Summer 1948

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SUMMER SCHOOL

ANNOUNCEMENT FOR 1948

June 7 — August 20

FIRST SESSION
June 7 — July 16

SECOND SESSION
July 19 — August 20

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CERTIFICATION OF TEACHERS—Professors McClellan, Registrar, Nielson.

CREDITS AND ADMISSIONS—Professors H. B. Peterson, Hayward, Boyle, Wilcox, Neuberger, Jones, Murray, Registrar.

HOUSING—Mr. Pocock; Dean of Women; Van Shaar.

REGISTRATION—Registrar, Academic Deans, Professors Hayward, Jeppsen, H. B. Hunsaker.

SUMMER SCHOOL ENTERTAINMENT—Professors Hunsaker, Robinson, Rice, Heaton, Dutton, Daniel.

TEACHER PLACEMENT—Professors Jacobsen, Humpherys, Carlisle, Cawley.
Summer quarters have achieved a significant place in American collegiate institutions, partly because they are organized to meet the needs of many different groups of people. There are always some students who carry on with their regular scholastic program, there are the elementary and secondary teachers meeting certification requirements or proceeding toward advanced degrees as they continue their regular teaching course, and finally there are many special groups who use a week or two weeks or longer for special work specifically adapted to their professions or avocations.

The Utah State Agricultural College Summer School is organized to meet these diverse needs. This year, 1948, there will be more regular students than ever before. Returning service men and women feel the necessity of speeding up their educational training because of the time they have spent in the service. The College program is designed to meet this need. There will be a full quarter of work for those who want it. During the period June 7 to August 20 students may earn as much credit as during any quarter of the year. Some classes will continue through the eleven weeks, others will carry through the first session only but they will be followed by courses which begin and continue through the second session.

Teachers will be returning in greater numbers this year. There is the pressure for degrees, stimulated by generally adopted salary schedules which give substantial monetary recognition to degrees. Others find it necessary to complete certification requirements.

SECOND SESSION

Regularly scheduled second session classes will begin Monday, July 19, and continue for five weeks, to August 20. The same rules as apply in the first session limit the amount of credit a student may take. Any regular college course which is not definitely scheduled for the second session in the catalog or the schedule bulletin will be given in that period if ten students petition the Summer Quarter Dean and join the class. Credit in the second session is computed on the basis of one hour of credit for 12 one-hour lecture periods of 12 three-hour laboratory periods. Registration forms will not be accepted after the close of any session period in which the classes are given.

Students who desire to register for credit in research problems or field studies must make the necessary arrangements with the Registrar's Office at the beginning of the second session period. Credits allowed and fees charged for this type of study will depend on the time spent and the work accomplished.

REGISTRATION

Registration for the Summer Quarter will take place Monday, June 7, in the Main Reading Room of the Library, beginning at 8 a.m. and continuing to 3 p.m. Students who fail to complete registration on Monday may do so any succeeding afternoon from 1 to 4 p.m. in the Summer School office (M126). The first step
in registration is to call at the Registrar's Office to obtain registration forms and instructions.

Seven and one-half credits per session are considered a normal load. The maximum load for which students may register in either the first or second session, without special action of the attendance and scholarship committee, is nine credits for the session, or five credits for three weeks, or three credits for two weeks. If excess credit is granted by the committee, a special fee of $2 per additional credit will be charged. A reduction of one and one-half credits per week will be made in the maximum credits allowed late registrants, as well as those students who register for less than the six weeks' period. Scheduled courses, whether regular or second session, may not be given if less than eight students register.

All graduate students must register with the Dean of the Graduate School, Dr. B. L. Richards. Dean Richards will be in the Main Reading room of the library on Monday, June 7; thereafter, at his office in the Plant Industry building.

**Summer School Fees for 1948**

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
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<tbody>
<tr>
<td>Registration for Summer Quarter</td>
<td>$15.00</td>
</tr>
<tr>
<td>Tuition for Summer Quarter</td>
<td>$20.00</td>
</tr>
<tr>
<td>Registration for either term</td>
<td>$10.00</td>
</tr>
<tr>
<td>Tuition for either term</td>
<td>$10.00</td>
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<tr>
<td>Materials and Laboratory Fee Summer Quarter</td>
<td>$3.00</td>
</tr>
<tr>
<td>Either Term</td>
<td>$1.50</td>
</tr>
<tr>
<td>Registration for three credits or less</td>
<td>$10.00</td>
</tr>
<tr>
<td>Registration for five credits or less</td>
<td>$15.00</td>
</tr>
<tr>
<td>Coaching School fee</td>
<td>$10.00</td>
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<tr>
<td>(Students who pay the regular $35 or $20 may attend the Coaching School without additional charge.)</td>
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<tr>
<td>Auditor's fee (per course)</td>
<td>$3.00</td>
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<tr>
<td>(Does not apply to regularly registered students who may secure visitor's permits from Registrar's Office.)</td>
<td></td>
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<tr>
<td>Excess Credit (for each credit)</td>
<td>$2.00</td>
</tr>
<tr>
<td>Camping Trip Packing and Equipment Rental</td>
<td>$16.00</td>
</tr>
<tr>
<td>Transportation</td>
<td>$7.00</td>
</tr>
<tr>
<td>Forestry Camp fees</td>
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<tr>
<td>Registration and Tuition</td>
<td>$35.00</td>
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<tr>
<td>Laboratory fee</td>
<td>$25.00</td>
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<tr>
<td>(Board provided on cost basis)</td>
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<tr>
<td>Library fee for Children's Literature</td>
<td>$1.50</td>
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<tr>
<td>Writers' Conference fee</td>
<td>$10.00</td>
</tr>
<tr>
<td>Music Clinic (non-credit)</td>
<td>$5.00</td>
</tr>
</tbody>
</table>

The special fee for P. E. 73 (golf) is $3.00. Students who pay regular fees will be admitted without additional charge to all lectures, entertainments, and special features.
PRIVATE INSTRUCTORS IN MUSIC FOR SUMMER SESSIONS

INSTRUCTOR                  FEE FOR FIRST TERM 1 CREDIT HR.  FEE FOR SECOND TERM 1 CREDIT HR.
N. W. Christiansen           $21.00                  $17.50
Walter Welti                 $21.00                  $17.50
George Pahtz                $18.00                  $15.00
Mrs. N. W. Christiansen      $18.00                  $15.00
S. E. Clark                 $18.00                  $15.00
John Hughes                 $12.00                  $10.00
Max Lund                    $15.00                  $12.50
Thelma Lundquist            $12.00                  $10.00
Mischa Poznanski            $18.00                  $15.00
Mrs. Eleanor J. Smith        $12.00                  $10.00
Norma Sigler                $12.00                  $10.00
Mary Jean Sorenson           $12.00                  $10.00
Mrs. G. W. Thatcher           $21.00                 $17.50
Patience Thatcher            $18.00                  $15.00
Eldon Torbensen             $18.00                  $15.00
Irving Wassermann           $18.00                  $15.00
Mrs. Walter Welti            $18.00                  $15.00

THE GRADUATE SCHOOL
B. L. Richards, Dean

Objectives and Organization

The Graduate School of the College is organized to serve the educational needs of men and women who have completed their undergraduate work and who desire to qualify themselves for professional services or who may wish to identify themselves with a program of higher education leading to a teaching or research career on the college or university level. In all advanced work, effort is made to bring the student into direct contact with the basic research and teaching activities in his chosen field to the end that he may obtain a comprehensive view of a specialized field of knowledge together with the training essential for effective teaching or independent investigation. In graduate work the aim is to achieve a high standard of scholarship rather than to fulfill routine course requirements.

Departments that offer graduate work in related fields or in natural educational areas cooperate (1) to determine the needs for graduate work within the educational areas; (2) to provide fundamental and basic course work or training within the areas; (3) to foster the spirit of scholarship and research and to determine standards of achievement characteristic of the areas involved; and (4) to promote standards and give institutional character to graduate work beyond that which is made possible by independent departmental direction.

Graduate work is directed by a Graduate Council, which consists of the Dean of the Graduate School and seven members of the faculty appointed by the President. The scope of the Graduate School covers all graduate study in the college.
Admission to the Graduate School

A graduate with a Bachelor's degree from the Utah State Agricultural College or from any other accredited college or university may be admitted to the Graduate School (see No. 3 on page 16). Seniors in the College, who have an average of "B" or better in all their courses in their Junior and Senior year and who at the beginning of any quarter lack not more than five quarter credits to complete all requirements for the Bachelor's degree, may be allowed to register for a limited amount of graduate work. All courses so selected for graduate credit must be approved in advance by the Head of the Department and by the Dean of the Graduate School. In no case, will graduate credit be allowed if the student's total credit for which he is registered during the quarter exceed 16 hours.

Students are admitted to graduate studies in social work who have taken a Bachelor's degree with: (1) a major in social work; or (2) a major in sociology, economics, political science or psychology and have a total of not less than 36 credits in these four departments; or (3) a major in child development, physical education, public health or education and who also have 25 credits in one of the four social sciences above listed with a fair balance among them. Students over 35 are admitted only by special arrangement.

Admission to the Graduate School does not imply admission to candidacy for an advanced degree. Such admission is granted by the Dean of the Graduate School only on recommendation of the Head of the Department and of a special examining and advisory committee as explained below. All students registering in the Graduate School must have their registration card signed by the Dean of the Graduate School.

Students who wish to register in the Graduate School should submit their application at least one month before the opening of the quarter in which they wish to matriculate. In all cases, students who are not graduates from the Utah State Agricultural College must provide a certificate of graduation and a transcript of credit taken in other institutions. If his transcript of credit does not accompany the application, a date should be specified at which transcript will be provided. Blanks for making application can be had from the Registrar's office or from the office of the Graduate School.

MASTER'S DEGREE

All approved graduate courses in the College lead to the Master of Science Degree. Majors for the Master of Science Degree are offered in all the basic biological, physical, and social sciences, and in the various educational, industrial, and professional areas as follows: Animal Industry, Crop and Soil Science, Education and Psychology, Engineering and Technology, Forest, Range, and Wildlife Management, Home Economics, Irrigation and Drainage, and Microbiology. The specific departments or groups of departments (over 35 in all) in which the Master of Science Degree is given, together with the course service provided by the departments, may be determined by consulting the departmental statements provided in the catalog under the various undergraduate schools of the College.
SUMMER SESSION

Requirements and Procedures for Obtaining A Master
of Science Degree

1. Acceptance for Registration as a Candidate for a Master's Degree. A student who has been registered in the Graduate School for one quarter and who has satisfied the Department in which he proposes to do his graduate work may be admitted to candidacy for a Master of Science degree upon the written recommendations of the Head of his Department and of a special examining and advisory committee appointed by the Dean of the Graduate School. All students working to become candidates for a Master of Science Degree will apply directly to the Graduate Dean. Application blanks are available at the office of the Graduate School.

2. Major Professor and Advisory Committee. The applicant will be assigned by the Dean of the Graduate School to a major professor who in all cases will be a member of the teaching staff of the Department in which the student has chosen to do his major work and who will be chosen in consultation with the student and the Head of the Department involved. The Major Professor will advise the student in the planning and the prosecution of his course of study and in his research work and will function as chairman of the student's Advisory and Examining Committee. The Major Professor will be aided by an Examining and Advisory Committee consisting of himself as chairman and at least three other members chosen from the faculty of the Major Department or closely related Departments. A fifth member, completing the committee personnel, may be chosen from the faculty of the English Department. The committee is responsible for all examinations dealing with the candidate's work.

In instances where the thesis chosen by the applicant is based on research supported by the Experiment Station or by Federal or other outside agencies, the applicant with the advice of the Major Professor and the Head of the Department may be assigned to a special Thesis Director. This thesis director may not be a member of the teaching staff or of the Major Department in which the student is majoring. The Thesis Director will become a member of the student's committee, directly responsible for the student's research and thesis, and will function in this connection with the Major Professor in directing the student's educational program. The Dean of the Graduate School and the Head of the Department in which the student is specializing are ex-official members of all committees and advisory groups.

3. Qualifying Examination and General Requirements. By examination of the records of the student's scholastic work and by special examination both oral and written, the advisory and examining committee shall satisfy itself as to the adequacy of the student's preparation and advisability of his pursuing Graduate work.

No student, however, will be admitted to candidacy until he has completed at least one quarter's work in residence with an average of "B" or better, and who has not received an average of "B" grade in his Junior and Senior years of undergraduate studies. Exceptions may be made where it is shown by the head of the Department that the student has special aptitudes which are not measured by his scholastic record.

4. Program of Study. If the Advisory Committee is convinced that the preparation and ability of the student are such as to give
reasonable assurance of success in advanced studies, then, with him, the committee under the direction of the Major Professor shall plan a program of study which will meet all requirements for the Master of Science degree. This program must include in general: 
(a) At least three quarters of residence. Four summer sessions with residence research culminating in a thesis may be accepted as fulfilling residence requirements. Under no condition will extension credit or credit transferred from other institutions be permitted to shorten the period of residence.
(b) At least 45 credits in courses numbered 100 or over in addition to any lower or upper division courses which may be necessary to strengthen the undergraduate preparation in his major or minor subjects.
(c) At least ten credits conclusive of work connected with the thesis in courses numbered 200 or above.
(d) A thesis with 9 to 15 credits. All courses allowed toward graduation shall be in the major department or closely related fields and must be completed with a grade of “B” or above. Under no condition will more than 16 credits be allowed in any one quarter, with 12 hours as a maximum for students on a one-half time basis.

Any modification of these requirements requiring action of the Dean of the Graduate School will be considered only if they are submitted by the chairman of the applicant’s Advisory Committee and as part of the student’s entire proposed program of study.

The candidate will submit his proposed programs of course study and research and make application to the Dean of Graduate School on blanks provided at the office of the Graduate School. This application must be accompanied by a critical statement of the student’s thesis and by a general plan of his research procedure.

5. Time Limitation for Application. Application for admittance to candidacy must be made before the student has completed more than one-third of the credits allowed toward his Master’s Degree. The application should be submitted by the end of the first six weeks of the quarter preceding that in which he completes his work and is to be graduated. In no case will application be honored later than the last week of this same quarter.

Notice of admission to candidacy, together with a letter of instruction, concerning the thesis form, and final examination, will be sent to the candidate by the Dean. A form on which to make application for graduation will also be enclosed with the letter. This form calls for the payment of a fee of $10.00 for official checking and binding two copies of the thesis.

Thesis

Each candidate for a Master of Science Degree must present a thesis on a topic within the field of his major subject which must represent from 9 to 15 hours of the credit presented for his degree. In all cases the thesis must represent a contribution to the field of knowledge based on the student’s own research or a treatment and presentation of known subject matter from a new point of view. After tentative approval by the Department, the thesis must be typewritten in standard form and submitted to the student’s Examining Committee at least two weeks before the date of his final examination. A typewritten and carbon copy of the final draft properly signed by the Major Professor, the Head of the Department, a representative for the Library, and the Dean of the
Graduate School must be submitted to the Librarian of the College to be deposited in the Library of the College one week prior to date of graduation. If the student is to be graduated at the June commencement, the thesis must be submitted in its final form by May 20 preceding commencement.

**Examination**

Each candidate for a Master of Science Degree will be required to pass a comprehensive final examination on the subjects of his Graduate study and on his thesis. This examination may be oral or written as his committee may decide and is open to all faculty members and officials of the Graduate School. Arrangements for the time and place of the examination will be made by the Dean of the Graduate School upon the recommendation of the Major Professor or Head of the Department. A member of the Advisory Committee, other than the Major Professor or a representative of the Graduate Council, will be appointed to act as chairman of the examination and will submit to the Graduate Council the results of the examination. For candidates who are to receive their degree at the June commencement the date of the final examination must not be later than April 3. When the examination is passed and the thesis submitted and deposited with the Librarian, the Dean of the Graduate School will present the name of the candidate to the College faculty for approval. He will also instruct the candidate regarding attendance at commencement and on the necessary matters relating to his graduation.

**Time Limit for Completing Work for a Master’s Degree**

Work for a Master of Science Degree must be completed within six years from the date of matriculation as a regular student in the Graduate School if the work is done wholly or in part during the regular academic year. If the work is done entirely in summer sessions, a maximum of seven years is allowed. Older work may be revalidated by examination.

**Extension Courses**

Credit toward a Master of Science Degree will not be granted for correspondence study. The amount of extension credit to be allowed will be determined in consideration of the students entire course program. In no case will more than 9 quarter hours be recognized as counting toward a degree. All extension courses for which graduate credit is sought must be regularly registered for through the Graduate School and must have the sanction of the Head of the Department in which the student is doing his Graduate work.

All students who satisfy the requirements for graduation by the close of the Summer Quarter are listed with the class of the following year and will receive their public graduation at the following Commencement. The graduation of such students, however, will be certified by proper authorities of the College as soon as their work is completed.
CLASS SCHEDULE

Some classes will begin at 7 a.m. throughout the Summer Quarter. Four periods are scheduled during the morning hours: 7, 8, 9, and 10. Bells ring on the hour and classes begin immediately and continue for fifty minutes to 7:50, 8:50, 9:50, etc. The 11 a.m. hour is kept open as a lecture period during the first session and no classes are scheduled at that hour. Afternoon classes begin at 1 p.m. and continue on the hour until 5 p.m. During the second session hours for some classes may be arranged by agreement of students and teachers.

MUSIC CLINIC

The Summer School sponsored a music clinic in band and orchestra for several years immediately preceding the war. This program has been revived and this year will include chorus as well as band and orchestra. The clinic will be conducted Monday, June 7, to Friday, June 18, inclusive. It is expected to appeal to all musical directors of the area and to high school and junior high school students who wish to sing or play under the direction of the top music men of the country.

Dr. Ralph E. Rush of the School of Music, University of Southern California will direct the band. Dr. Norval Church of Columbia University will direct the orchestra. Dr. William E. Knuth of San Francisco State College will direct the chorus.

Housing and board will be provided at cost for students who come from a distance: the male students will be housed in one residence hall and the female students at another. Students can participate in one or more of the programs. In addition, numerous activities are planned for the students, permitting them to enjoy a vacation and at the same time improve their musical performances. Students (high school and junior high) must express intention to register and make a deposit covering part of the board and room cost. Such students must also be recommended by their music directors.

WRITERS' CONFERENCE

Each year a Writers' Conference is held in Utah—one year at the Utah State Agricultural College and the following year at the University of Utah. During the coming summer the conference will be conducted at Logan. It is scheduled for the week of June 21 to 26 inclusive. An intensive program has been arranged for this period, and several notable visiting teachers will be present. Among them are Peter Viereck, well-known poet and essayist; Wilbur Schramm, short story writer and journalist; Grant Redford, dramatist and novelist; and others.

CONSERVATION WORKSHOP

A special program in conservation directed primarily toward the needs of school teachers will be conducted for two weeks, June 1 to June 11. During the first week of the course students will live at the Tony Grove Forestry Summer Camp in Logan Canyon. During the second week following a workshop will be held on the campus. Soil, water, plants, and animals will be studied in their relationship to conservation.
DRIVERS' TRAINING INSTITUTE

The Drivers' Training Institute will be conducted for three weeks, June 7 to June 25. The course is designed to train the men and women who will teach drivers programs in the high schools of Utah and surrounding states. The course is approved by the American Automobile Association and all of the safety organizations of the country. Registrants for the course must make application prior to May 25. This program has been developed because of the increased emphasis on drivers' training programs in the secondary schools. The State Department of Education is co-operating with the College in the Institute.

FAMILY LIFE INSTITUTE

The annual Family Life Institute is scheduled for Thursday and Friday, June 17 and 18. Professor Russell Smart of Cornell University will be the leader. No charge is made for the Institute, and both students and people of surrounding communities are invited to participate.

SMITH-HUGHES TEACHERS

The annual conference for Smith-Hughes teachers will be held on the campus during the week of June 14. An intensive program of course work, lectures, and demonstrations is planned.

SCOUT WATER SAFETY PROGRAM

This nationally known program conducted by the Boy Scouts of America will be held on the campus during the week of May 31 to June 5. Leaders from National Headquarters, Boy Scouts of America will direct the work assisted by the College staff of the department of physical education.

GIRLS' STATE

This annual conference is under the direction of the state organization of the American Legion Auxiliary. It will be held on the campus during the week of July 12. Faculty members will give lectures and conduct course work.

SCHOOL LUNCH PROGRAM

An intensive training for the supervisors of school lunch programs will be held June 21 to June 30. The course is operated in co-operation with the State Department of Education and the teaching is done by the College staff. Certificates are offered to those who complete the course successfully.

HIKING AND CAMPING TRIP

The annual summer school hiking and camping trip will take place during the two weeks immediately following the first session of summer school—July 19 to 31. Course work in camp prep-
aration, packing, and other details will be held during the first few days of the week of July 19 following which the expedition will be led into the Wind River Mountains of Wyoming for a ten-day period.

**POULTRY CONFERENCE**

The fifteenth annual training school for qualifying poultry flock-selecting and pullorum disease-testing agents will be held at the Utah State Agricultural College August 2 to 5, 1948. An invitation will be extended to all who attend.

**COACHING SCHOOL**

The annual summer coaching school at Utah State Agricultural College is unquestionably the best in the Rocky Mountain area and it is probable that over the years it is equal to any offered in the country. The visiting coaches selected for 1948, Fritz Crisler of Michigan University and Jack Gardner of Kansas State, assure another quality school. It may be the best in a long series because both men are enthusiastic, vigorous men who have reached the heights and who are intent on staying there. The largest enrollment in the history of the program is expected because of the many service men returning to coaching, and because of the quality of the instructors. They will want to get acquainted with the developments in football and basketball and get partially acclimated after an absence in some cases of several years. Football is scheduled for the morning, basketball for the afternoon. Registrants in the school have free playing privileges at the Logan Golf and Country Club. The dates are June 7—11.

**FORESTRY SUMMER CAMP**

The School of Forest, Range, and Wildlife Management owns or controls 3,000 acres of forest and range land approximately 25 miles from the campus within the Cache National Forest, where summer camp facilities are established. Eleven weeks of field instruction is given at the Tony Grove Summer Camp and is required for graduation for all students in the School of Forest, Range and Wildlife Management. Attendance at this camp is required between the sophomore and junior year and is prerequisite to the technical courses of the junior and senior year. There are five field instruction courses offered at summer camp with a total of 16 credits, and students in the School of Forest, Range, and Wildlife Management are required to take all five courses. This summer camp opens on the second Monday following the close of Spring Quarter (June 7) and continues for a period of 11 weeks (August 20).

**LIVING ACCOMMODATIONS**

The College Residence Hall on the campus will be available for Summer School students. Reservations should be made immediately. The College cafeteria will serve meals through the day. Other board and room accommodations can be obtained near the
campus at reasonable cost. Some small apartments are also available for the Summer Quarter. Recently acquired facilities will be available for armed service personnel, both married and unmarried. The College maintains a Housing Bureau which is prepared to aid students in making satisfactory living arrangements. Mr. C. L. Pocock is director of this Bureau and students interested should write or consult him.

RECREATION AND ENTERTAINMENT

Summer Quarter students will be offered many recreational and cultural features during the first six weeks. Several dancing parties, canyon parties, and conducted tours to adjacent regions of special interest are scheduled.

TEACHERS CERTIFICATION

By attending the Summer Quarter of Utah State Agricultural College, it is possible to meet any of the requirements for Utah certification with the exception of practice teaching; and, since the College is on the Accredited List of the Association of American Universities, credit will be allowed for any subject completed in the Summer Quarter that forms part of the certification requirements of any state.

TEACHERS PLACEMENT BUREAU

A Teachers’ Placement Bureau, directed by Dean E. A. Jacobsen, functions in connection with the Summer School. All teachers seeking employment may register in this bureau. Superintendents and others who employ teachers will find it to their advantage to consult the list of applicants which will be furnished upon request. Interviews with applicants will also be arranged.

KEY TO BUILDINGS

M—Main
A—Mechanic Arts
E—Engineering
P—Plant Industry
L—Animal Husbandry
G—Gymnasium
N—Library
F—Forestry
W—Widtsoe Hall or Chemistry
H—Home Economics and Commons
MS—Military Science
FH—Field House
AGRICULTURAL ECONOMICS AND MARKETING

W. P. Thomas, Professor; E. M. Morrison, Assistant Professor.


113A. Farm Cooperatives. Principles underlying the organization, operation, and management of cooperative associations. 3 credits. Daily 10 and one hour arr. Second session. Room M178. Thomas

120. Agricultural Prices and Policies. Emphasis on price relationships and the economic situation resulting from price changes. 3 credits. Daily 10 and one hour arr. Second session. Room Thomas

AGRONOMY

D. W. Thorne, D. W. Pittman, Professors; H. B. Peterson, Associate Professor; LeMoyné Wilson, W. B. Bennett, Assistant Professors.

56. Introductory Soils. 4 credits. Daily 11, M. W. 2-5. First session. Pittman

101. Cereal Crops. 3 credits. M. T. W. Th. 7, T. Th. 2-5. First session. Bennett

114. Soil Survey and Land Classif. 3 credits. Arr. must be made before registration. Either session. Wilson

125. Soil Conservation. 3 credits. M. T. W. Th. 7, M. W. 2-5. Second session. Peterson

201. Arranged subject. 2 credits. Arranged. Both sessions. Staff

212. Soils Seminar. 1 credit. Arranged. Both sessions. Staff

213. Crops Seminar. 1 credit. Arranged. Both sessions. Staff

224. Arranged subject. 2 credits. Arranged. Both sessions. Staff

ANIMAL HUSBANDRY

L. L. Madsen, Professor; J. A. Bennett, M. A. Madsen, Assistant Professors.

150. Animal Nutrition. Attention given fundamental phases of animal nutrition, including protein, carbohydrate, fat and mineral metabolism, vitamins, content and deficiencies of range forage, and feed and forage poisoning. Prerequisites: Chemistry 10, 11, 12 (or equivalent), and An. Hus. 10, or Biochemistry. 4 credits. M. T. W. Th. 8 and 10. First session. L. L. Madsen

155. Advanced Animal Breeding. Fundamental phases of physiology and reproduction, genetics, breeding systems and problems arising in breeding operations. Prerequisite: An. Hus. 15 or Zool. 112. 3 credits. Daily 9 and one hour arranged. First session. Bennett
165. **Advanced Livestock Judging.** A continuation of the training begun in An. Hus. 5, and designed to give students intensive training in livestock judging and selection. The Livestock Judging Team will be selected from among the students completing this course. 3 credits. Daily 2-5. Second session.  

*M. A. Madsen*

**ART**

**Floyd Cornaby, Professor; Calvin Fletcher, Professor Emeritus; Everett Thorpe, Assistant Professor.**

2. **Design and Its Application.** Creating designs and applying them to elementary crafts and everyday problems. Second session.  

Daily 8. 2 credits. Room M330E.  

104. **A. Drawing; B. Painting; C. Illustration.** Each credit desired represents thirty hours of work. Criticism and assignments. Room 330B. Daily 9-11, First session.  

Daily 7-9, Second session.  

109. **Watercolor.** Modern trends and techniques. Each credit desired represents thirty hours of completed work. First session.  

Daily 8. Room M330C.  

110. **Lettering and Commercial Art.** A, show card writing; B, window sign and gold leaf; C, illustration and manuscript lettering. Second session. Daily 9-11. Credits arranged. Room M330B.  

113. **Jewelry and Precision Casting.** Creative jewelry design and the popular method of commercial reproduction through the lost-wax process of centrifugal casting. Daily 9-11. 2 credits. Room M330E. First session.  

**AUTOMOTIVE**

**Edward L. France, Assistant Professor; Clyde Hurst, Owen Slough, Instructors.**

51. **Automobile Chassis.** Principles and practice in the construction, operation, and servicing of the modern automobile chassis. The units of the course include axles, wheel suspension, steering gears, frames, springs, universals, drive shafts and brakes. Open to any college student. Lecture M. T. W. Th. 2: Lab. M. T. W. Th. 3-5. 3 credits. First Session  

52. **Automobile Power Plants.** Principles and practice in the construction, operation and servicing of the modern automobile power plant. The units of the course include cylinder block assemblies, piston assemblies, crankshaft assemblies, valve assemblies, clutches, transmissions, over-drives; fuel, colling and lubrication systems. Open to any college student. First Session, lecture M. T. W. Th., 2. Lab. M. T. W. Th., 3-5. 3 credits.  

53. **Automobile Electricity.** Prerequisite, Auto 52. Principles and practice in the construction, operation, and servicing of the electrical systems used on the modern automobile. The units to be covered include starting, generating, lighting, ignition, and special accessory systems. 3 credits. First Session lecture M. T. W. Th. 2. Laboratory M. T. W. Th., 3-5.  

France
BACTERIOLOGY AND PUBLIC HEALTH


1. Elementary Bacteriology. Biology and significance of bacteria and other micro-organisms; their morphology and physiology; fundamental principles governing the bacteriology of water, sewage, milk, food sanitation, communicable diseases, etc. Where possible this course should be followed by Bacteriology 3. 4 credits. First session. M. T. W. Th., 10 a.m. and 1 p.m. P302.

50. Public Health and Hygiene. 3 credits. First session Daily 7 a.m. and 1 hour arranged. P302.

155. School Health. Designed to meet the practical needs in health and health training in the school. It includes methods and materials in health training and instruction. (Meets state certification requirements in health education.) 3 credits. First session. Daily 8 and 1 hour arranged.

190. History of Bacteriology. The men and discoveries that lead to modern bacteriology. Prerequisite: 1 or 70. 2 credits. First session M. T. W. Th. 9.

199. Bacteriological Problems. Closely supervised library or laboratory study in a selected problem in bacteriology. Prerequisite: 70 or 71 plus one upper division course in Bacteriology. 2 credits. First session arranged.

288. Advanced Bacteriological Problems. Special assignments, reports, and discussions. Review of literature in various phases of bacteriology, and preparation of a comprehensive and critical review. 2 to 5 credits. First session.


299. Research. The laboratories are well equipped and library facilities adequate for advanced students in bacteriological investigations in agriculture, household science, foods, industries, sanitary science, and veterinary science. 2 to 5 credits. First and Second Session. Second session. Time arranged.

BOTANY

B. L. Richards, Professor; W. S. Boyle, Assistant Professor.

SERVICE COURSES

30. Taxonomy of Vascular Plants. 5 credits. First session. Lecture. M. T. W. Th. 1 Laboratory, M. T. W. Th. 2-5 Prerequisite, Botany 23.

25. Survey of the Plant Kingdom. 5 credits. Second session. Lecture. M. T. W. Th. 1 Laboratory, M. T. W. Th. 2-5

130. Principles of Plant Pathology. 5 credits. Both sessions. Lecture M. T. W. Lab M. & W.
SUMMER SESSION

BUSINESS ADMINISTRATION

V. D. Gardner, Professor; P. E. Peterson, Professor Emeritus; L. Mark Neuberger, Associate Professor; Norman Cannon, Assistant Professor.

25. Introductory Business Administration. 2½ credits. Daily

27. Economic Development of the U. S. 3 credits. M. W. F.


100. Accounting for Non Commercial Students. 3 credits. M. W. F. 7. Both sessions.


CHEMISTRY

R. L. Hill, Sherwin Maeser, D. A. Greenwood, Professors; Melvin C. Cannon, Associate Professor; T. M. Burton, Aubrey Lawrence, Assistant Professors.

1. Introductory Chemistry. Designed to give students a broad view of the cultural aspects of the science of chemistry. A terminal survey course and cannot be used as a prerequisite for advanced courses in chemistry. 5 credits. Lecture 8 and 1 daily. First session.

3. Chemical Principles and Qualitative Analysis. An introduction to chemical theory and the principles of chemistry including introductory qualitative analysis in the spring quarter. Prerequisites: high school chemistry or physics, algebra and geometry. This course is designed for science majors, pre-medical and pre-dental students and home economics majors in foods and nutrition. Three lectures and two labs. 5 credits. Lecture daily 8. Lab. daily 2-5. First session.

10. 11. General Chemistry. An introduction to the fundamental principles of inorganic and organic chemistry. A one-year terminal course open to any matriculated student. 5 credits each quarter. Three lectures and two labs. Lecture daily 10. Lab daily 2-5. Both sessions.

12S. Organic Chemistry. An elementary course. Three lectures, three labs per week. Both sessions. 6 credits.

17, 18 or 117, 118. Quantitative Analysis. Theory and practice of gravimetric and volumetric analysis. Prerequisite: Chemistry 5. The course is so designed that it presents a terminal course for majors in agriculture, home economics and premedical and predental students. Four lectures and four labs per week. Arranged. Both sessions.
121, 122. **Organic Chemistry.** An introductory course in the fundamentals of the chemistry of the carbon compounds. Prerequisites: Chemistry 5 or a grade of B or better in Chemistry 12. Lecture daily 9. Lab daily 2-5. Both sessions. Hill

90 or 190. **Elementary Biochemistry.** Three lectures, two labs. Both sessions. 5 credits. Greenwood

292-293-294 or 298. **Biochemistry.** For seniors and graduate students only. Time and credit arranged. Greenwood

**CHILD DEVELOPMENT AND PARENT EDUCATION**

HELEN L. PORTER, Assistant Professor; ORAL PUGMIRE, WINIFRED AMACHER JOHNSON, Instructors.

60s. **Child Development and Guidance.** Growth, development, and guidance of the young child and selection of books, music, toys and equipment to meet the developmental needs of the child from one to six years of age. Each of the following hours must be free at least once each week to allow for scheduling a daily laboratory hour in the College Nursery School: 9, 10. Class schedule should be checked by instructor before registration is completed. 5 credits. One hour lab arranged daily. Lectures daily 8, F. 9. Both sessions. Pugmire and Johnson

175as. **Nursery School Methods.** Must parallel practice teaching. Study and collection of materials used in nursery school teaching. Special consideration will be given to understanding the needs of individual children in the nursery school, and evaluating the principles used in guiding them. Time and credit arranged. Porter

175bs. **Practice Teaching in the Nursery School.** Open to qualified students. Check prerequisites with instructor before enrolling. Time and credit arranged. Staff

140s. **Special Problems in Child Development.** Independent investigation of a special area or problem in Child Development in which the student has need of further study. Registration by permission of instructor. Time and credit arranged. Johnson and Porter

**CLOTHING, TEXTILES, AND RELATED ARTS**

BERTHA F. JOHNSON, Professor; FLORENCE GILMORE, Assistant Professor.

33s. **Home Furnishings.** Open to anyone. Laboratory course including instruction on the following techniques: making of draperies, upholstering, slip covering, and wood refinishes. Six weeks. 2½ credits. M. T. W. Th. 9-11. Gilmore

115s. **Art in Dress and the Home.** How to achieve beauty and art quality in dress and home accessories through study of design and composition. Selection of dress, household linens, silver, glass, furniture, rugs will be considered both from standpoint of beauty in its own right and in relation to other surroundings. Opportunity will be given to do some creative work in design and composition. May be substituted by Home Economics majors for 115 Costume Design. For all others, prerequisites: art and clothing to satisfy the instructor. 2½ credits. M. T. W. Th. 9-11. First session. Johnson
165s. Tailoring. Application of techniques used in tailoring women’s suits and coats. Prerequisites, clothing and textiles 9, 24, 25, 115 for Home Economics Education and Clothing, Textiles and Related Arts majors. For others, sufficient clothing construction to satisfy the instructor. 2½ credits. M. W. F. 2-5. First session. Gilmore

169s. Recent Developments in Textiles. For teachers and advanced students of Home Economics who want to be brought up to date in newer textile developments. Includes a study of new fibers, finishes, fabrics, and factors influencing choice and care. Prerequisites: Textiles 24 or equivalent. Last three weeks only. 1 credit. T. Th. 2-4. Gilmore

190s or 290s. Clothing problems. Open to advanced undergraduate and graduate Home Economics students and teachers. Problems to be chosen for study according to student needs. Some suggested problems: time and motion study as a means of increasing speed in construction, study of sewing machine mechanics, making of paper dress form, techniques of fitting, what to teach at different age levels, preparation of illustrative material on sewing techniques. Six weeks. 2½ credits. Three weeks, either half of six weeks’ session, for 1½ credits. M. W. F. 2-5. Johnson

191s. Readings. Reports and discussion on current literature in the field. Last three weeks of session. 1 credit. T. Th. 2-4. Johnson


COACHING SCHOOL

E. L. Romney, Director of Athletics.


DAIRY HUSBANDRY

George B. Caine, Professor.


150. Special Problems in Dairy Production. Arranged for a limited number of students. Staff

216. Research in Dairy Production. Arranged for a limited number of students. Staff

DAIRY MANUFACTURING

A. J. Morris, Professor.

103. **Cheesemaking.** 5 credits. First session.

154. **Special Problems in Dairy Manufacturing.** 2-8 credits. First session.

217. **Research in Dairy Manufacturing.** 2-8 credits. First session.

254. **Special Problems in Dairy Manufacturing.** 2-8 credits. Time arranged on all classes.

**ECONOMICS**


51. **Principles of Economics.** A survey of the principles that underlie the operations of the American economic system. 2½ credits. First and second sessions. Daily 8.

52. **Economic Problems.** Consideration of the problems of labor, finance, economic instability, international economics, social waste, government control, and world economic systems. 2½ credits. First and second sessions. Daily 8.

141. **Current Economic Problems.** A study, based on current reading material, of how to achieve and maintain full production, full employment, and economic stability in the United States and other national economies. 2½ credits. First session. Daily 8.

174. **Corporate Concentration and Public Policy.** The history and development of giant corporations; the extent, characteristics, and significance of corporate monopolies and big business; international cartels. Possible public policies: anti-trust activity, government regulation, government operation. 2½ credits. First session. Daily 8.

**EDUCATION**


Visiting Faculty


106s. **Student Teaching in Elementary Schools.** A limited amount of student teaching will be available through summer kindergartens in nearby school districts. Credit arranged. First session.

108. **Social Studies in the Public Schools.** A consideration of the social responsibilities and opportunities of children and youth under current social conditions. Both content and method in the social studies field will be considered. 2½ credits. First session, Daily 9.

113. **Principles of Guidance.** Major emphasis given to organization of guidance as a service, including individual and occupational differences, tests, measurements, and counseling. 2½ credits. First three weeks session. Daily 8-10.
116. Articulation of the Educational Program. A survey of existing needs for closer articulation of the various educational units and agencies. Discussion of the factors conditioning the nature and extent of the articulation and of the unifying principles upon which a well-articulated program of education rests. 2½ credits. First session second three weeks. Daily 8-10. Noble

123s. Student Teaching in Secondary Schools. Limited opportunity will be afforded for supervised student teaching in areas where secondary school work is being carried on in nearby school districts. Credit arranged. First session. Carlisle


137. Problems in the Teaching of Reading. The class will deal with the principal factors contributing to reading difficulties in the elementary grades. Opportunity for observing desirable teaching practices will be available in the summer demonstration school. 3 credits. First Session. Daily 10. Observation, 1 or 2. Miller

Demonstration School. A demonstration school for enrolling children in the middle elementary grades will be in session on the campus during the first six weeks. The particular purpose of the school is to illustrate effective methods of making reading a part of the school activities of children together with developing various improved practices in teaching reading to children who need special help. Summer session students who wish to study and observe this program systematically should enroll in Education 137. Others may visit the school by making arrangements with the Education Office. The school will be in session each afternoon from 1 to 3 o'clock in the Forestry Building. First session.

145. Safety Education. Emphasizes the need for safety education in the modern world, the role of the school in a program of safety, and methods and materials for teaching safety. 2½ credits. First session. Daily 1. McClellan

161. Audio-Visual Aids in Education. Emphasizes the importance of audio-visual aids in the school program. Building a workable program in which are utilized the newest materials and techniques. 2½ credits. Second session. First 3 weeks. Daily 8-10. Noble

184. Problems in Agricultural Education. A consideration of special problems in teaching agriculture, including instruction for out-of-school youth and adults, course of study building, program planning, and audio-visual aids. Registrants will be given assignments for field work following campus study. 3 credits. June 14-18. Daily 9. Humpherys and Downs


205. Reading and Conference. Provides for individually directed study in the fields of one's special interest and preparation. Credit arranged. Time arranged. Staff

219. The Principal and His School. Practical problems confronting the principal in administration and supervision, in terms of the changing social scene and changing concepts of school administration. Problems of administration, supervision, curriculum, pupil personnel, school-community relations, as they apply to the work of the principal are all given consideration. 2½ credits. First session. Daily 9. Morrill

222. Problems in School Administration. An intensive study of selected problems in the field of educational administration. 2½ credits. First session. Daily 1. Morrill

230. Elementary School Supervision. A study of the principles and practices of school supervision including the qualifications and responsibilities of the supervisor. 2½ credits. First session, Daily 2. Carlisle

239. Evaluation of Secondary Education. This course will seek to acquaint the student with the better techniques currently used for evaluation of secondary schools. 2½ credits. First session. Daily 8. Stetson

265. Research in Secondary School Problems. This course is designed to acquaint the student with some of the more significant research studies in the field of secondary education and to discover and define other problems for research. 2½ credits. First session. Daily 10. Stetson

267. Introduction to Research. An inquiry into the nature and sources of research problems with a study of the methods of working out such problems in the field of education. Some attention is given to thesis writing as a problem related to research. 2½ credits. First session. Daily 3. McClellan

271. Research and Thesis Writing. Provides for individual work in thesis writing with the necessary guidance and criticism. Credit arranged. Time arranged. Staff

ENGINEERING

J. E. Christiansen, Cleve H. Milligan, Professors; Dean F. Peterson, Jr., Eldon M. Stock, Joseph Coulam, Associate Professors; A. Alvin Bishop, S. H. Daines, B. L. Embry, W. A. TingeY, Assistant Professors; R. K. Watkins, Instructor.


C. E. 63. Descriptive Geometry. Principle and auxiliary views; points, lines, and planes development, intersections, and warped surfaces. Prerequisite, C. E. 61. 3 credits. First session. M. W. 1 to 5, T. Th. 2 to 5. Watkins

C. E. 87. Summer Surveying Camp. Surveying office and field practice in camp. Topographic, land, route, geodetic and
hydrographic surveying. The student pays his own transportation and living expenses and a registration fee. Prerequisite C. E. 95 or equivalent. 7 credits. First session. Daily 8 to 5.

Stock and Tinge


C. E. 192. Engineering Economy. A study of methods of estimation of costs of engineering projects. The determination of the most economical arrangement of structural units. The selection of the most economical structural types for given conditions. Problems in the finance of engineering projects. Prerequisite, B. A. 100. 3 credits. Second session. Daily 8.


ENGELSH

Wallace J. Vickers, King Hendricks, Professors; N. A. Pedersen, Professor Emeritus; Moyle Q. Rice, Assistant Professor; Stanley Andersen, Instructor.

SERVICE COURSES


Vickers


Andersen


Andersen


Pedersen


Vickers


Rice


Hendricks


Hendricks


Rice
FOODS AND NUTRITION

E. O. Greaves, U. Vermillion, Professors; P. Rowland, Assistant Professor.


146s. Conservation and Technology of Food. A lecture and laboratory course in approved scientific, practical methods of food processing, preservation and storage and its influence upon the nutritive value of the foods. 2½ credits. T. W. Th. F. 9, M. 205, H203. First session.

185. Nutrition Refresher Course. A review of the principles of the newer knowledge of nutrition with attention given to its application to the school and public health field. 2½ credits. Time to be arranged. Conference arranged. First session.

SCHOOL LUNCH PROGRAM

June 21 to 30 inclusive.

An intensive training program for the supervisors of the school lunch rooms within the state. Course open to a limited number of head cooks in June, 1948.

Instruction includes problems dealing with menu planning and food preparation, sanitation, record keeping and purchasing.

Certificates issued to those who are active participants and complete the course.

FOREST, RANGE, AND WILDLIFE MANAGEMENT


FORESTRY

90. Improvements. Practical field problems in trail and telephone construction; the use of field radios; methods of fire prevention, detection and suppression; care and use of woods tools and horses in Forest, Range, and Wildlife work. Problems in construction, planning recreational areas, and water development. 3 credits. Summer Camp.

96. Surveying. Practical field problems in surveying methods commonly employed in forest, range, and wildlife management. Type mapping. 3 credits. Summer Camp.

97. Forest Practice. Study of timber types and successional stages. Timber cruising, log scaling, inventories and growth of immature stands, stem analysis, taper measurements, sample plots, milling and utilization studies. 3 credits. Summer Camp.

RANGE

98. Range Practice. Field work in range management involving familiarization with vegetation, training in making reconnaissance, methods of studying vegetation, and determining utilization. In addition time will be devoted to range improvement and management planning. 3 credits. Summer Camp.
WILDLIFE

99. Wildlife Practice. A survey of lakes and streams for improvement purposes and for restocking; the use of census methods for big game, game birds, and rodents; rodent identification and study of activities; cover mapping; preparation of animal skins; and study of deer and elk ranges. 3 credits. Summer Camp.

GEODESY

J. Stewart Williams, Professor.

2. Introductory Historical Geology. An introduction to historical geology including the principles by which the sedimentary record is interpreted in a sketch of earth history. Prerequisite: Introductory Physical Geology (Geology 1 or equivalent). 5 credits. Daily 7. First session.

124. Summer Field Geology. A six-weeks course in field geology in which selected students will be given training in mapping on aerial photographs and other field procedures. Problem area for 1948: Southern Cache Valley. Registration by special arrangement only. 8 credits. First session.

HISTORY

Joel Edward Ricks, John Duncan Brite, Professors.


HOME ECONOMICS EDUCATION

Helen Cawley, Assistant Professor.

Visiting Faculty

Miss May DuBois, Associate Professor, Home Economics Education, Oregon State College.

120s or 220s. Methods in Teaching Home Economics. Contributions of Home Economics to the educational program. Analysis of teaching situations with special emphasis on home experiences and the Future Homemakers of America Club program; development of a method which will lead teachers to understand better the nature of the learning process. Prerequisite or parallel: Psychology 102a. 2 1/2 credits. Daily 1. Entire session.

(Class will be set up so members may be active participants in Education 195 taught by Miss May DuBois during last three weeks of first session of summer school.)
195s. Curriculum Problems in Home Economics. Opportunity will be provided for students to work on individual problems of value to the prospective or experienced teacher. Class hour will be used for group discussions and for individual conferences. Arrangements may be made with the head of Home Economics Education to use this credit as partial fulfillment of required work in Education 120. 1½ credits. Daily 1 during period June 28-July 16.

199. Special Problems in Home Economics Education. Class is especially planned to meet the needs of in-service teachers who will be returning to summer school to meet certification requirements or who are interested in doing graduate work. Discussion will deal with the secondary school curriculum, how to determine what to teach, effective methods of instruction, and evaluation of achievement. The findings of recent research will be emphasized. Advanced undergraduate students may enroll in this class as a partial substitute for Education 121 by securing special permission from the head of Home Economics Education. 2½ credits. Daily 7-9 during period June 28-July 16.


HOUSEHOLD ADMINISTRATION

E. O. Greaves, Professor; O. M. Carlson, M. Sorenson, Instructors.

149s. Economics of Household Consumption and Production. An economic analysis of household production; source and distribution of family income under different conditions; practice in planning budgets for specific families; and laboratory work in the scientific consideration of household standards and organization. Required of all students before or taken parallel with residence in Home Management House. Prerequisites: Foods 20, 21, and 106 or all Home Economics Education students; others, Foods 9 or 106. 2% credits. Daily 8. First session.

150s. Household Administration. Provides six weeks of direct experience in practical homemaking; is open to groups of six mature students with similar training and background. Precedence is given to applications from teachers in the field of home economics. The course may be applied on State Certification requirements. Applications should be received at the college not later than May 20. 3 credits. Cottage.

HORTICULTURE

S. W. Edgecombe, Professor; R. K. Gerber, Instructor.


112. Orchard Practice. 1 credit. Time arranged. First session. *Edgecombe and Gerber*

110. Orchard Practice. 1 credit. Time arranged. Second session. *Edgecombe and Gerber*

**INDUSTRIAL EDUCATION**

*Ernest C. Jeppsen, Professor; William E. Mortimer, Associate Professor; C. D. McBride, Assistant Professor; Bert V. Allen, Instructor.*

42. Plastics. To acquaint students with the new and important group of plastics materials now being produced and to teach them the fundamental operations used in working these materials. Students will complete projects in hand and machine work that apply to the Industrial Arts program. 2 credits. Daily 9 to 11. First session. *Mortimer*

51. General Photography. Principles and practice in the fundamentals of general photography. Training will be given in the selection and use of cameras, lenses, meters, films, filters, lights, developers, and accessories. 3 credits. First session. Time arranged. *Allen*

102. Instructional Aids. Instruction in the purpose, types, sources, preparation and proper use of audio and visual aids for classroom instruction. The units of this course include samples, models, charts, graphs, slides, still film, movie film, sound film, stereoptican projection, recording, sound systems, and other aids suitable for classroom and auditorium use. 3 credits. Daily 1 plus 1 hour arranged. First session. *Staff*

107. Principles and Objectives of Industrial Education. To acquaint students with the general philosophy and purposes of Industrial Education and to enable them to understand and appreciate its place in the modern educational program. Students will study and compare the general principles and objectives of Industrial Arts Education and Trade and Industrial Education with those of other educational programs. 3 credits. Daily 9 plus 1 hour arranged. First session. *Staff*

109. Course of Study Building in Industrial Education. To teach students to prepare and use a course of study consisting of the outline, analysis, progress charts, lesson plans, instruction sheets, references, tests, and instructional schedule. Each student will complete this work for one unit of instruction. 5 credits. Daily 7 to 9. First session. *Mortimer*

113. Driver Education and Traffic Safety. This course is designed to acquaint prospective teachers and others with available instructional materials in the field of driver education and the latest methods of presenting such materials in the classroom and on the road. 5 credits. Lecture Daily 8 to 10. Behind the wheel instruction arranged. First three weeks. *France*

120. Personnel Relations. Problems of handling people, management, and safety as they affect employers and employees. Students will present, analyze, and work out solutions to each of these types of problems. 3 credits. Daily 10 plus 1 hour arranged. First session. *McBrice*

123. Curriculum Problems in Industrial Arts. To teach prospective junior high school industrial arts instructors the application of the skills and knowledge they have acquired in their basic shop courses. Each prospective instructor will construct projects...
that are suited to the work recommended by the State Department of Education for junior high schools. They will also prepare the necessary lesson plans and teaching aids that will supplement and aid teachers in carrying out the program. Prerequisites: basic shop courses in wood, drawing, metal, electricity, crafts, and course of study building. 2 credits. Daily 3 to 5. First session. Mortimer

141. Art Metalwork. This course consists of laboratory work in embossing, sinking, engraving, etching and metal spinning operations. The work is done in copper, brass, and aluminum on projects designed for utility and artistic merit. Prerequisites: Art. 2. Machine Work 5 lb. 2 credits. Daily 1-3. First session. Mortimer

LANDSCAPE ARCHITECTURE
LaVal S. Morris, Professor.

135. Travel Course. A major field trip to examine a variety of projects in planning and design. This course, starting early in June, will be conducted to Phoenix, Arizona or Los Angeles, California, with stop-overs on the way. It will last approximately three weeks of concentrated work. A report will be required. Cameras are highly desirable. 4 credits. Staff

LIBRARY SCIENCE
King Hendricks, Professor; Pearl Carter, Anne Smith, Instructors

100L. Reference Materials and Bibliography. Principal reference tools in each field are studied. 3 credits. Daily 9. First session. Moore Library. Smith

120L. First Quarter Cataloging and Classification. Classification of books according to the Dewey decimal system and cataloging instruction adapted primarily to the use of school and public libraries. 3 credits. Daily 10. First session. N316. Smith


MACHINE TOOL TECHNOLOGY
Frederick Preator, Associate Professor; Aaron Newey, Professor Emeritus; G. Merrill Shaw, Assistant Professor; W. Karl Somers, Instructor.

51. Machine Tool Practice. Training in the use of hand tools, and in bench work and tool sharpening, together with elementary training on drill press and engine lathe. Tools and machine parts are made that give practice in the operations essential to machine shop work. Included are assignments of reading on machine work subjects, and application of mathematics to machine work. 5 credits. Continues through both sessions. Daily 1-4. A102. Somers

56. Machine Practice for Engineers. This course is designed to acquaint engineering students with basic machine shop operations, which include the use of hand tools, bench work, tool
sharpening, and elementary engine lathe and drill press operation.  
2 credits. Either session. Time arranged.  

**MECHANICAL DRAWING**

91, 92, 93. Mechanical Drawing. The use of instruments applied to template drawings, graphic solutions, and lettering; standard elements and symbols which make up working drawings used in industry. The theory of shape and its representation in orthographic projections, section, auxiliary views, revolutions, and size descriptions. Isometric drawings and the translation of orthographic views into pictorial drawings. 2 credits each course. Either session. Time arranged.

94. Working Drawings and Specifications. An introduction to architectural drawings and specifications as applied to building and construction problems. Scale drawings including plans, elevations, sections, and construction details are completed with tracings and prints. 3 credits. Prerequisites: 91, 92, 93. Time arranged. Either session.

95. Machine Drawing. Problems pertaining to machinery drives and fastenings, mechanisms of power and motion and the design of machine parts incorporating standardized methods consistent with industry. 3 credits. Prerequisites: 91, 92, 93. Time arranged. Either session.

**MATHEMATICS**

V. H. TINGEY, Professor; JOE ELICH, JAMES SORENSON, Instructors.

34. Introduction to College Algebra. 3 credits. Daily 8. First session.


44. Pl. and Sh. Trigonometry. 3 credits. Daily 10. First Sorenson

97. Pl. and Solid Analytical Geometry. 5 credits. Daily 8. Elich


Note: Upon request of ten or more students, any of the courses listed in the regular catalog will be given.

**MUSIC**

N. W. CHRISTIANSEN, WALTER WELTI, Professors; GEORGE PAHTZ, Instructor.

Visiting Faculty

NORVAL L. CHURCH, Professor of Music Education, Columbia University;
WILLIAM E. KNUTH, San Francisco State College; RALPH E. RUSH. 
University of Southern California.

**INSTRUMENTAL MUSIC**

11s-111s. Harmony. Beginning students register for 11; students who have college credit for first year harmony register for 111. Attention will be given to individual needs. 2½ credits. First session. Daily 1. M252A. Christiansen

17s-117s. String Ensembles. Offering an opportunity for trios, quartets, and other small units. One credit. Time arranged. Pahtz

77A. Concert Band. All members of the band will register for this course. High school graduates who meet college entrance requirements may receive one hour of college credit upon payment of registration fee. Daily 9-11, 3-4. First two weeks. M 30. Rush

77B. Orchestra. All members of the orchestra will register for this course. Credit given as for 77A. Daily 11-12, 1-3. First two weeks. M 30.

87s. Musical Literature for String Instruments. A study will be by the use of recordings of standard concerti, trios, and quartets. Also biographical sketches of composers and performers. 2½ credits. First session. Daily 9. Children's Library. Pahtz


121s. Teaching and Supervision of Instrumental Music. A theoretical and practical course designed to meet the problems of the teachers of bands and orchestras. Points in teaching the various instruments will be stressed. ½ credit. First two weeks Daily 10. M 252A Church


179s. The Marching Band and the Drum Major. Importance of the Marching Band. How to secure the best results for all phases of field work. The technique of the drum major. For students and directors. ½ credit. First session. Daily 4. Quadrangle. Staff

PRIVATE INSTRUCTION COURSES

52s-152s. Piano Instruction. For beginners, advanced students, and teachers of piano. Appointments and fees to be arranged with the teacher. 1 credit for six lessons; 2 credits for 12 lessons. First session. Arranged. Associate Teachers

58s-158s. Wind Instruments. For beginners, advanced students, and teachers of brass and woodwind instruments. Appointments and fees to be arranged with the teacher. 1 credit for six lessons; 2 credits for twelve lessons. First session. Arranged. Christiansen

62s-162s. Violin Instruction. For beginners, advanced students and teachers of violin. Appointments and fees to be arranged with the teacher. 1 credit for six lessons; 2 credits for twelve lessons. Arranged. Christiansen and Associate Teachers

63s-163s. Cello. For beginning or advanced students. Appointments and fees to be arranged with the teacher. 1 credit for six lessons; two credits for twelve lessons. Pahtz
VOCAL MUSIC

24s. High School Chorus. Open to all high school students. High School graduates who meet college entrance requirements will receive 1 hour of college credit. First two weeks. Daily 10 and 2. M207.

26s or 126s. Summer School Chorus. Open to all Summer School students. A concert program will be prepared for the closing week of the session. 1½ credits. First session. M. W. F. 12. M207.

55s or 155s. Voice Instruction. For elementary and advanced students. Appointments and fees arranged with the teacher. 1 credit for six lessons. 2 credits for twelve lessons. Arranged.


131s. Special Problems in Public School Music. The class will center around the individual problems of members enrolled. These problems will be presented and discussed for solution. One-half credit for two weeks. First session. Daily 8. Knuth

132s. Procedures and Methods. A round table discussion course of problems involving grade and high school music teaching. Consideration of such matters as conducting, materials, methods, care of the voice, sight reading and ear training will be taken up. 1 credit. First session. T. Th. 12. M53.

PHYSICAL EDUCATION—RECREATION

H. B. Hunsaker, Professor; J. K. Vanderhoff, Elizabeth Dutton, Israel Heaton, Mary Whitney, Assistant Professors; Dale O. Nelson, Instructor.

Visiting Faculty

V. K. Brown, Director of Recreation, Chicago Park District.
Dan O. Henry, Deputy Regional Executive, Region 12, Boy Scouts.
Marst Bushnell, Assistant Director, Scouting Services, Boy Scouts of America.
Fred C. Mull, Director Scouting Service, Boy Scouts of America.

SERVICE COURSES

25. Tennis (Ele.) Men and Women, 1 credit. First session.
   Sec. 1, daily 2. Vanderhoff
   Sec. 2, daily 8. Dutton
   Sec. 3, daily 1. Vanderhoff

48. Modern Dance. 1 credit. Daily 2. First session. Whitney

54. Swimming (Ele.) 1 credit. First session.
   Sec. 1, Women, daily 12. Dutton
   Sec. 2, Men, daily 3. Vanderhoff

62. Archery (Ele.) Men and Women, 1 credit. First session.
   Sec. 1, daily 9. Heaton

66. Badminton (Ele.) Men and Women, 1 credit. First session. Sec. 1, daily 10. Whitney

73. Golf (Ele.) Men and Women. 1 credit. Lab. Fee. First session.
   Sec. 1, daily 8. Vanderhoff
   Sec. 2, daily 9. Vanderhoff
89. **Intramural Sports.** Teams will be organized. Softball, badminton, tennis, and horseshoe tournaments will be conducted. Students registering for this course will be placed on teams for tournament participation. 1 credit. Daily 12. First session.  

Heaton

**PROFESSIONAL COURSES**

Heaton

54. **Swimming (Ele.)** 1 credit. Daily 10. Second session.  
Vanderhoff

73. **Golf (Ele.)** Lab fee, men and women, 1 credit. Daily 8. Second session.  
Vanderhoff

85. **Organization of Intramurals.** A course for men and women physical education teachers desiring to study organization and supervision of junior and senior high school intramural programs. 2½ credits. Daily 10.  
Hunsaker

111. **Creative Rhythms for the Elementary School.** Methods and materials in guiding the creative rhythmic experiences of the elementary school pupil. 2½ credits. Daily 9-11, June 28 to July 16. First session.  
Whitney

112. **Physical Education Curriculum for Elementary Schools.** Methods and practice in evaluating, developing and presenting a well-rounded curriculum of physical education for the elementary school, with emphasis on the rhythmic phase. 2½ credits. Daily 2. First session.  
Dutton

113. **Construction of Rhythmic Instruments.** Construction and practice in use of rhythmic instruments, drums, rattles, tambourines, etc., as accompaniment for rhythmic activities in the elementary school. 2½ credits. Daily 9. Lab arranged. June 7 to June 25.  
Dutton

131. **Techniques of Dual Sports and Gymnastics.** For men students majoring in Physical Education. Students will be taught the technique of boxing, wrestling, tumbling and gymnastics. Each student will be expected to prepare a teaching syllabus for class work. 2 credits. Daily 9. Second session.  
Heaton

Mills, Henry, Bushnell, Vanderhoff

151. **Techniques of Modern Dance.** (Men and Women.) Intensive work in Modern Dance Technics presented from the standpoint of the professional studio with application and adaptation of the material to the teaching situation. 3 credits. Daily 12-1:30. First session.  
Whitney

V. K. Brown

157. **Field Work Recreation.** (Prerequisite approval of department head.) This course is designed to give practical experience in conducting recreational programs at playgrounds and camps under the supervision of the college recreation staff and the director of the program to which the individual is assigned. Students will be expected to plan and conduct programs in a variety of activities applying principles, methods, and techniques gained in his prerequisite work. 4 credits. Daily 10. First or second session.  
Heaton


196-296. Organization and Administration of Recreation. (Men and Women.) General problems of organization and administration of Community recreation departments, including staff, facilities, program of activities, and office management. Special problems of recreation surveys, legislation, property acquisition, finances, construction, and maintenance, and securing community and school cooperation in a united recreation program. 2 credits. Daily 1. June 7 to June 25.


271. Research. Thesis Writing. Provides for individual work in thesis writing with the necessary guidance and criticism. Time and credit arranged. First or second session.

PHYSIOLOGY
Datus M. Hammond, Professor; Clyde Bidulph, Associate Professor.


ENTOMOLOGY
Datus M. Hammond, George Knowlton, Professors.

102. 103. 203. 104. 204. Systematic Entomology. 3 credits. Time arranged. Knowlton

199. Minor Problems. Time and Credit arranged. Staff

210. Special Problems. Time and Credit arranged. Staff

234. Readings in Entomology. Time and Credit arranged. Staff

250. Research and Thesis. Time and Credit arranged. Staff

POLITICAL SCIENCE
M. R. Merrill, Professor; F. D. Daines, Professor Emeritus; Wendell Anderson, Instructor.


200. **Research in Political Science.** Both sessions. Arranged for time and credit. 2½ credits.  

**POULTRY HUSBANDRY**  
**BYRON ALDER,** **Professor;** **C. L. DRAPER,** **Associate Professor.**  

101. **Poultry Production.** 3 credits. Time arranged. **Staff**  

**PSYCHOLOGY**  
**A. FRANDSEN,** **Professor;** **D. R. STONE,** **HEBER SHARP,** **Assistant Professors;** **GLENN R. HAWKES,** **Instructor.**  

3. **General Psychology.** A study of the general principles of human behavior including nature of personality; factors determining development; how we learn, observe, and think; motives of human conduct; dealing with people; and the maintenance of personal efficiency and mental health. Intended for Lower Division students in all schools of the College. 5 credits. Both sessions. Daily 9. M279.  

54. or 154. **Psychology of Business and Industry.** The methods and explanatory principles of psychology will be applied to understanding several general problems of business and industry, including: vocational choice and the selection of employees; advertising and selling; marketing and consumer research; conditions for efficient work; and the psychological aspects of training for work in business and industry. Prerequisite, General Psychology. 2½ credits. Session one. Daily 2. **Stone**  

103a or 203a. **Clinical Psychology.** Psychometrics applied to guidance, adjustment problems, and remedial teaching. A course for school counselors, personnel workers, social workers, and clinical psychologists, which considers the selection, evaluation, administration, interpretation and practical uses of tests of intelligence, aptitudes, interests, personality and quality of personal and social adjustment. Prerequisite: General Psychology. 2½ credits. Session one. Daily 2. **Frandsen or Sharp**  

103c or 203c. **Clinical Psychology.** Theory and practice of counseling; directed problem-solving interviewing; giving advice, guidance, in improving school achievements and worker efficiency, and in treating problems of personal and social maladjustment, the uses of the following procedures will be studied: non-directive counseling; directed problem-solving interviewing; giving advice, assurance, persuasion, and information; and of controlled family, school, club or camp, community and institutional environments. Prerequisite, General Psychology. 2½ credits. Second session. Daily 11. M279. **Frandsen or Stone**
102b. Applications of Statistics to Education and Psychology. An elementary study of the statistical procedures used in handling test scores in schools and other guidance agencies and of the concepts needed to read current educational and psychological literature. 1½ credits. First session. Mon., Wed., Fri., M279.

110. Child Psychology. A study of the roles of maturation, learning, and environmental conditions in the motor, mental, social, and emotional development of children from birth to adolescence. Generalizations with respect to individual differences, emotions, motivation, how children learn, observe, and think will be applied to understanding and guiding children's behavior in home, school, and community. Prerequisite: General Psychology. 2½ credits. First session. Daily 10.

120. Social Psychology. A study of the adjustment of the individual to his environment, including consideration of learning of social habits, social motivation, language, attitudes, and group behavior. These concepts will be applied in understanding such topics as propaganda, institutional behavior, group prejudices, morale and leadership. Prerequisite: General Psychology. Second session. Daily 9. 2½ credits.

145. Mental Hygiene. The common personal and social adjustment problems of normal people. It shows how people, in striving to attain a balanced satisfaction of motives in their major life activities, learn different modes of adjustment: effective patterns of behavior, a variety of maladjustive mechanisms, and non-adjustive reactions. It should aid in cultivating personal efficiency and mental health and increase understanding of the human problems dealt with by parents, teachers, social workers, and personnel workers. Prerequisite: General Psychology. 5 credits. Both sessions. May be taken for 2½ credits either session by permission. Daily 2.

200. Advanced Educational Psychology. The contributions of modern theory and recent research to the following fundamental problems of teaching and guidance will be studied: Motivation; learning; improvement of study habits; uses of tests in guidance and in measurement of achievement; social psychology of childhood and adolescence; personality and conduct problems; and mental health. Problems for masters degree thesis will be indicated. Prerequisite: Educational Psychology or by permission of instructor. 2½ credits. Second session. Daily 10

205s. Readings in Psychology. Time arranged. Credits arranged. Both sessions. Staff

206s. Research in Psychology. Time arranged. Credits arranged. Both sessions. Staff

RADIO AND ELECTRONICS

LARRY S. COLE, CLAYTON CLARK, Associate Professors; WILLIAM L. JONES, Instructor.

Any course in this department listed in the regular catalog will be taught if a sufficient number of students register for the course.
RANGE MANAGEMENT

L. A. STODDART, Professor; A. D. SMITH, Assistant Professor.

98. Range Practice (Summer Camp). 3 credits. Smith
195. Range Problems. 1-3 credits. Both sessions. Stoddart

SECRETARIAL SCIENCE

V. D. GARDNER, Professor; L. MARK NEUBERGER, Associate Professor; INA DOTY, CLARA P. WEST, Assistant Professors.

30. Business Communications. Fundamental principles of business letter writing will be studied. Practice will be given in writing sales, order, collection, adjustment, and application letters. Prerequisite: English 2. 2 1/2 credits. Daily. Second session. Neuberger

65. Indexing and Filing. Drill and practice will be given in alphabetic, numeric, triple check automatic, subject, decimal, geographic, and soundex methods of filing. The indexing, coding and filing of letters, cards, blueprints, catalogs, and other business forms will be emphasized. 2 1/2 credits. Daily. First session. Room M303.

80. Intermediate Shorthand. Designed for students who have had one year of shorthand. The course includes a review of the theory of Gregg shorthand with the development of a new vocabulary. Special attention will be given to the attainment of speed in taking dictation. 2 1/2 credits. Daily. Room M305.


86. First Quarter Typewriting. For students who have had no previous training in typewriting. This course is designed to develop a thorough knowledge of the keyboard and to give practice in the use of the mechanical features of the typewriter. Special attention will be given to the development of typewriting for personal use. 1 credit. Daily. First session. Room M304.

87. Second Quarter Typewriting. Continuation of 86. Attention is given to sentence and paragraph practice and to letter writing. One credit. Daily. Second session. Room M304.

97. Office Machines. Designed to give students a knowledge of the operation of two machines widely used in the modern business office. The following machines will be studied:
Burroughs Calculating Machine. Application of the calculating machine to various business computations such as addition, multiplication, subtraction, division, accumulation, fixed decimal point work, percentages, chain discounts, prorating, decimal equivalents, constants and inventories.
Burroughs Commercial and Bank Posting Machine. Instruction and practice in the application of the posting machine to bookkeeping methods in commercial business houses and banks. 2 1/2 credits. Daily. First session. Room M303.

191. Problems in Teaching Business Subjects. An analytical study of devices, methods and materials used in teaching book-
keeping, typewriting, shorthand, junior business, business law, commercial geography and related business subjects. Consideration will also be given to the problems met by the business teacher in organizing, administering a business department. 2½ credits. Daily 10. First session. Room M352.

Neuberger

SOCIOLOGY

JOSEPH A. GEDDES, PROFESSOR; JOSEPH N. SYMONS, LAWRENCE S. BEE, ASSOCIATE PROFESSORS; HOWARD V. JESSOP, INSTRUCTOR.

60. Marriage and the Family I. Designed to help unmarried and married students understand the roles of social and emotional factors in personality development, courtship, mate selection and marital adjustment. Also for teachers teaching courses in family relations. 2½ credits. Daily 8. First session. Room M206. Bee

110. Utah Social Problems. Present problems dealing with housing, population, migration, temperance, safety, crime, leadership, economic and social planning are studied. 2½ credits. Daily 8. Second session. Room M206. Geddes

170. Juvenile Delinquency. The causes of delinquency are considered with the purpose of arriving at intelligent remedies. Various methods of home, social and institutional treatment are studied; parental cooperation, personal supervision allied with probation and parole, institutional treatment etc., are considered. 2½ credits. Daily 7. Second session. Room M206. Symons

199. Readings and Conference. 2 credits. Time arranged. Both sessions. Staff

SOCIAL WORK

110-210. Field Work. Field work centers will be maintained in selected public agencies and supervision will be provided under college direction. Prerequisite: Case Work 1. 2 credits, T. Th. 9-5. First session. County Public Welfare Dept. Jessop


SPEECH

CHESTER J. MYERS, PROFESSOR; REX E. ROBINSON, ASSOCIATE PROFESSOR; E. LEROI JONES, ASSISTANT PROFESSOR; GWENDELLA THORNLEY, INSTRUCTOR.

55S. Extempore Speech. Designed to meet the specific needs of professional people in the practice of their profession. Basic principles of effective speaking, with emphasis on composition and delivery of the forms of address of greatest interest to those for whom the course is provided. 2½ credits. Daily 10. Both sessions. Room M204. Robinson, 1st session
Thornley, 2nd session

11S. Speech for the Foreign Student. This class is designed to help foreign students with conversational and technical vocabulary development. 2½ credits. Daily 8. Both sessions. Room M282. Jones

p12-112. Private Instruction. Individual attention given in private to particular needs of the student in an effort to eliminate personal defects, develop skill, and solve individual speech problems. Recommended for anyone needing personal speech training and to all those who are majoring in speech. Special fee. Time and credit arranged. Myers

185-118S. Story Telling. The story as an educational factor; analysis and classification of typical stories with reference to each period of the child's development. Study of sources, adoption of material; and actual practice in story telling. Consideration is given to stories of western pioneer life. The work is designed to meet the needs of student, teacher, recreational leader, church activity leader, librarian, and parent. 2½ credits. Daily 8. First session. Room M205. Myers

245-124S. Oral Interpretation. Various literary forms are studied for platform presentation. The mastering of significant selections from great masters. Reading from manuscript and from memory. 2½ credits. Daily 9. First session. Room M205. Myers

107S. Speech Hygiene. The techniques of normal speech and the development of normal and abnormal speech. Major consideration will be given to the prevention and correction of speech abnormalities. This course is primarily designed to fulfill the speech hygiene needs of elementary school teachers. It is recommended for all secondary teachers but will not fulfill the speech pathology requirement for Speech majors. 2½ credits. Daily 9. Second session. Room M282. Jones

110S. Public Programs. A study of types of interpretive material suitable for presentation before various kinds of audiences. Reading of short stories, plays, and novels to determine suitability. The cutting of literary types and material to suitable form and length for public reading. 2½ credits. Daily 10. Room M205. Myers

167S. Introduction to Speech Correction. Required of all Speech and Speech correction majors and those taking a composite Speech and English major. It is suggested as an elective for majors in Psychology. This course is the first course in speech correction, dealing with common speech defects and remedial measures for problems in lisping, indistinct pronunciation, foreign accent, delayed speech, stuttering, and inappropriate use of the voice. 2½ credits. Daily 9. First session. Room M282. Jones

171S. Speech Pathology. This is the advanced course in speech correction. It deals with the speech involvements of pathologies of the larynx, mouth, ears, and brain. Disorders such as pathological voice defects, cleft palate, hard of hearing and deafness, apha-
Summer Session

173. Speech Clinic. Application and discussion of methods applied to speech correction in the clinic. Training and practice through the supervised handling of selected cases. Students who have had one quarter of experience are allowed to participate in extension clinics. Prerequisite or corequisite, Speech 167. Consult the instructor for permission to register. Time and credit arranged. Both sessions.

183. Problems in Speech. Especially selected work, individually assigned, handled, and directed in consultation with the student. Special speech problems of merit and of mutual interest to student and instructor are investigated and reported upon in this course. Consult the instructor for permission to register. Credit and time arranged. First session.

VEGETABLE CROPS

L. H. Pollard, Professor; E. Milton Andersen, Associate Professor; L. R. Hawthorn, Collaborator in Research, U. S. D. A.


VETERINARY SCIENCE

Wayne Binns, Professor.


200. Special problems. Time arranged. 1-3 hrs.

WELDING

Anton B. Kemp, Instructor

91. Acetylene Welding. 3 credits. Lec. M. T. W. Th. 2. Lab M. T. W. Th. 3-5. First session.

94. Electric Welding. 3 credits. Lec. M. T. W. Th. 2. Lab M. T. W. Th. 3-5. First session.

WOODWORK & BUILDING CONSTRUCTION

Joseph Coulam, Associate Professor; Ross Nyman, Charles Merkley, Instructors.

61, 62, 63. Joinery and Millwork. Basic training in hand tool and machine operations for students in Building Construction or for those who desire a working knowledge in wood for their own needs. The courses include a thorough study in the proper use, care and sharpening of hand tools, machine processes, safety measures, care and repair of machines, and sharpening of machine cutters. Assigned reading and application of mathematics to
woodwork problems are integral parts of the course. 2, 3, or 5 credits. Both sessions.  

67. **Woodwork for Engineers.** A brief basic course dealing with the use of hand and machine tools employed in the various woodworking trades. Also layout, wood properties, and lumber grading. 2 credits. Time arranged. *Nyman and Merkley*

72. **Concrete and Clay Products.** The composition of concrete for various purposes, the use and placement of reinforcing agents; waterproofing, coloring, and stone imitations, etc. Composition of bricks, tile, etc., and their strength and thermal conductivity are also studied. A number of projects are built in the laboratory during the course. 2 credits. Time arranged. 2nd session. *Merkley*

171, 172, 173. **Cabinet Work.** The design and construction of furniture and cabinets including a study of the woods suitable for furniture and cabinet building, wood turning, inlaying, wood carving, and types of wood finishing. Projects are built in fine furniture and cabinets which include inlaying, overlaying, and carving. Prerequisites. W. W. 61, 62, 63. 2, 3, or 5 credits. Both sessions. *Nyman*

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**ZOOLOGY**

*Datus M. Hammond, Professor; J. S. Stanford, Assistant Professor.*

1. **Principles of Biology.** 5 credits. Daily 1-3. First session. Room M227. *Staff*

2. **Invertebrate Zoology.** 5 credits. M. W. F. 9, T. Th. 2-5. Both sessions. Room M227. *Staff*

112. **Principles of Genetics.** 5 credits. M. T. W. Th. 9, F. 2-5. Both sessions. Room M227. *Staff*

118. **Vertebrate Embryology.** 5 credits. Daily 8, M. T. W. Th. 2-5. First session. Room M227. *Staff*

199. **Minor Problems.** Time and credit arranged. *Staff*

201. **Special Problems.** Time and credit arranged. *Staff*

240. **Research and Thesis.** Time and credit arranged. *Staff*

**Note:** Two and three credit courses in Joinery and Millwork and cabinet work are scheduled each quarter. See Regular College Catalog.