birth to adolescence. Physical, mental, emotional, and social aspects of development will be studied. Prerequisite, 1a-1b. 10:30-11:30.

117s. Motivation. (2) I. G. Marquart
The functioning of native and acquired drives in behavior. Prerequisite, 1a-1b. 7:00-8:00.

118s. Abnormal Psychology. (3) II. G. Simley
Forms of mental deficiency and other deviations. Prerequisites, 1a-1b. Field trip fee, $3. 7:00-8:30.

119s. Introductory Clinical Psychology. (2) II. G. Barnes
An examination of the concepts, methods, and findings pertaining to clinical handling of psychological cases and problems. The relationship of such problems and methods to psychological theory and experimental methods. Prerequisite, 150 or 118 or concurrent registration in the latter. 9:20-10:20.

151s. Individual Differences. (2) I. G. Marquart
An analysis of the differences between individuals, between traits within an individual, and between groups of individuals. The nature of the differences, their measurement, and their implications. Prerequisite, one year of psychology. 9:20-10:20.

PHYSICAL EDUCATION FOR MEN

Associate Professors Cooper, Sancet.
Assistant Professors Ruff, Svob.

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26. Beginning Swimming. (1) II. Ruff
Students registered in this course must also be registered in some course other than swimming. Physician's certificate required. Open to men and women. Locker fee, $2; deposit, $1. 10:30-11:30 M.-Th.; 2:00-3:00 W.

62. Lifesaving. (1) I, II. Svob-Ruff
Practical application of lifesaving techniques and water safety precautions recommended by the American Red Cross. Qualified students are issued a Senior Lifesaving Certificate on completion of the course.

Students registered in this course must also be registered in some course other than swimming. Physician's certificate required. Open to men and women. Locker fee, $2; deposit, $1. 9:20-10:20 M.-Th.; 2:00-3:00 Th.

70. First Aid. (2) I. Cooper
Emergency treatment administered for excessive bleeding, fracture, burns, asphyxiation, poisoning, shock. Transportation of an injured person. The Red Cross First Aid Certificate is issued to qualified students who complete the course. Open to men and women. Fee, $2. 8:10-9:10.

71s. School and Community Health. (2) I, II. Ruff
Relationship of the teacher to health problems in the school and to community health agencies. Meets state school law certification requirements. Prerequisite, sophomore standing. Fee, $1.50. 7:00-8:00.

163s. Instructors' Training Course in First Aid and Water Safety. (2) II. Sancet
Emphasis placed upon methods and techniques of instruction. Completion of the course entitles the student to the Red Cross Instructor's Certificate. Prerequisite, the standard Red Cross Certificates in First Aid and Water Safety. Locker fee, $2.; deposit, $1. 8:10-9:10.

181s. Playgrounds and Recreation. (2) I. Ruff
A general review of the theories of play and recreation. An introduction to playground administration and operation. Introduction of fundamentals and teaching methods used in presenting social recreation activities such as American folk and social dancing, party games, and contests for use in the school, on the playground, in the home, and at the community recreation center. Open to both men and women. 11:40-12:40.

187s. Physical Education Programs in Secondary Schools. (2) I. Cooper
Purposes of physical education, testing and classification procedures; curriculum survey and construction; and the interrelationship of physical education to the intramural, health education, and sports programs. 10:30-11:30.

196s. Athletic Coaching—Baseball. (2) II. Sancet
Theory of coaching; strategy and tactics; batting, base running, offensive and defensive team play; rules and organized baseball. 7:00-8:00.

PHYSICAL EDUCATION FOR WOMEN

Associate Professor Pilgrim.
Assistant Professors Natonek, Stanley.

110sA. Elementary Swimming. (1) I. Pilgrim
Teaching beginners to swim. Students registered in this course must also be registered in some course other than swimming. Physician's certificate required. Open to men and women. Locker fee, $2; deposit, $1. 11:40-12:40 M.-Th.; 2:00-3:00 M.

110sBC. Intermediate and Advanced Swimming. (1) I. Pilgrim
Teaching swimming to others than beginners. Students registered in this course must also be registered in some course other than swimming. Physician's certificate required. Open to men and women. Locker fee, $2; deposit, $1. 10:30-11:30 M.-Th.; 2:00-3:00 T.

159. Modern Dance Direction. (2) II. Natonek
Methods of organizing and directing a modern dance program. History and principles of dance forms, basic rhythms and choreography. Open to men and women. Fee, $2; deposit, $1. 9:20-10:20.

160. Folk Dance Direction. (2) I. Stanley
Methods of teaching and directing folk, square and round dancing. Organization of clubs, classes and programs of such dance forms. Fee, $1. 8:10-9:10.

161s. Teaching Elementary School Rhythms. (2) II. Natonek
Teaching of basic exercises and fundamental rhythms; rhythmic interpretation and dramatization; creative rhythms, pantomimes and school recitals for elementary school children. Open to men and women. Fee, $2; deposit, $1. 8:10-9:10.

165s. Elementary School Physical Education. (2) I. Stanley
Games for the school playground, games of low organization, stunts, relays, and social games. Open to all women registered in the College of Education. 7:00-8:00.

168s. Camp Administration and Organization. (2) I. Pilgrim
Camp management and administration; program building and organization; leadership; health and guidance. An actual experience in camping is included. Open to men and women. Field trip fee, $5. 9:20-10:20.

PHYSICS

Professor Warner (Head of the Department).
Instructor Davis.

2a-2b. General Physics. (4-4) I-II. Warner, Davis
General physics for students in the Colleges of Liberal Arts and Education. Prerequisites, 1 advance unit each in algebra and geometry. Fee, $2 each term. 7:00-8:30. (Lab. 8:40-11:30 M.W.F.)

10a-10b. Engineering Physics. (5-5) I-II. Warner, Davis
Prerequisites for 10a: elementary physics, Mathematics 20, 24, and 95a. Prerequisites for 10b: 1a and Mathematics 95b. Fee, $4 each term. 7:00-8:30. (Recitation and Lab. 8:40-11:30.)

SECRETARIAL STUDIES

Instructors Toland, Wade.

7. Typewriting Review. (1) I. Wade
For those with some knowledge of touch typing, but with a speed of less than 15 words per minute. Not open to those with credit in 6, Fee, $3. 8:10-9:10.

77. Adding-Calculating Machines Techniques. (2) I. Wade
Theory and operation of common adding and calculating machines; actual solution of simple problems illustrating the theory of machine calculation; development of a reasonable degree of skill. Fee, $3.
Section A: 7:00-8:00.
Section B: 9:20-10:20.

170s. Gregg Shorthand Review. (2) I. Toland
A review of Gregg shorthand theory; dictation practice and transcription of business letters and other materials. Prerequisite, ability to take dictation at 50 words per minute and typewrite at 35 words per minute. A grade of 3 in this course fulfills the requirements for entrance into 174a. Fee, $5. 7:00-8:00.

Principles and Problems of Business Education. (2) I. G. Toland
(See Education 194s.)

SOCIOLOGY

Professor Conrad (Head of the Department).
Associate Professor Klaiss.
Instructor Hambenne.

81. Introduction to Sociology. (3) I. Hambenne
The basic concepts and principles of sociology; analysis of group behavior; social institutions, processes and change. Prerequisite, sophomore standing. 10:30-12:00.

84. Social Problems. (3) II. Klaiss
Contemporary social problems: crime, poverty, race, divorce, etc.; analysis of causes and methods of treatment. Prerequisite, sophomore standing. 8:50-10:20.

185s. Sociology of the Family. (2) II. G. Klaiss
Analysis of the modern family and its institutions in their social and historical setting. Prerequisites, 81, 84, and 6 additional units of sociology or psychology. 10:30-11:30.

192. Rural Sociology. (3) I. G. Conrad
Rural population, its distribution and characteristics; rural society—its institutions and organization; problems of adjustment to changing conditions. Prerequisites, 81, 84. 7:00-8:30.

SPANISH

Professor Brooks (Head of the Department).
Assistant Professor Rodriguez.
Instructors Aubrey, Reynolds, Wonder.

1a-1b. Elementary Spanish. (4-4) I-II. Wonder-Rodriguez
A beginning course that includes grammar essentials and translation; emphasizing especially accurate pronunciation and oral work. Credit toward graduation in 1a is allowed only after completion of 1b. The class meets twice daily. 7:00-8:00 and 9:20-10:20.

3a-3b. Intermediate Spanish. (4-4) I-II. Brooks-Reynolds
Introduction to systematic syntax accompanied by reading of modern books. Prerequisite, 1b or two years of high-school Spanish, or the equivalent. The class meets twice daily. 8:10-9:10 and 10:30-11:30.

13a-13b. Elementary Conversation. (2-2) I-II. Aubrey-Staff
Prerequisite, two years of college Spanish or its equivalent. 7:00-8:00.

14a-14b. Elementary Composition. (2-2) I-II. Aubrey-Staff
A course in current idiomatic Spanish designed to develop proficiency in the practical use of the language. Translation into Spanish, review of grammar and elements of commercial correspondence. Prerequisite, two years of high-school Spanish or the equivalent. 9:20-10:20.

Individual Studies. (1-4) I, II. Staff
For those desiring and qualifying for more advanced work. Hours and credit to be arranged.

SPEECH

Professor Cable (Head of the Department).
Associate Professor Lynn.

2as-2bs. Principles of Speech. (2-2) I-II. Cable-Lynn
An introduction to the field of speech. 2a:i designed to develop confidence, poise, and clarity in the use of body, voice, language, and thought through guided practice in speaking. 2b: designed to give the student experience in public speaking; emphasis upon organization of thinking. Required of majors in speech. Fee for 2a, $1.50.
1st Term: Section A, 8:10-9:10.
Section B, 9:20-10:20.
2nd Term: 7:00-8:00.

5. Voice and Diction. (2) I, II. Lynn
Special attention to the elimination of voice and language difficulties and the cultivation of effectiveness in these respects, including articulation and enunciation, vocabulary, pronunciation, and grammar. Fee, $1.50 (optional at the discretion of the instructor for those concurrently registering for 2as). 8:10-9:10.

182as, 182bs. Advanced Problems in Speech. (2) I, II. G. Staff
Techniques and methods of research in speech; library, laboratory, or independent research on an individual problem; critical evaluations. (Conference hours to be arranged.)

Speech Correction for Classroom Teachers. (2) I. G. Lynn
(See Education 184s.)

ZOOLOGY

Instructors Chiasson, Micklewright.

4a-4b. General Zoology. (4-4) I-II. Staff-Chiasson
An introductory course in the structure, physiology, development and behavior of animals treated from the biological viewpoint. 4a: emphasis on a representative vertebrate and the invertebrates. 4b: emphasis on zoological principles as illustrated by the phylum Chordata. Fee, $5 each term. 8:10-9:10. (Lab. 9:20-12:20).

57. Elementary Physiology. (4) I. Micklewright
Physiological processes of the human body. Primarily for students in physical education, prenursing students, and the general undergraduate. Prerequisite, 8 or 45. Fee, $5. 7:00-8:30. (Lab. 8:40-11:40 M.W.F.)

114. Human Genetics and Eugenics. (2) I. G. Staff
The principles of genetics as applied specifically to man, and the implications of the interaction of genetic and social factors in human affairs. Prerequisite, 8 units in biology, psychology, or sociology, and junior standing. 7:00-8:00.

115. Evolution. (2) II. G. Chiasson
History, theories, and mechanics of evolution. Prerequisite, 112 or 114, and junior standing in zoology, anthropology, botany, or geology. 7:00-8:00.

OTHER COURSES

With the approval of the head of the department concerned and of the Dean of the Summer Session, courses from the Biennial Catalogue but not listed in the Summer Session Announcement may be offered.

UNIVERSITY OF ARIZONA PUBLICATIONS

AGRICULTURAL EXPERIMENT STATION
- Annual Reports
- General Bulletins
- Technical Bulletins

AGRICULTURAL EXTENSION SERVICE
- Agricultural Extension Circulars
- Annual Reports

ARIZONA QUARTERLY
- Articles, fiction, poetry, book reviews ($2 per year)

BUREAU OF BUSINESS RESEARCH
- Arizona Business and Economic Review (Monthly)
- Special Studies

PROGRESSIVE AGRICULTURE IN ARIZONA
- Quarterly

UNIVERSITY OF ARIZONA BULLETIN
- Arizona Bureau of Mines
- Biological Science
- Fine Arts
- General
- Humanities
- Laboratory of Tree Ring Research
- Physical Science
- Social Science

UNIVERSITY OF ARIZONA RECORD
- Summer Session Announcement
- College of Law Biennial Announcement
- Correspondence Courses Biennial Announcement
- Biennial Catalogue
- Loan Play Library Biennial Announcement
- Moving Pictures Biennial Announcement
- Annual Report of the University of Arizona

Copies of the above publications may be obtained by request to the Director of the Mailing Bureau, University of Arizona, Tucson, Arizona. In some instances a nominal charge is made for University of Arizona Bulletins.

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- School of Home Economics

COLLEGE OF BUSINESS AND PUBLIC ADMINISTRATION

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- School of Music

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COLLEGE OF LIBERAL ARTS

COLLEGE OF MINES

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GENERAL DEPARTMENTS
- School of Military Science and Tactics
- Department of Physical Education for Men
- Department of Physical Education for Women

SUMMER SESSION

DEPARTMENTS OF RESEARCH AND EXTENSION
- Agricultural Experiment Station
- Agricultural Extension Service
- Arizona Bureau of Mines
- Arizona State Museum
- Bureau of Business Research
- Engineering Experiment Station
- Laboratory of Tree-Ring Research
- Steward Observatory
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- Arizona State Laboratory
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