



1954  
**SUMMER SESSION**

JUNE 1  
TO  
JULY 24

**SOUTH DAKOTA STATE COLLEGE**  
OF AGRICULTURE AND MECHANIC ARTS  
BROOKINGS

**GRADUATE WORK ❖ INSTITUTES ❖ WORKSHOPS**

# South Dakota State College

of Agriculture and Mechanic Arts

## Bulletin

Summer School Issue  
1954

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## General Information

The State College Summer Session for 1954 will be an eight-week session opening on June 1 and closing on July 24.

Tuesday, June 1 will be registration day. Students should register on that day and be ready to start classes on Wednesday morning. Students should plan to arrive in Brookings in time to arrange for living quarters before school opens. All administrative offices will be open during the preceding Saturday forenoon.

The eight-week summer session has been arranged to be of maximum benefit to teachers, students who are now enrolled in colleges, and high school students who wish to begin their college work. Courses will be offered in all five divisions of the College—Home Economics, Science and Applied Arts, Agriculture, Engineering and Pharmacy.

The normal load for students in the eight-week session will be 12 quarter-hours of credit.

Students wishing to study courses not listed in the Summer Session bulletin, should write to the Director of Summer Session to determine whether special provision for studying these subjects might be made.

The College reserves the right to withdraw any courses for which there is not sufficient demand.

**Enrollment Procedure and Admission—** All undergraduate students entering State College for the first time must submit an application for admission on the official form and take the examinations which are used in counseling students. The examinations are given after classes start and entrance is not based on the examination. Students who have previously attended State College need not make advanced application or take placement examinations.

A student entering directly from high school should request the principal to send a transcript of his record directly to the office of Admissions and Records at State College before registration. A candidate for entrance to the Freshman class must present at least fifteen units of high school credit. A student who presents fourteen units may be admitted as a conditioned freshman, but must earn the additional unit in college before the close of his first year.

### Who Can Benefit by Attending Summer School?

Teachers in public schools of the state who wish to broaden the field of their teaching

qualifications will find many suitable courses on the schedule at State College this summer. Teachers who wish to earn a higher certificate or a higher degree will find many courses on advanced levels in the Summer Session.

**High school students** may wish to begin their college work immediately following their high school graduation. Present national security plans make it desirable for some students to get as much college training as possible before they are called into the service of our country. Beginning courses for high school graduates will be available.

It is particularly desirable for students planning technical training in fields such as Engineering or Pharmacy who may not have had required mathematics courses to register for summer school and make up such deficiencies.

Students of high ability may by careful selection of courses accelerate their college career and complete the requirements in approximately three calendar years.

**College students** who wish to accelerate their programs, or who have been unable to take certain required courses during the col-

lege year, may find the courses which they need listed in this bulletin.

### Expenses

Expenses are relatively low at State College. Tuition for the eight-week summer session will be \$27. General College Fees \$12.00, a Union fee of \$2, and an activity ticket of \$2.75. The total tuition and general fees will be \$43.75. However, students who have not previously registered at State College must pay a matriculation fee of \$5. This fee is paid only once. It is not required of those who have previously registered at State College.

For short courses of less than the normal summer session term that are open for college credit, a fee of three dollars (\$3.00) per credit hour is charged in lieu of regular tuition and course fees. General college fees will not apply to students carrying short courses only.

Students in short courses desiring to establish college credit will pay the matriculation fee if registering for the first time.

### Housing

A limited number of barracks and trailer units will be available for married students. Persons interested in such accommodations should write to Director of Student Housing, State College.

Women students who are not residents of Brookings are required to live in dormitories unless permission to live elsewhere is granted by the dormitory committee. Men students may secure rooms in the men's dormitories.

The charge for rooming in the college dormitories is \$20.00 for the eight weeks session.

Students who live in dormitories must bring with them a mattress pad, pillow cases, pillow, sheets, blankets and towels.

Meals are available at the Pugsley Union as well as at restaurants near the campus. The cost of meals usually ranges between \$8 and \$10 per week.

### Graduate Work

Every instructional division of the college offers numerous and varied research opportunities, in addition to formal course work

beyond what is required for the bachelor's degree. Credit earned in such advanced work, by one who has previously received the baccalaureate degree, may be applied toward the degree Master of Science.

Of the courses listed in this bulletin, those numbered 200 or above are organized and presented at the graduate level and, with rare exceptions, are not open to undergraduates. Courses numbered 100 through 199 are open to advanced undergraduates as well as graduates. However, in order to receive graduate credit in such courses (100-199), it is required that a graduate student do considerably more work than an undergraduate for the same book-credit.

**Residence.** The minimum time to be spent in residence work on State College campus is two full college quarters, or three summer terms of eight weeks each. However, unless one transfers acceptable graduate credits to this institution from another graduate school, he cannot fulfill all course requirements in this short period. A full college year, or a full calendar year, is more often necessary.

**Graduate Credits.** Forty-five quarter credits of graduate work constitute the minimum credit requirement for the M.S. degree. At least 30 of these must be earned in the major field of interest and at least 15 (total) in one or more minor fields. The 30 credits in the major field may include thesis credit, and an acceptable portion of the remainder should be earned in courses of the 200-series.

**Scholarship.** Grades in all work submitted for the M.S. degree must average B or better, and no grade below C is accepted at all.

**Recency of Course Work.** Course content, emphasis, and techniques improve so rapidly in most fields of learning that work done more than six years in the past cannot be accepted as fulfilling credit requirements for a graduate degree. Courses that have been outdated may be repeated for credit; or, if the department concerned approves, other courses now current may be substituted for them. In some instances a comprehensive examination over an outdated course—and its subsequent modifications—may satisfactorily bring the subject matter and its treatment up to date.

### Transfer of Credit

Credit for graduate work done at another institution may be transferred to State College and applied to the advanced degree here, provided that such work receives the approval of the Office of Admissions and Records, and also that of the department of instruction concerned. In no case, however, will more transferred credit be applied than one-third of the total required for major and minor fields respectively. In other words, no more than 10 credits in the major and no more than five in the minor.

### Off-Campus Courses

Graduate credit earned in off-campus courses, which are taught by State College personnel, are accepted in the same proportion as transfer credits.

**Thesis.** A graduate program which includes an original investigation and subsequent thesis is labeled Plan A, while a program in which additional course work or an individual project is substituted for the thesis is labeled Plan B. In most departments which offer graduate majors it is required that Plan A. be followed. However, in the departments Education, Home Economics, and Physical Education either plan may be followed and a student may elect the one he prefers.

### Major and Minor Fields

One may elect either a graduate major or a graduate minor in the following departments of the college: Agricultural Economics, Agricultural Engineering, Agronomy, Animal Husbandry, Bacteriology, Botany, Chemistry, Civil Engineering, Dairy Husbandry, Education and Psychology, Electrical Engineering, Entomology, Home Economics, Horticulture, Mechanical Engineering, Pharmacy, Physical Education and Recreation, Physics, Poultry Husbandry, Rural Sociology and Zoology. A graduate minor, but not a major, may be elected in the department of History and Political Science and in the department of Mathematics. A few graduate courses, though not enough for a graduate minor, may be elected in the department of English and in the department of Printing of Rural Journalism.

### Placement Services Teachers

The College has a Teachers Employment Bureau for alumni and former students who wish help in locating suitable teaching positions. The Bureau is operated by the Department of Education. Teachers who desire to have the employment bureau notify them when suitable vacancies occur may register with the Bureau during the Summer Session.

### Senior and Alumni Employment

The placement office assists graduating seniors and alumni in finding permanent full-time employment in fields other than teaching. Its chief function is to help qualified candidates obtain permanent employment or promotion in the work for which they have prepared themselves. Alumni are eligible to use the services of this office for consultation and placement at any time.

### Faculty

The teaching staff for the 1954 summer session will consist largely of the regular faculty of the College, plus a number of visiting instructors who will be called in to offer instruction in certain specialized courses.

### Special Workshops

The third annual **Economics Forum and Workshop on Economic Education** will be conducted as an integral part of the summer school program during the period of June 14-25. The favorable public response to the 1953 workshop has encouraged the administration to continue the project and to expand the program to meet the interests of more groups.

The purpose of this workshop-forum is to provide an opportunity for teachers and others (junior business executives, Extension workers, organization secretaries) to deepen their understanding of the basic mechanics of economics and how to use economic principles in day-to-day activities.

The program is being conducted under the sponsorship of the Economics Department and the Education Department, with the cooperation of agricultural, business, governmental and public education groups in the

state. Additional assistance is provided by the Joint Council on Economic Education, a national organization with offices in New York City, which provides instructional materials and consultants for the workshop. This is one of about thirty national workshops co-sponsored by the Joint Council on Economic Education.

The activities of the workshop will be scheduled in such a way as to enable regular summer school students to participate. Students may register either for graduate or undergraduate credit either in education or in economics.

Tuition for the special workshop students will be \$9.00 for the two weeks program, plus the \$5.00 matriculation fee for students not previously registered for course work at State College.

For further information write Dr. Frank G. Schultz, co-director of the project.

**Driver Education:** A comprehensive program for persons interested in high school driver training work will be offered. The basic course (see Physical Education 49) will be offered in a concentrated workshop program during the two weeks period of June 1-12; and the course in Advanced Driver Education (See Physical Education 149) will be offered either July 19-24, or July 26-31, 1954. For further information write Professor Harold J. Holmes, Department of Physical Education, State College.

**Workshop on Remedial Speech and Hearing:** June 7-25, 1954. For teachers and parents interested in the diagnosis of speech and hearing difficulties and in the methods of providing remedial instruction. Will be offered as a concentrated workshop course during the three-week period but regular summer school students may also participate in part of the program. From two to four hours of undergraduate or graduate credit will be allowed, depending upon the extent of participation. Adults and children with speech problems will be invited to participate in the laboratory-demonstration activities. For further information write Dr. Gayland Draeger, Department of Speech, State College.

**Secretarial Institute:** June 11-12. For practicing secretaries and office workers. For further information write Professor Alta R. Dickinson, Assistant Professor of Secretarial Science, State College.

**Economics Forum and Workshop on Economic Education:** June 14-25. (See explanation below.)

**Newswriting Workshop:** June 18-19. For newspaper correspondents and others contributing articles for publication in newspapers. For further information write Professor George H. Phillips, Head, Department of Rural Journalism, State College.

**Workshop on School Buildings:** Open to school administrators and school board members. Sponsored jointly by State College and the State Department of Education, July 12-13, 1954.

The staff for the State College workshop will consist of N. E. Viles, school buildings expert from the U. S. Office of Education, Mr. I. O. Friswold, Director of the Division of Buildings and Business Administration, Minnesota State Department of Education, St. Paul, Minnesota, and Mr. James C. Schooler, School Buildings Consultant, State Department of Education, Pierre, South Dakota.

For further information write Dr. F. G. Schultz, Dean, Division of Science and Applied Arts, State College.

Home Economics Problems. 3 credits. July 14-24. See Home Economics. Dr. Frances M. Hettler.

Advanced Problem in Home Economics Education. 1½ credits. June 7-12. For both men and women. Dr. George M. Beal and Mr. Neil Raudabaugh of Iowa State College. See Home Economics.

Special Topics in Home Economics. 3 credits. Concentrated short course. Dr. Frances M. Hettler. Write for details and date.

Special Topics in Home Economics—Textiles and Clothing. 3 credits. Concentrated short course. Miss Lillian Lund. Write for date and details.

Workshop in Education. 2/4 credits. See Education Department.

### Grant Reynard Lectures

Grant Reynard, a nationally famous painter and etcher, and an intimate friend of Harvey Dunn\*, will be on the campus during the last two weeks of the summer term—July 12th to 23rd. He will give a series of lectures on art subjects, give demonstrations, and work individually with persons interested in art, especially in painting.

Mr. Reynard is a member of the Society of American Graphic Artists, Prairie Print Makers, an Associate of the National Academy, New York, and the American Artist group. He has exhibited his work in major national exhibits and his paintings are found in the Metropolitan Museum, the Fogg Museum, the Addison Gallery of American Art, the Library of Congress and in numerous college and university collections.

He has taught art in the Grand Central Art School, New York, the Middlebrook School, New York state, and in summer school classes at the Universities of Texas, West Virginia and Wyoming.

In addition, Mr. Reynard has given numerous lectures, such as "Painting My Way Across the U.S.A.," "Enjoyment of Art," and "Harvey Dunn, Painter," before art clubs, women's clubs and college assembly groups, and has written articles on art for college publications. He is also the author of a book "Rattling Home for Christmas," published by the American Artists group, and which is illustrated with his own paintings.

One of the purposes of Mr. Reynard's presence on the campus is to provide the students and the public an opportunity to learn to

better appreciate the Harvey Dunn\* collection of paintings on permanent exhibition in the student Union building.

### Recreation and Social Activities

A program of organized social activities and recreation has been arranged to provide maximum entertainment and relaxation for summer session students. The program will be varied in nature and activities of interest to all groups have been arranged. Activities of a social nature will include parties, picnics and dancing. Tennis courts, baseball diamonds, equipment for archery and other sports will be available for student use. Student activity tickets will be honored at the Municipal Legion Golf course, which is just north of the college campus and farm. The beautiful municipal swimming pool will also be available to holders of summer session activity tickets.

An outstanding convocation program of professional entertainment is planned in the fields of art, music and dramatics. These programs are open to all students and their families.

\* Harvey Dunn, a native of South Dakota (De Smet), a few years ago, presented his collection of paintings to the State of South Dakota with the stipulation that they be exhibited in the State College Student Union building.

### ABBREVIATIONS

- R—Recitation
- L—Laboratory
- P—Prerequisite
- Cr—Credit
- MTWTFs—The days of the week
- \*—Time and/or credit to be arranged

# Division of Agriculture

## 1 Orientation $\frac{1}{2}$ Cr. R, W 1

Required of all freshmen. Meet with assigned counselor each week. College rules and regulations, attention to study habits and practices, self appraisal, health problems, campus social affairs and vocational and career planning.

## AGRICULTURAL ECONOMICS

### 21 Principles of Economics 3 Cr. R, MTTF 8

Basic citizenship economics. Main concepts applying to operation of economy as a whole, including money, banking, national income, and its fluctuations, government finance, international and inter-regional trade, and comparative economic systems. Emphasis on economics essential for good citizenship.

### \*34 Principles of Accounting 4 Cr. R MTh 8, 9; L, TuF 8, 9

Balance sheet; profit and loss statement; special ledgers; interest calculation, asset valuation; accrued and deferred items.

### 37 Principles of Marketing 4 Cr. R, MTWTF 9

Organization and structure of distribution system. Analysis of marketing functions; services and problems of wholesalers, retailers, etc. (incl. cooperatives); marketing costs; consumer problems; legislative and administrative control. P, 22.

### 48 Money and Banking 4 Cr. MTWTF 8

Principles of money, banking and credit, major types of financial institutions and their significant functions and policies. P, 21.

### 158 Advanced Farm Management 3 Cr. MTTF 10

Budgeting of farm resources, factors affecting farm and ranch success, government programs and farming adjustments. Special problems in farm planning. Field trips to farms and ranches. P, 38.

### 197 Special Problems 2-5 Cr. \*

Advanced work or special problems in agricultural cooperation, agricultural finance, farm management, land economics, marketing, public finance, statistics. Open to qualified seniors and graduate students by consent.

### 199 Economics Workshop 3 Cr. \*

Specially arranged short courses with staff and visiting lecturers, seminar sessions, and individual and/or group reports. P 9 credits in economics or equivalent experience. Two weeks.

### 285 Special Topics in Agricultural Economics

2-5 Cr. \*

Graduate students may elect subjects in agricultural economics in consultation with staff. Open to all graduate students working towards Masters' Degree in agricultural economics.

### 299 Thesis in Agricultural Economics

7-10 as arranged

Original work under supervision on suitable research problem approved by department head and requiring written report to meet specifications of Committee on Graduate Study and College Library. Required of each candidate for degree Master of Science with major in this department and not open to others. Preferably scheduled over two or more quarters and department may withhold final grade on full credit until written report is accepted.

\* Will be offered if demand warrants.

## AGRONOMY

### 55 Grain Crops 3 Cr. R, MTWT 9

Distribution, adaptation, classification and culture of corn, wheat, oats, barley, flax and other crops. P, 2

### 190 Crop Production Problems 2 Cr. \*

Assigned readings, reports and discussion on important topics dealing with production of selected farm crops.

### 192 Soil Problems 2 Cr. R, MTWTF 8

Advanced study in soil management problems with respect to use of fertilizers, crop rotations and organic matter in maintaining soil in high state of productivity. Designed for vocational agriculture instructors. Five weeks.

### 299 Thesis in Agronomy 7-10 \*

Original work under supervision on suitable research problem approved by department head and requiring written report to meet specifications of Committee on Graduate Study and College Library. Required of each candidate for degree Master of Science with major in this department and not open to others. Preferably scheduled over two or more quarters and department may withhold final grade on full credit until written report is accepted.

## ANIMAL HUSBANDRY

### 10 Elementary Horsemanship 2 Cr. L, MWF 1, 2

Types and breeds of riding horses, gaits, grooming, equipment, rations; basic riding instruction with English and Western type equipment. Consent of instructor.

### 140 Swine Production 3 Cr. R, MTWTF 8

L, MWF 1, 2

Course four weeks duration. Feeding, breeding and management principles for swine production; production trends and cycles; equipment for hog production. P, 20-21, 25-26.



**175 Advanced Livestock Feeding** 3 Cr. MTWT 9

Newer knowledge of digestion, metabolism, nutritive requirements, deficiency diseases of cattle, swine, sheep and horses. Survey of recent research findings in livestock feeds and practical aspects of results. P, Vet 20, AH 26.

**201 Research Problems** 3-5 Cr. \*

Graduate students may select a problem in:

- (1) Swine production
- (2) Beef cattle production
- (3) Sheep production
- (4) Range livestock production
- (5) Animal breeding
- (6) Meats
- (7) Nutrition
- (8) Livestock marketing

Maximum of five hours credit during graduate study.

**299 Thesis in Animal Husbandry** \* Cr. \*

7-10 as arranged. Original work under supervision on suitable research problem approved by department head and requiring written report to meet specifications of Committee on Graduate Study and College Library. Required of each candidate for degree Master of Science with major in this department and not open to others. Preferably scheduled over two or more quarters and department may withhold final grade on full credit until written report is accepted.

**BOTANY****11-12 General Botany: Seed Plants** 4 Cr. each

Bot. 11: R, MWF 8; L, MWF 1, 2

\*Bot. 12: R, MWF 9; L, TT 2, 3, 4

Consideration of those problems of development, adjustment and functions which plants must solve if they are to live successfully. Attention given to importance of plants to man's economy. Open to all students.

**24 Black Hills Flora** 9 Cr. Summer Botany Camp

Field-laboratory course in taxonomy and ecology of plant life in Black Hills. Maximum of nine credits allowed. Apply to Botany Department for details of prerequisites, equipment, and expense.

**27 The Local Flora** 4 Cr. R, MWF 9; L, TT 2, 3, 4

Principles of taxonomy and identification of plant species in Brookings vicinity. P, 1, 2 or 11, 12.

**\*41 General Plant Physiology** 5 Cr. R, MWF 8; L, MWF 1, 2.

Rapid survey of fundamental plant functions and adjustments. P, 11-12. Desirable antecedent Ch. 1-2-3 and 21.

**47 Plant Anatomy** 5 Cr. R, MWF 10; L, M 1, 2, 3 and WF 1, 2

Developmental anatomy of seed plant axis and its appendages. Emphasis on structural fitness of tissues and organs for functions they perform. P, 11, 12.

**\*141 Ecology of Plant Communities (First Half)** 4 Cr. R, MWF 10; L, TT 1, 2, 3.

Interrelation of vegetation and environment in major climatic zones of North America; principles of succession; development of plant communities; recognition of indicator plants. P, 11-12 and either 23, 24 or 27. Desirable antecedents 32 and either 41 or 152-153.

\*These courses will be offered only if there is not sufficient call for the summer camp in the Black Hills to justify the absence of a staff member from the campus.

**DAIRY HUSBANDRY—  
BACTERIOLOGY****167 Dairy Problems** 1-3 Cr.

Special problems in field of dairying. For advanced students only.

**202 Organisms in Dairy Products** 3 Cr. \*

Isolation and identification of micro-organisms commonly found in dairy products and their cultural characteristics. P, 162.

**299 Thesis in Dairy Husbandry** Cr. \***30 General Bacteriology** 4 Cr. R, MWF 8;

L, MWF 1, 2.

Principles of microbiology and microbiological techniques. P, sophomore standing.

**71, 72, 73 Seminar** 1 Cr. \*

Presentation of original and contemporary research in various fields of bacteriology and related fields. Maximum of 3 credits allowed. Course 71, 72 or 73 offered as needed.

**151, 152, 153 Bacteriological Literature** 2 Cr. \*

Review and criticism of current papers in field of bacteriology, and discussion of their application to industry and health. Maximum of four credits allowed. Admission upon recommendation of instructors. Course 151, 152, or 153 offered as needed.

**165, 166, 167 Bacteriology Problems** \*

Individually assigned investigative problems in bacteriology, mycology or immunology. Individual conferences and laboratory or field work. Admission upon recommendation of instructors. Course 161, 162 or 163 offered as needed.

**252 Industrial Bacteriology** 3 Cr. \*

Microbial fermentations of industrial significance, including common spoilage epidemics in industrial processes.

**273, 274, 275 Graduate Seminar** 1 Cr. \***299 Thesis in Bacteriology** 7-10 Cr.

Original work under supervision on suitable research problem approved by department head and requiring written report to meet specifications of Committee on Graduate Study and College Library. Required of each candidate for degree Master of Science with major in this department and not open to others. Preferably scheduled over two or more quarters, and department may withhold final grade on full credit until written report is accepted.

**ENTOMOLOGY-ZOOLOGY**

- 22 Human Physiology** 4 Cr. R, MWF 8, AgH 343;  
L, MW 1, 2, 3, AgH 334.

Fundamental physiological processes of human body. Special emphasis on circulatory, respiratory, muscular, nervous and digestive systems. P, 20, 21 or equivalent.

- 42 Genetics** 3 Cr. R, MTF 10, AgH 343.

Basic principles of science of heredity as related to animals and plants; designed for agricultural students, science teachers, sociologists, pre-medics, nurses, home-makers and others. P, 20, 21 or equivalent.

- 146 Invertebrate Zoology** 3 Cr. R, MWF 9, AgH 341; L, TT 1, 2, AgH 311.

(147, second quarter, offered summer 1955; 148, third quarter, offered summer 1956).

Sequence of three summer's work will include all work ordinarily covered in three quarters of regular academic year; however, it is not necessary to take these quarters in sequence.

First quarter will consist of Phyla Protozoa and Porifera. Emphasis will be placed upon parasitic protozoa as well as upon free living forms. Field trips, collection and culture methods included in laboratory work. P, 20, 21 or equivalent.

- 149 Zoological Specimens** 3 Cr. R, MWF 11,  
AgH 341; L, TT 3, 4, AgH 311.

Methods of collection and preparation of zoological specimens for laboratory use, science classes, and for demonstration purposes. Designed especially for teachers and research biologists. P, 20, 21 or equivalent.

**PLANT PATHOLOGY**

- 46 Field Plant Pathology** 3 Cr. \*

Summer field course. Disease symptoms, isolation of disease organisms, and identification of common economic plant diseases. P, 45.

**RURAL SOCIOLOGY**

- 20 Principles of Sociology** 5 Cr. R, MTWTF 8, 2  
Hrs. \* AgH A

Prerequisite to all other courses numbered above 20. Comprehensive study of society, with analysis of group life and other forces shaping human behavior.

- 32 Elements of Leadership** 3 Cr. R, MTWT 8,  
AgH 139.

Analysis of leadership including qualities of leader, art in influencing people, training, selection and responsibilities of leaders in democratic society. P, 20.

- 46 Marriage** 3 Cr. R, MTWT 9, AgH A.

Courtship and marriage period given special emphasis. Mate selection problems, adjustment in marriage, reproduction and child training discussed. P, 20.

- 60 Industrial Sociology** 3 Cr. R, MTWT 10,  
AgH 139.

Formal and informal groupings within modern industrial plants; factory social tensions and conflict; strikes; social effects of labor organizations; relations between industry and community. P, 20.

- 145 Population Problems** 3 Cr. R, MTWT 1,  
AgH 139

Theories of population; factors involved in birth rate, death rate and migrations. Social consequences of population change; problems of population quality and population policy. P, 20.

- 162 Criminology** 3 Cr. R, MTWT 11, AgH 139.

Nature and causes of crime. Making of criminal. Theories of punishment. Agencies and methods of arrest, conviction and segregation of criminals. Jails, prisons and reformatories. Probation and parole. P, 20.

- 165 The Small Town** 3 Cr. R, MTWT 8, AgH B.

Intensive study of American small town with population to 2,500; review of historical development, growth, structural fundamentals, various trade and social institutional services, town planning and leadership; together with economic and social relationships to both open country and urban centers. P, 20.

- 199 Special Problems in Sociology** 1-3 \*

Advanced work or special problems in such areas as population, marriage and family, rural sociology, criminology, social pathology or urban sociology. P, Open to seniors and graduate students, with sufficient background.

- 262 Social Thought** 4 \*

Brief survey of history and developments of world's most important social theories and schools of social thought, evaluated in the light of present knowledge.

- 299 Thesis** 7-10 as arranged \*

Original work under supervision on suitable research problem approved by department head and written report to meet specifications of Committee on Graduate Study and College Library. Required of each candidate for degree of Master of Science with a major in this department. Preferably scheduled over two or more quarters and department may with hold final grade on full credit until written report is accepted.

# Division of Engineering

## 1 Orientation $\frac{1}{2}$ Cr. R, W 1

Required of all freshmen. Meet with assigned counselor each week. College rules and regulations, attention to study habits and practices, self appraisal, health problems, campus social affairs and vocational and career planning.

## GENERAL ENGINEERING

### 3 Engineering Drawing 2 Cr. L, MTuW 1, 2, 3

Development of skill in use of drawing instruments, and in mechanics of drafting. Open to all students who have had high school mathematics.

### 30 Engineering Problems 2 Cr. \*

Systematic methods of solving representative problems. Use of slide rule and other calculating devices and machines. Habits of neatness and orderliness in calculation are cultivated. P, Math 15.

### 40 Safety Training 2 Cr. \*

General course in safety covering employer liability, accident cost, safety devices, accident-prone worker, employee health, occupational diseases, accident and fire prevention, and organization for safety control.

## CIVIL ENGINEERING

### 3 †Plane Surveying 3 Cr. \*

Use, adjustment, and care of surveying instruments and field application of these instruments. P, Math 15, GE 4.

### 180-181 Special Engineering Problems 1-5 Cr. \*

Elective course for special or detailed study of investigation. P, senior in civil engineering. For advanced irregular students.

Courses for senior engineers as needed.

## ELECTRICAL ENGINEERING

### 5 Fundamentals of Radio and Television 4 Cr. \*

AM and FM radio and television with emphasis on receiving equipment. Treatment of underlying principles, radio, video and audio amplifiers, oscillators, detectors and rectifiers and their combination to form radio and television receivers. Laboratory work includes construction of radio receivers, trouble-shooting, and basic experiments in television. Cannot be applied toward graduation in engineering. P, High school graduation.

†Suitable for irregular students as well as for mathematics and science teachers.

### 170 Special Electrical Problems 1-3 Cr. \*

Special problems assigned in field of power or electronics. P, senior standing.

Note: other courses may be added if needed by our own students.

## MECHANICAL ENGINEERING

### 2 Blueprint Reading 2 Cr. R, Tu 11; L, ThF 1, 2, 3

Reading and interpreting blue prints. Suitable for mechanics, building trades people, and others who do not wish to take regular course in engineering drawing (or preparatory for those who have difficulty with drawing and descriptive geometry.)

### 10 Architectural Drafting Details

2 Cr. L, MTuW 1, 2, 3

Usual construction details used in building trades including foundations, framing roofs, cabinets and furniture. Course can be arranged to fit needs of student considering his ability and drafting experience.

## ENGINEERING SHOPS

### 2 Machine Shop 2 Cr. L, MTWT 1, 2, 3

Equipment and tools used in machine shop work, methods of laying out work, elementary principles of machine and bench work, and problems involved in use of machine tools.

### 3 Advanced Machine Shop 2 Cr. \*

Continuation of Machine Shop 2. Further and more detailed instruction in machine shop problems and operation.

### 5 Forging and Welding 2 Cr. L, MTWT 1, 2, 3

Introductory lectures and exercises in forging, heat treatment, oxyacetylene and arc welding.

### 10 Woodworking 2 Cr. L, MTWT 1, 2, 3

Use, care and conditioning of tools. Properties of various kinds of woods and processing of woods for specific purposes.

### 20 Machine Shop Problems 2 Cr. \*

Opportunity to undertake detailed and specialized studies of particular machines or to undertake comprehensive problems.

### 24 Wood Turning 2 Cr. \*

Use of wood lathe, spindle, face pivot, drive chuck, wood chuck operations in turning of various items, including patterns for foundry work, P, 11.

### 25 Carpentry 3 Cr. \*

Continuation of elementary carpentry with emphasis in framing and rafter cutting. Special materials available for use in modern building. P, 10.

**MATHEMATICS****2 Solid Geometry** 2 Cr. MWF 8

(Not counted toward graduation.) Required of freshmen engineering students who enter without high school credit in subject.

**3 Algebra** (First year high school continued) 5 Cr. R, MTWTF 8, 2 hrs. \*

(Not counted toward graduation.) Required of freshmen engineering students entering with credit in only two semesters of algebra.

**10 College Algebra** 5 Cr. R, MTWTF 11, 2 hrs. \*

Review of fundamental operations, factoring, highest common divisor, least common multiple and solutions of linear simultaneous equations; study of quadratic equations, exponents, radicals.

**11 Trigonometry** (for General Science and Pharmacy students) 5 Cr. MTWTF 8, 2 hrs. \*

Principles of plane trigonometry and their application to solution of triangles, inverse functions, solutions of trigonometry equations. DeMoivre's theorem. P, 10 or equivalent.

**16 Analytic Geometry** 5 Cr. R, MTWTF 11, 2 hrs.\*

Co-ordinate systems, loci, straight line, general equation of second degree. Required in engineering, elective for others. P, 14, 15.

**27 Applied Calculus** 4 Cr. R, MTWTF 9

Applications of calculus to maxima and minima, series, areas, surfaces, volumes, centroids and movements. Required in engineering, elective in other courses. P, 26.

**105 Mathematical Statistics** 5 Cr.

Analysis of data by certain elementary principles; curve fitting, measures of correlation, and meaning and calculation of number of statistical constants. P, college courses in algebra and trigonometry.

**110-111 Mathematics of Finance** 3 Cr. \*

Application of algebra to problems in interest, annuities, amortization, valuation of bonds, sinking funds and depreciation, building and loan associations, theory of probability and problems in life insurance. P, 14, 15 or 10, 11.

**141 Theory of Equations and Determinants** 3 Cr. R, MTTF 10

Complex numbers, DeMoivre's Theorem, cubic and biquadratic equations. P, 16.

**148 Differential Equations** 4 Cr. R, MTTF 10

Differential equations with applications in fields of mechanics and physics. P, 26.

**PHYSICS****3 Physics in the Modern World** 2 Cr. R, MWF 9

Elementary survey of field of physics with emphasis on application to phenomena and equipment encountered in every day life. Offered only in summer session.

**161 Modern Physics** 3 Cr. R, MTTF 10

Detailed study of selected topics including elementary particles, wave and particle theory, X-rays, atomic spectra, artificial disintegration of nuclei and nuclear energy. P, 41, 60 or consent of instructor. P, 160.

**165 Modern Physics Laboratory** 1 Cr. \*

Experimental work covering work 160 and 161. P, concurrent registration in 160 and 161.

Additional courses will be offered if demand warrants it.

## Division of Home Economics

### 1 Orientation $\frac{1}{2}$ Cr.

Required of all freshmen. Meet with assigned counselor each week. College rules and regulations, attention to study habits and practices, self appraisal, health problems, campus social affairs and vocational and career planning.

### WORKSHOPS

### 166 Home Economics Problems 3 Cr. July 12-24

Concentrated study of problems concerned with teaching of foods and nutrition on family centered basis. Dr. Frances M. Hettler.

### 265 Advanced Problems in Home Economics

#### Education $\frac{1}{2}$ Cr. June 7-12

Planned for both men and women. Concentrated study on techniques for working with groups. Of special interest to Extension personnel, teachers in secondary and higher education, administrators, social workers and church leaders. Dr. George M. Beal of Sociology Department and Mr. Neil Raudabaugh, Head of Extension Studies and Training, Iowa State College.

### 268 Special Topics in Home Economics 3 Cr.

Concentrated short course. Write for date and details.\* Survey of principles of food preparation and recent trends in food research. Laboratory experiences included. Dr. Frances M. Hettler.

### 270 Special Topics in Home Economics—Textiles and Clothing 3 Cr.

Concentrated short course. Write for date and details.\* Newer chemical fibers, their physical properties, care and use; modern fabric finishes and their uses in clothing. Lillian Lund.

### 50 Home Management 3 Cr. R, MTuWF 9

Applications of principles of scientific management to budgeting time and money.

### 56 Textile Economics 3 Cr. R, MTWT 8

Economic aspects of clothing which directly or indirectly affect consumer. P. AgEc 21-22.

### 60 Methods of Teaching Clothing Lab 2 Cr.

L, MWF 9, 10, 11

Making of illustrative material for clothing courses.

### Ed 62 Special Methods in Home Economics 3 Cr.

R, MWThF 11

Problems of classroom teaching as they relate to pupil interests and needs, home visits and home experience program, equipping and business management of department, opportunities in and obligation to profession and entire school program. P. 51, 61 and senior standing in home economics.

### 64 Methods of Teaching Clothing Lecture 1 Cr.

R, Tu 11

Analysis of problems.

\* A choice of each given for a two-week period or run simultaneously for four weeks. Will be given during the period June 14-July 10.

### 72 Home Management House 4 Cr. \*

Six weeks residence in home management house with experience in problems that arise in home. P. 50, and senior standing in home economics.

### 173 Household Equipment 3 Cr. R, MWF 10;

L, Tu 1, 2, 3

Efficient use of household equipment, including selection, arrangement, operation and care of appliances. Elective. P. Phy 5, HE 20, 50, AgEc 21-22.

### Ed 275 Seminar 1 Cr. \*

Review and discussion of current literature in home economics education. Required of all graduate majors in home economics education. P. Graduate standing in home economics education.

### Ed 280 Research Problem 1-2 Cr. \*

Required of all graduate students qualifying for Master's degree without writing thesis. (See alternate procedure under Graduate Study). Problem selected in some area of home economics education. Problem analyzed, data gathered and treated statistically. Reported in approved form. P. Graduate standing in home economics.

## Division of Pharmacy

### 1 Orientation $\frac{1}{2}$ Cr. R, W 1

Required of all freshmen. Meet with assigned counselor each week. College rules and regulations, attention to study habits and practices, self appraisal, health problems, campus social affairs and vocational and career planning.

### 31 Cultivation of Medicinal Plants 2 (0,6)

Cultivation of medicinal and poisonous plants with emphasis on plants adapted to South Dakota.

### 40 Quantitative Pharmaceutical Analysis 4 Cr.

P, Ch 1-2-3. Deposit \$3.00.

### 42 Theoretical Pharmacy 4 Cr.

Medicinal alkaloids and their derivatives, glandular products, vitamins and biologicals. P, first two years of theoretical and practical pharmacy.

### 43 Practical Pharmacy 2 Cr. \*

Compounding of more simple prescriptions, packaging, labeling and wrapping of finished product. P, First two years of theoretical and practical pharmacy. Deposit \$3.00.

### 46 Window Display 2 Cr. \*

Combination study of color schemes and arrangements of materials, lighting effects. Deposit \$3.00.

# Division of Science and Applied Arts

## 1 Orientation $\frac{1}{2}$ Cr. R, W 1

Required of all freshmen. Meet with assigned counselors each week. College rules and regulations, attention to study habits and practices, self appraisal, health problems, campus social affairs and vocational and career planning.

## ART

### 25 Applied Design 2 Cr. L, Nine hours \*

Design and execution of various problems involving definite use of materials, tools and processes. Problems in metal, stenciling, leather, etc.

### 26 Applied Design 2 Cr. L, Nine hours \*

Continuation of Applied Design 25.

### 47 History of Art 3 Cr. R, MWF 11

History of modern art. Third term of three quarter course in art history. Credit in previous courses of series not necessary prerequisite.

### 60 Painting 2 Cr. L, MWF 1, 2, 3

Color and its properties; exercises in mixing and harmonizing color in painting, in oil or water color; emphasis given to problems of composition. Students who have had this course or its equivalent may enroll in advanced courses in painting.

**Note:** During two-week period of July 12-23, Grant Reynard, nationally known painter and writer in field of art will be on the campus to give lectures on, and will work with individual students in painting.

## CHEMISTRY

### 1 Inorganic Chemistry 4 Cr. R, MTF 9; L, TT 1, 2, 3

First quarter of standard course. Deposit \$3.00.

### 2 Inorganic Chemistry 4 Cr. R, MTF 10; L, TT 1, 2, 3

Study of the non-metallic elements; P, 1. Deposit \$3.00.

### 3 Inorganic Chemistry 4 Cr. R, MTF 8; L, TT 1, 2, 3

Systematic study of metals. P, 2. Deposit \$3.00.

### 20 Semi-micro Qualitative Analysis 5 Cr. \*

Analysis of mixtures of inorganic compounds using semi-micro technique. P, 3, Math 10 or 14. Deposit \$5.00.

### 21 Elementary Organic Chemistry 5 Cr.

R, MTF, 8; L, MTuW 1, 2, 3.  
Compounds of carbon with emphasis on those of

special interest to students in agriculture and science and applied arts. P, 3. Deposit \$5.00.

### 23† Gravimetric Analysis 4 Cr. R, MWF 9; L, MTuW 1, 2, 3

Theory and practice. P, 3. Deposit \$4.00.

### 24† Volumetric Analysis 4 Cr. R, MWF 9; L, MTuW 1, 2, 3

Theory and practice. P, 3. Deposit \$4.00.

### 28 or 29 Stoichiometry 1 Cr. R, TT 9

Methods of calculations in quantitative analysis. Should accompany Ch 23 or 24. P, 3.

### 73 Undergraduate Research \* Cr. \*

Special problems requiring original research. P, consent of instructor. Deposit \$1.00 per credit hour.

### 91, 92, 93 Undergraduate Chemistry Seminar 1 Cr. \*

Presentation of topic based on reference reading or original research. P, minor in chemistry.

### 147 Advanced Inorganic Chemistry 3 Cr. MTF 11

Selected topics in organic chemistry in light of modern theory. P, 3.

### 174 Biochemical Research \* Cr. \*

Research problems in applied biochemistry. P, 168. Deposit \$1.00 per credit hour.

### 260, 261, 262 Seminar 1 Cr. \*

Required of all graduate majors in chemistry.

### 299 Thesis in Chemistry \* Cr.

Required of candidates for the M.S. degree in chemistry.

**Note:** Every effort will be made to provide graduate courses for those who need them to fill out a graduate program.

†Either Ch 23 or 24, but not both, will be offered.

## EDUCATION and PSYCHOLOGY

**Note:** For information on general requirements for graduate study see Graduate Work section elsewhere in this bulletin.

The summer session course offerings in professional education are designed to meet the needs of several groups:

A. Undergraduate juniors and seniors planning to qualify for a teachers certificate.

B. Teachers interested in certificate renewals—generally nine quarter credits of under-

graduate credit either in education or in other fields are required. Teachers should consult certification authorities to determine courses required for certificate renewal.

C. Graduate course work in professional education to satisfy the needs of different groups:

1. Teachers wishing to make progress toward the attainment of the Permanent Teaching Certificate. This calls for a total of 27 quarter credits in graduate courses, either in education or in other subjects.

2. Teachers wishing to make progress towards attainment of an administrative certificate:

x. **Superintendent's certificate** (requiring 18 semester or 27 quarter hours of graduate education credit.) Note: After July 1, 1955, new superintendents' administrative certificates will be issued only to holders of the Master's degree.

y. **High School Principal's certificate** (requiring 9 semester or 14 quarter hours of graduate credit in education.)

z. **Elementary Principal's certificate** (requiring 9 semester or 14 quarter hours of graduate credit in education.) Note: This is a new certificate which is to become effective July 1, 1955.

### Two Plans for Acquiring the Master's Degree in Education

In accordance with the recent trend in colleges of education, State College provides two plans for qualifying for the Master's degree:

**Plan A** refers to the customary requirement of a thesis of seven or ten quarter credits as part of the thirty credits required for the major.

**Plan B** refers to an alternate plan in which the candidate may decide to work out a research problem of three or four credits, in lieu of the thesis, as part of the thirty credits required for the major.

In each case it is assumed that the thesis, or problem, comes near the end of the student's graduate program. The student should, however, decide on which plan he will follow when he sets up his graduate program.

### Subject Matter Minor or Supporting Courses in Lieu of a Minor

A graduate minor consists of 15 quarter credits in one department. If the student wishes, he may take a combination of graduate courses from several fields, or in what is referred to as supporting courses. In case the student decides to take a minor he should consult with the head of the minor department. If he chooses the avenue of supporting courses, the choice of courses must be approved by the head of the major department.

It will ordinarily be to the advantage of the graduate student if he carries some work on the minor, or in supporting courses, each summer term.

Persons interested in any of the above plans are urged to write to the head of the Department of Education for details.

#### 45 Educational Psychology 3 Cr. R, MTuWF 10

Nature of learning, learning curves, economical learning, rates and limits of improvement; retention of experience, differences in learning capacity; transference and interference. Required for certification. P, Psy 25, Ed 40.

#### Phys Ed 49 Driver Education 3 Cr. R, MF 2; L, \*

Meets certification requirements for teaching driver training in South Dakota. P, skill in driving and Ed 45. Persons interested in taking a concentrated two-week course in this field should write Professor Harold J. Holmes, Department of Physical Education.

#### Lib 65 Audio-Visual Aids in Teaching 3 Cr. \*

Characteristics, advantages and practical school-room use of visual aids of projective and non-projective type. Practice in operating machines; sources of supply; organization of audio-visual materials in the library.

#### 68 Teaching Speech in High School 3 Cr. \*

Philosophy, selection and use of textbook, classroom methods and techniques, evaluation and criticism. P, 47 and consent of instructor.

#### 160 Public School Administration 3 Cr.

R, MTTF 9

Organization and administration of school system in state, county and various types of school districts. Responsibilities of the state department of public instruction, county superintendent, school board, superintendent and principal. Some consideration given financial problems.

**164 Educational Measurements** 3 Cr. R, MTWT 10

Testing movement in education and principal tests designed to measure achievement in school subjects. P, 47.

**†Psy 165 Psychology Testing** 3 Cr. R, MTTF 9

Individual and group tests in the fields of mental abilities, special aptitudes, interests. Administration, scoring and interpretation. P. 25 and Ed 45. (Education students may count this as education credit).

**†Psy 166 Mental Hygiene** 3 Cr. R, MTTF 9

Mental and emotional health and recognition of deviations in children and adults. Emphasis on mental hygiene problems and a positive program for personal mental health. P, six credits in psychology and consent of instructor. (May be counted as education credit if preceded by Ed 45).

**PRJ 165 Institutional Public Relations** 3 Cr.  
R, MTTF 9

(See course description under Printing and Rural Journalism)

**168 Educational Statistics** 3 Cr. R, MTWTF 8

Methods of dealing with quantitative educational and psychological data; exercises in tabulation, graphical representation; calculation of statistical constants and measures of dispersion and correlation. P, 47. (Note: one of the five sessions to be used as a laboratory session for students who need help).

**169 The School Curriculum** 3 Cr. R, MTT 1, W 2

Nature, principles, application and purposes of the curriculum in the American public schools. P, 47.

**170 Workshop in Education** 2-4 Cr. \*

Workshop sessions in specified areas in education. Generally requires 30 hours of work per credit. Credit allowed at the rate of 1½ credits per week if conducted as a concentrated course. Fee, \$3.00 per credit charged in lieu of tuition if workshop is conducted as a concentrated course. (Workshop in economic education to be conducted during the two-week period of June 14-25).

**220 Organization and Administration of Elementary Education** 3 Cr. R, MTTF 1

Organizing and administering the work of the elementary school. P, 160.

**245 Administration of School Guidance Program**  
3 Cr. R, MTTF 11

Principles of guidance; organizing school guidance program; tests and testing; guidance library and materials; interviewing and counselling. Meets requirements for administrative certificate. P, graduate standing in education.

**260 Elementary School Supervision** 3 Cr.  
R, MTuWF 11

Emphasis on cooperative participation of school personnel in improvement of instruction in elementary school subjects, evaluation of total teaching sit-

uation. P, 160 or concurrently with 160 and graduate standing in education.

**261 Secondary School Supervision** 3 Cr. \*

Organization for supervision by superintendent and high school principal. Procedures for classroom visitation, conferences, and ratings of teachers. In-service training of teachers; evaluation of supervision. P, 160 or concurrently with 160 and graduate standing in education.

**264 School Buildings and Grounds** 3 Cr. \*

Management, care and operation of school plant. Evaluation of existing facilities. New buildings and remodeling. Not a technical course in design and materials. P, 160 and graduate standing in education.

**270 Research Methods in Education** 3 Cr.  
MTT 1; W 2

Research procedures, selection of research problems, techniques for gathering data, experimentation methods. Organization and statistical treatment of data, interpretation of results and proper form for reporting research. Analysis and evaluation of published research. Required of all candidates for Plan B. P, 20 credits in graduate education.

**272 Adult Education in Vocational Agriculture**  
3 Cr. MTWT 7

Emphasizes needs and techniques for administering and conducting adult education program in vocational agriculture. P, graduate student in agricultural education.

**280 Research Problem in Education** 3-4 Cr. \*

Required of all graduate students wishing to qualify for the Master's degree under Plan B. Recommend that student select problem relating to his own school system. Problem analysed, data gathered and treated statistically. Report in approved form. P, graduate standing in education.

**282 Research in Agricultural Education** 3-4 Cr. \***299 Thesis in Education** 2-4 Cr. \*

Original work under supervision on suitable problem approved by department head and requiring written report to meet specifications of Committee on Graduate Study and College Library. Required of each candidate for the degree of Master of Science in this department who selects Plan A, and not open to others. Preferably scheduled over two or more quarters and department may withhold final grade on full credit until written report is accepted.  
†One of these courses, but not both, will be offered.

**ENGLISH****1 English** 3 Cr. R, MTTF 7 a.m.

Conventions of standard English; usage, grammar, and punctuation. Training in efficient, accurate reading, in vocabulary building. Meets freshman English requirement.



**3 English Composition** 3 Cr. R, MTTF 8

Third quarter of required freshman English sequence. P, 2.

**20 Introduction to Literature** 3 Cr. R, MTTF 11.

Principal literary types—fiction, drama, essay, biography and poetry. Primarily literature but some attention given composition. P, 3 or consent of instructor.

**25 Biography** 3 Cr. R, MTTF 11

Great biographies of past and present. May be elected to meet the sophomore English requirement. P, 20.

**32 Advanced Composition** 3 Cr. R, MTTF 8

Advanced writing for students other than engineers. P, 3.

**33 Commercial Correspondence** 2 Cr. \*

Review of grammar, punctuation and principles of composition with special application to writing business letters and other business forms. Not counted toward English major nor toward meeting English requirements in other curricula.

**60 Shakespeare** 3 Cr. R, MTTF 10

Representative comedies, tragedies and chronicle histories. P, 20 or 40.

**160 Great Books of the World** 3 Cr. \*

Readings in translation of important representative books of world literature. P, 24 hours of English or 30 hours in a combination of language arts and consent of instructor. May be taken as supporting course.

**180 Major American Authors** 3 Cr. \*

Selected major American writers and their backgrounds. P, 24 hours of English or 30 hours of a combination of language arts and consent of instructor. May be taken as supporting course.

**HISTORY and POLITICAL SCIENCE****6 World History** 3 Cr. R, MTTF 11

Third quarter of world history. Covers period from 1900 to present. Courses 4 and 5 not a necessary prerequisite.

**24 American History** 4 Cr. R, MTWTF 8

Covers period from 1865 and 1917.

**57 South Dakota History** 2 Cr. R, MWF 1

Early Exploration and settlement; coming of railroads; "Dakota Boom" of 1880's; territorial government; main developments since 1890.

**144 Contemporary World** 4 Cr. MTWTF 11

Second World War, 1938 - 1945. Fundamental causes, theatres of operation. United Nations in theory and important international conferences on war goals. P, one year college history.

**146 Emergence of Latin America** 4 Cr.

R, MTWTF 10

**PHILOSOPHY****20 Introduction to Philosophy** 3 Cr. R, MTTF 8

Nature and place of philosophy in human thought; chief problems and achievements.

**22 Ethics** 3 Cr. R, MTTF 9

Chief ethical theories and their application to concrete individual and social morality.

**RELIGION****11 Survey of the Old Testament** 2 Cr. R MWF 11

Life and times of the people and the prophets.

**12 The Christian Heritage of America** 2 Cr. R, MWF 1

Survey of contemporary American churches, their beginnings and development; differences and similarities, and their contributions to the life and culture of the United States.

**LIBRARY****60 Library Administration** 3 Cr. \*

Objectives and methods of service in small libraries; organization; budget and ordering; classification and cataloging; student library club; housing and equipment; records, reports and publicity.

**61 Book Selection and Reference** 3 Cr. \*

Criteria which may be used in appraising books for high school libraries.

**62 Cataloging and Classification** 3 Cr. \*

How to catalog and classify books for high school libraries.

**65 Audio-Visual Aids in Teaching** 3 Cr. \*

Characteristics, advantages and practical school-room use of visual aids of projection and non-projection type. Specific laboratory practice in operation of usual projection machines. Sources of supply, acquisition and organization of audio-visual materials in the school library.

**MUSIC**

Summer school provides opportunity for study in piano, pipe organ, voice and wind or stringed instruments. Individual instruction will also be given in sight reading and ear training, choral techniques and interpretation, conducting (band, orchestra or choral), teaching of instrumental groups and harmony. All members of staff will be available for individual lessons. Credit may be earned toward a minor in music. Summer school band and orchestra will be directed by Professor Christensen. Students in conducting will be given an opportunity to conduct summer school groups.

**Fees:** Instrumental, piano, pipe organ, voice, one private lesson per week, \$12.00; two private lessons per week, \$24.00.

**61 Teaching Music in Junior and Senior High School** 3 Cr. \*

## PHYSICAL EDUCATION and RECREATION

### Graduate Major in Physical Education

Beginning with this summer a graduate major in physical education may be earned at South Dakota State College. Master's degree may be earned either under Plan A—with thesis, or under Plan B—without writing thesis. Details of two plans are explained elsewhere in this bulletin under section on Graduate Work.

Students who have taken some graduate work in physical education elsewhere may transfer in up to ten hours of work applying to major and up to five quarter hours applying to minor field.

For further information write Head, Department of Physical Education and Recreation, South Dakota State College, College Station, South Dakota.

### Men and Women

#### 13 First Aid 2 Cr. R, MWF 1

Includes material specified by the Red Cross for the standard and advanced courses. Satisfactory completion of course will qualify a student for Red Cross certificate.

#### 17 Beginning Swimming 1 Cr. L, TT 10

Various types of strokes and elementary water safety. May be substituted for one credit of required physical education.

#### 19 Prevention and Care of Injuries 2 Cr. \*

Treatment of athletic injuries; conditioning and training; equipment of training room.

#### 27 Individual and Dual Sports 1 Cr. L, TT 3

Open to men and women. Locker deposit \$2.00.

#### 28 Advanced Swimming 1 Cr. L, TT 11

P, 17 or permission of instructor.

#### 32 General Physical Education 1 Cr. L, MW 10

Beginning tennis. Locker deposit \$2.00.

#### 49 Driver Education 3 Cr. (Concentrated in first two weeks)

Behind the wheel instruction, recent materials and equipment; use of psychophysical tests; teaching techniques. Meets certification requirements for teaching high school driver education in South Dakota schools.

#### 49 Driver Education 3 Cr. \*

Same as above.

**Note:** Will be offered as a concentrated course during the period of June 1 through 12, as well as during the regular summer school session. For further information write Prof. Harold Holmes, Department of Physical Education.

#### 55 Intermediate Physical Education 1 Cr. R, TT 4

Teaching of archery.

#### 149 Advanced Driver Education 2 Cr. \*

Traffic accident problems; survey of research studies in driver education and protection; source of

teaching materials; measurement of driver attitudes. Will be offered as a concentrated course during the summer. For information relative dates write or see Prof. Harold Holmes, Department of Physical Education.

#### 162 Analysis of Teaching methods in Physical Education and Athletics 3 Cr. R, MTWT 8

Analysis of natural and formal methods. Demonstration and study of methods applied to various activities. P, 60, senior standing.

#### 255 Physiology of Exercise 3 Cr. R, MTWT 11

Body processes as they relate to exercise; efficiency of muscular work; fatigue and exercise; effect of exercise on circulatory system. P, Z 22, 142, minor in physical education. Graduate standing.

#### 265 Psychology of Physical Education and Athletics 3 Cr. R, MTWT 9

Psychological principles, theories and laws applied to physical education and athletic situations. Interpretation of behavior in sports. P, 62 or 64, graduate standing.

#### 267 Supervision of Health and Physical Education 3 Cr. R, MTWT 2

Techniques, principles, organization and philosophy of supervision in this field. Special problems in supervision. P, Graduate standing in physical education.

#### 299 Thesis in Physical Education 2-4 Cr. \*

P, Graduate major in physical education selecting Plan A.

## PRINTING and RURAL JOURNALISM JOURNALISM

#### 24 Newswriting and Reporting 2 Cr. R, MWF 11

Students must enroll in PRJ 37 concurrently. Basic course in journalism. Practice in gathering, evaluating and writing news. P, Engl. 1-2-3 with no grade below C, and ability to typewrite.

#### 37 Newswriting and Reporting Laboratory 1 Cr. L, 3 Hrs. \*

Students write news for publication under guidance of instructor. Required of all journalism majors.

#### 43 Feature Writing 2 Cr. R, TT 9, 1 Hr. \*

Writing of features and special articles with emphasis on popularizing scientific and technical material.

#### 67 Supervision of School Publications 3 Cr. R, MTTF 1

For high school journalism instructors and advisors. Includes survey of high school text books in journalism, possible curricula or course outline for high school courses; problems confronting advisors of yearbooks, mimeographed newspapers and other publications. P, Engl. 1-2-3.

**165 Institutional Public Relations** 3 Cr. R, MTTF 9  
Relations between various kinds of institutions and their publics; interpreting institution to public; preparation and supervision of public relations program. P, 15 hours in English or English and journalism.

**200 Interpretative Writing** 3 Cr. MTTF 8  
Interpreting technical, scientific, agricultural and social data to general public. Illustrative materials for publication, problems concerning readability and reader interest. P, 15 hours in English or English and journalism.

## PRINTING

**Note:** Summer shop instruction for printers will be conducted as a four-week course. There will, however, be two four-week sessions. Session 1 will run from June 15 to July 10; Session 2, from July 13 to August 7. In order to take linotype instruction student must either have had experience as printer or he must have had four weeks instruction in hand composition.

**Elementary Typography** No credit, 44 hours per week  
Care of equipment, learning case, setting and distributing type, spacing, indentation, study of type faces and where and how to use them.

**Composing Machines (keyboard)** No credit, 44 hours per week  
Elementary keyboard practice. Emphasis on correct keyboard fingering. Simple newspaper style. Machine changes, daily and weekly cleaning and oiling. P, previous printing experience.

**Composing Machines (mechanism)** No credit, 44 hours per week  
Care, maintenance and adjustments of linotypes and intertypes. P, previous experience as composing machine operator.

**Platen Presswork** No credit, 44 hours per week  
Introduction, including types, care, oiling, feeding, washing and press makeready. Paper, inks, rollers and common pressroom troubles. P, previous printing experience.

**Cylinder Presswork** No credit, 44 hours per week  
Mechanism and care of cylinder press. Practice feeding with both push and pull guides. Positioning forms, makeready and running forms. Inking mechanism adjustments. P, previous job press experience.  
(Tuition for four week session will be one-half tuition for full eight week's term.)

## SECRETARIAL SCIENCE

**11 Typewriting** 2 Cr. L, MTWTF 8, 2 hrs. \*  
Use of typewriter by touch system, term papers, personal typing. Open only to those who have not had previous typewriting instruction.

**13 Advanced Typewriting** 2 Cr. L \*  
Review of typing techniques, job production of correspondence, billing memos, rough draft, form letters. P, 11-12 or one year of high school typewriting.

**15 Duplicating Machines** 1-2 Cr. L \*  
Mimeograph, ditto and other duplicators. Special units for teachers and office workers.

**16 Calculating Machines** 1-2 Cr. L \*  
Comptometer, rotary, ten-key and full-keyboard machines.

**17 Transcribing Machines** 1-2 Cr. L \*  
Ediphone, dictaphone and other types of dictating-transcribing equipment. To supplement or substitute for shorthand.

**18-19 Shorthand** 6 Cr. R, MTWTF 9, 3 hrs. \*  
Gregg system taught. Open for credit to those with no previous shorthand instruction.

**20 Intermediate Shorthand** 3 Cr. R, MTTF 10  
Review of shorthand theory, dictation and transcription of easy materials. P, 18-19 or one year of high school instruction in shorthand.

**21 Advanced Shorthand** 3 Cr. R, MTTF 10  
Review of shorthand with special emphasis on dictation and development of speed in taking shorthand and transcription. P, 18-19-20 or two years high school shorthand or consent of instructor.

**23 Typewriting Office Practice** 3 Cr. L \*  
Instruction and practice in modern office procedure, production typewriting, specialized units in various fields. P, 13 or two years of high school typewriting.

**26 Applied Secretarial Practice** 4 Cr. R, MTTF 11, L \*  
Secretarial duties and qualifications, business ethics and etiquette, work experience or specialization in field of interest. P, 20 or consent of instructor.

## SPEECH

**22 Oral Communication** 3 Cr. R, MTTF 8  
Designed to improve student's ability to communicate orally. Attention to selection, organization and presentation of materials.

**45 Discussion** 3 Cr. R, MTTF 10  
Nature, values, limitations, analysis and types of discussion. Emphasis on leadership participation.

**46 Psychology of Speech** 2 Cr. \*  
Psychological approach to speech situation; speaker, speech, occasion, audience. P, 44 or consent of instructor.

**Ed 68 Teaching Speech in High School** 3 Cr. \*  
Philosophy, selection and use of textbook, classroom methods and techniques, evaluation and criticism. P, Ed. 47 and at least teaching minor in speech, or by special permission.

# Course Offerings Of General Interest

State College is a technical institution and all courses are listed under departments within a division. Many subjects are of such nature that students not classified in a particular division may be interested in these courses.

The following courses of general interest are open to all students:

- Audio-Visual Education—See Library
- Horsemanship—See Animal Husbandry
- Black Hills Flora—See Botany
- The Local Flora—See Botany
- Human Physiology — See Entomology-Zoology
- Marriage—See Rural Sociology
- Engineering Problems—See General Engineering
- Fundamentals of Radio and Television—See Electrical Engineering
- Blueprint Reading—See Mechanical Engineering
- Architectural Drafting Details—See Mechanical Engineering
- Elementary Carpentry—See Engineering Shops
- Wood Turning—See Engineering Shops
- Cabinet Making—See Engineering Shops
- Physics in the Modern World—See Physics
- Driver Education and Training — See Physical Education
- Commercial Correspondence — See English
- South Dakota History—See History
- Music (Private Lessons)—See Music
- Swimming—See Physical Education
- Window Display—See Pharmacy
- Book Selection and Reference—See Library
- Safety Training—See Engineering
- Newswriting and Reporting—See Printing and Rural Journalism
- Office Machines—See Printing and Rural Journalism
- Publicity Methods — See Printing and Rural Journalism
- Journalism for Teachers — See Printing and Rural Journalism
- Institutional Public Relations—See Printing and Rural Journalism

