South Dakota State College

of agriculture and mechanic arts

BROOKINGS, SOUTH DAKOTA

1960-61 GENERAL CATALOG

CONTENTS

DIVISIONS AND DEPARTMENTS

The fields of instruction and the degrees offered are classified and grouped under six divisions of the College with a dean in charge of each. The divisions in turn are divided into such departments as are necessary for effective teaching in each field and coordination between fields, with a professor in charge of each department as head.

1. **Agriculture.** The Division of Agriculture includes its closely related science departments, Bacteriology, Botany, Entomology-Zoology and Plant Pathology, the applied science and agricultural production departments, Agronomy, Animal Husbandry, Dairy Husbandry, Poultry, Horticulture, and Veterinary Science; and the rural social sciences, Rural Sociology and Economics.

   The division also includes the Agricultural Experiment Station and the Agricultural Extension Service, both of which serve the agricultural industry in South Dakota.

2. **Engineering** The Division of Engineering includes two closely related basic science departments, Physics and Mathematics, also the technical departments, Agricultural Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Engineering Shops. Degrees are offered in four basic branches of engineering and in Engineering Physics.

3. **Home Economics.** The Division of Home Economics includes the technical departments, Foods and Nutrition, Textiles and Clothing, Home Economics Education, Child Development and Family Life. The degree offered provides opportunity for choice of a major department.

4. **Nursing.** The Division of Nursing includes the departments of General Nursing, Clinical Nursing, Rural Nursing, and Public Health Nursing. A major in Nursing for the Bachelor of Science degree is offered for both the Registered Nurse and for basic students.

5. **Pharmacy.** The Division of Pharmacy includes the departments of Pharmacy, Pharmacology, Pharmacognosy, and Pharmaceutical Chemistry. Degrees are offered in Pharmacy with choice of major department.

6. **Science and Applied Arts.** The Division of Science and Applied Arts includes the departments of Art, Chemistry, Education and Psychology, English, Foreign Languages, History and Political Science, Music, Physical Education, Printing and Journalism, and Speech.

   Students may take an undergraduate major in any of the above mentioned departments. Also available in this division are undergraduate majors in Bacteriology, Botany, Economics, Entomology, Mathematics, Physics, Plant Pathology, Sociology, and Zoology.

   Graduate majors are offered in Chemistry, Education, English-speech, Journalism, and Printing Management.

STUDENT PERSONNEL DIVISION

This division works in close cooperation with all offices of the college for the general welfare of students. Services include general orientation of Freshmen and new students and orientation sessions by divisions during the first two quarters a student is on campus. Services to all students include general counseling, referral to special agencies and individuals, guidance testing for counseling and advisement, student health services, food service, and housing. A Placement Counselor provides help in finding part-time work and placement on graduation or on leaving school.

Students who are uncertain of their course are registered in General Registration and may use the personnel services to help them plan their vocational objective. Two-year terminal curricula are offered and the Certificate of Completion may be conferred upon completion of an approved two-year course.

General supervision of scholarships and loans and information relating to them is provided in this division.

GRADUATE FACULTY

Graduate studies are offered, and advanced degrees recommended, by the college graduate faculty. See the current Graduate Bulletin for requirements for the various advanced degrees.

BULLETIN

South Dakota State College

OF AGRICULTURE AND MECHANIC ARTS—BROOKINGS

ANNUAL CATALOG NUMBER 1959-60

WITH ANNOUNCEMENTS FOR THE 1960-61 SESSION

Volume LII, Number 4, April 1960
Published Quarterly by South Dakota State College, Brookings, South Dakota
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COLLEGE CALENDAR 1960-61

The regular college year is divided into Fall, Winter, and Spring Quarters of approximately twelve weeks each. The Summer Session is eight weeks.

1960 SUMMER SESSION

June 13, Mon.—Registration, forenoon
June 13, Mon.—Beginning of classes
July 4, Mon.—A holiday
Aug. 5, Fri.—Session closes at 5:10 p.m.

1960 FALL QUARTER

Sept. 13-17, Tue.-Sat.—Freshman Days
Sept. 16-17, Fri.-Sat. a.m.—Registration
Sept. 19, Mon.—Beginning of classes
Oct. 3, Mon.—Last day of registration for a course
Oct. 8, Sat.—Hobo Day (North Dakota University)
Oct. 10, Mon.—No classes
Oct. 14, Fri.—Last day for incomplete makeup examinations
Oct. 14, Fri.—Last day a course may be dropped without penalty
Oct. 14, Fri.—Last day for submitting graduation cards for fall
Oct. 17, Mon.—Enrollment in School of Agriculture
Oct. 28, Fri.—Mid-quarter reports due
Nov. 11, Fri.—Veteran's Day, a holiday
Nov. 23, Wed.—Classes close 5:10 p.m. for Thanksgiving recess
Nov. 28, Mon.—Classes resume
Dec. 19, Mon.—Grades for those graduating due 4:00 p.m.
Dec. 19-21, Mon.-Wed.—Final examinations
Dec. 21, Wed.—Graduation exercises 10:00 a.m.
Dec. 21, Wed.—Quarter closes at 5:10 p.m.

1961 WINTER QUARTER

Jan. 3-4, Tue.-Wed. a.m.—Registration
Jan. 4, Wed.—Beginning of classes 1:10 p.m.
Jan. 18, Wed.—Last day of registration for a course
Jan. 27, Fri.—Last day for incomplete makeup examinations
Jan. 27, Fri.—Last day a course may be dropped without penalty
Jan. 27, Fri.—Last day for submitting graduation cards for winter
Feb. 10, Fri.—Mid-quarter reports due
Mar. 15, Wed.—Grades for those graduating are due 5:00 p.m.
Mar. 15-17, Wed.-Fri.—Final examinations
Mar. 17, Fri.—Graduation exercises at 10:00 a.m.
Mar. 17, Fri.—School of Agriculture closing exercises at 2:00 p.m.
Mar. 17, Fri.—Quarter closes at 5:00 p.m.

1961 SPRING QUARTER

Mar. 22-23, Wed.-Thurs. a.m.—Registration
Mar. 23, Thurs.—Beginning of classes at 1:10 p.m.
Mar. 31, Fri.—Good Friday, no classes
April 7, Fri.—Last day for registration for a course
April 19, Wed.—Last day for incomplete makeup examinations
April 19, Wed.—Last day for submitting graduation cards for spring
April 19, Wed.—Last day a course may be dropped without penalty
May 5, Fri.—Mid-quarter reports due
May 30, Tue.—Memorial Day, a holiday
June 1, Thurs.—Grades for those graduating due 12:00 noon.
June 4, Sun.—Baccalaureate
June 5, Mon.—Seventy-fifth annual commencement
June 7-9, Wed.-Fri.—Final examinations
June 9, Fri.—Quarter closes at 5:10 p.m.

1961 SUMMER SESSION

June 13, Tue.—Registration, forenoon
June 13, Tue.—Beginning of classes 1:10 p.m.
July 4, Tue.—Independence Day, a holiday
Aug. 4, Fri.—Session closes at 5:10 p.m.

1960-61 CALENDAR

June, 1960

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January, 1961

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September, 1961

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Regents of Education

Honorable Mrs. Mary Lou Amunson (Term Expires January 1, 1963)	Mobridge
Honorable Miss Dona Brown (Term Expires January 1, 1963)	Huron
Honorable Harry J. Eggen (Term Expires January 1, 1963)	De Smet
Honorable Ralph Jones (Term Expires January 1, 1965)	Midland
Honorable Robert Dailey, Jr. (Term Expires January 1, 1965)	Flandreau
Honorable Byron K. Helgerson (Term Expires January 1, 1961)	Elk Point
Honorable Lem Overpeck (Term Expires January 1, 1961)	Belle Fourche
Honorable Elgie B. Coacher, Executive Director	Pierre

Officers of the Board

Honorable Lem Overpeck	President
Honorable Byron K. Helgerson	Vice President
Honorable Harry J. Eggen	Secretary

Other South Dakota State Educational Institutions

University of South Dakota	Vermillion
School of Mines and Technology	Rapid City
Northern State Teachers College	Aberdeen
Southern State Teachers College	Springfield
General Beadle State Teachers College	Madison
Black Hills Teachers College	Spearfish

FOR FURTHER INFORMATION REGARDING SOUTH DAKOTA STATE COLLEGE

Address Office of Admissions and Records, College Station, Brookings, South Dakota

General Information

NOTICE—Due to conditions which may arise beyond the control of South Dakota State College, statements in this catalog may be changed during the next year without notice. In so far as possible courses listed will be offered, but the College reserves the right to modify any statement in accordance with finances and other unforeseen conditions.

Admission to the College

To be admitted to the Freshman class at South Dakota State College, a candidate for entrance must present at least 15 units of high school credit. One unit of credit is considered to be a subject which is taught five times a week throughout the high school year, or the equivalent of such instruction.

Entrance Credits: Of the 15 units of high school credit, some are required, the remainder are elective. The units required for admission to the various divisions are shown in the table below:

For students majoring in	English Units	Mathematics Units	Total units specified
Agriculture	3	1 (Algebra)	4
Engineering	3	2½ (1½ Algebra, 1 Plane Geometry)	5½
Home Economics	3	1 (Algebra)	4
Nursing	3	1 (Algebra)	4
Pharmacy	3	2 (Algebra and Plane Geometry)	5
Science and Applied Arts			
Students majoring in natural science	3	2 (Algebra and Plane Geometry)	5
All other majors	3	1 (Algebra)	4
General Registration	3	1 (Algebra)	4

It is recommended that the elective units should include at least one unit in natural science and one unit in social science covering American history and civics.

Students who do not present required credits may arrange with the college authorities to make up college entrance deficiencies during the first year of study. In such cases, however, college credit will not be granted for courses taken to satisfy entrance deficiencies.

Application Procedure

Each applicant for admission to South Dakota State College must pay, at the time of application, the $5.00 matriculation fee. This fee not refundable if the student is accepted but does not enroll.

(All contacts concerning application for admission should be made to the Director of Admissions and Records, South Dakota State College.)

Resident Students, No Previous College. Students who are residents of the state of South Dakota and who have been graduated from an accredited four-year high school will be admitted as Freshman students upon proper presentation of the following:

1. A completed South Dakota State College application for admission form.
2. A complete transcript of high school credits and grades.

Non-Resident Students, No Previous College. Students who are not residents of the state of South Dakota and who have been graduated from an accredited four-year high school will be processed as follows:

1. Students who rank in the upper half of their high school graduating class will be admitted as Freshmen students, upon proper presentation of the following:
   a. A completed South Dakota State College application for admission form.
   b. A complete transcript of high school credits and grades.
2. Students who rank in the lower half of their high school graduating class will be admitted as Freshmen students on Scholastic Probation* only if the following requirements are met:

*Scholastic Probation. Students entering State College on Scholastic Probation are urged to restrict their course load to 14-15 credit hours; and must, at the end of one quarter, pass in at least 12 credits, maintaining a 1.5 grade point average. Should a Scholastic Probation student fail to meet this requirement he WILL NOT be permitted to enroll in the College the following quarter. He may be readmitted on Scholastic Probation status after one-quarter non-attendance. Students transferring in with 100 or more credits will be required to maintain a 2.0 ("C") grade point average in at least 12 credits.

a. Presentation of a completed South Dakota State College application for admission form.
b. Presentation of a complete transcript of high school grades and credits.
c. Satisfactory completion of the college ability examinations administered by the Testing Service of the Office of Student Personnel. A student may also be admitted upon filing a letter of recommendation, as to his college scholastic ability, from a member of the South Dakota State College faculty.

Transfer Students, Resident or Non-Resident. (All contacts concerning admission and acceptance of transfer credit should be made with the Director of Admissions and Records, South Dakota State College, AT LEAST ONE MONTH PRIOR TO THE DATE OF INTENDED REGISTRATION.) Students who have previously attended a college or university and wish to enroll at South Dakota State College with acceptance of all or part of their previously earned credits will be processed as follows:

1. Transfer students with a grade point average of 2.0 ("C") or above, will be admitted upon proper presentation of the following:
   a. A completed South Dakota State College application for admission form.
   b. A complete and official transcript of all previous college work from each college previously attended.
   c. Payment of a non-refundable matriculation fee of $5.00 to cover the cost of credit evaluation.
2. Transfer students with a grade point average of less than 2.0 ("C") will be admitted on Scholastic Probation* upon proper completion of the following:
   a. Presentation of a completed South Dakota State College application for admission form.
   b. Presentation of a complete and official transcript of all previous college work from each college previously attended.
   c. Payment of a non-refundable matriculation fee of $5.00 to cover the cost of credit evaluation.
   d. Satisfactory completion of college ability examinations administered by the Testing Service of the Office of Student Personnel. A student may also be admitted upon filing a letter of recommendation, as to his college scholastic ability, from a member of the South Dakota State College faculty.

Admission with Advanced Placement. South Dakota State College recognizes that certain able students may be qualified to enter college at a level which may be above or beyond that of the average Freshman student. These able students are recognized in one of two ways. (1) Students may be granted Advanced Placement and credit by superior achievement in the High School Advanced Placement Program operated through the cooperation of the College Entrance Examination Board. (2) Each student who enters State College takes placement examinations which may permit him to receive advanced placement and credit. The areas of advanced placement are generally English, Chemistry, and Mathematics.

Students entering State College with advanced placement and credit are expected to utilize their abilities and placement in such a way that they will enrich their educational experience rather than shorten it. The final decision in the granting of advance placement credit and grades rests with the Head of the Department in which the credit is being sought.

Entrance by Certificate or Examination. Students who wish to enter college but lack entrance credits or have not been graduated from an accredited high school may contact the Director of Admissions and Records for information regarding entrance by certificate or examination. Any arrangement for admission by examination or certificate MUST BE COMPLETED at least 30 days prior to the date of intended registration.

Admission as a Special Student. A student who is enrolled with a partial load or a student not planning to work toward a degree may be classified as a special student if the situation warrants such classification. To be eligible for admission as a special student an individual must generally meet the requirements outlined for admission of Freshman students. Persons not so eligible should contact the Director of Admissions and Records long enough in advance of registration (preferably ten days) to permit the director to counsel with the heads of departments and deans involved and determine eligibility for admission.

*See footnote on previous page.

TUITION, LIVING AND OTHER EXPENSES; DEPOSITS

As of December 1, 1959

REGULAR EXPENSES	EACH QUARTER
Tuition (Tuition is paid by the quarter)	$66.00
Out-of-state students $122.00 per quarter.	
General College Fee	16.00
Students' Association Fee	7.65
Student Union Fee	4.00
Board, Average	134.64
Dormitory Room	72.00
Some dormitory rooms rent for as low as $48.00 per quarter.	
Books and Supplies, Average	20.00
(In some courses the cost of books and supplies will be higher.)	
TOTAL (Regular expenses, each quarter)	$320.29

SPECIAL EXPENSES	FIRST QUARTER
Matriculation Fee	$ 5.00
Paid at the time of application. Not refunded if student is accepted.	
Military Uniform Deposit (Men students only)	20.00
Deposit, less loss charges, returned at end of school year.	
Dormitory Room Deposit	10.00
Deposit, less any damage charges, returned at end of school year.	
TOTAL (Special expenses, first quarter)	$ 35.00

Resident Tuition. The tuitions for students who are residents of South Dakota are as follows:

All collegiate courses, $66.00 each quarter.

The eight-week summer session $64.00.

The five-week summer session, $40.00

The School of Agriculture term of five months, $86.00.

For all courses set up especially for students not in the regular five and one-half day week college program, the tuition is $12.00 per credit hour.

Non-resident Tuition. The tuitions for students who are not residents of South Dakota are as follows:

All collegiate courses, $122.00 each quarter.

The eight-week summer session, $96.00.

The five-week summer session, $60.00.

For all courses set up especially for students not in the regular five and one-half day week college program, the tuition is $16.00 per credit hour.

No deduction is made in regular tuition when a student enters late.

Fees. Each applicant for admission to South Dakota State College must pay, at the time of application, the $5.00 matriculation fee. This fee is not refundable if the applicant is accepted but does not enroll.

The general college fee is $16.00 per quarter. (Eight-weeks summer session general college fee is $10.00 and five-weeks summer session $7.00.)

The Students' Association fee (activity) of $7.65 per quarter includes class dues, subscription to the South Dakota Collegian (weekly) and Jack Rabbit (annual); admission to athletic events, plays, concerts, debates; use of tennis courts and other privileges. (The summer session activity fee is $4.00.)

The Student Union fee of $4.00 per quarter is collected to build and support the Student Union Building, and serves as a membership fee in the Pugsley Union. (The summer session fee is $2.70.)

The regents have imposed a fee of $3.00 to be collected from all students who enroll and pay their registration costs after the time announced for that purpose.

A fee of 50 cents is charged for each change in enrollment made at the request of the student after the first week of any term.

Failure to pay any indebtedness when due results in immediate withdrawal of classification. In order to be readmitted the student must pay the indebtedness plus a readmission fee of $5.00.

Deposits. To reserve a dormitory room or married student housing each applicant must remit $10.00 to the Bursar of the College with his agreement and application for room reservation. This deposit is held by the Bursar as a breakage deposit. The unused part is refunded at the end of the college year. This deposit is not refundable unless for some reason the student is not admitted to the college or he is prevented from enrolling by circumstances beyond his control.

A $20.00 military uniform deposit is required of all Freshman and Sophomore male students (see Military Requirements). The deposit will be returned at the end of the year, or on withdrawal from the College, with the return of all items of the uniform.

The foregoing estimate does not include expenses for laboratory breakage, traveling, laundry, entertainment, etc., nor cost of clothing. While the above is considered as a reasonable estimate, much depends upon the character of the student and the work he is taking. In some of the technical courses the cost of books may be larger than the amounts mentioned in the estimate.

When entering College all students should have sufficient money available (about $375) to pay for immediate expenses such as tuition, books, and board and room.

Room and Board. Every effort is made by the college authorities to make the living conditions of the students wholesome and pleasant. If new students will write—the men to the Director of Student Housing, the women to the Dean of Women—these persons will assist them in getting suitably located.

All students must live in rooming places approved by the faculty. Wherever students reside, they are expected to conform to the general regulations of the College governing absences from the home, study hours, and other matters. Men students are not permitted to room in residences where woman students, women employed in or about the city, or any girls or women not members of the housekeeper's immediate family, are rooming. This rule applies conversely to women students.

The Dormitories. Waneta, Wenona, and Wecota Halls and Wecota Annex will accommodate 580 young women.

Scobey and East Men's Hall house 510 men students. The latter building is also used for School of Agriculture students. Harding and Brown Halls accommodate 570 men. Development Hall lodges 94 men students.

All unmarried students, men under 23 years of age and women under 25 years of age at the time of their registration, who are not residents of Brookings are required to live in college dormitories.

The cost of rooms in the college dormitories is $144.00 to $216.00 for the college year for each student, two in a room, depending upon the building in which the room is located.

The cost of rooms in private homes is $5.00 to $6.00 a week.

Students in nursing, while taking clinical courses, reside in housing near the hospital or health agency and will take their meals in the hospital cafeterias or use community eating facilities.

Everything possible is done to make a real home for those who live in the dormitories. The students are given a large share in the government of the halls and are thus encouraged to form orderly habits and high ideals of conduct. The purpose of those in charge is to make the dormitories as attractive and homelike as possible, and to create the spirit of cooperation that is found in a real home.

Each room is provided with closets, single beds, mattresses, straight chairs, study table, dresser with mirror, a linoleum or tile floor covering, and window shades. Each student should provide a mattress pad, a pillow, two pairs of pillow cases, four sheets, and two pairs of blankets, also six towels, a clothes bag, and a study lamp.

Resident nurses acting under the direction of the Student Health Service do everything possible to maintain health among the students, and to care for them when ill.

Housing for Married Students. The college provides 199 apartments for rental to married students. Eighty-two have two bedrooms and 117 have one bedroom. The apartments are furnished with a hot water heater and either a space heater or a furnace. Many of the one bedroom apartments have the cook stove and refrigerator furnished. All other furnishings are the responsibility of the occupant. Forty-eight of the one bedroom apartments are of new fireproof construction and each apartment has a furnished kitchen, tiled floors, and is individually heated by a natural gas furnace.

The College also owns a trailer park which accommodates 30 families. Only modern trailers are allowed in the area. Usually there is a long waiting list for both apartments and trailer parking space. Early application is recommended.

The Student Housing Office also helps many students to find quarters in Brookings and surrounding towns.

A $10.00 deposit is required to place one's name on the waiting list for all College housing.

Board. Meals will be served cafeteria style in Aggie Dining Hall and the College Cafeteria. The cost for meals will be approximately $400.00 for the college year. This will include 20 well-balanced, nutritious meals per week (Monday through Sunday noon). Regular boarders may invite guests to dine with them

in either dining hall. Charges for guest meals will be collected at meal time.

All Freshmen students, living in dormitories, board with the College Food Services. All board must be taken for the full quarter. Non-dormitory residents and upperclass students living in dormitories may board with the College Food Services at dormitory rates on a quarterly basis only. Tray service to student rooms will not be provided.

Board may be obtained in private homes or nearby eating places at somewhat higher prices.

The Jungle room in the Pugsley Union building also offers food facilities at reasonable rates.

Academic Information

Degree Requirements

The Bachelor of Science Degree is offered in 62 major fields in six college divisions. Requirements for obtaining a Bachelor of Science degree are as follows:

Over-all college requirements:

1. Satisfactory completion of at least 204 quarter credits.
2. Accumulation of at least 408 grade points.
3. Satisfactory completion of at least one year of Physical Education.
4. Satisfactory completion of Freshman Orientation.
5. Satisfactory completion, on the part of all physically qualified male students, of at least two years of military science.
6. Satisfaction of the communication skills requirements (Students who have not completed English and Speech requirements with at least a "C" average must qualify themselves in a communications skills examination).
7. Satisfactory completion of at least 30 quarter credits of approved basic science and mathematics courses.
8. Completion of the final year's work in residence. (50 credits, 100 grade points.)

Major field requirements:

1. Complete satisfaction of the courses outlined in the catalog under the Division curriculum.
2. Complete satisfaction of the courses outlined in the catalog under the major department curriculum.

The Certificate of Completion. The certificate of completion is offered for the satisfactory completion of two years of work in prescribed areas in the Divisions of Agriculture, Engineering, and Science and Applied Arts. Requirements for this certificate are set forth under the Division of Student Personnel section of this catalog.

Non-Degree Courses. In addition to the courses leading to degrees, the College offers special and short courses in several important and practical lines of work. (See index for Non-Degree courses.)

The Degree Master of Science (or Master of Education) is conferred upon students who have received the degree of Bachelor of Science from this or another institution offering an equivalent course of study and who in addition have completed a year of advanced work in accordance with the regulations of the College governing this degree. See Graduate Bulletin.

The Degree Doctor of Philosophy is offered in three major areas, Animal Science, Plant Science, and Social Studies. See Graduate Bulletin.

The Professional Degrees in Engineering. The College offers the professional degrees: Civil Engineer (CE), Electrical Engineer (EE), and Mechanical Engineer (ME) to graduates of the College who have made valuable contributions to the engineering profession. The appropriate degrees may also be awarded to graduates of other schools who have made valuable contributions to the engineering profession in South Dakota. The regulations concerning the Professional Engineering degrees may be obtained from the Dean of the Division of Engineering.

Student Responsibility

Graduation Requirements. Each student is responsible to see that he has satisfied the requirements for graduation as outlined above. This shall include notifying the Admissions and Records Office in event any course, other than a failed course is repeated. Any student who has questions concerning the proper satisfaction of specific requirements should consult his major advisor or the Office of Admissions and Records. No credit for graduation will be allowed in part of a subject which is extended over more than one quarter, unless the part covered is fairly complete in itself. The decision with regard to this point must necessarily rest with the head of the department in which the subject is offered.

No credit for less than one year's work in foreign language will be allowed toward a degree unless the student has presented entrance credit for at least one year of high school work in the language.

The amount of credit that may be counted toward a degree in such subjects as practical music, typewriting, forging, carpentry and similar work is naturally limited unless such work is a part of the scheme of study that is being pursued. Intercollegiate debating, editorial work on student papers, and other work outside regular class work are also included.

Records of students up for graduation will be checked during the quarter preceding graduation. Any student who has not met all of the requirements as outlined above will not be permitted to graduate until such requirements have been satisfied.

Class Attendance. Regular attendance at all class and laboratory sessions is an obligation as well as an opportunity for each student. The progress of the entire class is hampered if any student's attendance is irregular. Students are expected to attend all class and laboratory meetings for which they have registered. Each student is held responsible for the class work assigned in the courses in which he is enrolled. Any work missed must result in a reduction of final grade unless the student is permitted to, and does, make up the work.

However, in holding students responsible for the work of their classes, the College does give every reasonable consideration to a student whose work is interfered with by illness or similar circumstances. The College does not have any system of excusing absences but when they are unavoidable, the student is permitted time to make up such work as is practicable and his schedule of subjects may be reduced by his classifying officer to give him extra time to make up the work.

Instructors shall keep attendance records and report the total absences for the quarter along with the final grade of each student. These include absences from the beginning of the quarter for any student who enters the class after the first meeting.

At the discretion of the instructor a report of irregular attendance of any student may be made to the Student Personnel office at any time, and should be made before the student's work becomes hopeless. If a student persists in irregular attendance in a class he may be dropped from the class with a grade of Failure (H) by the Dean in charge of his classification upon recommendation from the instructor. If a student persists in irregular attendance in several of his classes he may be dismissed from the College by the Committee on Scholastic Standards.

As a means of detecting promptly any case of illness, absence from the campus, or other matter which it may be desirable to report to parents, each instructor shall report promptly to the Student Personnel office two consecutive absences of any student. If the instructor secures from other members of the class any information concerning the reason for this absence, this information should accompany the report. Additional reports should be made for continued absences until the instructor knows that the cause has been determined and reported.

The Unit of Credit

A Credit or Credit Hour is the measure of work carried in a subject for one quarter. Normally, one credit is equivalent to one hour of class recitation per week. Three hours of laboratory work, where no outside preparation is required, is considered to be equivalent to one hour of recitation, and will normally be assigned a value of one credit. Four hours of nursing practice are equivalent to one hour of recitation.

Registration. Each student registering at State College is advised by a member of the faculty. A schedule of classes consistent with the student's plan of study and properly adjusted as to the amount of work is arranged for the student.

The normal rate of progress will find the student enrolled in at least 17 credits each quarter. To be considered a full-time student, a student must carry 12.0 quarter credits. A student will not be permitted to register in more than 20 quarter credits during his first term of attendance. Registration in more than 20 quarter credits in subsequent terms is permitted only when the previous quarter's work is of high caliber.

A student registered in 20 or more credit hours in any quarter will receive credit for only 17 hours unless his record for the quarter meets one of the following requirements: (1) A grade point average of 3.0 for all work; or (2) a grade point average of 2.5 for all work and no grade below "C." If his credits are reduced to 17, grade points will be allowed for 17 credits at the average grade for the quarter.

Transfer Credits. Advanced credit may be obtained by presenting certified grades from other recognized and accredited institutions. Acceptance of such credit is contingent upon the grade received and the work covered. The college reserves the right to cancel credit accepted from any institution should the student prove to be deficient in a subject for which credit was given. Advanced credit accepted but not prescribed in the student's planned curriculum may be used as elective credit in so far

as his course permits. Reasonable substitutions for required work may be granted. Transfer applicants should see Admission of Transfer Students on page 5 of this catalog.

Grading System

Grades. The grading system of the college is generally based on achievement in comparison with other members of the class. This system assumes that the fairest and most intelligible record of a student's work is that which indicates his approximate rank in comparison with his fellow students. To be valid, the comparison must be made in large and small classes in the same subject over a series of years. Under these conditions, the distribution of grades in each class should approach a college average distribution.

The quality of work done by students is indicated by the following marks:

A—Exceptionally high.

B—Superior.

C—Fair.

D—Passing (lowest passing mark).

E—Satisfactory.

F—Failure. The student must repeat the subject in a regular class in order to get a passing mark. Repeating the course will not remove the failure from the student's permanent record.

G—Withdrawal with no grade.

H—Withdrawal from a course with failure.

I—Incomplete, is a temporary report indicating (a) that for some good reason beyond the student's control the essential work in a subject has not been completed, (b) that the work which has been completed was of a passing grade, and that it is deemed practicable for the student to complete the subject in a satisfactory way without repeating it in a regular class. The student must make arrangements at the beginning of the next quarter in which he is enrolled and by the date specified in the college calendar to remove the "incomplete" by meeting the requirements of the course. If the incomplete is not removed as specified here, it becomes a failure and will be recorded as such on the student's permanent record.

The grades A, B, C, D, and F, reported to the Office of Admissions and Records, may be changed only by recommendation of the instructor and permission of the Dean of the division.

A failed required course must be repeated at the first opportunity unless other arrangements are approved by the Dean of the division.

Repeating a Course to Raise the Grade. When a student repeats any course, the new grade received shall be counted in place of the old grade, but the latter will remain on the student's permanent record. It is the student's responsibility to notify the Office of Admissions and Records when a non-fail course is repeated. Credits and grade points earned in repeated subjects cannot be counted toward the total of 204 credits and 408 grade points required for graduation.

Grade Points. The grade shall carry a grade point value for each credit hour as follows: A—4 grade points; B—3 grade points; C—2 grade points; D—1 grade point; E—2 grade points toward graduation but course not counted in grade point average; F—no grade points.

Example: The following will illustrate the way in which grade points are related to the grades of a student in the subjects named:

Military, 1 credit; grade A; grade points, 4.

Mathematics, 5 credits; grade B; grade points, 15.

Chemistry, 4 credits; grade C; grade points, 8.

French, 4 credits; grade C; grade points, 8.

English, 3 credits; grade D; grade points, 3.

Total credits—17; total grade points—38.

No Grade Points will be granted for D grades earned in any quarter after the student has accumulated 204 credits.

Class Rank. 1. For promotion to Sophomore rank, the student must have earned at least 45 credits and 75 grade points including the Freshman requirements in English, Military, Physical Education, Orientation, and 12 credits in basic science. (Basic courses in the science area include: Bacteriology, Botany, Chemistry, Entomology-Zoology, Mathematics, and Physics.) Any substitution for, or waiving of Freshman requirements must be presented to and approved by the Scholastic Standards Committee.

2. For promotion to Junior rank, the student must have accumulated at least 100 credits and 190 grade points, or more. In addition, he must have completed the requirements in Military and Physical Education (Six credits in Military Science and three credits in Physical Education), and at least 26 credits in basic and applied science. (A course may be counted as applied science if the pre-requisite to the course is at least an 8 hour sequence of basic science or mathematics.)

3. Promotion from Junior to Senior rank requires 150 credits and 300 grade points.

Scholarship Requirements

Scholastic Probation. The normal rate of progress toward graduation requires that a student earn at least 17 credits and 34 grade points each quarter. Any fulltime student who does not satisfactorily complete at least 12 quarter credits with a grade point average of 1.5 for Freshmen and 1.75 for Sophomores and above, shall be placed on scholastic probation for the following quarter. A student on scholastic probation should keep his load at or below 14 credit hours. He will not be permitted to participate in college sponsored trips or hold a campus office during the quarter he is on Scholastic Probation. An official entry will be made on his permanent record. If the student does not remove his scholastic probationary status by satisfactory performance, passing in at least 12 credits with a grade point average of 1.5 for Freshmen and 1.75 for Sophomores and above, he will not be permitted to register the following quarter.

Scholastic Honors. Candidates for the degree of Bachelor of Science who have demonstrated superior performance throughout their college work are recognized by honors awards at Commencement:

1. To be eligible for honors a student must have been in residence for two years, must not have failed in any subject and must have earned a grade-point average of 3.2 or higher. To determine the grade-point average all subjects submitted for graduation shall be used (excluding excess limited credit subjects).

2. Students who transfer here from other colleges shall, for the purpose of determining honors, receive full value for grades and credits transferred, provided the institutions are fully accredited. Limited credits, if more than ten have been gained, shall be valued at the average of all the limited credits gained.

3. Honors shall be awarded on the basis of grade-point averages, but the number of students to receive honors **automatically** on such a basis shall not exceed 1 in 12 Seniors for each division, with 1 additional for a major fraction of 12.

4. Should the number of eligible students in any division, exceed 1 in 12 Seniors for that division, those who are in excess for that division shall be considered by a committee of the faculty representing each division. This committee may, or may not, add to the honors list. Whatever its conclusions may be, they shall be based solely upon the scholarship of the eligible students considered, and the ratio of the total number of honors to the total number of Seniors. In no case shall the total honor list exceed one-tenth of the graduating class.

5. Honors shall be of three degrees, in accordance with the following scale:
With Honor—grade-point average 3.2 to 3.499
With High Honor—grade-point average 3.5 to 3.749
With Highest Honor—grade-point average 3.75 or above

6. Honor students shall have the appropriate honors inscribed upon the diplomas which they receive at graduation.

Examination for College Credit. A student currently enrolled in the College who has studied a subject independently or has done work of college level elsewhere for which he is unable to get a transcript acceptable to this institution, may take a special examination to establish credit under the conditions specified below:

1. The student must consult the head of the department concerned who will conduct a preliminary survey of the work in which the student claims to be prepared, and determine if an examination is warranted, what topics it should cover and what credit may be expected.

2. The student must consult the Dean of the division in which the student expects to receive a degree to determine whether credits by examination in the proposed subject will be acceptable toward the degree.

3. The student must pay a fee of three dollars per credit before taking the examination. (No charges are made for examinations to obtain credit for entrance to the College nor for credit covering studies pursued in the Armed Services.)

4. The student must have a grade point average of 2.5 or above if he is classified as a freshman or sophomore, or a grade point average of 3.0 or above if classified as a junior or senior. (Rule does not apply to students taking advanced placement tests for which credit may be granted on the basis of the test performance). The student must make at least a "C" grade to count toward the total credits for the degree, but the grade for any examination, whether passed or failed, will be on the record.
Credits earned by examination will be counted in determining the grade point average.

5. No more than fifty-one credits obtained by examination for credit may be applied toward the Bachelor's degree in the College.

6. Specific details are enumerated on a blank which must be filed by the student who wishes to take such an examination. Copies of this blank may be obtained at the Office of Admissions and Records.

7. Students who are not currently enrolled, but who were previously students in good

standing may acquire credit by examination providing they meet the above conditions.

Auditor. Registration as an auditor in lectures or recitations, but not for laboratory sessions, may be permitted with the consent of the department concerned and with the approval of the Dean. Such registration carries permission to listen only. No examinations and no credits are given. The audit fee is $7.00 for 1 to 9 credits and $13.00 for 10 or more credits.

Elective Work. Electives are offered so that a student may develop special talents or interests. The choice of subjects is left to the student, provided the selections made are consistent with the academic standards of the College.

The Dean of the division in which the degree is sought may refuse to approve an elective if he thinks that the subject should not be counted toward that degree, or he may approve classification in the subject with the notation that it is not to be counted toward a degree.

In general, elective subjects are not given to fewer than five students unless there is some special reason for doing so. Instructors should not abolish classes without the approval of the Dean of the division concerned.

Military Requirements. The Morrill Act of 1862 establishing the Land-Grant Colleges of the several states provided that training should be given in Military Science and Tactics. In fulfillment of this act, two years basic military training is required of all male students, unless excused for previous military service, physical disability or by reason of age. The regulations, description of the required basic military work and the optional advanced work leading to a reserve officer's commission, the deposits for uniforms, and other details are stated in the section of this catalog dealing with the department of military science and tactics, and the department of air science, division of Science and Applied Arts. Military requirements for transfer students are also outlined under Military Science in the Science and Applied Arts Division.

Physical Education. Men and women students below Junior classification are required to take physical education twice a week throughout one year. Additional physical training may be required of students who need corrective exercises. Personal hygiene, first aid to the injured, and similar topics are given in connection with the Freshman work in physical education.

Fellowships and Graduate Assistantships

The College has a number of Fellowships and Graduate Assistantships in various departments as the need for additional research and instructional help has developed. These assistants usually help with teaching or research work about one-half time and spend the remainder of their time in graduate study.

At the present time the following departments offer Fellowships or Assistantships: Agricultural Engineering, Agronomy, Animal Husbandry, Bacteriology, Bio-Chemistry, Botany, Chemistry, Civil Engineering, Dairy, Economics, Electrical Engineering, Engineering Physics, English-Speech, Home Economics, Horticulture, Mathematics, Mechanical Engineering, Physical Education, Plant Pathology, Sociology, Journalism, and Printing Management.

More may be made available in other departments as the need develops. For further information contact the deans of the divisions.

Historical Sketch

Establishment. An act of the Territorial Legislature, approved February 21, 1881, provided that "an Agricultural College for the Territory of Dakota be established at Brookings, provided that a tract of land not less than eighty acres be secured and donated to the Territory of Dakota."

The Legislature of 1883 provided for the erection of the first building. This building, now known as the Central Building, was opened for use September 24, 1884.

The Enabling Act admitting the State of South Dakota, approved February 22, 1889, provided that 120,000 acres of land be granted for the use and support of the Agricultural College, in accordance with the act of Congress making donations of land for such purpose. The acts of Congress referred to are primarily the act of July 2, 1862, known as the Morrill Act, providing that 30,000 acres of public land for each representative in Congress be given to each state toward "the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts." By the Enabling Act of 1889 Congress granted to South Dakota for the Agricultural College 40,000 additional acres, in lieu

of a grant that had been made to the new states in 1841. Thus the total land grant for the Agricultural College was 160,000 acres.

In the Morrill Act of 1862, such colleges were spoken of as "Colleges of Agriculture and Mechanic Arts." In order that the name might more nearly conform to the object for which the College was established, the Legislature of 1907 changed the name from "The Agricultural College of South Dakota" to "The State College of Agriculture and Mechanic Arts."

The Agricultural Experiment Station* was organized in 1887, under the Hatch Act of Congress, which provided for the establishment of agricultural experiment stations in connection with agricultural colleges. These stations were established for the purpose of conducting experiments and research in connection with all branches of the home and agricultural industries of the United States due regard being paid to the various conditions and needs of the respective states. It is also their object to aid in diffusing among the people useful and practical information in all subjects connected with homes and agriculture. The South Dakota Station conducts its investigations chiefly along the following lines; livestock, dairying, soils, field experiments with crops, greenhouse work, trees and small fruits, injurious insects, chemistry of plant growth, and foods. In the home, studies are made of foods, their selection, preparation and conservation, textiles and clothing, and the various phases of home management.

The Agricultural Extension Service was established to carry to the people of the state the results of the work of the College, and also such methods as the most successful farmers and homemakers have approved for different localities. From its earliest history, the College has sent out members of its staff to help the people of the state by addressing farmers' meetings, acting as judges at fairs and for agricultural clubs, and in various other ways. The College, however, had no money available to conduct such work in a systematic way until 1914, when the Smith Lever Act was passed by Congress providing $10,000 annually to each state beginning with July 1, 1914, to be used for agricultural extension work by the State Colleges of Agriculture in cooperation with the United States Department of Agriculture. The act also provided that beginning with July 1, 1915, additional amounts, which increased for a period of five years are to be given to the different states upon the condition that the states appropriate equal funds for the extension work.

State and Federal Support. The State of South Dakota by action of the Legislature in 1890 accepted the Federal Land Grant and thereby assumed the responsibility of conducting an educational institution meeting the purposes of the grants. Support from state funds is granted and controlled by the Legislature. The regular biennial appropriation act provides funds for salaries and other regular expenses. Special appropriation acts provide for buildings or other capital expenditures. The Legislature has also accepted at various times additional grants from the Federal government, some for instructional work, some for research in agriculture and home economics, and some for extension work in the same fields. These are itemized in the annual financial report of the College.

Purposes

In accepting the provisions of the "Morrill Act" of Congress of 1862, the State of South Dakota, in 1889, "bound itself legally and morally to carry out the purposes for which the grants and annuities were intended." The purposes of this, so-called Land-Grant College Act, are:

. . . the endowment, support, and maintenance of at least one college (within each state) where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agricultural and mechanic arts, in such a manner as the legislatures of the states may respectively prescribe . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

The South Dakota Code in 1939 carries a statement of purposes which originally appeared in the Session Laws of Dakota Territory in 1887 and which reads as follows:

The purpose of this institution is to afford practical instruction in agriculture and the natural sciences connected therewith, and also the sciences which bear directly upon industrial arts and pursuits.

South Dakota State College accepts these statements of purpose as fundamental, but of necessity takes account of the tremendous changes in conditions since 1862. Agriculture and the mechanic arts have since become applied sciences and corresponding emphasis is placed upon the sciences and their applica-

*See the index for additional information concerning the Agricultural Experiment Station and the Agricultural Extension Service.

tions. The right of women to educational opportunities has become an established principle and is recognized in this College by placing homemaking and nursing on a par with agriculture and the mechanic arts, and by providing other career opportunities for women as well as for men. In addition, the College accepts responsibility for the promotion of research, adult and youth education as authorized by Federal and State laws passed subsequently to those mentioned above.

Thus, stated in terms of modern conditions, but within the spirit of the 'Morrill Act" and the early legislative acts of South Dakota, the purposes of State College are:

(1) to provide professional and vocational training in the fields of agriculture, engineering, home economics, pharmacy, nursing, and the sciences and arts on both the undergraduate and graduate levels; (2) to provide citizenship training and general education essential for the understanding and appreciation of the American way of life; (3) to promote, through extracurricular activities, student self-development in cooperation and leadership; (4) to promote and conduct research particularly in the fields of agriculture, engineering, home economics and science; (5) to promote and conduct statewide programs in practical education for the youth and adults of South Dakota in agriculture, homemaking, and other vocational pursuits.

Organization and Government

The Board of Regents. The control of the educational institutions of the state, which are sustained wholly or in part by the state, is vested in a board of seven members designated as the Board of Regents. The members are appointed by the Governor by and with the consent of the Senate, for six year terms which expire in rotation. It is provided that the Regents shall be "persons of probity and wisdom and selected from among the best known citizens, residents of different portions of the state, none of whom shall reside in the county in which any state educational institution is located, and shall be selected from among the different political parties of the state existing at the time of making appointment."

The Board of Regents has the power and responsibility for managing all property and funds of the institutions, for employing members of the faculty and other employees, to establish departments, to fix courses of study, to fix tuition fees and other fees, to confer degrees upon recommendation of the faculty, and to guard against unwise duplication of departments. The Board has the authority and responsibility for all regulations necessary to the functioning of the institutions under its control, but it may delegate to the president, deans, principal, or faculty of any school so much of this authority as in its judgment seems proper and in accordance with the usual custom in such cases.

The Faculty. The faculty consists of the president, the deans and other administrative officers, and the teachers with rank of instructor or above. The faculty is responsible in general for academic standards and procedures, including the recommendation to the Regents of candidates for degrees. The president annually appoints certain faculty committees which take up such work as may be assigned to them by the president or the faculty. An administrative council of administrative officers and faculty representatives acts on matters of general policy or special problems which may be referred to it by the president or the faculty.

Student Conduct. The state, through its institutions of higher education, provides the opportunity for its future citizens to get a college education at greatly reduced cost. In return the state and the College demand from enrolled students high standards of conduct and scholarship. These high standards of conduct apply off the campus as well as on the campus. They must be considerably higher than the minimum required by law since the purposes of the College are related to good citizenship as directly as to intellectual abilities. Honesty, sobriety, and decency are of course essential.

Upon entering the College each student assumes the responsibility for adapting his own conduct to the purposes of the institution and to the welfare of the student body. When it becomes known that a student is not so conducting himself, the College authorities may restrict or cancel such privileges as seem necessary to correct the attitude of the offender and to protect the welfare of the student body.

Any action of minor importance by the College may be informal and unrecorded, but **disciplinary action involving permanent expulsion, suspension for a period, probation or other serious penalty becomes a part of the student's record** and a statement to that effect will be sent to the student's parents.

For the guidance of students in special phases of college life in which specific guidance is deemed necessary, the College issues regulations such as those relating to student organizations, social events, dormitory life, and rooming houses. Where no specific rule is given, the College standard of good conduct will apply, both on and off the campus.

The most recent edition of the **General College Regulations** is considered a supplement to this College Catalog.

By action of the Regents, hazing in every form in prohibited. As interpreted by them, hazing is interference with the personal liberty of others and includes any act of domination by some students over others which may lead to the physical injury, intimidation, or humiliation of the latter students.

Automobiles. The College recommends that students attending State College should not be furnished automobiles by their parents. Very few of our students have need for an automobile, and the operation of one while attending college is not only expensive but usually interferes with the students' college work.

The privilege of any student to operate an automobile on the campus will be withdrawn by the College if the student is on scholastic probation, and may be withdrawn for disciplinary reasons.

All motor vehicles operated in the college area by students, faculty, or employees must be registered each year with the college and must display a college identification tag. Students may register their vehicles and obtain tags, during registration, at the Cashier's office. Traffic and Parking Regulations will be issued at the time the vehicle is registered.

Failure to register a vehicle or other violation of Traffic Regulations will result in the assessment of a violation fee.

Locations, Buildings, Equipment

The Location. The College is located in Brookings, which has a population of 7,800, including students. The city is situated on the Chicago and Northwestern Railway, on U.S. Highways Number 14 and Number 77, and has regular airline service at the Brookings Municipal Airport.

Brookings is a city of modest but attractive homes with a number of active churches, and good local schools. The citizens are interested in good city government and in maintaining a good moral environment for their own children. Few educational institutions are more advantageously located.

The College Buildings and Grounds. The College owns a total of 1,419 acres in the Brookings area. When the substations and Camp Lakodia are included the total is 4,431 acres. The college campus is ornamented with many varieties of beautiful trees and shrubs, and laid out with necessary walks and drives. Adjoining to the east are the horticulture gardens, and to the north, northeast, and northwest are the college farms.

The oldest college building, called the Central building, built in 1884, houses the departments of Bacteriology, Foreign Languages, and Mathematics. The Old North Building, which was completed in 1887, is used by the School of Agriculture, director of Physical Plant, College Editor, and classrooms.

The Extension Building, completed in 1886, has been successively used as a men's dormitory and for classrooms and offices; in 1917 it was moved to the present location, and remodeled. It now houses Special Services.

The Administration Building was occupied in 1913, and the north extension was added in 1918. It provides executive offices, and auditorium, laboratories, classrooms and offices for Pharmacy, Home Economics, Speech department, and Art department.

The Physics-Engineering Building, completed in 1901, is occupied by the Division of Nursing with its various classrooms and laboratories. The Engineering Division has shops, drawing rooms and classrooms in this building. The original building has been remodeled, a third story added, and the basement excavated.

Engineering Hall, completed in 1957, houses offices, laboratories, and classrooms of Civil, Electrical, Mechanical Engineering, and Engineering Physics.

The Plant Breeding Building, completed in 1901, together with the large Greenhouse, furnishes room for the work that is being conducted by the department of Horticulture.

An Agronomy Seed House completed in 1948 provides space primarily for soils personnel and plant breeders to examine and process their materials. It also provides a place where students get practical experience in agronomy work.

An Agronomy Green House and Head House completed in 1949 provides a place to grow and produce experimental crops under controlled conditions. It also provides a laboratory for plant disease work.

The Stock Judging Pavilion affords excellent facilities for judging and studying the different kinds of livestock. A modern abattoir provides a laboratory for the study of the cutting and curing of meats.

The brick Horse Barn does much to facilitate the instructional work in horse production.

The Classroom Annex is a stucco frame building used for class lectures.

The Chemistry Building, replacing one de-

stroyed by fire in March 1928, was occupied in January 1929. It is a modern fire-proof structure.

The Creamery is a two-story building erected in 1899, and enlarged in 1902, and again in 1911. It furnishes quarters for the department of Dairy Husbandry and for a creamery which is operated on a commercial basis.

The Gymnasium, completed in the year 1918, has housed both the department of Military Science and Tactics and the department of Physical Education, but is now devoted entirely to the college programs in Physical Edu -cation and athletics. The main floor is 100 by 165 feet, and free from supports. This floor plus the other facilities of the building provide space and equipment for an enlarged program in physical education and athletics.

An Armory was erected in 1941 to be used by the department of Military. The building and its equipment have been designed to meet the needs of a modern Reserve Officers' Training Corps.

The Women's Dormitories are Wenona Hall, built in 1909, and Wecota Hall, built in 1916, together with the Annex to Wecota Hall, which was completed in December, 1939, and Waneta Hall completed in 1959.

The old dormitory for men, named East Men's Hall was built during 1920 and 1921 for the benefit of men who were disabled while in the Army or Navy and were sent to this college for training by the Veterans Administration. A dormitory for men, named Scobey Hall was completed in 1940.

The Albert S. Harding Hall, a dormitory for men was completed in 1954; and Brown Hall completed in 1959. Development Hall is another men's dormitory.

The Animal Health Laboratory, a brick building erected in 1920, furnishes quarters for the Veterinary department.

The Veterinary Research Laboratory, completed in 1950 is used for animal disease studies and research work.

The Lincoln Memorial Library was built in 1927 and was dedicated by President Calvin Coolidge. It provides modern and efficient library facilities.

The Coughlin Campanile or Chimes Tower, built in 1929, was a gift of Charles L. Coughlin of the class of 1909. The tower houses eighteen tubular chimes. These are electrically played and are used to mark the hours, also to give concerts of hymns and other music. The tower is surmounted by two powerful lights, one revolving and the other stationary, which serve as a beacon to aviators.

The Pugsley Union is the center of student social life. It provides very suitable office and other space for student organizations, including the Student Association Bookstore. Game rooms and lounges provide well managed recreational facilities. The cost of erection and most of the cost of operation are being financed from student union fees, plus a PWA grant and alumni gifts.

The Printing and Rural Journalism Building was completed in 1951 and provides modern facilities for the department of Printing and Journalism and Audio-Visual Education and Photography. The postoffice, College Station, is also housed in this building.

Agricultural Hall, completed in 1952, houses the major portion of the Division of Agriculture. In addition to several classrooms and laboratories, there are offices for the Agricultural Division, Extension Service and Experiment Station.

The Plant Pathology-Botany Building was completed early in 1955 and together with a set of modern greenhouses, furnishes quarters for research and teaching in plant diseases.

The Foundation Seed Stocks Building, completed in December 1955, is located directly north of the Plant Pathology-Botany Building. It was financed by the Seed Stocks Corporation of the South Dakota State College Foundation, and placed on State College land by permission of the Legislature. The building is for the purpose of cleaning certified, pure seed, raised by the Corporation and distributed to County Crop Improvement members. It is modern in every detail, has the latest machinery for cleaning and a drier for processing hybrid seed corn.

The Agricultural Engineering Building, replacing one destroyed by fire in January 1957, was occupied in the fall of 1959.

The 1959 Legislature appropriated money to build a new Dairy-Bacteriology Building on the campus.

The Aviation Mechanics Building now provides space for Industrial Arts.

All buildings on the main campus are heated by steam from a central power plant which also generates a portion of the electricity required. The college has a power contract with the Bureau of Reclamation and in an emergency can obtain electricity from the City of Brookings.

Near the campus are the President's home and the Home Economics Home Management House. On the adjoining college farm are located the livestock dairy barns, together with several dwellings and a number of small buildings which are used for agricultural purposes.

The College furnishes first-class postal facilities. College Station, Brookings, South Dakota, is a Federal postoffice, located in the Printing and Rural Journalism building. Mail is delivered at convenient times during the day, making it unnecessary for students to go to the

city postoffice. The college has regular mail pickup and delivery service.

Farms and Horticultural Gardens. The college farms include 1,240 acres, about 360 of which are used by the Agricultural Experiment Station as an experimental farm. Here the field experiments with crops, soils, and livestock are conducted, and the students may witness and actually participate in this scientific work. The remainder of the farm is used as a crop, stock and dairy farm under the direction of the agricultural division.

The horticultural gardens comprise about 50 acres adjoining the campus. Here, and in the greenhouses a large amount of work in fruit propagation and plant experimentation is being carried on.

The Laboratories, Shops and Museums. Well-fitted laboratories and shops have been provided in all those departments where their use is made necessary by modern educational methods. The value of illustrative materials has been recognized, and numerous departments have made large collections and museums. The equipment of the various departments is described in connection with the description of their work.

The College also maintains educational units including classrooms, faculty offices and student facilities at Watertown, Madison and Rapid City for the Division of Nursing.

The Library

The library is one of the vital organs of every college. It provides materials of instruction and research for all departments. Training and practice in the use of books and libraries is an essential part of a college education and is the basis of all sound research.

Lincoln Memorial Library is an attractive building on the south side of the campus. It has seating facilities for 340 readers in three reading rooms. The collection consists of about 130,000 bound volumes plus thousands of pamphlets and other ephemeral materials. As a Depository Library it receives most of the important documents of the United States and the State of South Dakota. More than 1600 titles of scientific, technical and general periodicals are currently received. Most of these are bound and preserved for permanent reference. Much material is available on both microfilm and microcards, together with reading facilities for enlarging these specialized types of records.

The collection is organized and administered by a staff of trained librarians, who are always on duty to aid faculty and students make the best use of the library's facilities .

In addition to scientific and scholarly works the library has a wide selection of books for cultural and recreational reading. An open-shelf browsing collection of 5000 volumes is kept in the Main Reading Room. It is constantly renewed with interesting new titles.

While the principal purpose of the college library is to serve the needs of faculty and students in residence, its facilities are also open to the people of the city and state, insofar as this does not interfere with the work of the college.

A small branch library is maintained at Watertown to serve the students and faculty in the clinical portion of the Nursing program.

College Affiliations and Accreditations

For various purposes outlined below, the College holds institutional membership in a number of educational associations. The Association of Land-Grant Colleges and Universities, through cooperative efforts of its members, promotes activity in the several states to fulfill the aims expressed in the Morrill Act of 1862, and in the subsequent acts of Congress relating to Land-Grant Colleges, as these acts have been accepted by the state legislatures. In a time of emergency this association advises Congress concerning special services that its member institutions can provide to benefit the nation.

The North Central Association of Colleges and Secondary Schools is the regional accrediting agency for a group of nineteen states, including South Dakota. Its purpose is to maintain high standards of instructional work and educational programs. Good administrative procedures, personnel practices, adequate plant facilities, and other matters related to quality of instruction come under its scrutiny and by means of periodic surveys and reports to the member institutions it enables them to study their own problem to much better advantage. The membership of State College in this association and accreditation by the association gives to the graduates of State College a standing recognized in the North Central group of states and also in the other regional accrediting associations of the United States. The State Board of Nursing has fully accepted the nursing program and facilities at the Division of Nursing.

The American Association of University Wo-

men is concerned with the educational opportunities provided for women, and with all policies or procedures in which equal opportunity for women may be involved. Membership in this association opens up to women graduates the privilege of individual membership in the chapters of the association and carries with it substantial advantages in professional and social organizations for women. At present this membership privilege is open to graduates in most of the curricula pursued by women at State College, primarily the B.S. in Home Economics, Science and Applied Arts (except Clinical Technology), Agriculture, Civil Engineering, Engineering Physics, Electrical Engineering, and Nursing. The list of curricula is being extended as certain specific requirements of the association are received and studied. Any woman graduate who is interested in the standing of a special curriculum should make inquiry to the Dean of Women for the latest list of curricula registered by the association.

The departments of Civil, Electrical, and Mechanical Engineering are accredited by the Engineers Council for Professional Development.

The College also holds membership in the American Council on Education, the National Education Association, the American Association of Colleges of Pharmacy, the American Society for Engineering Education, The Association of Accredited Schools and Departments of Journalism, the American Library Association, the National Commission on Accrediting Agencies, American Chemical Society, National League for Nursing, and several others which are concerned with more limited phases of college work.

The College Year

The regular college year is divided into the Fall, Winter, and Spring quarters as shown for the coming year in the College calendar on the second page of this catalog. The various curricula show organization of subjects by quarters. These schedules are followed as closely as conditions permit but the subjects may also be offered in quarters other than those indicated if the demands justify doing so. Others may be offered only in alternate years because of limited demand.

The College may register students in work outside the regular quarters or the Summer Session when arrangements can be made for conducting or supervising such special work without excessive cost to the College.

The Summer Session

The Summer Session for 1960 will be an eight-weeks session opening on June 13 and closing on August 5, and a five-weeks session opening June 13 and closing July 15.

The purpose of the Summer Session is threefold: (1) to provide for regular students who wish to shorten the time required for their graduation; (2) to offer work, primarily on the graduate level, to high school teachers, graduate nurses, and others who have only the summer available for study; (3) to enable high school graduates to start their college work in June instead of September, particularly those students whose normal period of college work is likely to be interrupted by military service.

Courses will be offered in all six divisions of the College—Home Economics, Science and Applied Arts, Agriculture, Engineering, Nursing, and Pharmacy. The divisions offer work in the Summer Session to fit in with the work of the regular three quarters so that students may, by attending the Summer Session, shorten the total period of time necessary to complete work for a degree.

Since one of the principle functions of the College is to train teachers along vocational lines, its shops, laboratories, experimental plots and livestock are available for this purpose. Many of the departments of the College offer work during the summer for graduate credit. In certain of the departments it is desirable that students plan to do at least some of their graduate work during the Summer Session.

Special work-shop courses of one to three weeks are planned with the Summer Session program, with and without college credit.

An interesting social and recreational program is maintained. The Pugsley Union Building is the center of social activities.

Women students are required to room in the dormitory. Men students will find good housing accommodations in private rooming houses near the campus or in one of the men's dormitories.

The grill room of the Union Building is open for service, and board can be obtained at other eating places near the College campus.

The faculty of the Summer Session will be largely members of the regular faculty of the College. Guest faculty members also help to enrich the Summer Session offerings.

Expenses: Tuition for the eight-week Summer Session will be $64.00, General College

fee $10.00, a Union fee $2.70 and an activity fee $4.00. However, students who have not previously registered at State College must pay a matriculation fee of $5.00. This fee is paid only once and is not required of those who have previously registered at State College.

Tuition for the five-week Session on a normal load will be $40.00. College fees $7.00, Union fee $2.70 and Activity fee $4.00.

Tuition for out-of-state is one-half more.

A combined tuition-fee of $7.00 per credit-hour for a one to seven credit hour load. Out-of-state $9.50.

A combined tuition-fee of $7.00 per credit-hour on all workshops, with the workshop activity fee $1.00. Out-of-state $9.50.

Summer Session courses are scheduled to meet expected demands and are described in more detail in a Summer Session Bulletin issued in the Winter quarter. Copies will be mailed from the Office of Admissions and Records upon request.

Division of Student Personnel

The College Student Personnel Service is organized for the benefit of all students, and for the development of the students to the full extent of their aptitude and interests.

The division is under the supervision of the dean of Student Personnel Service, assisted by a full-time professional staff in counseling, testing, placement, health and research. There are also 140 part-time faculty counselors. These personnel officers are concerned with students as individuals and in their process of developing and adjusting themselves.

The staff members work closely with the deans of the several divisions and with many other departments in student personnel services, including student health, student housing, student activities, and the divisional placement offices.

Personnel Records. Each entering student furnishes with his application for admission, complete information concerning his family, high school record, vocational data, extracurricular activities, health data, and various practical experiences.

On entrance to the College all students are given a battery of placement tests measuring scholastic aptitude, achievement in various scholastic fields, special aptitudes, and interests. Data from these tests are assembled in the personnel office with the student's cumulative personnel folder and used in counseling with the student.

While a student is in attendance at the College, detailed cumulative information concerning him is developed. Records are continued and made available for post graduation counseling.

Testing Service. The Bureau of Education Research and Measurements provides a testing and scoring service for students, faculty, and for high schools and colleges in South Dakota. A major concern of the department is the administration of the testing program for all new students in the fall of each year.

This department also conducts studies and research on the values of test data in counseling and in predicting success in various educational curricula.

Guidance and Counseling Clinic. The present guidance and counseling clinic was organized in 1942 for the purpose of providing special counseling services for those students seeking vocational and educational guidance. Counselors are appointed from the faculties of the various divisions to counsel with Freshmen and Sophomore students.

On entering the College each student is assigned to one of these counselors who aids him in making educational and social adjustments.

These counselors are selected on the basis of special training, experience, and interests in the field of guidance. The counselors are generally familiar with all the curricula offered at the institution. They are therefore of particular service to students who are in doubt as to the type of college work they wish to pursue. The guidance and counseling clinic has especially trained counselors in the field of vocational guidance who with the use of scientific methods, assist students in choosing a vocational career.

Individual interpretations of all test data are available to those students desiring them.

When a student enters the Junior year he is assigned by the dean of the division in which he is taking his major work, to a counselor, usually the head of the department in which he is specializing.

New Student Days. All new students are expected to participate in the "New Student Days" at the beginning of the fall quarter or the special meeting held for new students at the beginning of winter and spring quarters. These programs are organized to prepare the student for the college activities.

1 Orientation 1 Cr. Two meetings each week for one quarter

Required of all first time students and transfer students with less than 45 credits. Provides information on rules and regulations, study habits, student activities, self-appraisal, health habits, career information, and other data acquainting the student with matters important to college success. Involves large and small group activities. Administered jointly by the divisional dean or his representative, and the Student Personnel Division.

Veteran's Service. The College provides a special service for veterans who are in attendance. A veteran's counselor is available in the Student Personnel Office to assist veterans in their relations with the Veterans Administration and with the College. This office handles all necessary paper work related to the proper acounting of the veteran who is attending on any Federal Veteran's Bill to insure that benefits are authorized.

Each veteran attending college under any Federal Law is **obligated** to report any change in academic status to the Veteran's Adviser since such information must be passed on to the Veterans Administration.

Placement Service. The College maintains a full-time officer who works with divisional and departmental officials in helping graduates to locate job opportunities. The placement office maintains referral and reference service for students and graduates at no charge.

Students who are interested in summer work are also assisted in locating summer work opportunities. The placement officer also helps students seeking part-time employment.

Terminal Curricula. The College has a provision for two-year terminal curricula, the requirements of which are explained below. The terminal curricula provide an opportunity for students, who for some reason do not wish to continue a four-year course, to organize their college work on a two-year basis. Completion of one of the two-year curricula leads to a Certificate of Completion.

Requirements for the Certificate of Completion

Major field	term hours of credit 24
Minor field	term hours of credit 18
Constants:	
English	9 cr.
Physical Education	3 cr.
Military (men)	6 cr.
Orientation	1 cr.
Science—Math or Language	8 cr.
	27 cr. 27
Electives (Minimum)	31
Total credit (Minimum)	100
Total grade points (Minimum)	190

Major and minor fields are developed for individual students with their counselors and approved by the head of the department concerned and the dean of Student Personnel.

College Withdrawals. If a student finds it necessary to withdraw from the institution prior to the completion of one of the several curricula available to him, he is urged to consult with his counselor in the interest of working out the best vocational plan possible before withdrawing. Refunds are made only on basis of official withdrawals.

Student Health Service

The Student Health Service is not responsible for the physical welfare of students while out of Brookings unless they are absent on an approved college trip, taking college work out of town, such as students in the Division of Nursing or other departments that are giving courses handled directly by State College. The Student Health Service will not be responsible for the care of students injured while riding in a motor vehicle in Brookings unless they are on an approved College trip.

1. After payment of the General College fee, a student is entitled to the following services through the Student Health Service.

(1) *Treatment by the college nurse in the Health Service Center (Room 109 Extension Bldg.) of minor ailments and injuries.* The nurse will be on duty from 8:00–12:00 noon, and 1:00–5:00 p.m. on MTWThF and 8:00–12:00 noon on Saturday. A nurse is available in the infirmary in Wecota Hall for residents of the women's dormitories from 8:00–9:00 a.m., 12:30–1:00 p.m. and 9:30–10:30 p.m. daily. In case of emergencies the nurse may be called at other times by a house mother.

(2) *Attention of a college physician.* A college physician will be in attendance in the Student Health Service Center at 8:30 a.m. daily except Sunday. Students should consult the doctor at this hour or make arrangements through the Health Service to consult him at the downtown clinic of the college physician.

A student who finds it necessary to have a physician call on him in his room or home, may leave word at the following places during office hours: Student Health Service—Phone Extension 343; Office of the Brookings Clinic—Phone MY 2-6236. For night calls or other emergencies requiring the immediate services of a physician or in case neither of the above offices answer, a student may phone the residence of a college physician or the college nurse. Phone numbers are as follows: Mrs. Sykes—MY 2-2506; Dr. Tank—MY 2-2225; Dr. Davidson—MY 2-2525; Dr. Henry—MY 2-2925; Dr. Patt—MY 2-4416; Dr. Roberts—MY 2-2334. Infirmary phone numbers: Men—Extension 322; Women—Extension 638.

(3) *General Hospital care for a period not to exceed 30 days per school year.* This includes the cost of the room in the hospital, ordinary drugs such as aspirin or its derivatives, sulpha and simple dressings. The student must pay for his own meals while in the hospital.

(4) *Immunity Tests.* Insofar as practicable, these will be administered whenever there is occurrence of contagion in the community. (Student pays for cost of drugs only.)

(5) *Nursing students,* off-campus, are entitled to the same health and hospitalization privileges that are offered to other students. Arrangements are made on a contract basis with each agency to care for these students during field experience. In some instances physical examinations and additional immunizations are required prior to field work. These

are individually arranged and carry a minimal charge.

2. Students will pay for the following services at reduced rates which have been arranged by the Health Service:

(1) *X-Ray and Laboratory Test Service.* Students may obtain diagnostic X-Rays and laboratory tests at the Brookings Municipal Hospital or at the office of the college physician at a cost of one-half the regular charge for the particular procedure, when the cost is $10 or less, the other one-half being borne by the Student Health fund. If the cost of a series of X-Rays or laboratory tests is over $10, the student will pay three-fourths of the cost in excess of $10 and the student health service one fourth of the cost in excess of $10. The Health Service does not pay for the cost of therapeutic X-ray treatments or extensive pathology tests.

(2) *Medicines and drugs.* The Division of Pharmacy maintains a dispensary where only prescriptions issued to students by their physician will be filled. The dispensary, with a registered pharmacist in charge, will be open daily from 8:00 to 10:00 a.m. except Sunday and from 3:00 to 5:00 p.m. except Saturday and Sunday. A charge covering the cost of material will be made to the student. All prescriptions will be cash on delivery.

(3) *Epidemics.* In case of an epidemic of any quarantinable disease, proper housing and care will be furnished, in so far as possible, to the students at cost.

3. For the following services the Health Service assumes no financial responsibility. Students should make their own arrangements for payment:

(1) *Hospitalization in excess of 30 days per school year or for illness due to conditions which existed prior to the opening of the college year.*

(2) *Physician's and nurse's care for major injuries for certain specific and chronic diseases, and for conditions which existed prior to the opening of the school year.*

(3) *Expense of operation.* The Health Service does not pay the cost of operations including such items as physician's fee, anesthesia, charge of operating room, oxygen, etc.

(4) *Special Nursing.* Student Health Service does not bear the expense of special nurses.

(5) *Dental Care.*

(6) *Pathology Tests.* (Except as described under item 2, (1).

(7) *Services rendered for treatment under conditions described in paragraph directly under the heading "Student Health Service."*

(8) *Activities Injuries.* Student Health Service does not bear costs for athletic, rodeo, or other activity injuries.

4. Note.

The college will in no way interfere with the rights of the student to employ on his own responsibility a physician or surgeon of his own choice, provided in doing so he complies with the regulations governing physical examinations and such health measures as may be prescribed by the Health and Sanitation committee of the College. The college will lend assistance in securing physicians or quarters for hospitalization when requested to do so by students or their parents.

The services of the College nurse are not available for the care of individuals with contagious diseases or where special duty is required.

Scholarships and Awards

The following scholarships and awards are granted through the College. Additional information concerning them may be obtained by writing to the Committee on Scholarships.

NOTE: The $150.00 stated in some scholarships covered the tuition for the school year 1958-59. The donors of these scholarships may or may not increase them to the present school year tuition of $198.00.

OPEN TO ALL STUDENTS

Student Association Scholarships. The Student Association of the College grants two scholarships of $150 each to upper classmen.

Alumni Association Scholarships. The Alumni Association of the College through its scholarship committee has established the following scholarships:

(a) Two $198 Scholarships are given to worthy, needy Freshmen.

(b) The H. B. Mathews Scholarships. These will be paid from the interest earned on a fund established by the Alumni Association to honor the memory of the late Dean H. B. Mathews, and will be awarded to Senior students. Amount of the two scholarships is $125 each for the year.

Stephen F. Briggs Scholarships. Ten $500 scholarships awarded to incoming Freshmen, five in the field of Engineering, five in any of the other fields. Given by Mr. Stephen F. Briggs, a State College Alumnus. These are renewable.

Boys State and Girls State Scholarship. $100.00 scholarship awarded to the students selected as the outstanding citizens each year at Boys State and Girls State in South Dakota.

South Dakota Regents Indian Scholarships. Award to students of at least one-fourth Indian blood

who are residents of South Dakota—$100 each year. Must be approved by the Regents of Education.

Brookings Rotary Club Scholarship. $150 awarded to graduate of Brookings High School based on scholarship, character, need, and outstanding leadership.

Faculty Association Scholarship. $200 awarded to highest ranking student in Science Talent search or equivalent achievement by outstanding high school science Senior.

LaVerne Noyes Scholarhsip Fund. LaVerne Noyes left by his will a large part of the income from his estate to be used in certain colleges and universities, including the South Dakota State College, for assistance to World War I veterans or their descendants. These scholarships are to be used toward paying the tuition, in part or in full, of deserving students who need such assistance.

General Motors College Scholarship. Each year a scholarship is granted to an outstanding entering Freshman. The stipend varies with the need of the student, from $200 to $2,000. The Scholarship is renewable for a four-year period.

General SDSC Scholarships. A number of $100.00 scholarships are awarded to incoming Freshmen each year. The awards are based on scholarship, need and character.

Harold S. Freeman Memorial Scholarship. Awarded to a Freshman interested in entering the teaching profession. Based on scholarship, need, and a planned teaching career.

John W. Headley Memorial Scholarships. $200 awards given in memory of the late Dr. John W. Headley.

W. Marvin Kemp Memorial Scholarship. Awarded to a Freshman interested in teaching as a career. Based on scholarship, need, and a planned career as a teacher.

F. A. Strand Memorial. Awarded to a Freshman interested in teaching. Based on scholarship, need, and a planned career as a teacher.

Monogram Club Scholarship. Two scholarships of $150 each. One granted to an entering Freshman, the other to an upperclassman. Selection based upon leadership, ability, extracurricular activities, character, citizenship and high school scholarship.

Blue Key Scholarship. A $75 scholarship awarded to the Sophomore male student who has the best record in athletics, scholarship, and character during his Freshman year.

F. O. Butler Scholarship. The late Mr. F. O. Butler of Hot Springs has set aside, through the F. O. Butler State College Foundation, a number of scholarships for students attending State College. The amounts and the number are determined by the foundation and are open to both men and women in all divisions of the college on a prorated basis.

Sigma Lamdba Sigma Scholarship. A scholarship of $50 granted to a Freshman woman. Selection is based upon scholarship, the highest ranking Freshman girl receiving the award.

A.A.U.W. Scholarship. A scholarship of $25 granted a Junior woman student. Selection is based upon scholarship, leadership, and service.

Faculty Women's Club. One half scholarship to a Sophomore woman student at the American Youth Foundation Leadership Training summer camp, Camp Miniwanca. One $198 scholarship to an upper class woman at the beginning of her Sophomore year.

Dr. Calvin M. Kershner Scholarship. $150 to an outstanding student with high scholarship and musical ability.

Brookings Music Store. $150 to a student, based on scholarship and musical ability.

Millard G. Scott. $198 scholarship to a Junior Economics major interested in real estate as a career.

Baldwin Piano, Brookings Music Store. Six lesson and practice fees scholarships each quarter to students with musical ability.

Williams Piano Company. Two $150 scholarships to students with musical ability.

War Service Grants-in-Aid. Free tuition is given by the institutions under the control of the Board of Regents of Education to students who were residents of the state at the time of enlistments and who have served in the army or navy in World War I, World War II, or Korea. This provision also includes any person who has performed active war service in nursing or assisting in the care of the soldiers or sailors as a member of the Red Cross or any similar organization engaged in war relief work which was recognized and approved by the government. Applicants for these scholarships should bring their discharge papers when they enroll. Must have been in service before May 12, 1957. Limited to 12 quarters of undergraduate study.

There are similar benefits for students orphaned by action in World War II and the Korean conflict.

Other Awards. A number of awards, medals, and cash awards are given in various departments. Medals are given to the outstanding member of the four college classes in the department of military.

Various medals and cash awards are given for excellence of work in the speech department.

Beadle County Alumni Scholarship. Tuition to an incoming Freshman from Beadle County. Based on scholarship, leadership, and character.

Guidon. Women's Auxiliary to Scabbard and Blade offers $100.00 award to a Junior girl. Selection based on scholarship, character, need.

OPEN IN AGRICULTURE AND HOME ECONOMICS

Sears, Roebuck Agricultural Scholarship. Sears, Roebuck Foundation of Chicago, has been giving State College a fund to be used for scholarships to select Freshmen agricultural students who cannot attend college without help. A determination to engage in agricultural work after graduation is a requirement. These scholarships average $150 a year. They are grants of cash, requiring no work. The recipient must fulfill all college regulations and maintain a scholastic average of not less than "C." Selection made by committee is based upon scholarship 50%, leadership 25,%, personality 15%, and business ability 10%.

The highest ranking Freshman in this group will receive a Sophomore scholarship of $250. He will compete with students from other agricultural col-

leges for a first place award of a $500 Junior-Senior scholarship and a second place award of a $250 Junior scholarship.

Students interested in making application for these scholarships should contact their county agents, Smith-Hughes instructors, or the superintendent of schools. Blanks are available from the College Scholarship Committee.

Federal Land Bank Scholarships. The Federal Land Bank of Omaha and National Farm Loan Association of South Dakota annually provide two $300-scholarships for Freshmen students enrolled in the Division of Agriculture. The purpose of these scholarships is to encourage high school graduates of outstanding ability to continue their education in the field of agriculture.

Selection of award winner will be made by the College Scholarship Committee on the basis of scholarship, character, participation in farm activities, and participation in high school and community responsibilities and activities. Financial need will be considered but will not be a limiting factor. Applications should be submitted by high school Seniors not later than March 1 of the year application is to be considered. Each scholarship will be paid in three installments made available at the beginning of each quarter. Payment of the winter and spring installments is contingent upon the student making a satisfactory college record during the preceeding quarter or quarters.

Sioux City Stock Yards Scholarship. The Sioux City Stock Yards Company offers two scholarships of $150 each for Freshmen students in agriculture at State College. Winners will be selected on the basis of their 4-H Club records in livestock work, livestock exhibits, judging and demonstration work, scholastic standing in high school, and character. Records and reports are to be submitted to the county extension office by July 1 of each year.

F. H. Peavey—Van Dusen—Harrington Scholarship. A Junior or Senior student majoring in field crops, plant pathology, or soils, doing satisfactory college work and in need of financial aid, is eligible to compete for this scholarship of $300.

T. M. Olson, Dairy Club Scholarship. One scholarship of $150 granted to a Junior majoring in dairy. Money is available during the Senior year. Selection based upon scholarship, character, leadership, and participation in student activities.

Danforth Foundation Summer Fellowship. This is awarded annually by the Purina Company of St. Louis, Missouri, to a high ranking Junior student in agriculture. The selection is made by a faculty committee.

S. D. Electric Information Institute. One scholarship of $150 to a 4-H member enrolling as a Freshman.

S. D. REA Cooperatives. One $150 scholarship to a 4-H member enrolling as a Freshman.

Terrace Park Dairy Scholarships. Three scholarships of $150 to students majoring in dairying. The awards are based on scholarship, leadership and need. They are awarded by Al and Ozzie Schock, proprietors of the Terrace Park Dairy, Sioux Falls, South Dakota.

South Dakota American Dairy Association Scholarship. Three $150 scholarships to students enrolled in dairy or dairy foods projects in 4-H Club work, and showing scholarship and need.

J. R. Watkins Scholarship. Two scholarships of $150 each awarded to 4-H Club members enrolling as Freshmen. Selection is based upon 4-H Club record, personality, leadership, and high school scholarship.

Ag Club. One scholarship of $50 for Junior agriculture student.

Agriculture Freshman Scholarships.

Pierre Production Credit Assn. $153
A. G. Berger $153

All the above awards are based on scholarship and need. The Pierre Production Credit Assn. award goes to a student living in Hughes, Hyde, Sully, Stanley, Lyman, Jones, or Haakon Counties.

Brookings Homemakers Club. $100 scholarship to a Sophomore girl based on scholarship and need.

South Dakota 4-H Leaders Assn. Scholarships. Three awards to upper class boys or girls, $150 each. Overall outstanding 4-H Club record.

Extension Scholarship. To Freshman boy or girl in Agriculture or Home Economics, $150 each, based on overall outstanding 4-H Club record.

Cooperative Wool Growers of South Dakota Scholarships. Two $198 scholarships are to be given to entering freshmen, Agriculture or Home Economics students, coming from families interested in sheep and wool production.

Sears, Roebuck Home Economics Scholarship. For three Freshmen women. A determination to engage in home economics work upon graduation is a requirement. Selection based on scholarship, leadership, and need. Each scholarship $133.

Verna Lippert. $198 to a Freshman Home Economics girl from Sioux Falls of high scholastic standing.

Josephine Alexander. $108 to a Freshman home economics girl. Selection based on ability, personality, and need.

Susan Z. Wilder Scholarship. Four $150 scholarships awarded to Senior Home Economics students that qualify by having high scholastic standing and needing assistance to finish their senior year. Two $100 scholarships to Freshmen for use during their Sophomore year.

Danforth Foundation Summer Fellowship. This is awarded annually by the Purina Company of St. Louis, Missouri, to a high ranking Junior student in home economics. The selection is made by a faculty committee.

American Youth Foundation Summer Camp. Tuition to a Freshman home economics student to leadership training camp at Camp Miniwanca.

Home Economics Club. One half scholarship to a Sophomore home economics student at the American Youth Foundation Leadership Training summer camp, Camp Miniwanca.

Home Economics Club Scholarship. One $150 scholarship awarded to a home economics Junior based on scholarship, need, and personality.

Phi Upsilon Omicron. One quarter-tuition scholarship to a home economics Sophomore. Based on scholarship and need.

Stauffer Restaurant Corporation. Two $198 scholarships to home economics students. Selection based on ability and need.

Farmers Union Central Exchange. $150 awarded to a student majoring in Agriculture.

Brown County Crop Improvement Association. $150 to a Freshman Agronomy student from Brown County. Based on interest in crop improvement and need.

Ralston-Purina: $500.00 scholarship granted to an outstanding junior boy majoring in Agriculture for use during his Senior year.

First National Bank of Volga. $150 to an incoming Freshman Agriculture student. Based on scholarship, character and need.

School Lunch. Two $130 scholarships, provided by the members of the Purveyors Short Course, for incoming Freshman girls with high scholarship and interest in Home Economics.

S. D. Seed Trade Ass'n. A $200 scholarship to a Junior or Senior from South Dakota majoring in Agronomy and showing scholarship and need.

Corn Exchange Bank of Elkton. $150 award given to a student in Agriculture who exhibits qualities of scholarship, character, and need.

S. D. Rural Electric Association. $150 to a junior Home Economics major.

Black Hills Power and Light Company: An award of $198 to an incoming Freshman Home Economics major from Pennington, Meade, Butte, Fall River, or Custer Counties.

Alice Rosenberger. Two $150 scholarships to Home Economics majors exhibiting scholarship and need.

Home Economics Scholarship. $198 scholarship to an incoming Freshman showing high qualities of scholarship and character, and exhibiting need.

S. D. Frozen Food and Locker Association. $150 award to an incoming Freshman girl with high scholarship and strong character. Must have outstanding 4-H record in frozen food or food preparation.

Sioux Falls Stockyards. Two $150 to incoming Freshmen boys with scholarship, character, and an outstanding 4-H livestock record.

OPEN IN ENGINEERING

Sigma Tau award to highest ranking Freshman in Engineering.

American Institute of Electrical Engineers Awards for student papers:

a) S. D. State College Branch prize
b) Minnesota Section prize
c) Great Lakes District prize

American Society of Mechanical Engineers district prize for student paper.

Freshman Tuition Scholarships. Twenty to thirty Freshman tuition scholarships given by business and industrial concerns or by engineering graduates. Write the College for further information.

Associated General Contractors of South Dakota, Pierre Highway Chapter. One $100 scholarship to a Senior in Civil Engineering based on scholarship, character and need.

Associated General Contractors of South Dakota, Huron Building Chapter. One $300 scholarship to a Senior in Civil Engineering, one $300 scholarship to a Junior in Civil Engineering, four $200 scholarships to Sophomores in Civil Engineering. These awards are all based on scholarship, character, and need.

Ursa L. Freed Memorial Scholarship. One $100 scholarship open to any Engineering student and based on scholarship, character and need.

East River Power Cooperative, Madison, South Dakota. One $150 scholarship to a Sophomore boy in Agriculture Engineering. This scholarship is based on academic achievement, need, and the preparation of an essay on a rural electric subject.

Leo C. Lippert Scholarship, Sioux Falls. Three $200 scholarships to Sophomore, Junior, and Senior Engineering students. This scholarship is the continuation of the Freshman Lippert Scholarship Award based on continued highly satisfactory achievement.

Westinghouse Scholarship. One $250 scholarship to a Senior in Mechanical or Electrical Engineering based on high academic achievement, character, and need.

Steven F. Briggs Scholarship. Five $500 awards to incoming Freshmen based on high scholarship, character and need. These awards may be continued each year if the student's achievements are acceptable to the scholarship committee and as funds are made available.

OPEN IN NURSING

A number of Freshman tuition scholarships are granted by doctors, business, and industrial people to students in nursing and nursing education, based on scholarship, personality and need.

There are also three Federal Traineeship grants of $2,400 for Registered Nurses who are preparing for teaching or supervision.

Students in nursing are also eligible for appointment to the Army Nurse Student Program as Juniors in the basic option or as registered nurses in the baccalaureate program.

Individuals and groups presently providing scholarships to incoming Freshmen Nurses include: **Black Hills District Medical Society,** Rapid City; **Dr. George Whitson,** Madison; **Dr. Peter Hermanson,** Hendricks, Minnesota; **The K. O. Lee Company,** Aberdeen, South Dakota.

Anna Haugen Berdahl. One $50 to $75 scholarship to a Junior Nursing student based on outstanding Nursing aptitude. This award is offered by the Division of Nursing.

OPEN IN PHARMACY

South Dakota Pharmaceutical Association Scholarship. One scholarship of $198 has been established for a needy, worthy student who is entering the division of pharmacy, who graduates from high school in the upper 50% of his class. Applications for this scholarship are to be submitted to the dean of pharmacy on or before August 1 of each year.

South Dakota State Board of Pharmacy Scholarship. One scholarship of $198 offered to a needy, worthy student entering the division of pharmacy and who graduated from high school in the upper 50% of his class. Applications for this scholarship are to be submitted to the dean of pharmacy on or before August 1 of each year.

Rowell Laboratories. $100 scholarship to a Junior or Senior with high scholarship.

S. D. Rexall Club. Two scholarships of unspecified amount to Juniors and Seniors exhibiting scholarship, character, and need.

American Foundation for Pharmaceutical Education Scholarship. $400 available for undergraduate pharmacy scholarships to students who are pursuing the professional college study of pharmacy and who meet the following qualifications: college students who are Juniors or Seniors in need of financial aid and who have established evidence of competency and scholarship ability (maintain a rank in the upper quarter of their class, or an average of "B" as a minimum).

The Lehn and Fink Medal. The award is given each year to a Senior student who has had the highest scholastic rank, or in the judgement of the faculty, has made the most distinctive contribution to the advancement of science in pharmacy.

Merck and Company Award. Two prizes to the two students who have attained the highest scholastic standing during their Senior year in the courses in dispensing and pharmacology.

Osco Drug Inc. Two triennial scholarships of tuition and fees each. To be awarded to Sophomore students and are given continuously to the same students if academic standing is maintained. The scholarships are based on worthiness, character, and scholastic standing. Applications to be submitted to the dean of pharmacy.

Freshman Tuition Scholarships. Freshmen scholarships of $198 awarded by pharmacist friends of the division. Write the dean of pharmacy for further information.

Bristol Award. This award is given each year to an outstanding Senior selected by the faculty of the division. The award consists of an embossed copy of the Modern Drug Encyclopedia.

Alice Locke Scholarship. A tuition scholarship of $198 awarded to a Junior or Senior on the basis of scholarship and need.

Northern Ohio Alumni. Scholarship of $250.00 donated by SDSC Alumni of the School of Pharmacy now living in northern Ohio. This award goes to a senior who is selected by the Pharmacy Division.

OPEN IN SCIENCE AND APPLIED ARTS

Sigma Delta Chi Scholarship. $150 scholarship granted to a Freshman boy entering journalism. Based upon journalism ability, scholarship in high school, and recommendations from high school principal.

Bonnell Industrial Arts Scholarship. One $150 Junior scholarship to a major in industrial arts who is a resident of South Dakota showing scholarship, character, and need.

George S. Hazard Memorial Scholarship. To an outstanding printing management student, $50 to $100.

Sioux Falls Paper Co. Scholarship. Two Freshman scholarships of $198 each for journalism students showing scholarship, professional promise, and need.

Sioux Falls Argus-Leader Scholarship. A $100 scholarship for a journalism major with high scholarship.

Watertown Public Opinion Scholarship. $75 scholarship granted by Watertown Public Opinion and South Dakota High School Press Association to incoming Freshman in journalism.

Rapid City Journal Scholarship. $75 scholarship granted by Rapid City Journal and South Dakota High School Press Association to incoming Freshman in journalism.

South Dakota Press Women Scholarship. $50 scholarship presented to Junior girl in journalism in odd-numbered years.

Printing Laboratory Scholarship. $150 award to an outstanding upperclass Printing Management student.

Carl Christensen. $150 to an outstanding musical student given in honor of Carl Christensen, former band director at SDSC.

Aeolian Scholarship. String fees to an outstanding music student with string ability.

Alpha Psi Omega. Up to three tuition scholarships are awarded annually to speech majors.

Aberdeen American-News. $50 scholarship to Freshman Journalism student showing scholarship and promise.

Student Loan Funds

The college has received, by donation, several funds designed for use as student loan funds. Each donor has placed his fund in the hands of a Board, selected by him, to administer the fund, and in some cases special provisions have been set up for such administration. The terms of the loans are uniformly liberal in conformity with the purposes of the founder.

The National Defense Student Loan Program was established under the National Defense Education Act of 1958. The South Dakota State College National Defense Student Loan Fund was established under this program in February 1959. Loans are available to full time students in any field of study at South Dakota State College. Consideration is given on the following basis: First, the students with superior academic background who express a desire to teach elementary or secondary schools. Second, students whose academic background indicates a superior capacity or

preparation in science, mathematics, engineering or a modern foreign language. The primary consideration of an applicant's eligibility for National Defense Loan is that he is in need of the requested loan in order to complete his course of study. In determining need, the financial circumstances of both the applicant and his family will be evaluated.

A National Defense Loan bears simple interest on the unpaid balance at the rate of three percent per year. Interest does not commence until one year from the date the borrower ceases to be a full time student at the institution of higher learning. To apply for a loan from this fund obtain an application blank from the Loan Officer, Office of Student Personnel, South Dakota State College.

The following funds are available with the special provisions indicated where such exist:

OPEN

National Defense Student Loan Fund. Initial appropriation $12,304. Open to all students. Limit of $1,000 to any one student each year. Five thousand during course of higher education. Apply to Loan Officer, Student Personnel Office.

Mae B. Austin Loan Fund. Total in fund, $550. Open to all students. Limit of $25 to any one student. Emergency Short Term Loans. Apply to Director of Housing.

Lipp Student Loan Fund. Total in fund, $8,599.80. Open to all students. Emergency Short Term Loans. Apply to Director of Admissions and Records.

J. W. Shuster Loan Fund. Total in fund, $500. Open to all students. Apply to Director of Admissions and Records.

George Lincoln Brown Loan Fund. Total in fund, $7,500. Open to all students. Limit of $200 per year to any one student. Apply to Loan Officer, Student Personnel Office.

Donahue Estate Loan Fund. Total in fund, $9,250. Open to all students. Apply to Director of Admissions and Records.

Kessler Student Loan Fund. Total in fund, $500. Open to all students. Preference to married students and Seniors. Apply to Loan Officer, Student Personnel Office.

MAJOR

Agriculture

Dave Harris Memorial Loan Fund. Total in fund, $500. Emergency Short Term Loans. Open to Wildlife Majors. Apply to Head of Entomology-Zoology Department.

Engineering

Solberg Loan Fund. Total in fund, $1,000. Open to Engineering students. Preference given to Seniors. Apply to Loan Officer, Student Personnel Office.

Home Economics

Home Economics Loan Fund. Total in fund, $2,500. Open to Home Economics Majors. Apply to Dean of Home Economics.

Susan Z. Wilder Loan Fund. Total in fund, $4,000. Open to Sophomore and Junior Home Economics students. Limit of $200 to any one student. Apply to Mrs. Ernest Telkamp, Secretary, Rural Route No. 1, Brookings, South Dakota.

Pharmacy

E. R. Serles Memorial Scholarship and Loan Fund. Total in fund, $3,000. Open to Junior and Senior Pharmacy students. Limit of $200 to any one student. Apply to Dean of Pharmacy.

Nursing

Dryborough Loan in Nursing. Open to R.N.'s. Members of S.D.N.A. Total in fund, $500. Apply to South Dakota Nurses Association, 906 National Bank of South Dakota Building, Sioux Falls, South Dakota.

Science and Applied Arts

George Mooar Smith Memorial Loan Fund. Total in fund, $100. Open to students majoring in Printing. Apply to Head of Printing-Journalism Department.

MISCELLANEOUS

Women

Faculty Women's Club Loan Fund. Total in fund, $6,521.12. Open to Sophomore, Junior, and Senior Women. Limit of $200 to any one student. Apply to Loan Officer, Student Personnel Office.

Faculty Women's Club Emergency Loan Fund. Total in fund, $100. Emergency Short Term Loans. Open to all girls. Limit of $10 to any one student. Apply to Dean of Women.

County

Brown County Alumni Loan Fund. Total in fund, $200. Open to students from Brown County or vicinity. Apply to Director of Admissions and Records.

Edmunds County Loan Fund. Total in fund, $100. Open to students from Edmunds County or vicinity. Apply to Director of Admissions and Records.

4-H

4-H Loan Fund. Total in fund, $1,200. Open to 4-H Club members or former 4-H Club members. Limit of $100 per year to any one student. Preference to students enrolled in Agriculture or Home Economics. Apply to State 4-H Club Leader.

JUNIORS AND SENIORS

Student Association Loan Fund. Total in fund, $2,625. Open to Juniors and Seniors. Limit of $300 to any one student. Apply to Director of Admissions and Records.

Arthur S. Mitchell. Total in fund, $75. Open to Juniors and Seniors. Apply to Director of Admissions and Records.

Rotary Loan Fund. Total in fund, $2,000. Open to Junior and Senior Men. Apply to the Director of Athletics.

Herbert W. Clarkson State College Student Loan Fund. Total in fund, $50,000. Open to Juniors and Seniors. Limit of $500 to any one student. Apply to Loan Officer, Student Personnel Office.

Employment for Students

Student Labor. Many students earn part of their expenses while attending college by working for the College, downtown business concerns, Brookings residents, or near-by farmers, but no one should expect to earn all his expenses. It is desirable that a student should not hold a part-time job during his first term of attendance, since his full time is needed to permit adjustment to a new situation. In general, students who carry considerable outside work should not attempt to carry a full schedule of college work, and the College reserves the right to limit the student loads of those who are doing a large amount of outside labor. Such students will gain in the end by taking longer than the regular time to complete graduation requirements.

The College maintains a placement service for students who seek part-time work to pay part of their college expenses. Those interested should apply to the Office of Student Personnel for a blank which is used in this connection.

Student Activities

Purpose of Social Program. The goal of the social program is the personal development of every student. To this end State College tries to help every man and woman student to find within himself or herself, the satisfactions to be derived from broad interests, good taste, self-discipline, good personal habits, pleasant personality traits, and the maturity and sense of responsibility for democratic thought and action.

Faculty Control. While the students are allowed wide latitude in carrying on affairs which vitally concern themselves, such as athletic, literary, musical, social and other activities, the faculty retains an advisory interest in such matters, and has the right at any time to pass regulations for the welfare of the College. All matters relating to college activities and organizations are under the control, as the case may require, of a Faculty Committee on Student Affairs, or of this committee acting jointly with student committees. The Dean of Men is responsible for the administration of all regulations in this connection. (See Rules and Regulations for the Guidance of Faculty and Students.)

The Students' Association. The dramatics, debating and oratorical interests, the musical organizations and student publications are under the control of the Students' Association, which governs these and other student activities by means of a Board of Control consisting of students and members of the faculty. Assisting this Board are the Councils: Forensic, Music, Judging teams, and Publications, which have charge of the respective activities that are assigned them.

The Women's Self-Government Association. Each college woman by virtue of her registration is a member of this association. It brings about cooperation among all of the women of the College in matters which pertain to the interest of the group and promotes a friendly feeling between the dormitory women and women students of the town.

Athletics. All athletic activities are under the control of a committee composed of faculty and students. A complete program of intercollegiate athletics is available to men students. An opportunity is offered to participate in football, basketball, wrestling, track and field, baseball, cross country, tennis, and golf. Varsity teams in these sports compete with colleges throughout the Midwest.

South Dakota State College is a member of the North Central Conference, The National Collegiate Athletic Association, and the National Association of Intercollegiate Athletics. It is guided by and aims to conform with the principles, rules, and constitutions of these organizations.

Rifle Marksmanship. In addition to the regular instruction to Freshmen in rifle marksmanship; rifle teams of both men and women students are selected and matches are fired with teams from different colleges and universities throughout the country.

Oratory and Debating. Each year representatives of the College meet students from other institutions in debating contests, in which all are urged to take part. There has been aroused in the student body a large interest in this kind of work together with a healthy rivalry to obtain places on the intercollegiate teams.

Representatives of the College are sent each year to intercollegiate oratorical contests of the State. These students are selected by means of a local preliminary contest. In order that these contestants may fully represent the College, the faculty requires that those competing for these honors must be pursuing regular work for the Bachelor's degree. Representatives are also chosen each year for the State Extempore contests.

Excellence of achievement in all these activi-

ties is recognized by appropriate awards and prizes.

Upon the recommendation of the instructor in charge of forensic activities, college credit may be given students who actively take part in intercollegiate competition. This credit may be earned in debate, oratory, or extempore speaking.

The Student Publications. The South Dakota Collegian is a weekly paper published by the students of the College. It is intended to be a mirror of student life at this institution, and all phases of college activity have representatives on its staff of editors.

The Jack Rabbit, or college year book, is published annually by the students of the College.

Musical Organizations and Activities. The Department of Music at South Dakota State College is justly proud of its program of activities in music. The activities which are open to students are: Marching Band, Concert Band, Chorus, Pasquettes, Orchestra, and The Statesmen. The purpose of these organizations is to provide a variety of the best musical experiences for the greatest number of students, as well as "music for enjoyment."

The Marching Band is recognized as one of the finest marching units in the area. It performs for all home football games, and traditionally leads the famous "Hobo Day" parade. The Concert Band plays various concerts on the campus, and makes tours in various sections of South Dakota, and the surrounding states.

The chorus functions as the major choral group on the campus. The chorus annually presents the Messiah, an Opera, as well as a Spring concert.

The Pasquettes, composed of a selected group of girls, presents many programs of varied types both on and off campus. This group is open only to women who have special talents in vocal or instrumental music, dramatics, dancing or other entertainment specialties.

The orchestra provides accompaniment for the Oratorio and the opera and presents a concert usually in the Spring.

The "Statesmen" is open only to men who like to sing. One hundred selected men's voices make up this popular performing group.

The Christian Associations. The student church affiliated groups have as their primary object the moral development of the student body. The following church groups have active organizations on the campus:

Canterbury Club (Episcopalian)
Youth Fellowship (Church of God)
Gamma Delta (National Association of Lutheran Students, Missouri Synod)
L.S.A. (Lutheran Students' Association)
Newman Club (Catholic)
Roger Williams Club (Baptist)
Wesley Club (Methodist)
Westminster-Pilgrim (Presbyterian, Congregational)
Bethel Fellowship (Bethel Baptist)

Their platforms are broad enough to allow every student who seeks religious experience and fellowship to affiliate with them. The purpose of the organizations is to present to the student the value of Christian living, and to create the atmosphere of good fellowship among the members of the student body.

Other Student Organizations. Among the other student organizations of the College are the Art Club; the Agricultural Society; Alpha Zeta, (an honorary agricultural society); the International Relations Club; the South Dakota Student Branch of the American Pharmaceutical Association; Rho Chi (an honorary pharmacy society); Student Affiliate of the South Dakota Student Nurses' Association; Student Affiliates of the American Chemical Society (for majors in chemistry); the Cadet Officers' Mess; Home Economics Club; Phi Upsilon Omicron (an honorary home economics society); Sigma Lambda Sigma (an honorary society for Senior women); Pi Kappa Delta (a forensic society); Pi Gamma Mu (a social science honor fraternity); the Blue Key (an honorary service society for men); the Women's Athletic Association; the Scabbard and Blade (a military organization) and the women's auxiliary, the Guidon; the Printonian Club; the student chapters of the three professional engineering societies (The American Society of Civil Engineers, the American Society of Mechanical Engineers and the American Institute of Electrical Engineering society, with their coordinating Council); Sigma Tau (honorary engineering); Sigma Delta Chi (a professional journalism society); Block and Bridle (animal husbandry); Wildlife Conservation Club; Society of Engineering Physicists; Sigma Pi Sigma (honorary physics); Theta Sigma Phi (honorary professional journalism fraternity for women); Arnold Air Society (Air Force organization) and the women's auxiliary, Angels' Flight; Kappa Epsilon (national society for women in pharmacy); and other organizations which promote interest in the various kinds of college work.

Abbreviations Used in This Catalog

DIVISION AND DEPARTMENTAL ABBREVIATIONS

AE, Agricultural Engineering
Ag, Agriculture
AgEd, Agricultural Education
AgExt, Agricultural Extension
Agron, Agronomy
AH, Animal Husbandry
Bac, Bacteriology
Bot, Botany
CD, Child Development
CE, Civil Engineering
Ch, Chemistry
CN, Clinical Nursing
DH, Dairy Husbandry
Econ, Economics
Ed, Education
EE, Electrical Engineering
Engl, English
Ent, Entomology
ES, Engineering Shops
FL, Foreign Language
FN, Foods and Nutrition
Fr, French
GE, General Engineering
Ger, German
GN, General Nursing
GR, General Registration
GS, General Studies
HE, Home Economics
HEd, Home Economics Education
Hist, History
HM, Home Management
Ho, Horticulture
IAE, Industrial Arts Education
J, Journalism
Lib, Library
Math, Mathematics
ME, Mechanical Engineering
Mil, Military
Mus, Music
N, Nursing
NEd, Nursing Education
Path, Plant Pathology
PE, Physical Education
PH, Poultry Husbandry
Pha, Pharmacy
PHN, Public Health Nursing
Phy, Physics
PM, Printing Management
PJ, Printing and Journalism
PS, Political Science
Psy, Psychology
RS, Rural Sociology
RuN, Rural Nursing
Rus, Russian
SAA, Science and Applied Arts
SecS, Secretarial Science
Sp, Speech
Span, Spanish
SS, Social Science
TC, Textiles and Clothing
Vet, Veterinary Science
Z, Zoology

MISCELLANEOUS ABBREVIATIONS

*Time and/or credit to be arranged
Cr, Credit
F, Fall Quarter
L, Laboratory
MTWTFS, Days of week
P, Prerequisite
R, Recitation
S, Spring Quarter
Su, Summer Quarter
W, Winter Quarter

Course Numbering System

In the departmental description of subjects, the following numbering system is used:

I. Courses for undergraduates (carry undergraduate credit only)

1-19 Freshman level
20-39 Sophomore level
40-59 Junior level
60-99 Senior level

II. Courses for undergraduates and graduates (carry graduate credit upon the completion of 25% more work by the graduate student)

140-159 Junior level courses open to graduates for graduate credit
160-199 Senior level courses open to graduates for graduate credit

III. Courses for graduate students (carry graduate credit only)

200-299 Graduate level

Credit (Recitation, Laboratory)

The figures immediately following the names of courses indicate the credit given in the course each quarter it is offered, with recitation (lecture) and laboratory hours per week respectively in parenthesis; e.g., 4(4,0) reads as follows: four quarter credits taken as four recitation (lecture) hours and no laboratory hours per week. 4(2,4) reads as four quarter credits taken as two recitation (lecture) hours and four laboratory hours per week.

DIVISION OF AGRICULTURE

The agricultural work at State College is of three kinds—resident instruction, experimentation and investigation, and extension. Experiments and investigations for the benefit of the farmers of the state are carried on in connection with problems of livestock production, dairying, soils, crops, poultry, veterinary, horticulture, farm econmics, rural sociology, and agricultural engineering.

The results of these investigations form a basis for classroom instruction, for extension work, and a means of answering inquiries coming to the college. The Extension Service makes the work of instruction state wide, by making the results of research available to every home in the state.

The aim of the resident instruction is to prepare men for successful work and leadership in the field of active farming, in agricultural education, in research work, in administrative and regulatory work, and in many lines of business closely related to agriculture.

Curricula Offered in the Division of Agriculture

I Collegiate Curricula

1. Curricula leading to the Bachelor of Science degree:
   - A. Curriculum in Agricultural Science.
   - B. Curriculum in General Agriculture.
   - C. Curriculum in Technical Agriculture.
   - D. Curriculum in Agricultural Engineering, Mechanized Agriculture Major (See Division of Engineering).
   - E. Curriculum in Wildlife Techniques and Conservation.
   - F. Curriculum in Agricultural Journalism.

II. Special Curricula

1. Two-year Curriculum.
2. The School of Agriculture is open to any person who has reached his sixteenth birthday, including both eighth grade and high school graduates. Provisions are made for two, and four-year courses. Each school year consists of twenty weeks starting the third Monday in October and closing the third Friday in March. For further information see the index for "non-degree courses."

The Curriculum in Agricultural Science

The curriculum in Agricultural Science is offered to meet the need of present day requirements in the basic sciences. Students completing this curriculum will be prepared to engage in graduate work or to enter specialized research laboratories. The program will be used only in those departments desiring it. It is important that the student recognize the value of this program for his particular qualification early in his school career. The student entering this curriculum will have a suitable counselor assigned by the Dean of the Division of Agriculture. This counselor will be responsible for the student's program throughout his under-graduate college work. The student must maintain a superior academic standing to complete the course satisfactorily.

Curriculum in Agricultural Science
Leading to the degree of Bachelor of Science in Agriculture

Freshman Year	F	W	S
Orientation	1		
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Sociology, RS 15			5
Inorganic Chemistry, Ch 1-2	4	4	
Experimental Inorganic Chemistry, Ch 10-11	1	1	
Semi-micro Qualitative Analysis, Ch 20			5
Botany, Bot 11-12	4	4	
Agricultural Options	3	3	4

Sophomore year	F	W	S
Military, Mil 20-21-22 or 25-26-27	1	1	1
Quantitative Analysis, Ch 23-24		4	4
Analytical Calculations, Ch 28-29		1	1
College Algebra, Math 14	5		
Plane Trigonometry, Math 15		5	
Analytic Geometry and Calculus, Math 16			5
Oral Communications, Sp 22	3		
Writing for Technical Students, Engl 43		3	
General Bacteriology, Bac 30			5
Zoology, Z 20-21	4	4	
Agricultural Options			2

Junior Year	F	W	S
Organic Chemistry, Ch 150-151-152	5	5	5
Differential Calculus, Math 25	5		
Integral Calculus, Math 26		5	
Applied Calculus, Math 27			4
General Physics, Phy 20-21-22	5	5	5
Principles of Economics, Econ 21-22	3	3	
Agricultural Options or Electives			4

Senior Year	F	W	S
Modern Foreign Language (3 quarter sequence)	4	4	4
Genetics, Z 42	3		
Instrumentation, AE 170			4
Statistical Methods, Econ 81 or Math 140		5	
National Government, PS 34	4		
Agricultural Options or Electives	6	8	9

The Curriculum in General Agriculture

The curriculum in agriculture without a major is intended for the student who desires a broad training in agriculture, with a wide choice of electives, rather than a specialized field.

Curriculum in General Agriculture

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore year	F	W	S
* Introduction to literature, Engl 20; or Writing for Technical Students, Engl 43; or Publicity Methods, J 66	3		3
Oral Communications, Sp 22			3
Elementary Organic Chemistry, Ch 21		5	
Principles of Economics, Econ 21-22		3	3
Livestock Nutrition, AH 25			4
Soils, Agron 25-26	3	3	
General Botany, Bot 11-12; or General Zoology, Z 20-21	4	4	
Military, Mil 20-21-22 or 25-26-27	1	1	1
Electives in Agriculture			3

Junior Year	F	W	S
Introduction to Sociology, RS 15	5		
General Entomology, Ent 20			5
Agricultural Engineering, elective		3	
National Government, PS 34; or State Government, PS 36			4
Plant Pathology in Human Affairs, Path 20	3		
Genetics, Z 42		3	
General Bacteriology, Bac 30		5	
Electives in Agriculture	3		3
Electives			

Senior Year	F	W	S
Farm and Ranch Management, Econ 38		3	
Rural Sociology, RS 31	3		
Electives in Agriculture	3	3	
Electives in Social Science	3		
Electives			

*Two of these three courses required.

The Curriculum in Technical Agriculture

The Curriculum in Technical Agriculture has been planned for agricultural students who wish to prepare for such opportunities as operating general and specialized types of farms, for county agent work, teaching of vocational agriculture, service with the United States Department of Agriculture, farm managers, field men for breed associations, crop improvement associations, and for numerous business enterprises closely allied with agriculture.

For such pursuits a broad training in the field of agriculture and the related sciences, together with general training to develop skill in self expression, leadership ability, a sense of civic responsibility, avocational and cultural interests, and other qualities of a complete personality is desirable. The program outlined, therefore, provides for extensive work in the various agricultural fields, for courses in the biological, physical and social sciences, and for a liberal choice of electives chosen with the help of an adviser to meet the needs and desires of each student.

The student must complete one of the following majors: Economics, Agricultural Education, Agronomy (Field Crops, Soils), Animal Husbandry, Chemistry, Dairy Manufacturing, Dairy Production, Horticulture, Poultry Husbandry, Botany, Bac-

teriology, Entomology, Zoology, Wildlife Techniques, Plant Pathology and Rural Sociology.

Students are encouraged to select their major field at the beginning of their sophomore year. If they are in doubt at this time, they may follow the curriculum under General Agriculture.

Curriculum in Technical Agriculture

Leading to the degree of Bachelor of Science in Agriculture
(All Agricultural Freshmen will use the following curriculum except where specifically indicated under certain departments.)

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
Crop Production, Agron 1-2	3	3	or 3
Introductory Animal Husbandry, AH	3	4 or 4	or 4
General Horticulture, Ho 1	3	or 3	
Poultry Production, PH 1	3	or 3	or 3
Elements of Dairying, DH 1	4	or 4	or 4
College Algebra, Math 10	5	or	5
Orientation	1		
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1

Agricultural Education (AgEd)

Assistant Professor Gadda

The National Vocational Education Act and subsequent federal acts require and provide for training of teachers of vocational agriculture. This work has been assigned to South Dakota State College, and has been approved by the State Board of Education and by the Division of Vocational Education of the U. S. Office of Education. In order to do this, the Divisions of Agriculture and Science and Applied Arts cooperate in offering such teacher training work. Students preparing to teach enroll in practically all the required courses in the curriculum in General Agriculture. They earn a major in Agricultural Education, with supporting preparation in technical agriculture, farm mechanics and basic sciences to make up the total requirement. Teachers of Vocational Agriculture in South Dakota receive the appropriate certificate to teach in high school, issued by the State Department of Public Instruction. The Professional (education) requirement is 30 term credits in Education including Student Teaching in Vocational Agriculture. The student teaching is done in designated Smith-Hughes Agriculture Departments of high schools in South Dakota.

Students enrolled in this curriculum must file an application with the Education Department prior to enrolling in Education courses. Admission to such courses is based on the following minimum qualifications: (1) An all-college G.P.A. of 2.0, which must be maintained for duration of enrollment; (2) Acceptable college entrance test scores; (3) Satisfactory personal, moral, psychological and physical qualifications.

Curriculum in Technical Agriculture, Agricultural Education Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	F	W	S
Oral Communications, Sp 22			3
Elementary Organic Chemistry, Ch 21	5		
Livestock Nutrition, AH 25		4	
Soils, Agron 25-26	3	3	
General Zoology, Z 20-21; or General Botany, Bot 11-12	4	4	
Farm Meats, AH 22		4	
Veterinary Anatomy, Vet 20	5		
General Psychology, Psy 25			3
Plant Pathology in Human Affairs, Path 20			3
Welding, ES 3-5		1	1
Woodworking, IAE 10			3
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	F	W	S
Principles of Vocational Agriculture, Ed 42	3		
Educational Psychology, Ed 45		3	
Weed Control, Agron 30	3		
Introduction to Sociology, RS 15	5	or 5	or 5
General Entomology, Ent 20			5
Principles of Economics, Econ 21-22	3	3	
Agricultural Engineering, AE 20 or 24 or 47	3	or 3	or 3
Farm Buildings and Plans, AE 25		3	or 3
Farm Power and Machinery, AE 26	3	or	3
General Bacteriology, Bac 30	5	or 5	or 5
Genetics, Z 42		3	
English or Speech, Engl 43 or Sp 44, 45, or 56	3	or 3	or 3

Senior Year	F	W	S
Special Methods in Vocational Agriculture, Ed 70	4	or	4
Program Planning in Vocational Agriculture, Ed 71	3	or	3
Teaching Farm Mechanics, Ed 72		3	
Student Teaching in Vocational Agriculture, Ed 73	8	or	8
Supervised Farming and Adult Education, Ed 78		3	
Elective in Education (3 credits)	3	or 3	or 3
Farm and Ranch Management, Econ 38	3	or 3	or 3
Forage Crops or Grain Crops, Agron 55 or 56		3	or 3
Publicity Methods, J 66	3	or 3	or 3
Electricity for Farm and Home, AE 39	3	or 3	
Rural Sociology, RS 31	3		
National Government or State Government, PS 34 or 36	4	or 4	or 4

SUGGESTED ELECTIVES: (Econ 37, 45, 158; Agron 38, 50, 57, 162; AH 24, 26, 42, 144; DH 43, 51, 52, 165; Ent 141; Ho 41, 42, 43; PH 41, 156, 157; RS 11, 32, 165, 166, Ed 50, 54, 85, 161, 164; PS 45; ES 2; J 30; SecS 11.

Agricultural Engineering (AE)

Professors Moe, DeLong, Wiersma; Associate Professors Zoerb, Hinkle; Assistant Professor Larson; Intructors Young, Hamann, Paine

Agricultural Engineering is the science of engineering applied to the agricultural industry. For the Agricultural Engineering Curriculum see Division of Engineering.

The Mechanized Agriculture Major is a four-year major developed around the general Agriculture core curriculum, designed to give broad training in both Agricultural sciences and Farm Mechanization. It prepares the student for farming, farm management, extension work, and farm machinery and equipment sales, service or contracting enterprises.

LOWER DIVISION

20 Farm Shop Practices 3(1,6) F
Practical instruction in farm shop management, to include: safety, shop layouts, selection, care, and use of hand and power farm shop tools and equipment.

24 Farm Shop Practices 3(1,6) F
Applications are given to practical engineering as it applies to four divisions of the department: power and machinery, land conservation, farm buildings, and rural electrification. Recommended for Agriculture students taking only one course in Agricultural Engineering.

25 Farm Buildings and Plans 3(2,3) WS
Designed for Agricultural Education students who plan to teach. Building plans, blue-prints and specifications. Laboratory work includes concrete, masonry, framing, rafter work, plumbing, repair and painting.

26 Farm Power and Machinery 3(2,3) FS
Tractors and farm machinery from standpoint of operation, repair, preventive maintenance, safety, and cost of operation.

39 Electricity for Farm and Home 3(2,3) FW
Application of electricity on the farm; circuits, wiring, lighting, appliances, operating principles of electric motors, and organization and financing of rural electric cooperatives.

UPPER DIVISION

42 Graphic Methods 2(1,3) F
Methods of graphic presentation of agricultural statistics. Original work by students is required in displaying statistical data in clear concise manner. P, Junior standing and approval of adviser.

47 Soil and Water Conservation Engineering 3(2,3) F or S
Engineering phases of soil and water conservation, including elementary measurements and surveying, and their application to field problems; design and layout of conservation and irrigation practices.

150-151 Senior Problems 2-2 FWS
Open to senior Agriculture students with Farm Mechanics Major, who are interested in merchandising of farm machinery and equipment. Problems in farm machinery history, trends in design, methods of merchandising, service shop procedures, or original design may be selected.

162 Food Processing Equipment 3(2,3) W
Principles of refrigeration, heat transfer, power transmission, instrumentation and materials handling applied to dairy and food processing equipment. Selection, operation, and maintenance of equipment. P, Math 10, Senior standing.

GRADUATE DIVISION

250 Advanced Farm Machinery 3(2,3) Su
Operation, care, adjustment, new developments in farm machinery, with special emphasis on teaching methods in high school classes. P, Graduate standing.

251 Advanced Farm Motors 3(2,3) Su (Offered in 1960)
Operation, selection, care, adjustment, and new developments of internal combustion engines as applied to farm power units. P, Graduate standing. Alternate years.

252 Advanced Rural Electrification 3(2,3) Su
Operation, selection, care, adjustment, and new developments in rural electric equipment including motors, fans, controls, wiring, pumps, and grain handling equipment. P, Graduate standing.

253 Advanced Farm Structures 3(2,3) Su
A study of materials for farm construction, construction methods and techniques, and new developments of farm buildings taking in consideration economic factors and planning procedures. P, Graduate standing.

Curriculum in Technical Agriculture, Mechanized Agriculture Major

Leading to the degree of Bachelor of Science in Agriculture

For Curriculum in Agricultural Engineering and Description of Courses See Engineering Division

Freshman Year—See curriculum in Technical Agriculture (plus Shop ES 2)

Sophomore Year	F	W	S
General Botany, Bot 11-12; or			
General Zoology, Z 20-21	4	4	
Principles of Economics, Econ 21-22	3		3
Analytic Geometry, Math 12			5
General Bacteriology, Bac 30	5		
Farm Shop Practices, AE 20	3		
Farm Buildings and Plans, AE 25		3	
Farm Power and Machinery, AE 26			3
Trigonometry, Math 11		5	
National Government, PS 34; or			
State Government, PS 36			4
Shop, ES 3-5		1	1
English Electives	3	3	
Military, Mil 20-21-22 or 25-26-27	1	1	1
Electives			

Junior Year	F	W	S
Soils, Agron 25-26	3	3	
Basic Accounting Essentials, Econ 44	4		
Livestock Management, AH 24			3
Elementary Organic Chemistry, Ch 21		5	
Engineering Drawing, GE 3-4	2	2	
Oral Communication, Sp 22			3
Electricity for Farm and Home, AE 39		3	
General Entomology, Ent 20			5
Elementary Physics, Phy 10-11-12	4	4	4
General Psychology, Psy 25			3
Plant Pathology in Human Affairs, Path 20	3		

Senior Year	F	W	S
Soil and Water Conservation, AE 47			3
Graphic Methods, AE 42	2		
Food Processing Equipment, AE 162		3	
Farm and Home Utilities, AE 60	3		
Genetics, Z 42	3		
Introduction to Sociology, RS 15	5		
Farm and Ranch Management, Econ 38		3	
Business Law, Econ 41-42		3	3
Electives			

MAJOR (49 credit hours): AE 20, 25, 26, 39, 42, 47, 60, 162; ES 2, 3, 5; Phy 10, 11, 12; Math 11, 12; GE 3, 4.
SUGGESTED ELECTIVES: Agron 56, 57, 58, 170; AH 22, 25, 26; Ho 41; RS 31, 32, 46; DH 41; Vet 20, 40, 42; Econ 66, 69.

COURSES FOR AGRICULTURAL ENGINEERS

(For full description see Engineering Division)

29 Rural Electric Problems
41 Farm Structures
48 Farm Power and Machinery
60 Farm and Home Utilities
141 Farm Structure Design Considerations
142 Structural Design of Farm Buildings
164-165-166 Farm Land Engineering
170 Instrumentation
171 Agricultural Tractors
172 Agricultural Machinery Design
173 Design of Farm Electric Equipment
195 Agricultural Engineering Seminar
201-202 Engineering Problems in Soil Conservation
210-211 Farm Power and Machinery Problems
220-221 Farm Building Problems
230 Research Methods in Agricultural Engineering
240 Engineering Phases of Crop Processing
299 Thesis

OTHER ELECTIVES: Consultation with Counselor or with department head.

Agricultural Extension (AgExt)

The Agricultural Extension concerns study and training for positions in the Cooperative Extension Service as County Agents or Home Demonstration Agents.

Students who wish to qualify for Extension work as County Agents should give consideration in selection of electives to the following courses. Those which have the asterisk (*) should be given priority consideration.

Course, Department, Number	Credits
*General Psychology, Psy 25	3
Educational Psychology, Ed 45	3
*Extension Organization and Methods, RS 141	3
*Sociologyof Extension Work, RS 161	2
*Field Practice Training, Ag Ext 71	2-8
*Elements of Leadership, RS 32	3
Leadership and Group Organization, RS 172	3
The Small Town, RS 165	3
Advanced Public Speaking, Sp 44	3
*Discussion, Sp 45	3
Parliamentary Procedure, Sp 56	3
Farm Budgets and Records, Econ 45	3
Home Management, HE 50	3
Public Administration, PS 52	3
*Publicity Methods, J 66	3

The Agricultural Extension courses are offered to provide broader training in Extension for the personnel employed in the Cooperative Extension Service or those interested in that field.

These courses will be offered as sufficient Extension personnel express a need for the training. Courses will be offered at a period in the year when the personnel have the least conflicts with their work. In general, courses will be of three weeks duration.

Courses in various college departments may be offered as the need arises and the department can undertake the instruction.

71 Field Practice Training in Extension 2-8 credits
This course is available to a limited number of students majoring in agriculture or home economics and who are interested in Extension work and have completed the junior class. Students will be assigned to a county during the summer for a period of time based upon the convenience of the student. The course will provide training and actual experience in Extension philosophy, methods, organization and procedures.

150 4-H Organization and Procedure 2(8,0)
The objectives, organization, planning and conducting of Extension programs for 4-H clubs. It will be designed for County Extension personnel and youth workers.

151 Communications (Extension) 2 credits (8,0)
Course deals with various methods and techniques in mass communications as applies to extension work.

152 County Extension Office Administration 2(8,0)
Emphasis is given to the organization, relationships, practices, methods and policies as related to the Country Extension Office.

153 Principles of Extension Teaching 2 credits (8,0)
This course embodies the planning for teaching of various problems and projects. It involves the development of teaching plans and methods as well as methods involving people.

154 Programs Building in Extension Work 2(8,0)
A systematic study of procedures and methods of developing Extension programs. Attention is given to essential background information, functions of lay people and Extension workers.

155 Evaluation of Extension Work 2(8,0)
A study of the classification of objectives and techniques that Extension Workers may use in measurement, sampling procedures, analysis, interpretation, presentation and use of data. It provides a broad concept of Extension program analysis and methods of systematically appraising the work.

Agronomy (Agron)

Professors Fine, Brage, Dercheid, Franzke, Hume (Emeritus), Kinch, Puhr, Ross, Shank, Stone, Westin; Associate Professors Carson, Dirks, Runkles, Sanders, Shubeck, White; Assistant Professors Buntley, Dodge, Harpstead, Hovland, Moore, Rumbaugh

The Agronomy Department offers courses in both crops and soils at the undergraduate and graduate level. Students trained at the graduate level are qualified for employment as teachers and research workers by state and federal agencies or commercial industries. Completion of an undergraduate curriculum provides training for agricultural work such as: farming, county agricultural agent, soil and crop phases of farm management, commercial seed production, grain grading, soil survey, soil conservation, and employment by feed, seed and fertilizer companies.

Instruction in soils includes courses dealing with the origin and development of soils, soil management and fertility, soil classification and genesis, soil conservation, soil physics, chemistry, and botany.

A student majoring in crops receives courses in cereal and forage crops, plant breeding, crop production problems, pathology, entomology, and weed control.

A broad choice of electives enable Agronomy students to prepare for particular fields in soils and crops.

LOWER DIVISION

1-2 Crop Production 3(2,2) FW and WS
Fundamental practices and principles; crop distribution; growth process; response to environment. Grain and forage crops, including their distribution, use, improvement, growth, harvesting, and marketing.

25-26 Soils 3(2,3) FW
Origin, development, physical properties, fertility and management of soils. P, Ch 2.

30 Weed Control 3(2,2) FS
Identification of weed plants; growth, dissemination, economic importance, distribution, and methods of control. Weed and seed certification laws and their application to weed control and eradication. P, 2.

38 Grain Grading and Identification 3(1,4) S
Grain grading procedures; sheaf and seed identification of grain and forage crops; principles of grain judging. Visit to federal inspection laboratories and grain exchange. P, 30.

UPPER DIVISION

50 Seed Technology 3(2,3) W
Seed production, harvesting, processing, testing, identification of crop and weed seeds. Study of seed laws. Visits to industrial plants. P, 2.

52 Crop Judging 3(1,4) F
Advanced work in seed and sheaf judging of cereals, legumes, grasses and other crops. Preparation for a crop judging team. P, 38.

55 Grain Crops 3(3,0) S
Distribution, adaptation, classification, and culture of corn, wheat, oats, barley, flax and other crops. P, 2.

56 Forage Crops 3(2,2) W
Grasses, legumes and other plants and their use in hay, pasture, silage, green manure. Problems related to cultural practices, food reserves and morphology. P, 2.

57 Soil Conservation 3(2,2) S
Value of soil as natural resource, effects of soil physical properties, type of rainfall, vegetation, cultural practices on soil erosion, methods of conservation of soil water, and plant nutrients with special emphasis on agronomic practices. P, 26.

58 Soil Management and Fertility 3(3,0) S
Lectures, discussions, review of literature on chemical composition of soils and fertilizers, soil management problems with respect to use of fertilizers, crop rotations, legumes, organic matter and nitrogen, available plant food, soil reaction and biological aspects of soil fertility. P, 26.

75 Soil Problems in Dryland Agriculture 2(2,0)
(Offered as scheduled)
Soil management problems which occur in limited rainfall areas with emphasis on soil moisture conservation, crop residue management, tillage practices, crop rotations, maintenance of soil organic matter and relationship of climate to soil management. P, 26.

142 Plant Breeding 3(3,0) W
Application of genetic principles and allied subjects used in breeding crop plants. Field methods and practices in cross- and self-pollination of crop plants. P, Z 42.

150 Laboratory Methods of Soil Investigations
4(0,8) W (Offered in 1960-61)
Devoted to application of chemical methods for analysis of soils and fertilizers. P, 26; Ch 24.

152 Classification and Genesis of Soils 3(3,0) F
Formation, soil profile characteristics, zonal groups, methods, and development of soil classification, influence of climate, vegetation, parent material on soil genesis and geographic distribution of soils. P, 26.

160 Soil Survey 3(2,3) S (Offered in 1960-61)
Lectures and field work on identification of soil types, techniques of soil mapping, interpretation and application of soil survey data in terms of land use capabilities, proper land use and organization of survey data into soil reports. P, 152.

162 Pasture Management 3(3,0) S
Establishment, management, and utilization of pastures. Application of laws of ecology and plant physiology to pasture management. Grazing value, poisonous plants, natural and artificial reseeding, deferred and rotational grazing and grazing capacity of pasture plants. P, 1, 56.

165 Soil Morphology 3(1,4) F
Advanced field studies involving writing detailed soil profile descriptions, correlation of soil profile characteristics with inferred qualities and influence of soil characteristics and qualities on land use, management and potential natural productivity. Preparation for soil judging team. P, 152, 160.

170 Irrigation, Crop and Soil Practices 3(3,0) W
Management of South Dakota soils and crops under irrigation. Movement and storage of water in soil; cropping systems; crop varieties; use of legumes, manures and commercial fertilizers. Soil acidity, alkali and erosion. P, Ch 3; Math 14.

171 Geology 3(3,0) S
Fundamental geologic processes, including rock weathering, work of wind, ground water, streams, glaciers, lakes, ocean, vulcanism, mountain formation, origin of earth, minerals and rocks. P, 1, 25, 150, 152.

172 Soil Physics 3(2,3) S
Physical properties of soils including texture, structure, colloids, moisture relations and effect of these properties on growth of crops and utilization of soils. P, 26.

180 Crop Ecology 2(2,0) W
Analysis of environmental conditions that influence growth of crops; natural and economic factors responsible for crop production in different regions and countries. P, 55 or 56.

182 Biometry 3(3,0) W
Principles of statistical methods as applied to biological data with special reference to experimental design, reduction of experimental data and tests of significance and their interpretation. P, Math 10.

184 Soil Mineralogy 3(1,6) W (Offered in 1960-61)
A study of the soil minerals and their identification. P, 25, 26, 171.

190-191 Crop Production Problems 2(2,0) W
Assigned readings, reports and discussion in important topics dealing with production of selected farm crops.

192-193 Soil Problems 2(1,2) FW
Assigned readings, reports and discussions.

197-198-199 Agronomy Seminar 1(1,0) FWS
Review of literature and original investigations in technical crop and soil bulletins and agronomic journals.

GRADUATE DIVISION

205 Advanced Plant Breeding 3(3,0) F
Advanced principles, techniques, and problems in improvement of cereals, legumes, grasses, and other crop plants. Pathological, physiological, ecological relationships are considered.

206 Advanced Plant Genetics 3(3,0)
(Offered in 1961-62) W
Group discussion of advanced principles of genetics with special attention to methods of analysis as illustrated in problems on both hypothetical and experimental data.

207 Cytogenetics of Field Crops 3(2,2)
(Offered in 1960-61) F
Nature and behavior of chromosomes in relation to heredity, with consideration of cytogenetic studies made on field crops.

210-211 Advanced Crop Production 3(3,0) F
Literature reviews and conferences on selected crops according to needs and interests of students.

215 Methods in Soil Research 3(1,4)
(Offered in 1960-61) S
Advanced methods as applied to research in soils, using photoelectric, flame photometric, and chemical techniques; preparation of soil for separation and mineralogical assay of colloids. P, 150.

220 Advanced Soil Problems 3(0,9) SWF
Literature reviews and conferences on selected topics according to needs and interests of students.

230 Advanced Soil Fertility 3(0,9)
(Offered in 1961-62) W
Chemistry of soil-plant relationships; theory and practice in use of fertilizer.

235 Cytology 3(2,2) (Offered in 1961-62) F
Study of the physio-chemical nature of cell inclusions with reference to their role in heredity. P, 142.

240 Advanced Weed Control 3(3,0)
(Offered in 1960-61) W
Physiological and ecological principles of weed control including methods of elimination, and chemistry and application of herbicides. P, 30; Bot 141 and Ch 21.

250 Advanced Soil Physics 3(3,0)
(Offered in 1960-61) S
Detailed study of hydraulic conductivity, unsaturated moisture flow, moisture tension-release characteristics, structural relationships to practical problems as well as intrinsic soil properties. P, 172; Math 148.

255 Soil Colloids 3(3,0) (Offered as scheduled) F
Application of basic laws of colloidal behavior to soil systems of organic and inorganic colloids and interfacial phenomena; relationship to aggregate stability and practical inferences. Chemical and physical nature of soil colloids and study of such properties as ion exchange, swelling and shrinking, and adsorption equilibria. P, Ch 230.

272 Advanced Soil Morphology, Classification and Genesis 3(1,6) (Offered in 1961-62) F
Classification and nomenclature of soil; factors governing and processes active in soil development; soil geography. P, 152, 160, 165.

275 Research Methods in Agronomy 3(3,0)
(Offered in 1961-62) W
Organization and integration of research projects with application of statistical methods and experimental designs. P, 182.

280 Advanced Crop Problems 3(0,9) FWS
Laboratory or field research in crops with relevant literature reviews and conferences. P, 190.

282 Statistical Theory in Biological Research 3(3,0)
(May be offered in 1961-62) S
Probability, frequency distributions, tests of hypotheses theory of least squares, multiple regression, analysis of variance and covariance and variance components. P, 182 and AH 200 or Agron 275.

296-7-8 Seminar 1(1,0) FWS
Reports and discussions of current investigations in agronomy.

299 Thesis in Agronomy As arranged

Curriculum in Technical Agriculture, Agronomy, Crop Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
General Botany, Bot 11-12	4	4	
Elementary Organic Chemistry, Ch 21		5	
Soils, Agron 25-26	3	3	
Oral Communication, Sp 22			3
Principles of Economics, Econ 21-22	3	3	
General Bacteriology, Bac 30			5
English or Journalism*			3
Agricultural Engineering, AE 24			3
Weed Control, Agron 30	3		
Field Crop Entomology, Ent 40		3	
Military, Mil 20-21-22 or 25-26-27	1	1	1
Introductory Physics, Phy 7	5		

Junior Year	**F**	**W**	**S**
Farm and Ranch Management, Econ 38			3
Genetics, Z 42	3		
Livestock Nutrition, AH 25		4	
Livestock Feeding, AH 26 (optional)			3
General Plant Physiology, Bot 141	5		
English or Journalism*	3		
Forage Crops, Agron 56		3	
General Zoology, Z 20-21 (optional)	4	4	
Soil Management and Fertility, Agron 58			3
Plant Breeding, Agron 142		3	
Elementary Psychology, Psy 25			3
Soil Conservation, Agron 57			3
Elective			

Senior Year	**F**	**W**	**S**
Grain Crops, Agron 55	5		
Plant Pathology, Path 45	5		
Introduction to Sociology, RS 15			5
Agricultural Biochemistry, Ch 167-168 (option)			
Crop Production Problems, Agron 190		2	
Agronomy Seminar, Agron 197-8-9	1	1	1
Rural Sociology, RS 31			3
National Government, PS 34; or State Government, PS 36	4		
Elective			

*Choice of Engl 20, 43; J 66.

SUGGESTED ELECTIVES: Agron 38, 50, 52, 162, 170, 171, 180 and 182; AH 24.

Curriculum in Technical Agriculture, Agronomy, Soil Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
General Botany, Bot 11-12	4	4	
Elementary Organic Chemistry, Ch 21	5		
Quantitative Analysis, Ch 23		4	
Soils, Agron 25-26	3	3	
Oral Communications, Sp 22		3	
Principles of Economics, Econ 21-22		3	3
General Bacteriology, Bac 30			5

English or Journalism*			3
Agricultural Engineering, AE 24			3
Weed Control, Agron 30	3		
Soil Management and Fertility, Agron 58			3
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	**F**	**W**	**S**
Genetics, Z 42	3		
Livestock Nutrition, AH 25			4
General Plant Physiology, Bot 141	5		
English or Journalism*	3		
Forage Crops, Agron 56		3	
General Zoology, Z 20-21 (optional)	4	4	
Elementary Psychology, Psy 25			3
Soil Conservation, Agron 57			3
Laboratory Methods, Agron 150; or Soil Physics, Agron 172		4	
Geology, Agron 171			3
Field Crop Entomology, Ent 40		3	
Farm and Ranch Management, Econ 38	3		
Elective			

Senior Year	**F**	**W**	**S**
Plant Pathology, Path 45	5		
Introductory Physics, Phy 7	5		
Introduction to Sociology, RS 15			5
Agricultural Biochemistry, Ch 167-168 (optional)	5	5	
Crop Production Problems, Agron 190		2	
Agronomy Seminar, Agron 197-198-199	1	1	1
Laboratory Methods, Agron 150; or Soil Physics, Agron 172		4	
Classification and Genesis of Soils, Agron 152	3		
Rural Sociology, RS 31	3		
National Government, PS 34; or State Government, PS 36			4
Elective			

*Choice of Engl 20, 43; J 66.

SUGGESTED ELECTIVES: Agron 55, 160, 170, 180, 182, 192; Math 15, 16; and Phy 20-21; Ch 24.

Animal Husbandry (AH)

Professors Wahlstrom, Embry; Associate Professors Bush, Dinkel, Kamstra, Kohler, Lewis, McCarty, McCone, Wright (Emeritus); Assistant Professors Gartner, Saffle; Intructors Luther, Schubloom, Whetzal

The department of Animal Husbandry offers instruction in animal breeding, feeding, managing, selecting, judging and marketing the different market and breed types of beef cattle, sheep and swine under both farm and ranch conditions; also in the slaughtering of meat animals, in cutting and curing meat for home and community freezing units. Students are encouraged to supplement their class and laboratory work with practical experience in the line of work which they plan to pursue after graduation.

Students who major in Animal Husbandry receive basic training for farm and ranch operation, county extension and 4-H club agents, teaching in colleges, research work, State and Federal agricultural programs, livestock marketing agencies, livestock association fieldmen, packing industry, feed companies, and agricultural representatives for businesses interested in agriculture.

A curriculum in Range Management is offered for those interested in range management positions in the Bureau of Land Management, Bureau of Reclamation, Fish and Game Departments, Indian Service, Soil Conservation Service, State Extension Service, Forest Service, National Park Service, State and Federal Land Appraisal Agencies, and research and graduate work in many institutions of higher education in the United States.

LOWER DIVISION

3 Introductory Animal Husbandry 4(3,2) FWS
Market classification and terminology; grading and selection of market types and classes of beef cattle, sheep, swine.

10 Horsemanship 1(0,2) FS
Types of breeds of riding horses, gaits, grooming, equipment, rations; basic riding instruction with English and Western type equipment.

20 Breeds of Livestock 4(3,2) F
Origin, characteristics and development of leading breeds of cattle, horses, sheep, and swine. Study of pedigrees, breed families, judging classes illustrating breed type.

22 Meats 4(2,4) FWS
Selecting, evaluating, slaughtering, and dressing meat animals. Cutting, curing, smoking, packaging and freezing meat and meat products. Survey of packing industry and field trip to packing plant.

23 Meat Studies 2(0,4) S
Primarily for Home Economics students. Identifying, selecting, cutting, and grading wholesale and retail cuts; care and storage of meat and meat products, modern meat cookery; food value of meats; meat inspection service. Not open to AH majors.

24 Livestock Management 4(3,2) S
For majors in other departments. Survey of livestock industry; feeding, breeding, and management practices. Evaluating, judging, fitting, and marketing farm animals. Not open to AH majors.

25 Livestock Nutrition 4(3,2) FWS
Basic principles of livestock nutrition; with special consideration given to food nutrients and feed additives; mechanics of balancing rations. P, Ch 21.

26 Livestock Feeding 3(2,2) S
Application of nutrition principles to livestock feeding; compounding adequate, economical rations. P, 25.

UPPER DIVISION

40 Livestock Fitting and Showing 2(0,4) F
Herdsmen training. Fitting and showing practices for beef cattle, hogs, sheep and horses.

42-43 Livestock Judging 2(0,4) FW
Type studies and selecting for individual excellence; judging and evaluating breeds and market classes of beef cattle, swine, sheep, and horses; preparation for judging competitions. P, 3.

61-62 Senior Livestock Judging 2(0,4) SF
Continuation of 42-43. Trips made to purebred herds; participation in American Royal and International Livestock Judging Contests. P, 42-43.

63-64 Senior Meats 2(0,4) FW
Identifying, judging and grading carcasses and cuts; review of recent meat research; practice in specialized meat cutting and retailing; participation in intercollegiate meat judging contest. P, 22.

66 Livestock Problems 1-5 FWS
Senior students who have necessary qualifications may be assigned special problems along definite lines of investigation.

140 Swine Production 4(3,2) F
Feeding, breeding, and management principles for swine production; production trends and cycles; equipment for hog production. P, 3, 25.

141 Sheep Production 4(3,2) W
Feeding, breeding, and management principles for mutton and wool production in farm and range flocks. P, 3, 25.

142 Beef Cattle Production 4(3,2) W
Feeding, breeding, and management principles for beef cattle, production under farm and ranch conditions. P, 3, 25.

143 Horse Production 3(2,2) S
Feeding, breeding, and management principles for draft and light horses. P, 3, 25. Minimum enrollment, 8 students.

144 Principles of Range Management 5(5,0) W
Presented within the framework of the ecosystem. Interrelation of climate, soils, vegetation, and man to range livestock production, including studies of range condition, trends, stocking rates, utilization, nutritive value of range forage, and supplements needed for optimum livestock production. Desirable antecedents, 25 and Bot 23.

145 Range Surveys 4 (1,6) Summer Field Session
Theory and practice of range surveys as used by various administrative and research organizations for determination of range condition, trend, utilization and recommended stocking rate. Surveys will be conducted by students on various ranches in Western South Dakota. P, 144; Bot 23, 36.

146 Ranges and Range Plants 3(2,2)
Summer Field Session
Types of ranching and range management problems in different grazing regions of the United States. The ecology, forage value, and grazing response of the principal range plants of each region are discussed. Concurrently with 145.

147 Field Studies in Range Management 3(0,6)
Summer Field Session
An extended field trip for the study of range sites and condition classes in different grazing regions and to examine range research projects and action programs. P, 145-146.

148 Range Improvement 3(3,0) S
Methods of improving ranges including rate adjustment, fencing, water development, grazing systems, mechanical renovation, reseeding, noxious range plant control, and related topics. Field examination of range improvement program is included. P, 144

149 Range Management Plans 3(1,4) S
The elements of management plans and the preparation of alternative plans for cattle and sheep ranches. Field examination of operating ranches is included. P, 144

150 Principles of Animal Breeding 3(3,0) W
Application of genetics to improvement of farm animals; systems of breeding and breeders' problems. P, 3; Z 42.

151 Wool 3(2,2) S
Factors relating to wool production and marketing. Grading wool, properties of wool and elementary wool technology. P, consent of instructor.

155 Livestock Marketing 3(3,0) S
Livestock marketing methods, involving problems of transportation; terminal market practices, methods of selling; factors determining livestock prices; selling purebred livestock. P, 3.

160 Animal Husbandry Seminar 1(1,0) FW
Review of current research in Animal Husbandry.

161 Range Seminar 1(1,0) WS
Review of current research in range management.

162 Special Problems in Range Management 1-4
FWS Su
Investigation on some problems of particular interest to the student with results submitted as a technical paper. P, Senior standing and approval of instructor.

172-173 Advanced Meats 4(2,4) WS
Two quarter sequence on the physical, chemical, microbiological and histological characteristics of meat. Processes and methods affecting meat products and by-products. P, 22 and consent of instructor.

175 Advanced Livestock Feeding 3(3,0) W
Newer knowledge of digestion, metabolism, nutritive requirements, deficiency diseases of cattle, swine, sheep and horses. Survey of recent research findings in livestock feeds and feeding and practical aspects of results. P, Vet 20; AH 26.

180 Advanced Animal Breeding 2(1,2) W
Application of genetic principles in improvement of farm animals. Calculation and use of correction factors, selection indices, and inbreeding charts. Utility of adequate herd records. Evaluation of Animal Breeding research. P, 150.

GRADUATE DIVISION

200 Experimental Procedure 2(2,0) S
Offered only in spring quarter following Agronomy 182, Research methods and planning of experimental work including necessary records, interpretation of results, and presentation of material. P, Agron 182.

201 Research Problems 3-5 FWS
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.

225 Principles of Animal Nutrition 3(3,0) S
Fundamental principles of nutrition in relation to growth, reproduction, lactation, fattening and work. P, Ch 168.

245 Population Genetics 3 (3,0) W
Genetic structure of populations and forces affecting this structure. Subdivision of variance, mating systems, and breeding plans. Methods of estimating heritability, aids to selection, and selection indices, P, 150 or equivalent.

260-261 Graduate Conference 1-3 W
Advanced discussion of newer knowledge of various phases of livestock production. Winter quarter given by department staff. When possible this course taught by guest professors in summer session. Maximum of three hours credit during graduate study.

264-265 Nutrition Seminar 1(1,0) FWS
Reports and discussion of current research in nutrition.

275 Animal Nutrition Laboratory 3(1,6) S
Laboratory methods course involving demonstration and practical work in techniques used in animal nutrition research. P, 225 or concurrently.

299 Thesis in Animal Husbandry 7-10 as arranged

Curriculum in Technical Agriculture, Animal Husbandry Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
Organic Chemistry, Ch 21	5		
General Zoology, Z 20-21; or General Botany, Bot 11-12	4	4	
General Bacteriology, Bac 30			5
English*	3		
Oral Communication, Sp 22			3
Meats, AH 22		4	
Livestock Nutrition, AH 25		4	
Livestock Feeding, AH 26			3
Military, Mil 20-21-22 or 25-26-27	1	1	1
Electives			

Junior Year	**F**	**W**	**S**
English*		3	
Soils, Agron 25-26	3	3	
Principles of Economics, Econ 21-22	3	3	
Farm and Ranch Management, Econ 38			3
Insects Affecting Livestock, Ent 46			3
Veterinary Anatomy and Physiology, Vet 20	5		
Plant Pathology in Human Affairs, Path 20			3
Genetics, Z 42	3		
Livestock Judging, AH 42	2		
Principles of Animal Breeding, AH 150		3	
Animal Husbandry Production Course, AH 140, 141, 143, 144, or 151	4	4	
National or State Government, PS 34 or 36			4
Electives			

Senior Year	**F**	**W**	**S**
Introduction to Sociology, RS 15	5		
Rural Sociology, RS 31		3	
Agricultural Engineering Elective		3	
Animal Husbandry Production Course, AH 140, 141, 142, 143, 144, or 151	4	4	
Livestock Marketing, AH 155			3
Animal Husbandry Seminar, AH 160	1		
*Electives**			

*To be selected from Engl 20, 27, 43, 52; J 24, 25, 66; or Sp 44.
MAJOR: AH 3, 22, 25-26, 42, 150, 155, 160 and four of the following: 140, 141, 142, 143, 144, 151.

Curriculum in Technical Agriculture, Range Management Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
Introductory Animal Husbandry, AH 3	4		
College Algebra, Math 10			5
Botany, Bot 11-12	4	4	
Agrostology, Bot 23			4
Introduction to Sociology, RS 15		5	
Orientation, 1	1		
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1

Sophomore Year	**F**	**W**	**S**
*English Elective	3	3	
Oral Communication, Sp 22	3		

*To be selected from Engl 20, 27, 43, 52; J 24, 25, 66; or Sp 44.

Elementary Organic Chemistry, Ch 21	5		
Livestock Nutrition, AH 25		4	
Livestock Feeding, AH 26			3
Principles of Economics, Econ 21-22	3	3	
Crop Production, Agron 1-2	3	3	
General Zoology, Z 20-21		4	4
General Entomology, Ent 20			5
Military, Mil 20-21-22 or 25-26-27	1	1	1
Junior Year	**F**	**W**	**S**
Soils, Agron 25-26	3	3	
Soil Management and Fertility, Agron 58			3
Principles of Range Management, AH 144		5	
Beef Production, AH 142			4
Genetics, Z 42	3		
Range Forbs, Bot 36			5
General Plant Physiology, Bot 141	5		
Plant Ecology, Bot 155-156-157	4	4	4
Range Management Summer Field Classes (To be taken between the Junior and Senior years.)			**Su**
Range Surveys, AH 145			4
Ranges and Range Plants, AH 146			3
Field Studies in Range Management, AH 147			3
Senior Year	**F**	**W**	**S**
Sheep Production, AH 141		4	
Biometry, Agron 182		3	
Animal Ecology, Z 151-152		3	3
Range Improvement, AH 148			3
Range Management Plans, AH 149			3
Range Management Seminar, AH 161		1	
Farm and Ranch Management, Econ 38	3		
General Bacteriology, Bac 30	5		
National or State Government, PS 34 or 36	4		

Bacteriology (Bac)

Professors Berry, Baker; Associate Professor Calkins; Assistant Professor Pengra

Bacteriology courses offered have the purpose of supplying the needs of those students who wish to prepare for professional work as a major in bacteriology or as a minor supporting the needs of the departments which use the information of bacteriology to aid their special field.

Bacteriology majors who wish to begin work with the bachelor's degree will find opportunities in the Bureau of Animal Industry, as technicians and serologists, Public Health laboratories of the various states, chemical companies concerned with the agricultural applications, dairy inspectors, the medical and sanitation sections of the army and navy. Those majors who wish to do research will want to continue their training to the master's degree and beyond. These students will find in the courses and equipment of the department a program which will allow sufficient choice to select the field of their particular interest. The particular need today is for research workers in bacteriology with a broad agricultural background to aid in solving the problems of agriculture and the related industries of food processing, and utilization of waste products.

Curriculum in Technical Agriculture, Bacteriology Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry 1-2-3	4	4	4
College Algebra, Math 10		5	
Trigonometry, Math 11			5
Elements of Dairying, DH 1; or Introductory Animal Husbandry, AH 3	4		
Crop Production, Agron 1-2; or	3	3	
General Horticulture, Ho 1	3		
Poultry Production, PH 1	3		
Plant Pathology in Human Affairs, Path 20			3
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		
Elective		1	
Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20	3		
Oral Communication, Sp 22			3
Writing for Technical Students, Engl 43			3
General Bacteriology, Bac 30		5	
Microbiology of Water and Sewage, Bac 46			4
Soils, Agron 25-26	3	3	
Principles of Economics, Econ 21-22		3	
Elementary Organic Chemistry, Ch 26-27	4	4	
Political Science, PS 34 or 36	4		
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective	2	1	3
Junior Year	**F**	**W**	**S**
Dairy Bacteriology, DH 44		5	
Zoology, Z 20-21; or General Botany, Bot 11-12	4	4	
Food Bacteriology, Bac 155	4		
Human Physiology, Z 22			4
Genetics, Z 42	3		
Quantitative Analysis, Ch 23		4	
Physics, Phy 10-11-12	4	4	4
Introduction to Sociology, RS 15			5
Advanced Dairy Bacteriology, DH 162			3
Elective	2		1

Senior Year	F	W	S
Soil Microbiology, Bac 163		5	
Bacteriology Seminar, Bac 71-72-73	1		1
Systematic Bacteriology, Bac 180		5	
Injection and Immunity, Bac 142	5		
Pathogenic Bacteriology, Bac 143			5
Statistical Methods, Econ 81			5
Principles of Mycology, Path 170		4	
Business Law, Econ 41	5		
German, FL 1-2-3	4	4	4
Elective	2		2

REQUIRED: Bac 30; DH 44; Bac 46, 71-73, 155, 163, 180; and sufficient additional courses in an approved sequence to make 36 hours of bacteriology.

LOWER DIVISION

30 General Bacteriology 5(3,4) FWS
Principles of microbiology and microbiological techniques.

UPPER DIVISION

46 Microbiology of Water and Sewage 4(2,4) F
Microbiological problems associated with water supplies and sewage disposal. P, 30.

71-72-73 Seminar 1(1,0) FWS
Presentation of topics based on bacteriological literature in scientific journals. Open to advanced students in bacteriology and related sciences. P, Senior standing.

83 Laboratory Techniques in Public Health 17(*)W
Students who expect to find a professional career in Public Health and Sanitation may elect the option of attending the State Public Health Laboratory at Pierre, South Dakota for one term during the Senior year. This course will be divided among these divisions of the Public Health Laboratory: (1) Tuberculosis; (2) V. D. Serology; (3) General Bacteriology, and (4) Water and Food Infection Analysis. This work shall consist of lectures by qualified members of the Public Health Staff, seminars, practical laboratory experience, and the keeping of laboratory records. P, Bac 30, Bac 46, Bac 71-73, Bac 142-143, Bac 155; DH 44. Senior standing and consent of department.

142 Principles of Infection and Immunity 5(3,4) W
Bacterial infection, antibiotics, vaccines. P, 30.

143 Pathogenic Bacteria 5(3,4) S
Morphological and cultural characteristics of bacterial organisms which cause man's more important diseases. P, 142.

151-152-153 Bacteriological Literature 2(0) FWS
Use of literature of bacteriology and methods of making reports. For advanced students majoring in bacteriology. Limited to 4 graduate credits.

155 Food Bacteriology 4(2,4) F
Bacteriological aspects of food processing, preservation and storage. P, 30.

163 Soil Microbiology 5(3,4) S
Microbial flora of agricultural soils, and biochemical changes which such organisms induce. P, 30, Agron 26.

165-166-167 Bacteriological Problems (*) FWS
Individually assigned investigative problems in bacteriology, mycology, or immunology. Individual conferences and laboratory or field work. P, consent of instructor.

178 Physiology of Viruses 5(3,2) F
Nature and behavior of viruses affecting plants, animals and bacteria. P, advanced courses in bacteriology.

180 Systematic Bacteriology 5(2,6) W
Lectures on nomenclature, Bergey's Manual, monographs on special groups and laboratory demonstration. Family, generic and species characters. P, advanced courses in bacteriology and Senior rank.

192 Fundamentals of Tissue and Cell Cultivation 3(1,2) (as needed)
Growth and handling of tissue cells and its applications. Cultivation of viruses on Hela cells, their immunological reactions and physiology. P, 178, Ch 168.

GRADUATE DIVISION

252 Industrial Bacteriology 5(2,6) S
Fermentations of industrial significance, including common spoilage epidemics in industrial processes. Pilot plant studies of solvent, alcohol and antibiotic production.

263 Bacterial Metabolism 5(3,4) Su
Applied physiology of bacteria. Influence of media, enzymes, vitamins, gaseous requirements, oxidation-reduction potentials, and growth products of common bacteria.

273-274-275 Graduate Seminar 1(1,0) FWS

299 Thesis in Bacteriology 7-10 as arranged

*Time and/or credit to be arranged.

Botany (Bot)

Professor Miller; Associate Professors Taylor and Holden; Assistant Professor Olson; Instructor Myers

The recognition of two kinds of human interest in the field of science has determined the content and method of courses offered by the department. One of these interests, which is cultural in nature, is non-technical; the other, professional and necessarily technical. The needs of both interests are met by the department's introductory courses; for these are of the survey type, broad in scope and varied in application. Advanced courses, however, are all technical. They lay the foundation for the teaching of botany in the sec-

ondary schools, for advancement into the field of botanical research, for direct application to the variety of fields represented in the vocational divisions of the college, and for certain technical services in industry.

LOWER DIVISION

11-12 General Botany 4(2,4) FW and WS
Consideration of those problems of development, adjustment, and function which plants must solve if they are to live successfully. Attention given to importance of plants to man's economy. Open to all students.

13 General Botany: Plant Kingdom 4(2,4) S
Survey of great plant groups, their respective origins, evolutionary contributions, and relative importance in present day vegetation. Desirable antecedent 12.

22 Poisonous Plants 2(1,2) W
Recognition, in flowering condition, of seed plants thought to be poisonous to domestic livestock and man.

23 Agrostology 4(2,4) S
Introduction to methods of identification and classification of grasses in flowering or fruiting condition, as exemplified by grasses of South Dakota. P, 12.

24 Field Botany 9(*,27) Su
Field course in taxonomic and ecological principles and techniques, applying to plant life in South Dakota.

27 Basic Taxonomy 4(2,4) F
Principles of identification and classification of plants, as exemplified by seed plants of Brookings and vicinity. P, 12.

36 Range Forbs 5(3,4) S
Identification and classification of herbaceous forage plants, other than grasses, found on ranges of western South Dakota.

UPPER DIVISION

43 Plant Microtechnique 4(2,4) S
Preparation of plant organs and tissues for critical study with microscope. P, 12.

141 General Plant Physiology 5(3,4) F
Rapid survey of fundamental plant functions and adjustments. P, 12. Desirable antecedent Ch 3 and 21.

145 Fresh-water Seed Plants 4(2,4) F
Identification and ecological relationships of seed plants of inland waters and marshes. P, 12 or 27.

147 Plant Anatomy 5(2,6) S
Developmental anatomy of seed plant axis and its appendages. Emphasis on structural fitness of tissues and organs for functions they perform. P, 12.

155-156-157 Plant Ecology 4(3,2) FWS
Relation of plants to their environments, dynamics of plant migration, competition, formation of plant communities, and their composition, in relation to climatic factors. P, 27.

161 Morphology of Thallophytes 5(2,6) F
Life histories and evolutionary relationships of principal orders of algae and fungi. P, 13.

162 Morphology of Bryophytes and Pteridophytes 5(2,6) W
Life histories and evolutionary relationships of principal orders of liverworts, mosses, ferns, and fern allies. P, 13, 147.

163 Morphology of Spermatophytes 5(2,6) S
Reproductive phenomena and embryology of seed plants, with evolutionary interpretations. P, 13, 147.

166 Plant Geography 3(3,0) F
Principles of plant distribution with special emphasis upon processes which produce modern floras, and geographic factors in speciation. P, 23, 24, or 27.

173 Environment and Physiology 5(2,6) S (Offered 1961-62)
Relation of light, temperature, moisture, wind, and nutrients to various physiological stages of plant development. Actions and reactions of plants and environment. P, 41 and Ch 21. Desirable antecedent, Phy 12.

177 Mineral Nutrition 5(2,6) S (Offered 1960-61)
The roles of macro-elements and micro-elements in plant nutrition. Absorption, transport, and metabolic significance of each element from the time it enters the plant until it is released. P, 141; Ch 21. Desirable antecedent, Phy 12.

181-182-183 Botanical Problems * FW or S
Solution of individually assigned investigative problems in botany, making use of techniques acquired in foundation courses. P, adequate background for assigned problem. Individual conferences and laboratory greenhouse or field work.

186 Seminar 1(1,0) S
Presentation and criticism of original, and of contemporary, research. P, two years of botany training of collegiate rank. Staff members and advanced students.

GRADUATE DIVISION

200 Aspects of Morphogenesis 4(laboratory and conferences variable) F,W, or S
Determinative differentiation in growing points of the plant axis. P, 163.

210 Botanical Literature 2(2,0) F,W, or S
Review and evaluation of current or recent research literature in botany.

211-212-213 Advanced Plant Taxonomy 3(2,2) FWS
Detailed study of families of higher plants; professional methods of taxonomic exploration, research, and publication. P, consent of instructor.

232 Advanced Plant Physiology 5(2,6) W
Role of enzymes, and biochemistry of organic metabolism in plants. Photosynthesis, respiration, and protein-, fat-, and carbohydrate-metabolism. Roles played by artificial and natural stimulators of growth. P, 141, Ch 21. Desirable antecedents, Ch 168 and Phy 12.

299 Thesis in Botany 7-10 as arranged.

*Time and/or credit to be arranged.

Curriculum in Technical Ariculture, Botany Major

Leading to the degree of Bachelor of Science in Agriculture

See Botany Curriculum in Division of Science and Applied Arts

Freshman Year	F	W	S
Orientation, 1	1		
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 10			5
Inorganic Chemistry, Ch 1-2-3	4	4	4
General Botany, Bot 11-12-13	4	4	4
Crop Production, Agron 1-2	3	3	
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1

Sophomore Year	F	W	S
Introduction to Literature, Engl 20; or Writing for Technical Students, Engl 43; or Publicity Methods, J 66		3	3
Elective in Plant Taxonomy	4 or 4 or 4		
Plant Pathology in Human Affairs, Path 20		3	
Plant Anatomy, Bot 147			5
General Horticulture, Ho 1	3		
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Elementary Organic Chemistry, Ch 21	5		
Introduction to Sociology, RS 15		5	
Military, Mil 20-21-22 or 25-26-27	1	1	1
*Elective**			

Junior Year	F	W	S
Plant Physiology, Bot 141, 173, 177; or Plant Morphology, Bot 161-162-163	5	5	5
Soils, Agron 25-26	3	3	
Genetics, Z 42	3		
Oral Communication, Sp 22			3
Principles of Economics, Econ 21-22		3	3
Introductory Animal Husbandry, AH 3	4		
Livestock Nutrition, AH 25		4	
Elements of Dairying, DH 1			4
*Elective**			

Senior Year	F	W	S
Botany Seminar, Bot 186			1
General Bacteriology, Bac 30		5	
General Entomology, Ent 20			5
Poultry Production, PH 1	3		
Rural Sociology, RS 31	3		
National Government, PS 34		4	
Farm and Ranch Management, Econ 38	3		
Agricultural Engineering, AE 24; or Farm Power and Machinery, AE 26			3
*Elective**			

*Students who expect to continue study of botany at the graduate level should include among their junior and senior electives (or optional courses) a minimum of two year-courses in French or German. Those who expect to teach botany or biology in secondary schools should include among their electives such courses in the Department of Education as are required for teacher certification.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: Bot 11, 12, 13, 27 (or equivalent), and 186 plus 20 or more credits from other courses in the department. These electives must include a 3-course sequence in either anatomy-morphology, physiology, or taxonomy-ecology.

Chemistry (Ch)

A curriculum in chemistry has been set up for those students who wish to prepare themselves for advanced study in agricultural chemistry. Since considerable technical knowledge is necessary to fully equip a specialist in this field, the student should plan to enter graduate work after completion of this curriculum. There are facilities at this institution for an additional year's work leading to the Master of Science degree. The able student can usually obtain a fellowship or scholarship at some recognized institution to defray expense of further graduate study.

Prospective students should consult the head of the Chemistry Department for information regarding this curriculum.

Curriculum in Technical Agriculture, Chemistry Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year	F	W	S
Inorganic Chemistry, Ch 1-2	4	4	
Experimental Inorganic Chemistry, Ch 10-11	1	1	
Semi-micro Qualitative Analysis, Ch 20			5
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 14	5		
Plane Trigonometry, Math 15		5	
Analytic Geometry and Calculus, Math 16			5
Crop Production, Agron 1-2	3	3	
Introductory Animal Husbandry, AH 3; or Elements of Dairying, DH 1; or Poultry Production, PH 1			4
Orientation, 1	1		
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1

Sophomore Year	F	W	S
Organic Chemistry, Ch 150-151	5	5	
Introduction to Sociology, RS 15			5
French or German, FL 1-2-3	4	4	4
Calculus, Math 25-26	5	5	
Applied Calculus, Math 27			4
General Botany, Bot 11-12; or General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	F	W	S
General Physics, Phy 20-21-22	5	5	5
Quantitative Analysis Elective	3		
Quantitative Analysis, Ch 23-24		4	4
Analytical Calculations, Ch 28-29		1	1
Organic Chemistry, Ch 152			5
Soils, Agron 25-26	3	3	
Oral Communications, Sp 22	3		
Introduction to Literature, Engl 20	3		
Writing for Technical Students, Engl 43		3	
General Psychology, Psy 25			3
Elective in Agriculture	3	3	

Senior Year	F	W	S
Physical Chemistry, Ch 163-164-165	5	5	5
Undergraduate Seminar, Ch 91-92-93	1	1	1
Atomic Physics, Phy 180	3		
Principles of Economics, Econ 21-22	3	3	
General Bacteriology, Bac 30	5		
National Government, PS 34		4	
Elective in Chemistry		3	
Elective in Agriculture		3	9

Dairy Husbandry (DH)

Professors Breazeale, Baker, Dracy, Totman (Emeritus); Associate Professors Bartle, Spurgeon, Voelker, Instructors Seas, Stoll

Dairy Husbandry students may choose either of these majors: (a) Dairy Manufacturing (b) Dairy Production. The work in dairy manufacturing pertains to the processing of milk and its products, such as the manufacture of butter, cheese and ice cream. The work in dairy production pertains to the management of dairy farms and involves such problems as feeding, breeding, control of disease and sanitation in the production of milk. In each of these courses a sufficient background in the various sciences is offered in order that the student may appreciate why many practices and procedures are followed.

Students who major in Dairy Husbandry are advised to obtain summer employment along the general line of work they expect to follow after graduation. This practical experience is of great value and usually leads to more responsible positions. The Dairy Husbandry Staff will assist students in securing this work.

The College dairy herd is made up of the principal dairy breeds. Sufficient numbers are maintained for teaching and research purposes. The milk produced by this herd is processed in the creamery building. The manufactured products are sold on the campus. Thus, there is an opportunity for students to observe and to do some of the actual work in the production and processing of milk. This type of information supplements that which is obtained in the classroom.

LOWER DIVISION

1 Elements of Dairying 4(3,2) FWS
General course in dairy production and dairy manufacturing.

10 Fitting and Showing Dairy Cattle 1(0,2) W
Fitting dairy cattle for shows and sales, methods of showing these animals.

21 Dairy Cattle Judging 2(0,4) S
Judging major breeds of dairy cattle for type.

30-31 Technical Control of Dairy Products 4(2,4) SF
Common quality standards and field tests used in the procurement and grading of milk. Laboratory tests for the control of dairy products. Organization of the dairy control laboratory and maintenance of equipment. Fundamental physical and chemical properties and nutritional value of milk and its products. Changes that occur as a result of processing milk products. P, 1; Ch 21 or equivalent.

UPPER DIVISION

40 Dairy Breeds (2,2) F
History and development of dairy breeds. Breeding and selection based on pedigrees, production records, type and other considerations. P, 1.

43 Dairy Products Judging 2(0,4) S
Judging quality of milk, cream, butter, cheese, and ice cream.

44 Dairy Bacteriology 5(3,4) W
Sources of bacterial contamination of milk and practical control measures. Cultural activities of common milk organisms. P, Bac 30.

45 Market Milk 3(3,0) W
Sanitary production and processing of milk and related products; factors affecting quality, procurement and distribution. P, 30; Bac 30.

46 Manufacture of Butter 4(3,3) W
Cream procurement; processes involved in butter-making and handling; types of equipment used. P, 30; Bac 30.

52 Dairy Cattle Judging 2(0,4) S
Judging major breeds of dairy cattle. Study of type classification. P, 21.

60 Manufacture of Cheese 4(3,3) F
Processing, curing and marketing of hard and soft cheese. P, 30; Bac 30.

61 Condensed Milk Products 3(3,0) F
Manufacture, marketing and uses of condensed milk, powdered milk, casein and lactose; defects in milk products and methods of prevention. P, 1.

62 Manufacture of Ice Cream 4(3,3) S
Mix calculations, processing, freezing and storage of ice cream; type of equipment used. P, 30.

63 Advanced Dairy Cattle Judging 2(0,4) F
Judging of dairy cattle. Includes participation in National Collegiate Cattle Judging Contest. P, 52.

64 Advanced Dairy Products Judging 2(0,4) F
Judging butter, cheese, milk and ice cream. Usually includes participation in National Collegiate Dairy Products Judging Contest. P, 43.

90-91 Dairy Seminar 1(1,0) FW
Review of scientific literature and other items of special interest to dairy majors. P, Senior standing.

160 Dairy Plant Management 3(3,0) S
Problems relating to general costs, buildings, equipment, and other management factors of dairy processing plants. P, Senior standing.

161 Dairy Farm Management 3(3,0) S
Management problems pertaining to buildings, equipment, crop rotations, pastures, labor and care of dairy cattle. P, 1.

162 Advanced Dairy Bacteriology 3(2,2) S
Role of micro-organisms in manufacture of various dairy products; coliform bacteria, special bacteriological tests and propagation of starter cultures. P, 44.

163 Milk Secretion 3(3,0) W
Anatomy and physiology of mammary glands. Factors affecting quality and quantity of milk. P, 1; Vet 20.

164 Dairy Cattle Nutrition 3(3,0) W
Fundamental and practical considerations involved in feeding all classes of dairy cattle. P, 1; AH 25.

165 Artificial Insemination of Dairy Cattle 3(2,2) F
Collection, evaluation, storage and transportation of semen. Techniques of insemination. Recognition of abnormalities and general study of reproductive physiology. Management factors. P, 1; Vet 20.

167-168-169 Dairy Problems 1-3(0,3-9) FWS
Specific problems in these fields of dairying: 167 Dairy Production; 168 Dairy Manufacture; 169 Dairy Bacteriology. A maximum of 5 credits will be accepted for this series of courses. P, Senior standing and consent of instructor.

170 Cultures Used in Dairy Products 3(0,6) S
Practical and theoretical aspects of dairy cultures. Emphasis on laboratory practices in starting and maintaining dairy cultures along with the study of factors influencing the activity and flavor development of these cultures. P, 44.

GRADUATE DIVISION

201 Graduate Conference in Dairying 1-5 S
Problems in dairy production, dairy manufacturing and related sciences.

202 Organisms in Dairy Products 3(0,6) F
Isolation and identification of micro-organisms commonly found in dairy products and their cultural characteristics. P, 162; Bac 180.

210 Animal Physiology 5(3,4) F
Blood, circulation, heat, muscle and respiration.

211 Animal Physiology 5(3,4) W
Digestion, rumination, urine formation, reproduction, nervous system and the special senses.

264-265 Nutrition Seminar 1(1,0) FWS
Reports and discussion of current research in nutrition.

299 Thesis in Dairy Husbandry 7-10 as arranged

Curriculum in Technical Agriculture, Dairy Manufacturing Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
Military, Mil 20-21-22 or 25-26-27	1	1	1
Technical Control of Dairy Products, DH 30			4
Dairy Cattle Judging, DH 21			2
Botany, Bot 11-12; or Zoology, Z 20-21	4	4	
Soils, Agron 25-26	3	3	
Livestock Nutrition, AH 25			4
Oral Communications, Sp 22	3		
Introduction to Sociology, RS 15		5	
English or Journalism Elective	3		3
Elementary Organic Chemistry, Ch 21		5	
Plant Pathology in Human Affairs, Path 20			3
Elective			

Junior Year	**F**	**W**	**S**
Technical Control of Dairy Products, DH 31	4		
Dairy Products Judging, DH 43			2
Dairy Bacteriology, DH 44		5	
Market Milk, DH 45		3	
Manufacture of Butter, DH 46		4	
Condensed Milk Products, DH 61	3		
Manufacture of Ice Cream, DH 62			4
Principles of Economics, Econ 21-22	3	3	
Principles of Accounting, Econ 34	4		
General Bacteriology, Bac 30	5		
Genetics, Z 42		3	
Agricultural Engineering elective			3
Elective			

Senior Year	**F**	**W**	**S**
Manufacture of Cheese, DH 60	4		
Dairy Plant Management, DH 160			3
Dairy Seminar, DH 90-91	1	1	
Sociology elective			3
Political Science, PS 34 or 36	4		
Social Science elective		3	
Economics elective	3		
Elective			

SUGGESTED ELECTIVES: DH 170, 162; Bac 46, 155; Econ 35, 36, 37, 41, 69, 140, 154, 157; Ch 167, 168; Phy 10, 11, 12; PH 157; Z 22.

Curriculum in Technical Agriculture, Dairy Production Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
Military, Mil 20-21-22 or 25-26-27	1	1	1
Fitting and Showing Dairy Cattle, DH 10		1	
Dairy Products Judging, DH 43			2
Soils, Agron 25-26	3	3	
Botany, Bot 11-12; or Zoology, Z 20-21	4	4	
Livestock Nutrition, AH 25			4
Elementary Organic Chemistry, Ch 21		5	
Oral Communications, Sp 22			3
Introduction to Sociology, RS 15	5		
Plant Pathology in Human Affairs, Path 20			3
Dairy Cattle Judging, DH 21			2
English or Journalism Elective	3	3	
Elective	1		2

Junior Year	**F**	**W**	**S**
Dairy Breeds, DH 40	3		
Dairy Farm Management, DH 161			3
Dairy Bacteriology, DH 44		5	
General Bacteriology, Bac 30	5		
Principles of Economics, Econ 21-22		3	3
Veterinary Anatomy and Physiology, Vet 20	5		
Genetics, Z 42	3		
Agricultural Engineering elective			3
Entomology elective			3
Principles of Animal Breeding, AH 150		3	
Elective	1	6	5

Senior Year	**F**	**W**	**S**
Milk Secretion, DH 163		3	
Dairy Cattle Nutrition, DH 164		3	
Artificial Insemination of Dairy Cattle, DH 165	3		
Dairy Seminar, DH 90-91	1	1	
Rural Sociology, RS 31			3
Farm and Ranch Management, Econ 38	3		
Political Science, PS 34 or 36	4		
Social Science elective		3	
Elective	7	7	14

SUGGESTED ELECTIVES: DH 30, 45; Bac 163; AH 24, 26; Agron 56, 57; Econ 34, 37; Vet 40, 41 42; Z 22.

Economics (Econ)

Emeritus Professors Lundy and Pengra; Professors Glover, Smythe; Associate Professors Antonides, Benrud, Berry, Pavlick, Railing, Thompson, Ullman, Van Vlack; Assistant Professors Bell, Clark, Dailey, Felberg, Johnson, Marousek, Nelson, Pearson, Schultz

Studies and research in economics at South Dakota State College are intimately connected with agricultural economics. Effective work in agricultural economics necessarily involves thorough preparation in Economics. On the other hand, work in economics is invigorated by the practical applications at hand in marketing, farm management, agricultural finance, and other agricultural economic fields. The work of the department must go beyond the field of agriculture in order to give training for effective citizenship as well as effective management.

To meet the increasing need for people trained in both agriculture and economics, three specialized curricula in agricultural economics have been developed. The curriculum in Agricultural Business is a basic curriculum for students seeking careers in various business fields connected with agriculture. By the selection of suitable options it can be used to prepare for such diverse fields as Real Estate, Market Research, and others. The curriculum in Agricultural Finance is aimed at the needs of lending institutions for specialized personnel, and has been developed after consultation with bankers and others in the field. The curriculum in Farm Management is designed not only for farm operators but also for land managers and management consultants.

Reasonable substitutions within the spirit of these curricula may be made at the student's request by the Economics department with the approval of the dean. Application should be supported by evidence on vocational plans and needs.

For students requiring little emphasis upon technical agriculture, an Economics curriculum is also presented in the division of Science and Applied Arts.

LOWER DIVISION

21 Principles of Economics 3(3,0) FWS

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 interregional trade, and comparative economic systems. Emphasis on economics essential for good citizenship.

22 Principles of Economics 3(3,0) FWS

Basic management economics. Analysis of basic resources, allocation problems of firms and households; demand, cost, price; functional income distribution; business and personal finance. Emphasis on economics essential for sound management decisions. P, 21.

23 Principles of Economics 3(3,0) S
The application of economic principles to agriculture and related industries. P, 22.

34 Accounting 4(2,4) FWS
Basic accounting cycle; accounting statements, balance sheet, profit and loss; adjustments; special ledgers.

35 Accounting 4(2,4) WS
Interest calculation; asset valuation; accrued and deferred items; payrolls and taxes; partnership accounting. P, 34.

36 Accounting 4(2,4) S
Corporation accounting; structure and analysis of summary statements of financial condition, net worth, profit and loss. Simple cost accounts and audits. Analysis of accounts for tax purposes. P, 35.

37 Introduction to Marketing 3(3,0) FWS
Consumption patterns; market organization; marketing functions; pricing practices; location of market activities; and marketing efficiency and control. P, 22.

38 Farm and Ranch Management 3(3,0) FWS
Nature of farming and ranching as business, types of farming, tenure and leasing, combination of enterprises, factors affecting choice of crop and livestock, selection and use of machinery and equipment, use of labor and capital, marketing and record analysis. P, 22.

UPPER DIVISION

41-42 Business Law 3(3,0) FWS
Practical knowledge of legal problems encountered in organization and operation of farm and business enterprises. Property, contracts, agency, negotiable instruments, sales, insurance, common carriers, partnership.

43 Drug Store Accounting 4(2,4) F
Principles of Accounting as applied to the operation of a drug store.

44 Basic Accounting Essentials 4(2,4) F
A survey of accounting principles with emphasis on techniques and procedures necesssary to managerial control. Primarily for engineers. Not open to students who have taken 34.

45 Farm Budgets and Records 3(2,2) F
Kinds and uses of farm records. Special problems involving use of farm record data in preparing farm budgets. P, 38 recommended.

48 Money and Banking 4(4,0) WS
Principles of money, banking, and credit, major types of financial institutions and their significant functions and policies. P, 21.

49 Personal Finance 3(3,0) WS
Personal budgets and investment programs. Analysis of investment and protective aspects of insurance. P, 21.

60 Economics Seminar 1(1,0) FWS
Economic problems of agriculture and related industries, with written or oral reports. At least one quarter required of all economics majors. P, consent of instructor.

69 Business Principles 3(3,0) FS
Methods and practices of efficient management of business located in rural areas or dealing with rural people. P, 22.

81 Statistical Methods I 5(3,4) FWS
An introduction to the basic concepts of statistics; description of frequency distributions (averages, dispersion, and simple regression and correlation), and introduction to statistical inference. P, 22; College Algebra.

90 Agricultural Economics 3(3,0) S
(Not offered in 1960-61)
Attention to application of economic analysis to agriculture, and to current economic problems facing farm family. (Primarily for other than Econ majors.) P, 22.

95 Investment Principles 3(3,0) S
(Alternate years with Real Estate 170)
Review the classes, types, nature, character and function of investment securities; survey internal and external factors influencing prices of securities; study principles of formulating investment policy of portfolio construction. Reports with emphasis on objective analysis from source materials required. P, 22.

UNDERGRADUATE OR GRADUATE CREDIT

140 Labor Economics 3(3,0) F
(Not offered in 1960-61)
Labor as factor in production; labor policy; labor organizations; efficient utilization of labor with emphasis on personnel management and problems in rural business. P, 22.

142 Production Economics 3(3,0) F
A review of economic theory applicable to resource allocation problems and various types of models used in deriving input-output relationships, substitution relationships, demand and supply relationships. Current empirical studies relating to resource allocation problems, especially in agriculture are analyzed. P, 150.

143 Economics of Modern Capitalism 3(3,0) F
American economy as an organic entity; ownership and control of economic organizations; influence of collective action on nature and extent of competition; concentration of power in economic groups: Production, merchandising, pricing and financial strategies of economic groups. Positive and negative roles of government in economic regulation. P, 22.

145 Public Finance 3(3,0) S
Principles and problems of public revenues, public expenditures, fiscal policy, and public debt management. Problems of attaining equitable distribution of burdens and benefits. P, 22.

146 Agricultural Finance 3(3,0) W
Credit and capital needs in agriculture, credit agencies; principles and problems involved in using and extending agricultural credit. Field trips. P, 48.

148 Intermediate Macroeconomics 3(3,0) F
The determinants of national income, employment and price level will be studied with particular attention to aggregate consumption and investment.

150 Intermediate Economic Analysis 3(3,0) FWS
Introduction to scope and method of economic analysis. Analysis of pricing process under varying degrees of competitive conditions and the role of price in allocation of resources. Introduction to the theory of income distribution. P, 23.

154 Managerial Cost Accounting 3(2,2) W
Standard methods of cost accounting and their significance for management. P, 36 or 44.

158 Advanced Farm Management 3(3,0) S
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.

LS 159 Research Tools for the Humanities 2 or 3 F
Survey of research and reference materials of special value and interest to students of Humanities. Literature search may be made for third credit. (See department of Library Study.)

160 Market Prices 3(3,0) F
Principles of price determination with reference to special characteristics of agricultural products and markets; methods of price analysis and forecasting; theory of price stabilization and price discrimination and effect on income; analysis of programs and proposals to control agricultural prices by controlling production, market supplies, and foreign demands. P, 150, 81 desirable.

161 International Trade 4(4,0) S
(Not offered in 1960-61)
Factors affecting international flow of trade and balance of payments; trade controls and their influence on domestic economy, agricultural and domestic; significant current developments in trade and finance. P, 22.

162 Economics of Agricultural Production 3(3,0) W
Resource allocation under dynamic conditions of production; decision making consistent with uncertainties of imperfect knowledge and expectations; overall resource efficiency in agriculture and technological change; aggregative consequences of firm-household decisions; distribution of income within agriculture and transfer of resources between agriculture and other industries. P, 142.

163 Comparative Economic Systems 3(3,0) W
Organization, operation, and comparison of various types of economic systems, such as socialism, fascism, the free enterprise system, and mixed systems. P, 22.

164 Ethics in Economics 3(3,0) W
Current economic practices examined in the light of basic ethical principles. P, six hours of economics with one course in philosophy, preferably ethics, recommended.

165 Income Tax 3(3,0) W
Procedures, laws, records, and returns for individuals, partnerships, and corporations. Minimizing income tax liability. P, 34 or 44.

166 Land Problems and Policies 3(3,0) F
Analysis of public land policies and programs designed to adjust the use of land. Discussion of tenancy, problems of acquiring land, economics of land use, rural zoning, public land management, and water use, laws and regulations. P, 22.

167 Farm Appraisal 3(2,3) S
Valuation principles for agricultural land and buildings. Major emphasis on sales and loan values; some work on taxation, actual appraisal of both farms and ranches. One two-day field trip required. P, 38; Agron 25, 26.

170 Real Estate 3(3,0) W (Alternate years with Investment Principles 95)
Legal and economic aspects of the sale, purchase and leasing of real property in one's own right or as agent or broker; appraisal, property management, client relationships. P, 22, 41 recommended.

171 Monetary Theory and Fiscal Policy 3(3,0) W
The study of the role of the banking system and government in the determination of the level of national income, employment and price level. The problem of "full employment" and the related aspects of economic policy will be analyzed. P, 148.

172 National Income Analysis 3(3,0) S
An examination of the common statistical measurements of general economic activity, and appraisal of their significance for current business analysis and for economic forecasting and planning.

175 History of Economic Thought 3(3,0) S
Survey of economic theory; different schools of economic thought and economic environments which produced them. P, 22.

177 Agricultural Marketing 3(3,0) F
Economic analysis of marketing problems, functions, and institutions; costs and efficiency in processing and marketing; industrial structure and government roles in processing and marketing. P, 57, 150 recommended.

179 Agricultural Cooperatives 3(3,0) W
Development of agricultural cooperatives in U. S. and economic problems which arise in agricultural cooperatives. P, 37.

180 Economic Development 3(3,0) W
Consideration of conditions necessary for capital formation and economic development, with examination of development problem in selected area in U. S. and other countries. P, consent.

181 Statistical Methods II 4(3,2) W
Probability, point and interval estimation, tests of hypotheses, multiple regression, and analysis of variance and covariance. P, 81.

182 Statistical Methods III 3(3,0) S
Application of statistical techniques to the quantitative aspects of the social sciences including: different types of sampling techniques and methods of estimation; use of experimental designs; use of nonparametric inference; and time series analysis. P, 181.

183 Linear Programming 3(3,0) F
Theory and analytical procedures for input-output analysis. P, consent.

185 Advanced Economic Analysis 3(3,0) S

Intensive study of selected branches of microeconomics, including welfare theory and partial and general equilibrium. P, 150.

195 Agricultural Policy 3(3,0) S

Economic policies affecting agricultural prosperity; suggested means of reform. Emphasis on national and regional problems and interrelationships affecting rural and national welfare. P, consent of instructor.

197 Special Problems 2-5(2-5,0) FWS

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 1-5

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.

GRADUATE DIVISION

250 Macroeconomics 3(3,0) F

Methods for analysis of economic aggregates and their interrelationships, such as gross national products, national income, savings and investments.

257 Market Structure Theory 3(3,0) S

Marketing structures: locational, cost, and institutional. How markets are related in form, time and place. Theoretical and statistical tools applicable to the analysis of marketing problems and situations.

262-270 Seminars 1-2 credits each

Special seminar courses in selected economic fields will be arranged according to demand. A maximum of 6 seminar credits may be applied on an advanced degree.

262 Seminar in Economic Theory

263 Seminar in Economic Policy

264 Seminar in Monetary Theory and Policy

265 Seminar in Public Finance

266 Seminar in Land Economics

267 Seminar in Marketing

268 Seminar in Farm Management

269 Seminar in Agricultural Finance

270 Seminar in Agricultural Economics

274-275-276 Current Economic Theory 2(2,0) FWS

One outstanding book in current economic theory will be studied intensively each quarter.

277 Research Methods 3(3,0) FWS

Methods, problems and principles involved in research work and sources of data for prospective research workers in economics.

281 Econometrics 3(3,0) S

Application of mathematical economic theory and statistical procedures to economic data; empirical testing of economic theorems.

285 Special Topics in Economics 2-5(2-5,0) FWS

Graduate students may elect subjects in economics in consultation with staff. Open to all graduate students working towards advanced degree in economics.

295 Economic Policy 3(3,0)

Relation of economic policies to basic values, technical and institutional limitational factors; role and limitations of expert and theoretical analysis.

299 Thesis in Economics As arranged

Curricula in Economics

Leading to the degree of Bachelor of Science in Agriculture

(See also curriculum in Economics in Science and Applied Arts Division)

Curriculum in Technical Agriculture, Agricultural Business Major

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
General Botany, Bot 11-12 or General Zoology, Z 20-21	4	4	
Genetics, Z 42			3
Introduction to Sociology, RS 15			5
Principles of Economics, Econ 21-22-23	3	3	3
Accounting, Econ 34-35	4	4	
Oral Communications, Sp 22	3		
*Agriculture elective**			3
English electives	3	3	
Military, Mil 20-21-22 or 25-26-27	1	1	1
Electives			

Junior Year	**F**	**W**	**S**
Intermediate Economic Analysis, Econ 150	3		
Money and Banking, Econ 48		4	
National Government, PS 34	4		
State Government, PS 36		4	
Public Administration, PS 52			3
Introduction to Marketing, Econ 37			3
Business Law, Econ 41-42		3	3

*Agricultural Engineering approved course; or Field Crops Entomology, Ent 40; or Animal Nutrition, AH 25; or Plant Pathology in Human Affairs, Path 20.

Not all courses in all agricultural departments are regarded as agricultural electives. Economic courses which may be used include: 45, 142, 146, 160, 162, 166, 167, 179, 197.

Soils, Agron 25-26	3	3	
Rural Sociology, RS 31		3	
Agriculture elective	4		
Farm and Ranch Management, Econ 38	3		
Economics elective			3
Electives			

Senior Year	**F**	**W**	**S**
Statistical Methods, Econ 81	5		
Agricultural Marketing, Econ 177; or Business Principles, Econ 69	3	or	3
Intermediate Macroeconomics, Econ 148	3		
Agricultural Prices, Econ 160	3		
Agricultural Policy, Econ 195			3
Economics Seminar, Econ 60		1	
Economics elective		3	
Sociology elective		3	
Electives			

OPTIONS

For *Real Estate* option, elect Income Tax 165, Farm Appraisal 167, and Real Estate 170.

Curriculum in Technical Agriculture, Agricultural Finance Major

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
General Botany, Bot 10-11; or General Zoology, Z 20-21	4	4	
Genetics, Z 42			3
Principles of Economics, Econ 21-22-23	3	3	3
Organic Chemistry, Ch 21	5		
Principles of Accounting, Econ 34	4		
General Bacteriology, Bac 30			5
Livestock Nutrition, AH 25		4	
Introduction to Sociology, RS 15			5
Plant Pathology in Human Affairs, Path 20		3	
Agricultural Engineering, AE 24		3	
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	**F**	**W**	**S**
Soils, Agron 25-26	3	3	
National Government, PS 34			4
Introduction to Marketing, Econ 37			3
Rural Sociology, RS 31			3
Farm and Ranch Management, Econ 38	3		
Business Law, Econ 41-42		3	3
Oral Communications, Sp 22	3		
English electives		3	3
Intermediate Economic Analysis, Econ 150	3		
Money and Banking, Econ 48		4	
Field Crops Entomology, Ent 40		3	
Statistical Methods, Econ 81	5		

Senior Year	**F**	**W**	**S**
Agricultural Finance, Econ 146	3		
State Government, PS 36	4		
Intermediate Macroeconomics, Econ 148	3		
Agricultural Policy, Econ 195			3
Economics Seminar, Econ 60		1	
Public Administration, PS 52			3
*Agriculture electives**	4		
Economics electives	3	3	3

*See footnote under Agricultural Business major.

Curriculum in Technical Agriculture, Farm Management Major

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
General Botany, Bot 10-11; or General Zoology, Z 20-21	4	4	
Genetics, Z 42			3
Principles of Economics, Econ 21-22-23	3	3	3
Soils, Agron 25-26	3	3	
Organic Chemistry, Ch 21	5		
Livestock Nutrition, AH 25		4	
Farm and Ranch Management, Econ 38			3
General Bacteriology, Bac 30			5
Agricultural Engineering (approved course)			3
Plant Pathology in Human Affairs, Path 20		3	
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	**F**	**W**	**S**
Introduction to Sociology, RS 15	5		
Oral Communication, Sp 22	3		
English electives		3	3
Rural Sociology, RS 31		3	
National Government, PS 34		4	
State Government, PS 36			4
Intermediate Economic Analysis, Econ 150	3		
Introduction to Marketing, Econ 37			3
Money and Banking, Econ 48		4	
Field Crops Entomology, Ent 40		3	
Sociology elective			3
*Agriculture elective**	4		
Electives			

Senior Year	**F**	**W**	**S**
Economics Seminar, Econ 60	1		
Statistical Methods, Econ 81	5		
Agricultural Policy, Econ 195			3
Intermediate Macroeconomics, Econ 148	3		
Advanced Farm Management, Econ 158			3
Economics electives	3	4	3
Electives			

*See footnote under Agricultural Business major.

Entomology—Zoology (Ent, Z)

Professors Spawn, Rogoff, Hartwig, Severin (Emeritus); Associate Professors Greb, Hugghins, Walstrom; Assistant Professors Progulske, Allum

Subjects offered by the Entomology-Zoology Department are planned to meet the needs of three groups of students: first, those who wish to major or minor in entomology, zoology, wildlife techniques and conservation or in any two of these fields; second, those who must have a fundamental training in the work of this department in order that they may pursue certain branches of study, such as animal husbandry, horticulture, veterinary medicine, home economics, pharmacy, medicine, dentistry, nursing, etc.; third, those who desire merely to acquire a knowledge of the fundamental facts and principles of entomology and zoology or some phase of these branches of learning.

The work of this department is conducted by means of lectures, recitations, laboratory and field studies. The student is thus afforded not only an opportunity to gain familiarity with the principles and theories discussed in the class room, but is also encouraged to put these theories to the test and verify the principles in the field.

The laboratories are well supplied with apparatus and illustrative materials. The apparatus includes compound microscopes, binocular microscopes, dissecting microscopes, camera lucidas, paraffin baths, incubators, microtomes, physiology apparatus, photographic apparatus, spray machinery and accessories, dusting machinery, etc. As illustrative materials, in addition to the general museum and entomology collections, there are charts, skeletons, study skins of birds and mammals, preserved fishes, models, lantern slides, microscopic preparations, a line of insecticides and fungicides, a large collection of Riker mounts illustrating the life cycle of injurious insects, etc.

Entomology (Ent)

LOWER DIVISION

20 General Entomology 5(3,4) S
Insects in relation to agriculture. Insect pests, their life histories and control. Important species of South Dakota emphasized.

35 Entomology for Pharmacy Students 3(2,2) W
Pharmacist by law is licensed dispenser of poisons and is frequently called upon to recommend controls for insect pests. Insect morphology, recognition of common insect pests, life histories, behavior, and control through insecticides.

40 Field Crops Entomology 3(2,2) W
Insects injurious to field crops. Life cycle, seasonal cycle, and control measures of important insect pests of field crops grown in South Dakota.

41 Orchard Entomology 3(2,2) Offered in 1960-61) F
Life history, seasonal history and control of insect and mite pests of fruit-producing plants. Spraying and dusting apparatus and preparation and application of insecticides for control are discussed. Alternate years.

42 Garden Entomology 3(2,2) Offered in 1961-62) F
Insect and mite pests of vegetable garden crops. Life cycle, seasonal cycle, and recommended control measures of pests of major importance in South Dakota. Alternate years.

43-44 Taxonomy of Insects 3(1,4) FW
Classification of insects. Emphasis on characteristics used in identifying all orders and many families of insects. Each student makes insect collection, properly mounts and identifies specimens.

46 Insects Affecting Livestock 3(2,2) S
Insects, mites and ticks affecting livestock and other domesticated animals. Life cycles of pests, injury done and controls recommended.

60 Veterinary and Medical Entomology 3(2,2) (Offered in 1960-61) W
Injurious insects, mites and ticks which affect domestic animals and man, and part they play in transmission of disease. P, Ent 20, or its equivalent. Alternate years.

61 Principles of Beekeeping 3(2,3) S
Habits and life history of bees, care of apiary throughout the year, production and marketing of honey and commercial methods of honey production. Importance of bees in modern agriculture.

141 Insecticides 3(2,2) F
Formulation, chemistry, toxicology, and application of common insecticides and miticides. Residue tolerances and legal aspects of sale and use of insecticides. P, Ent 20, or equivalent, or permission of instructor.

143-144 External and Internal Insect Morphology 3(1,4) (Upon sufficient demand)
External structure of insects followed by consideration of internal anatomy, physiology and development. P, Ent 20, or its equivalent.

145 Principles of Beekeeping 3(1,4) F
Development of laboratory and field methods for grading of honeys; detailed study of honey bee diseases; pollen identification; and allied subjects. Also, technique for artificial insemination of queen bees. P, 61.

147 Immature Insects 3(1,4) F

Taxonomy and habitat relationships of larval and nymphal stages of common insects of northern Great Plains area. Major emphasis is placed upon those species of recognized economic importance, both beneficial and detrimental. P, 43-44.

160-161 Taxonomy of Insect Groups 3(0,9) (Upon sufficient demand)

Taxonomic study of group insects; classification of species and varieties. Student prepares report in which he gives technical description of family, genera, species and varieties, food habits of species, keys to genera and species, and bibliography consulted. P, Ent 20 or its equivalent. Ent 43-44.

162 Principles of Taxonomy 3(3,0) (Upon sufficient demand)

Systems of classification, taxonomic categories, international code of zoological nomenclature, pre-Linnean nomenclature, conceptions, and criteria of subspecies, species and genera, laws of priority, types, publication, modern tendencies in taxonomy and professional ethics. P, Ent 20, or its equivalent, Ent 43-44.

165 Entomological and Zoological Literature 3(1,4) (Offered in 1960-61) W

Important literature and authors; preparation and use of bibliographies. Alternate years.

170 Insect Physiology 3(2,2) (Upon sufficient demand) W

Fundamental physiological processes in insects. Normal and abnormal functioning of adult and other stages, developmental physiology, physiology of behavior, etc. P, 143-144, Z 22, or equivalent preparation.

199 Special Problems in Entomology 2-5 credits FW or S

Qualified students may investigate special entomological problems under supervision by members of department staff.

GRADUATE DIVISION

240 Insectary Methods 3(1,4) (Upon sufficient demand)

Methods of rearing insects under laboratory, greenhouse and outdoor conditions. Each student assigned one or more species of insects to rear.

249 Wing Venation 3(1,4) (Upon sufficient demand)

Details of wing venation of insects for use in insect taxonomy and in study of evolutionary processes.

251 History of Entomology 1(1,0) (Upon sufficient demand)

Growth of science of entomology. Works of great entomologists of past. Trends of research during history of entomology.

299 Thesis in Entomology 7 to 10 credits as arranged

Curriculum in Technical Agriculture, Entomology Major

Leading to the degree of Bachelor of Science in Agriculture

(Also an Entomology curriculum in Division of Science and Applied Arts)

Freshman Year	**F**	**W**	**S**
General Zoology, Z 20-21	4	4	
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
Introductory Animal Husbandry, AH 3			4
Crop Production, Agron 1-2	3	3	
General Entomology, Ent 20			5
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1
Orientation, Orient 1	1		

Sophomore Year	**F**	**W**	**S**
General Botany, Bot 11-12	4	4	
Organic Chemistry, Ch 21 or 26-27	5		
Elements of Dairying, DH 1			4
Poultry Production, PH 1		3	
Taxonomy of Insects, Ent 43-44	3	3	
Writing for Technical Students, Engl 43			3
General Horticulture, Ho 1	3		
Oral Communications, Sp 22		3	
Human Physiology, Z 22			4
Military Mil 20-21-22 or 25-26-27	1	1	1
College Algebra, Math 10			5

Junior Year	**F**	**W**	**S**
Introductory Physics, Phy 7	5		
General Bacteriology, Bac 30		5	
Insecticides, Ent 141	3		
Introduction to Sociology, RS 15			5
Soils, Agron 25-26	3	3	
Genetics, Z 42	3		
Field Crops Entomology, Ent 40, or equivalent		3	
Farm and Ranch Management, Econ 38	3		
Livestock Nutrition, AH 25		4	
Insects Affecting Livestock, Ent 46			3
General Parasitology, Z 162			3
Plant Pathology in Human Affairs, Path 20		3	
Publicity Methods, J 66			3
Agricultural Engineering, AE 24			3
Seminar, Z 173-174-175	1	1	1

Senior Year	**F**	**W**	**S**
Entomology Elective (Senior level or above)	3	3	
National or State Government, PS 34 or 36			4
Social Science elective			3
Elements of Leadership, RS 32; or Rural Sociology, RS 31	3		
*Electives**	11	15	10
(7 or 8 should be in Entomology)	or	or	or
	12	16	11

*Students who expect to continue the study of Entomology on the graduate level should include among their electives, courses in French or German.

Students who expect to teach biology in secondary schools should include among their electives such courses in the Department of Education as are required for teaching certification.

The above curriculum is designed to fit the needs of the average student. Where preparation for a special field is desired, substitutions may be made with the approval of the head of the department.

Zoology (Z)

20-21 General Zoology 4(2,4) FW and WS
Fundamental principle of animal morphology, physiology, reproduction, embryonic development, genetics, classification, ecology, geographic distribution, paleontology and evolution; limited study of histories of various types of animals.

22 Human Physiology 4(2,4) FWS
Fundamental physiological processes of human body. Frogs and other animals used in physiological experiments. Physiological apparatus, charts, models and histological slides employed. P, 20-21 or Bot 11-12.

25 Birds 3(2,3) S
Identification of common song, game and non-game birds, life histories, habits, and special structural adaptations of various groups. Particular attention given to birds of eastern South Dakota.

26-27-28 Anatomy-Physiology for Nursing Students 4(2,4) FWS
Basic principles of human biology with emphasis on structural and functional features of special importance to the prospective nurse.

UPPER DIVISION

40-41 Anatomy and Physiology for Pharmacy Students 4(2,6) WS
Designed to fit needs of pharmacy and laboratory technology students. Anatomy and fundamental physiological processes in frogs and other animals. Models, charts, histological slides, films and physiological equipment employed.

42 Genetics 3(3,0) FWS
Fundamental principles of genetics. Student given laws involved in animal and plant breeding, thus preparing him for technical courses in agriculture. P, 20-21 or Bot 11-12, or equivalent.

43 Techniques in Wildlife Management 3(2,3) F
Methods of habitat evaluation, management, principles, food analysis, census methods, collection of data, cover-type mapping, literature, etc. P, 20-21.

44 Fishes 3(1,6) S
Identification of common species of game and forage fishes; economic and recreational importance of various groups. Special reference to fishes of North Central States. P, 20-21.

45 Game Birds 3(2,3) W
Identification of game birds, with special reference to those of North Central States; life histories of representatives of various groups; economic and recreational importance of several groups. P, 20-21.

46 Mammalogy 3(2,3) F
Identification of game, fur bearing and small mammals, and taxonomy of these groups, with special reference to those of North Central States; preparation of study skins and skeletons. P, 20-21.

47 Rodent Control 3(2,2) F
Principles of control of rodents, other mammals, and birds, when such animals are detrimental to man's interests. Prevention of contamination of raw materials, grain, etc., and cereal and forage products by rodents and birds. Laboratories will include demonstrations and practical applications of controls. P, 20-21.

50 Introduction to Medical Science 3(3,0) FWS
Offered specifically for Nursing Division students, at designated hospitals. Pathology and clinical diagnostic measures in relation to cause of disease, diagnosis, treatment and control of disease. P, 26-27-28.

140-141 Vertebrate Histology 4(2,6) FW
First term, comprehensive and detailed microscopic study of cells and fundamental tissues. Structures of organs and systems are stressed to integrate structure and function. Second term, introduction to technique of preparing tissue sections and slides for microscopic study. P, 20-21.

142 Mammalian Anatomy 5(2,6) FW
Detailed dissection of cat, as representative mammal. Comparisons with human body given special attention. All systems are dissected out and studied. P, 20-21.

143 Comparative Vertebrate Embryology 4(2,4) F
Development of germ cells and fertilization. Early cleavage, segmentation and organogenesis in Amphioxus, frog, chick and pig. P, 20-21.

144-145 Comparative Vertebrate Anatomy 4(2,4) WS
Theories of origin of Chordates and Vertebrates. Comparative analysis of vertebrate systems as they occur in various groups. Early Chordates, lamprey, shark, necturus and cat comprise laboratory specimens. P, 20-21.

146-147-148 Invertebrate Zoology 3(2,3) FWS
Study of phyla of invertebrate animals with emphasis upon taxonomy, morphology, ecology, and economic importance of representatives of each phylum. Some time devoted to field work in the course. P, 20-21.

149 Zoological Specimens 3(1,6) (Offered in 1959-60) F
Methods of collection and preparation of zoological specimens for laboratory use and demonstration purposes. Designed especially for prospective teachers, county agents, and research biologists. P, 20-21, and permission of instructor. Alternate years.

150 Organic Evolution 3(3,0) (Offered in 1960-61) W
Fundamentals of doctrine of organic evolution. Evidence in support of doctrine is discussed from comparative animal morphology, comparative physiology, comparative embryology, paleozoology, animal taxonomy, geographic distribution and genetics. P, 20-21. Alternate years.

151-152 Animal Ecology 3(2,3) WS
Analysis is made of such environmental forces as heat, light, sound, pressure, wind, substratum, etc. Impact of such forces on animals and responses elicited are examined. Composition of environment and relationship of animals to their surroundings are studied. P, 20-21.

160 Wildlife Management 3(2,3) F

Special reference to game birds and big game. Various land uses and conservation practices. Federal and State game laws. Field work planning for wildlife management, refuge development, maintenance and administration. P, 43.

162 General Parasitology 3(2,3) S

Survey is made of the better known parasites belonging to various phyla, their life histories, economic importance and treatment. Laboratory work consists of morphology and life history of representatives of each group, techniques of diagnosis of parasitic diseases, and methods of preparation of whole mounts of parasites for microscopic examination. P, 20-21.

164 Laboratory Experiments in Genetics 3(1,4) W

Breeding experiments with Drosophila, etc., to demonstrate heredity mechanism. Practical genetic applications. P, 42.

165 Human Genetics 3(3,0) (Offered in 1960-61) S

Subject matter of fundamental human genetics; to serve the specialist, such as physician, nurse, public health worker, social worker, etc., and general student. Basic principles will be used as they pertain to genetics of man. P, 42. Alternate years.

166 Helminthology 3(2,3) (Offered in 1960-61) F

Comprehensive study is made of worm parasites of vertebrate animals. Also, attention is given to soil and plant nematodes. Morphology, taxonomy, life cycles, ecological relationships, and control methods are discussed. Survey is made of helminthological literature. Techniques of collecting, preparation, and identification are studied. Alternate years.

168 Physiology of the Heart and Circulation 3(2,2) F

A detailed study of the mechanical and chemical aspects of heart action and the haemodynamies of the circulatory system. P, Z 22 or equivalent.

173-174-175 Seminar 1(1,0) (Maximum 6 credits) FWS

Reports and discussion on subjects of current zoological interest. P, permission of instructor.

180 Developmental Genetics 3(2,2) (Offered 1959-60) F

A study of the chemical nature of the gene and its chemical and physical action in development. P, Z 20, 21, 42, and Chem 21. Alternate years.

181 Physiology of Kidney and Water Balance 3(3,0) W

A consideration of the principles underlying kidney function and the pathological physiology of renal disturbances. P, Z 22 or equivalent.

182-183 Seminar in Genetics 1(1,0) FW

Reports and discussions of topics and problems of current interest in the general field of genetics, with emphasis on the genetics of animals. P, permission of instructor.

189 Physiology of Nerve and Muscle 3(3,0) S

A consideration of current concepts of nerve impulse transmission, muscle activity, and detailed analyses of neuro-humeral theories and the energetics of muscle contraction. P, Z 22, Biochemistry or Physical Chemistry or Pharmacology.

199 Special Problems in Zoology 2 to 5 credits FW or S

Qualified students may investigate special zoological problems under supervision of department staff.

GRADUATE DIVISION

201 Fisheries Science 3(2,3) (Upon sufficient demand) W

Taxonomy, life histories, distribution, environmental requirements, habits, interrelationships, economic and recreational importance of species. P, 44, 160.

202 Upland Game Management 3(2,3) (Upon sufficient demand) S

Taxonomy, life histories, distribution, environmental and ecological relationships, habits, economic importance and management practices for upland game birds and small game mammals. P, 45, 160.

203 Big Game Management 3(2,3) (Upon sufficient demand) S

Life histories, habits and management practices; economic relationships and recreational values of big game mammals. P, 46, 160.

204 Wetlands Management 3(2,3) (Upon sufficient demand) F

Taxonomy, life histories, habits and management of waterfowl and marsh animals; economic and recreational importance of various species; restoration and management of marsh lands; legislation as it pertains to management of such areas. P, 45, 46, 160.

205 Limnological Methods 3(1,4) (Upon sufficient demand) S

The theory and application of basic methods of evaluating the external influences directly and indirectly affecting the aquatic life of inland fresh water lakes and streams, with special emphasis on those pertaining to fish. Selected physical, chemical and biological methods, along with hydrographic mapping and morphometry are included. P, Z 201.

210 Animal Genetics 3(3,0) (Offered in 1959-60) S

Thorough knowledge of genetics is important to animal breeder. Principles of genetics applied to domestic and laboratory animals and factors underlying their inheritance; influence of genetic factors on certain pathological conditions. P, 42 and consent of instructor. Alternate years.

250 History of Zoology 2(2,0) (Upon sufficient demand)

Growth of science of zoology. Controversial theories of past and their influence on modern zoology. Biographies and works of great zoologists of past.

299 Thesis in Zoology 7 to 10 credits (As arranged on demand)

Curriculum in Technical Agriculture, Zoology Major

Leading to the degree of Bachelor of Science in Agriculture

(See also Zoology Curriculum in Division of Science and Applied Arts)

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
Crop Production, Agron 1-2	3	3	
Introductory Animal Husbandry, AH 3	4		
Elements of Dairying, DH 1		4	
General Horticulture, Ho 1			3
General Entomology, Ent 20			5
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1
Orientation, Orient 1	1		

Sophomore Year	**F**	**W**	**S**
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Principles of Economics, Econ 21-22	3	3	
Organic Chemistry, Ch 21		5	
Military, Mil 20-21-22 or 25-26-27	1	1	1
College Algebra, Math 10			5
General Physics, Phy 7	5		
Poultry Production, PH 1	3		
Oral Communication, Sp 22			3
Introduction to Sociology, RS 15			5
English elective	3		
General Bacteriology, Bac 30		5	

Junior Year	**F**	**W**	**S**
General Botany, Bot 11-12	4	4	
Invertebrate Zoology, Z 146-147-148	3	3	3
General Parasitology, Z 162			3
Soils, Agron 25-26	3	3	
Genetics, Z 42			3
Plant Pathology in Human Affairs, Path 20	3		
Publicity Methods, J66 or *English elective*			3
Farm and Ranch Management, Econ 38	3		
Agricultural Engineering, AE 24		3	
Livestock Nutrition, AH 25		4	
*Elective**	1–3	1–2	
Elective in Agriculture			5–6

Senior Year	**F**	**W**	**S**
Comparative Vertebrate Embryology, Z 143	4		
Comparative Vertebrate Anatomy, Z 144-145		4	4
Vertebrate Histology, Z 140-141	4	4	
Zoological Specimens, Z 149	3		
Seminar, Z 173-174-175	1	1	1
National Government, PS 34 or State Government, PS 36			4
Elective in Agriculture	5	3	3
*Elective**	1–2	5–6	4–5

(5 or 6 credits should be in Zoology)

*Students who expect to continue the study of Zoology on the graduate level should include among their electives, courses in French or German.

Students who expect to teach zoology in secondary schools should include among their electives such courses in the Department of Education as are required for teaching certification.

The above curriculum is designed to fit the needs of the average student. Where preparation for a special field is desired, substitutions may be made with the approval of the head of the department.

Curriculum in Technical Agriculture, Wildlife Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year	**F**	**W**	**S**
General Zoology, Z 20-21	4	4	
Birds, Z 25			3
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
College Algebra, Math 10			5
Crop Production, Agron 1-2	3	3	
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1
Orientation, Orient 1	1		

Sophomore Year	**F**	**W**	**S**
Techniques in Wildlife Management, Z 43	3		
General Botany, Bot 11-12	4	4	
Elementary Organic Chemistry, Ch 21	5		
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15			5
Introductory Animal Husbandry, AH 3		4	
Elements of Dairying, DH 1			4
Game Birds, Z 45		3	
Farm Forestry, Ho 41		3	
Oral Communication, Sp 22			3
English Elective			3
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	**F**	**W**	**S**
Fishes, Z 44		3	
Invertebrate Zoology, Z 146, 148	3		3
Entomology elective		3	or 5
Writing for Technical Students, Engl 43		3	
Poultry Production, PH 1, or Turkey Production, PH 58		3	
Agricultural Engineering, AE 24			3
Soils, Agron 25-26	3	3	
Mammalogy, Z 46		3	
Weed Control, Agron 30	3		
Soil Conservation, Agron 57			3
Agrostology, Bot 23, or Basic Taxonomy, Bot 27	4		4
General Horticulture, Ho 1	3		
General Parasitology, Z 162			3
Plant Pathology in Human Affairs, Path 20	3		
Elective in Social Science		3	
Elements of Leadership, RS 32	3		

Senior Year	**F**	**W**	**S**
Wildlife Management, Z 160	3		
Diseases of Poultry, Vet 101 or equivalent		3	

Genetics, Z 42	3		
General Bacteriology, Bac 30			5
Livestock Nutrition, AH 25		4	
National or State Government, PS 34 or 36			4
Principles of Accounting, Econ 34	4		

*Students who expect to continue the study of Zoology on the graduate level should include among their electives, courses in French or German.

Students who expect to teach zoology in secondary schools should include among their electives such courses in the Department of Education as are required for teaching certification.

The above curriculum is designed to fit the needs of the average student. Where preparation for a special field is desired, substitutions may be made with the approval of the head of the department.

Curriculum in Wildlife Techniques and Conservation

This curriculum is designed to give the student the opportunity to specialize in wildlife management and directly related subjects. Sufficient elective credits are included in the outline to enable the student to obtain a broad training in the basic agricultural subjects or to take a second major in some other phase of agriculture.

The immediate aim of the course is to prepare the student for civil service positions under the U. S. Fish and Wildlife Service and for positions with State Conservation Commissions and Fish and Game Departments. Other possible employment outlets include the Soil Conservation Service, Extension Service in 4-H Club Wildlife work and positions with various wildlife organizations, both public and private.

There is a steadily increasing demand for the introduction of nature study and natural resource conservation subjects into the curriculum of the public schools.

For the student who wishes to prepare for high school teaching there will be found sufficient elective subjects to enable him to meet the educational requirements except in the case of Smith-Hughes work.

In many states there is an increasing demand upon county agents for a knowledge of wildlife management principles. For the prospective county agent or Smith-Hughes teacher the subjects in wildlife may be taken as electives in zoology.

For the benefit of students who wish to obtain a broad agricultural background with specialization in wildlife work the course in agriculture with a wildlife major is recommended. (See suggested curriculum in connection with description of courses offered by Entomology-Zoology.)

Curriculum in Wildlife Techniques and Conservation, Professional Course

Leading to the Bachelor of Science degree in Wildlife Techniques and Conservation

Freshman Year	**F**	**W**	**S**
General Zoology, Z 20-21	4	4	
Birds, Z 25			3
English Composition, Engl 1-2-3- or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
Crop Production, Agron 1-2	3	3	
†Typewriting, Sec.S 11 or 12		2	
*College Algebra, Math 10			5
Military Science, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1
Orientation, 1	1		

Sophomore Year	**F**	**W**	**S**
Techniques in Wildlife Management, Z 43	3		
Mammalogy, Z 46	3		
General Entomology, Ent 20			5
General Botany, Bot 11-12	4	4	
*Elementary Organic Chemistry, Ch 21			5
*Principles of Economics, Econ 21		3	
*Introduction to Sociology, RS 15		5	
*Adv. Writing for Tech. Students, Engl 43		3	
Introductory Physics, Phy 7	5		
Dendrology, Ho 46, or equivalent			3
Oral Communications, Sp 22			3
Military Sci., Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	**F**	**W**	**S**
Fishes, Z 44			3
Game Birds, Z 45		3	
Invertebrate Zoology, Z 146-148	3		
*Genetics, Z 42		3	
General Parasitology, Z 162			3
Rodent Control, Z 47	2		
General Bacteriology, Bac 30	5		
*†Accounting, Econ 34	4		
Farm Forestry, Ho 41		3	
Soils, Agron 25-26	3	3	
Soil Conservation, Agron 57			3
English or equivalent		3	
Turkey Production, PH 58			3
Elective			

Senior Year	**F**	**W**	**S**
Taxonomy of Insects, Ent 43-44	3	3	
Wildlife Management, Z 160	3		
Mammalian Anatomy, Z 142, or		5	
Comp. Vert. Embryology, Z 143 or	4		
Comp. Vert. Anatomy, Z 144-145		4	4
Elective			

*Also offered in other quarters.

†Students may take choice of following options—one of the two is required: Option 1—Trigonometry and Plane Surveying. Option 2—Typewriting and Accounting 34.

Horticulture (Ho)

Professor McCrory; Associate Professors Collins, Macksam, Peterson, Rawson; Assistant Professor Nickeson

The Horticulture department offers training in fruit and vegetable production, floriculture, landscape gardening and farm forestry. The departmental gardens, and an extensive research program in fruit breeding, hardy ornamentals, farm forestry and vegetable improvement offer opportunities for field study. Greenhouse facilities are available for students to gain practical experience. Students who major in horticulture gain additional experience if they serve as student assistants during the summer months. Guidance is offered to pre-forestry students in developing a two-year program prior to transferring to an accredited forestry school.

Students who select horticulture as a major have two options as to their field of study. These are the fruit-vegetable-flower option and the landscape design option.

LOWER DIVISION

1 General Horticulture 3(2,2) FW
General principles of fruit-vegetable-flower growing; planting and care of home grounds.

14 Introduction to Landscape Design 4(1,6) W
Historical development, present trends and future possibilities of landscape design are studied. Drawing techniques and small property designs are included in laboratory portion of class.

21 General Forestry 3(3,0) W
An introduction to forestry with main emphasis on American forestry. A brief description of forestry as a profession.

22 Floral Design 2(0,4) FWS
Principles and methods of cut flower arrangement and design; use of flowers in the home; exhibiting and judging flowers and plants. Laboratory work receives much emphasis.

35 Turf Management 3(2,2) S
Maintenance and culture of lawns, parks, golf courses, athletic fields and special-purpose turfs.

37 Home Building Site Planning 2(1,2) FSu
Problems confronting home builders with special emphasis on landscape potential. Factors of site selection such as topography, soil, exposure and architectural association are featured.

39 Town and City Planning 2(1,2) S
Integration of residential areas, recreational facilities and other physical elements of midwestern towns and cities are studied. Field trips will be made.

UPPER DIVISION

40 Woody Plant Materials 3(1,4) F
Identification, classification, and characteristics of hardy evergreen and deciduous trees, shrubs and woody vines. Ornamental plants are given major emphasis.

41 Farm Forestry 3(3,0) W
Brief history and survey of field of forestry; tree and its environment; forestry in Great Plains.

42 Vegetable Growing 3(2,2) S
Methods employed by home gardeners and commercial growers in vegetable production. P, 1. (Offered 1960-61)

43 Small Fruit Culture 2(2,0) (Offered in 1960-61) F
Principles and practices for successful culture of small fruits. Much consideration given to growing conditions found in South Dakota. P, 1. Alternate years.

45 Plant Propagation 2(1,2) W
Commercial methods and theories of propagating plants by seeding, cutting, layering and grafting.

46 Dendrology 4(2,4) S
Identification, classification and characteristics of important forest trees of United States.

48 Herbaceous Plant Materials 2(1,2) S
Culture of various bulbs, annuals and perennials used in landscaping and home gardening.

49 Landscape Architecture and Construction 2(1,2) W
Design and construction of walks, terraces, fences, masonry walls, pools and landscape accessories. P, 14.

51 Planting Public Grounds 3(0,6) F
Landscape design and planting of areas for public use.

65 Arrangement of Plants in Gardens and Grounds 2(1,2) F
Architectural designs are emphasized. Color theory, plant massing, textures and combinations. P, 14.

85 Advanced Landscape Design 4(1,6) W
Special-purpose planting. Modern trends and techniques are featured. P, 14.

142 Environment and Vegetable Crops 3(3,0) W
Influence of environmental factors on economic plants, with special emphasis on vegetable crops. P, consent of instructor. (Offered 1960-61)

144 Forestry Planting 2(1,2) S
Collecting and storing tree seeds; seed bed preparation; nursery practice and field plantings.

149-150 Horticulture Seminar 1(1,0) FW
Scientific work pertaining to horticulture. Required of horticulture majors; each student limited to two credits.

160-161 Orcharding 3(3,0) (Offered in 1959-60) WS
Principles of fruit production, soils, moisture, fertility, temperature, nursery stock, fruit formation, fruit setting and pruning factors. P, 1. Alternate years.

162 Systematic Pomology 3(1,6) (Offered in 1959-60) F
Origin, history and relationship of economic fruits. Practice in description, identification and classification of fruits, and in exhibiting and judging fruits. P, 1.

163 Literature of Horticulture 3(3,0) (Offered in 1959-60) F
Literature and development of horticulture. Alternate years.

164 Greenhouse Management 3(2,2) (Offered in 1960-61) W
Construction, heating and management of greenhouses. Laboratory work gives experience in forcing practices and field trips are made to commercial greenhouses. Alternate years. P, 1.

165 Systematic Olericulture 3(2,2) (Offered in 1960-61) F
Origin, history and relationship of vegetable crops. Development of varieties and hybrids, with principles involved in their development. P, 1. Alternate years.

166 Horticulture Crop Breeding 3(2,2) (Offered in 1960-61) S
Application of principles of genetics and cytology to improvement of horticultural crops. P, Bot 11-12; Z 42. Alternate years.

167 Systematic Floriculture 3(2,2) (Offered in 1959-60) W
Description, identification, nomenclature, and classification of ornamental plants and their uses in garden, greenhouse and home. P, consent of instructor.

168-169-170 Horticulture Problems 2(2,0) FWS
Special investigation for undergraduate students. Thesis required. Each student limited to six credits.

173 Arboriculture 3(1,4) (Offered in 1960-61) SSu
Shade and ornamental tree planting and care combined with dendrician practices. P, Bot 11-12; Ent 20. Alternate years.

175 Golf Course Turf Management 3(1,4) S
Climate, soil and management in development and maintenance of tees, greens, and fairways. P, Bot 11-12; Path 45; Agron 25-26.

GRADUATE DIVISION

200-201-202 Graduate Conference 1(1,0) FWS
Required of all graduate students majoring in Horticulture. This includes organization of data relative to research problems in Horticulture.

203-204-205 Research 2(2,0) FWS
Required of all graduate students, majoring in Horticulture. This includes gathering of data relative to research problems in Horticulture.

206 Experimental Horticulture 3(3,0) W
Principles, methods, equipment, organization and application of horticultural research. P, graduate standing.

299 Thesis in Horticulture 7-10 as arranged FWS

Curriculum in Technical Agriculture, Horticulture Major (Fruit-Vegetable-Flower option)

Leading to the degree of Bachelor of Science in Agriculture

Students who select this option should have a knowledge of related subjects such as botany, chemistry, entomology, and soils.

This training will prepare the student for work in nurseries, fruit-vegetable-flower production, processing and seed distribution.

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
Livestock Management, AH 24			4
Crop Production, Agron 1	3		
General Horticulture, Ho 1		3	
Poultry Production, PH 1		3	
Elements of Dairying, DH 1			4
College Algebra, Math 10	5	or 5	
Orientation, Orient 1	1		
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20	3		
Small Fruit Culture, Ho 43	2		
General Botany, Bot 11-12	4	4	
Soils, Agron 25-26	3	3	
General Bacteriology, Bac 30		4	
Introduction to Sociology, R 15		5	
Principles of Economics, Econ 21			3
Oral Communications, Sp 22			3
General Entomology, Ent 20			5
Soil Management and Fertility, Agron 58			3
Organic Chemistry, Ch 21	5		
Herbaceous Plant Materials, Ho 48			2
Military, Mil 20-21-22 or 25-26-27	1	1	1
Junior Year	**F**	**W**	**S**
*Writing for Technical Students, Engl 43			3
Greenhouse Management, Ho 164		3	
Vegetable Growing, Ho 42			3
Orchard Entomology, Ent 41 or Garden Entomology, Ent 42	3		
Environment and Vegetable Crops, Ho 142		3	
Plant Physiology, Bot 41	5		
Plant Propagation, Ho 45		2	
Farm Forestry, Ho 41		3	
Systematic Pomology, Ho 162; or Systematic Olericulture, Ho 165; or Systematic Floriculture, Ho 167	3		
Introduction to Landscape Design, Ho 14		4	
Genetics, Z 42	3		
Electives			
Senior Year	**F**	**W**	**S**
Floral Design, Ho 22	2		
Horticulture Seminar, Ho 149-150	1	1	
Horticulture Crop Breeding, Ho 166			3
Agricultural Bio-Chemistry, Ch 167	5		
Orcharding, Ho 160-161		3	3
Diseases of Fruits, Vegetables and Trees, Path 153			3
Principles of Plant Pathology, Path 45	5		
Horticulture Problems, Ho 168-169-170	2	2	2
Electives			

*Publicity Methods, J 66, may be substituted.

Curriculum in Technical Agriculture, Horticulture Major (Landscape Design option)

Leading to the degree of Bachelor of Science in Agriculture

Students whose major interests lie in the ornamental phase of horticulture should follow the curriculum of the landscape design option. The curriculum is developed to prepare the student for federal, state, or municipal service, and a variety of commercial fields and self employment.

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Basic Photography, J 30	2	or	2
Inorganic Chemistry, Ch 1-2-3	4	4	4
Crop Production, Agron 1	3		
College Algebra, Math 10 or 14			5
Orientation, Orient 1	1		
Design Art 1-2, 25 or 41	2	2	2
Livestock Management, AH 24	4		
General Horticulture, Ho 1		3	
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1

Sophomore Year	F	W	S
Introduction to Literature, Engl 20	3		
General Botany, Bot 11-12	4	4	
Plane Surveying, CE 3			3
Soils, Agron 25-26	3	3	
Organic Chemistry, Ch 21	5		
Plane Trigonometry, Math 11 or 15		5	
Principles of Economics, Econ 21			3
Oral Communications, Sp 22			3
General Entomology, Ent 20			5
Drawing and Composition, Art 4	2		
Architectural Drafting, GE 31			3
Engineering Drawing, GE 3	2		
Engineering Drawing, GE 4		2	
Herbaceous Plant Materials, Ho 48			2
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	F	W	S
Introduction to Landscape Design, Ho 14		4	
Introductory Physics, Phy 7	5		
Floral Design, Ho 22		2	
Urban Sociology, RS 44			3
Woody Plant Materials, Ho 40	3		
Introduction to Sociology, RS 15	5		
*Writing for Technical Students, Engl 43			3
Soil and Water Conservation Engineering, AE 47			3
Elective			

Senior Year	F	W	S
Plant Physiology, Bot 141	5		
Horticulture Seminar, Ho 149 or 150	1	or 1	
Planning of Public Grounds, Ho 51	3		
Advanced Landscape Design, Ho 85		4	
Plant Propagation, Ho 45		2	
Landscape Construction, Ho 49		2	
Horticulture Problems, Ho 168 or 169 or 170	2	or 2	or 2
Town and City Planning, Ho 39			2
Plant Pathology in Human Affairs, Path 20	3		
Elements of Sanitation, CE 53	3		
Elective			

*Publicity Methods, J 66, may be substituted.

Curriculum in Technical Agriculture, Preforestry

The two-year preforestry curriculum in forest management is offered for students who expect to enter a school of forestry to complete the Bachelor of Science degree. Advantage of in-state tuition fees is thus accorded to resident students for two of the four years required for a degree. For students who are interested in other phases of forestry work such as wood technology, forest recreation, lumber merchandising, etc., it may be necessary to revise the designated two year curriculum to meet the requirements of the selected degree-program forestry school.

With the ever increasing emphasis placed on forestry by private industry such as lumber, pulp and paper, veneer, wood preservation and others, a broad and varied field of employment has been opened to graduate foresters. Federal, state, city and county agencies offer employment opportunities in the fields of administration, education, research and technical services.

Freshman Year*	F	W	S
General Botany, Bot. 11-12	4	4	
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
Oral Communications, Sp 10	2		
Engineering Drawing, GE 3	2		
College Algebra, Math 10 or 14		5	
Trigonometry, Math 11 or 15			5
Principles of Economics, Econ 21			3
Physical Education, PE 1-2-3	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Orientation, Orient 1	1		

Sophomore Year	F	W	S
General Zoology, Z 20-21	4	4	
Elementary Physics, Phy 7 or 10	5(4)		
Basic Taxonomy, Bot. 27 or			

*The student should consult the catalog of the forestry school where he intends to complete the degree program.

Plant Physiology, Bot 141	4(5)		
Soils, Agron 25-26	3	3	
General Forestry, Ho 21		3	
Elementary Organic Chemistry, Ch 21		5	
Oral Communications, Sp 20		2	
Principles of Economics, Econ 22			3
Dendrology, Ho 46			4
National Government, PS 34			4
Plane Surveying, CE 3			3
Writing for Tech. Students, Engl 43 or Geology, Agron 171			3
Military, Mil 20-21-22 or 25-26-27	1	1	1

Journalism (J)

Professor Phillips; Associate Professor Blinn; Assistant Professor Hvistendahl; Instructor Stensaas

Curriculum in Agricultural Journalism

Leading to the degree of Bachelor of Science in Agriculture

(Also see Journalism Curricula in Divisions of Home Economics and Science and Applied Arts)

The curriculum in Agricultural Journalism is designed to meet the needs of students who wish training in the field of journalism, with an agricultural background. This curriculum prepares students to become associated with agricultural magazines, farm papers, rural newspapers, college extension services, experiment stations, and with firms employing writers and journalists trained in agriculture.

For Journalism course descriptions see Journalism in the division of Science and Applied Arts.

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
Typography, J 20	3		
Newswriting, J 24-25	2	2	
Newswriting and Reporting Lab, J 37-38	1	1	
Elementary Photography, J 28	2		
Press Photography, J 29		2	
Oral Communications, Sp 22			3
General Botany, Bot 11-12; or General Zoology, Z 20-21	4	4	
Soils, Agron 25-26	3	3	
Principles of Economics, Econ 21-22		3	3
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

Junior Year	**F**	**W**	**S**
Genetics, Z 42		3	
News Editing and Makeup, J 40-41		2	2
Editing Lab, J 61-62		1	1
Magazine Editing, J 45			3
Advertising, J 50		3	
National Government, PS 34; or State Government, PS 36	4		
Introduction to Sociology, RS 15	5		
General Entomology, Ent 20			5
Agricultural Engineering, elective		3	
Elementary Organic Chemistry, Ch 21	5		
Elective in Social Science		3	
Elective in Agriculture			6

Senior Year	**F**	**W**	**S**
Law of the Press, J 148		3	
Advanced Reporting, J 74		3	
Farm and Ranch Management, Econ 38	3		
Livestock Nutrition, AH 25		4	
Plant Pathology in Human Affairs, Path 20	3		
General Bacteriology, Bac 30			5
Rural Sociology, RS 31			3
Electives in Journalism	3	3	3
Electives in Agriculture	3	3	3

A total of 37 hours in Journalism is required for this major.

Plant Pathology (Path)

Professors Nagel, Semeniuk; Associate Professors Michaelson, Pulsifer; Assistant Professors Buchenau, Pederson, Van Nostran

Plant Pathology is the study of plant diseases. It is directed toward the recognition, cause and control of diseases in much the same way that Medical and Veterinay Sciences, respectively, deal with human and animal diseases. Each year approximately three billion dollars worth of agricultural crops are lost in the United States because of plant diseases, and in South Dakota this annual loss frequently amounts to more than fifty million dollars. Therefore, Plant Pathology is an important science in agriculture and there is need for skilled people in this field, especially for persons with preparation beyond the four year college level.

The curriculum in Plant Pathology includes a broad range of basic science and agricultural courses selected to aid the students who wish to prepare themselves in this field and to apply Plant Pathology to Agricultural problems. The choice of electives, however, will enable the student upon graduation either (1) to seek employment as a federal or state plant quarantine inspector, fungicide salesman, extension worker, county agent, salesman for biological and chemical industries, technical assistants with a federal, state or commercial organization, or (2) to proceed with graduate study toward professional standing. This department offers

major work for the M.S. and Ph.D. degrees in Plant Pathology and Mycology, and minor work to students taking major work in other departments. The student is advised to consult with members of the Plant Pathology staff in planning his program.

The advanced degrees usually qualify individuals to accept positions as teachers, extension and research workers in Plant Pathology in colleges and universities, for research positions in the United States Department of Agriculture, industrial concerns, and biological and chemical industries.

Curriculum in Technical Agriculture, Plant Pathology Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
General Botany, 11-12-13	4	4	4
Elementary Organic Chemistry, Ch 21	5		
Oral Communications, Sp 10			2
General Bacteriology, Bac 30		5	
Principles of Economics, Econ 21			3
Writing for Technical Students, Engl 43		3	
General Psychology, Psy 25			3
Plant Pathology in Human Affairs, Path 20	3		
Military, Mil 20-21-22 or 25-26-27	1	1	1
*Electives**			

Junior Year	**F**	**W**	**S**
Principles of Plant Pathology, Path 45	5		
Principles of Mycology, Path 170		4	
Introduction to Sociology, RS 15	5	or	5
Soils, Agron 25-26	3	3	
General Zoology, Z 20-21	4	4	
General Entomology, Ent 20			5
Oral Communication, Sp 20		2	
Plant Pathology Seminar, Path 195		1	
*Electives**			

Senior Year	**F**	**W**	**S**
General Plant Physiology, Bot 41	5		
Diseases of Field Crops, Path 152		4	
Diseases of Vegetables, Fruits and Trees, Path 153			4
Genetics, Z 42	3		
National Government, PS 34			4
Introduction to Literature, Engl 20		3	
Plant Pathology Seminar, Path 195		1	
*Electives**			

*Courses may be elected from one or more areas in the Divisions of Agriculture and of Science and Applied Arts in consultation with the head of the Plant Pathology Department. Students wishing to qualify for County Agent work should plan to elect appropriate courses.

LOWER DIVISION

20 Plant Pathology in Human Affairs 3(3,0) FWS
Effect of plant diseases on crop production and human welfare; historical significance in man's progress and existence. General aspects of symptoms, cause and spread of plant disease organisms.

UPPER DIVISION

45 Principles of Plant Pathology 5(3,4) F
Principles underlying nature and control of plant diseases. Laboratory study and recognition of diseases. P, Bot 11-12, Bot 13 recommended.

146 Field Plant Pathology 3(1,6) Su
Field trips, recognition and identification of plant diseases. P, 45, or consent of instructor.

152 Diseases of Field Crops 4(3,2) W
Symptomology, causal agents and control of diseases of small grain, grasses, legumes, corn, flax, etc. P, 45.

153 Diseases of Vegetables, Fruits and Trees 4(3,2) S (Offered in 1962)
Symptomology, causal agents and control of diseases of vegetables, fruits, and trees. P, 45. Alternate years.

158 Seed-borne Diseases 4(3,2) W (Offered in 1962)
Geographical and seasonal occurence of various plant pathogens on crop seeds; their importance in lowering germination and causing diseases and their spread; application of chemicals to seed for control of specific pathogens; part that pathogens and other microorganisms assume in deterioration of stored grains. P, 152 or 153. Alternate years.

160 Nematode Diseases 5(3,6) W (Offered 1962)
Nematode diseases of plants with emphasis on collection, isolation, preservation, symptomology, life histories, identification and control of plant parasitic nematodes. P, 45; Z 21. (Alternate years.)

170 Principles of Mycology 4(2,6) F
Structures, life histories and classification of the fungi. P, Bot 13, Bot 161 recommended. Alternate years.

178 Physiology of the Fungi 3(3,0) (Offered in 1962) F
Nutritional and other essential requirements of fungi, including plant pathogens, for growth and reproduction; their intermediate metabolism and elaboration of chemical by-products. P, 170; Bac 30, (on demand).

182 Methods in Plant Pathology 4(2,4) (Offered in 1962) W
Laboratory methods for isolating, culturing, storing, studying and increasing plant pathogens; greenhouse and laboratory methods of growing plants and producing diseases; field methods for producing disease epiphytotics; methods for evaluating disease reactions and for analyzing data. P, 45. Alternate years.

195 Plant Pathology Seminar 1-2(1-2,0) W
Discussion of current research topics in plant pathology.

197-198-199 Special Problems 1-5
Advanced work or special problems in plant pathology. Credit arranged but limited to a total of 6 credits for three terms. Open to seniors and graduate students by permission.

GRADUATE DIVISION

204 Bacterial Diseases 3(3,0) (Offered in 1961) W
Detailed study of etiology and epiphytology of representative bacterial diseases emphasizing biology and control of pathogen. Preparation and presentation of reports on pertinent topics. P, 152 or 153. Alternate years.

206 Virus Diseases 3(3,0) (Offered in 1962) S
Detailed study of virus diseases in plants with emphasis on the nature and physical properties of virus, development of the virus within host, symptom expression on plant, host range and variability between and within virus groups. Preparation and presentation of reports on pertinent topics. P, 152 or 153. Alternate years.

210 Research in Plant Pathology 2-5
Graduate students may elect to undertake research in plant pathology in consultation with adviser or instructor. Open to graduate students working toward Master's degree in Plant Pathology.

221-222-223 Mycology 5(2,6) (Offered in 1962) FWS
Advanced taxonomy of the fungi. P, 170. Alternate years.

240 Principles of Phytopathogenesis 3(3,0)) (Offered in 1961) S
Fundamentals of infection and disease development, disease susceptibility or resistance of host, and how disease affects host development. Preparation and presentation of reports on pertinent topics. P, 152 or 153. Alternate years.

260 Variability in Plant Pathogens 3(3,0) (Offered in 1961) S
Variability in plant pathogens and related microorganisms as this contributes to our understanding of the incidence of the development of disease resistant strains of crop plants. Preparation and presentation of reports on pertinent topics. P, 170; Z 42. Alternate years.

299 Thesis in Plant Pathology 7-10

Poultry Husbandry (PH)

Professors Kohlmeyer, Carlson, Morgan; Assistant Professor Adams; Assistant Poultryman Wilcox

Courses offered by the poultry department deal with the application of scientific principles to problems encountered in the production and marketing of poultry and related products. A survey course is offered for those needing a general knowledge of the industry. Advanced courses are offered for students whose educational goals call for a more detailed treatment of the various branches of study.

The development of large-scale poultry operations has been accompanied by a higher degree of specialization. This has resulted in the need for people with specialized skill and training. The demand for college-prepared poultrymen has exceeded the supply for a number of years. There seems to be little chance that the need for trained men can be completely met during the next several years.

Many students who complete their work in Poultry Husbandry find opportunities in hatchery operation, feed manufacturing, or poultry and egg marketing. Others operate turkey farms or broiler plants. The manufacture and distribution of specialized machinery, equipment, and supplies calls for men with this background. College and Extension teaching and research work provide opportunities for a number of technically prepared persons. Regulatory and inspection agencies employ poultry graduates. Some of these activities require graduate work beyond the regular four-year course of study.

The work offered by the department is sufficiently flexible to permit emphasis upon any one of several different areas of study. Thus a student may arrange his plan of study so as to include more courses dealing with nutrition and biochemistry, genetics and physiology, or marketing and economics.

While a farm background is not essential for building a successful career in the poultry industry, numerous employers express a preference for graduates who have had farming experience.

LOWER DIVISION

1 Poultry Production 3(2,2) FWS
Development and organization of poultry industry; its economic importance, breeds and varieties of domestic fowls, poultry buildings and equipment, feeds and feeding, management of chicks, layers, and breeders.

UPPER DIVISION

41 Judging Poultry 3(1,4) F
Theory and practice of selecting poultry for egg production. Judging common breeds for exhibition qualities. Both live and dressed poultry will be judged for market qualities. Practice in egg grading. P, 1.

58 Turkey Production 3(3,0) S
Turkey industry, production, and marketing. Breeding, feeding, and management of turkeys. Incubation and brooding; disease prevention and control.

61 Poultry Research Problems 2-4 FWS
Undergraduate research in breeding, nutrition, management, or marketing. Problem adapted to interests of student and to materials and equipment available. Required of senior students majoring in Poultry Husbandry.

147 Poultry Practicums 3(2,2) (Upon sufficient demand) S or Su
Designed for potential County Agents or Vocational Agricultural teachers. Consideration of judging principles and survey of existing poultry management practices and their effects. P, 1.

155 Incubation and Brooding 4(3,3) S
Incubators and brooders and their operation. Embryo development, brooding and rearing problems. Plant management problems and hatchery operation. P, 1.

156 Poultry Breeding 4(4,0) W
Application of genetics to poultry breeding. Progeny testing, family selection, trapnest and breeding records. Experimental findings and hatchery industry problems. P, 1; Z 42.

157 Egg and Poultry Marketing 3(2,3) F
Egg grades and grading. Market classes of chickens and turkeys. Operations involved in procurement, processing, packing, and distribution. Storage operations and problems. Interdependence of production and marketing.

165-166 Poultry Industry Problems 1(1,0) FW
Survey of current industry problems dealing with production, processing, and distribution. Problems of breeder, hatchery operator, and commercial poultry producer. P, 12 credits in poultry courses.

168 Principles of Poultry Nutrition 3(3,0) W
Anatomy and physiology of digestive system of fowl. Nutrients and their metabolism for poultry. Deficiency diseases. P, 1; Ch 21.

169 Poultry Feeding 3(3,0) S
Feedstuffs. Nutritive requirements and formulation of diets. Effect of feeds and feeding systems upon quantity, quality, and cost of production. P, 168.

171 Poultry Physiology 3(3,0) F
Physiology of avian reproduction, hormones, nervous system, circulatory systems, excretion, and metabolic rate. P, 1; Vet 20; consent of instructor.

GRADUATE DIVISION

201 Graduate Research Problems 1-5 FWS
Graduate research or special problems in breeding, nutrition, management, or marketing. Suitable problems may furnish data to be used in Master's Thesis. P, graduate classification.

203 Graduate Conference 1-5 FWS
Literature reviews. Research methods. Application of research findings in industry problems. Graduate students are required to have some credit in this course. P, graduate classification.

256 Poultry Genetics 3(3,0) (Upon sufficient demand) S
Application of population studies to problems in poultry breeding with an inclusion of physiological studies as they relate to development and production. P, 156, 171.

264-265 Nutrition Seminar 1(1,0) FWS
Reports and discussion of current research in nutrition.

268 Advanced Poultry Nutrition 3(3,0) (Upon sufficient demand) F
Consideration of interrelationships of nutrients in metabolism and how this affects their requirements. Metabolic significance of required nutrients for poultry. P, 169, 171; Ch 244.

299 Thesis in Poultry Husbandry 7-10 as arranged

Curriculum in Technical Agriculture, Poultry Husbandry Major

Leading to the degree of Bachelor of Science in Agriculture

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20; or Writing for Technical Students, Engl 43	3		
Publicity Methods, J 66			3
Elementary Organic Chemistry, Ch 21	5		
Agricultural Engineering, AE 24			3
General Bacteriology, Bac 30		5	
Veterinary Anatomy and Physiology, Vet 20		5	
Oral Communications, Sp 22			3
Introduction to Sociology, RS 15			5
General Zoology, Z 20-21	4	4	
Turkey Production, PH 58			3
Principles of Economics, Econ 21-22	3	3	
Military, Mil 20-21-22 or 25-26-27	1	1	1
*Elective**			

Junior Year	**F**	**W**	**S**
Genetics, Z 42	3		
Poultry Judging, PH 41	3		
Poultry Breeding, PH 156		4	
Insects Affecting Livestock, Ent 46			3
Incubation and Brooding, PH 155			4
Introduction to Marketing, Econ 37		3	
Livestock Disease Control, Vet 30			4

Farm Buildings and Plans, AE 25		3	
Soils, Agron 25-26	3	3	
Rural Sociology, RS 31	3		
Plant Pathology in Human Affairs, Path 20			3
*Elective**			
Senior Year	**F**	**W**	**S**
Egg and Poultry Marketing, PH 157	3		
Poultry Industry Problems, PH 165-166	1	1	
Poultry Research Problems, PH 61	2	2	
Farm and Ranch Management, Econ 38	3		
Poultry Diseases, Vet 141		3	
Poultry Nutrition, PH 168		3	
Poultry Feeding, PH 169			3
National Government, PS 34; or State Government, PS 36			4
Elective			

*Careful selection of elective courses should be made by the student, subject to the approval of his adviser.

Rural Sociology (RS)

Professors Sauer and Chittick; Associate Professors Riley and Malan; Assistant Professors Nardini, Photiadis, Schusky

The courses offered by the Rural Sociology Department have been organized with three definite objects in mind: (1) to offer a sequence of courses for those in the Agricultural, Science and Applied Arts or other divisions who may wish to earn an undergraduate major or minor in sociology; (2) to meet the need for basic service courses that will be of interest and practical help to students in any division of the college; (3) to offer sufficient courses in sociology of an advanced nature to fulfill the requirements for a major or minor toward a Master's degree.

Completion of the sociology curriculum provides basic training for rural and urban leaders. A wide variety of fields such as Extension work, Social Welfare and Social Security, Care and Treatment of Delinquents, Teaching and Research, Industry, and Government Service are open to the sociology majors. A sociology major is available in the Division of Science and Applied Arts for students wishing to omit Technical Agriculture. An organized minor consisting of 26 credits in sociology is available to nursing students in the Division of Nursing.

LOWER DIVISION

15 Introduction to Sociology 5(5,0) FWS

Prerequisite to all other courses numbered above 15. Comprehensive study of society, with analysis of group life and other forces shaping human behavior.

31 Rural Sociology 3(3,0) FWS

Sociological approach to study of rural society. Rural persons in relation to family, neighborhood, community, church, school, and other groups, institutions or agencies. P, 15.

32 Elements of Leadership 3(3,0) FS

Analysis of leadership including qualities of leader, art of influencing people, training, selection, and responsibilities of leaders in democratic society. P, 15.

33 Social Work Fields 3(3,0) W

Pre-professional course. Special emphasis directed to standard case work procedures, public and private, to group work, and to community resources available for use in solving social problems. Rural emphasis. P, 15.

34 Social Legislation 3(3,0) F

Principles underlying past and present legislation concerning marriage and divorce, birth control, sterilization, child welfare including adoption, illegitimacy, juvenile court and various classes of dependents provided for in Social Security Act. P, 15.

35 Social Deviation 3(3,0) FS

Present day problems in American society such as crime, divorce, alcoholism, drug addiction, old age, and physical and mental health. P, 15.

UPPER DIVISION

44 Urban Sociology 3(3,0) F

Sources and characteristics of urban populations, geographical setting, structural characteristics, institutions, folkways, and social problems of the modern city and urban fringe areas. P, 15.

46 Marriage 3(3,0) FWS

Courtship and marriage period given special emphasis. Mate selection problems, adjustments in marriage, reproduction, child-parent relations, divorce, and the later years of marriage.

47 Race and Nationality Problems 3(3,0) W

America's minority groups: inter-racial and intercultural conflicts, accommodation and assimilation. Sources of prejudice, current trends, and proposed solutions. P, 15.

50 General Anthropology 3(3,0) W

Prehistoric and primitive peoples and cultures; primitive customs and institutions compared with those of modern man. P, 15.

60 Industrial Sociology 3(3,0) S

Formal and informal groupings within modern industrial plant; factory social tensions and conflict; strikes; social effects of labor organizations; relations between industry and community. P, 15.

70 Collective Behavior 3(3,0) W (Alternate years)

Study of human behavior in group situations; crowds and publics; social movements; congenial situations, gossip, rumor, fads, fashions, and public opinion. P, 15.

141 Extension Organization and Methods 3(3,0) F
Extension work in Agriculture and Home Economics. Legal basis, origin, objectives, organization, relationships to other educational and governmental agencies. Organization and methods at county level, including field trips to county offices. P, 15, 31, or consent of instructor.

143 Social Disorganization 3(3,0) W
Analysis of conditions and factors which result in personal and institutional disorganization, including mental disorders, suicide, alcoholism, delinquency, and disruption of family and community life. P, 15.

144 Social Problems of the Aged 2(2,0) W
The role of old people in various societies with major emphasis on the adjustment problems among the aged in contemporary American society. P, 15, and consent of instructor.

145 Population Problems 3(3,0) F
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, 15.

150 Cultural Anthropology 3(3,0) W
Major theoretical viewpoints on meaning and significance of culture; diversity and interrelation of cultures; processes of cultural change. P, 15, and 50.

LS 159 Research Tools for the Humanities 2-3(2-3,0)
(See Department of Library Study.)

161 Sociology of Extension Work 2(2,0) W
Extension program planning. Analysis of sociological principles which may be applied directly in the execution of Extension programs. P, 15, 31 and consent of instructor.

162 Criminology 3(3,0) FS
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, 15.

165 The Small Town 3(3,0) W
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, 15.

166 Farmer Movements 3(3,0) S
Sociological aspects of various farmer movements and agricultural organizations in the U. S. such as the Grange, Farmers' Alliance, American Society of Equity, Farmers' Union, Non-Partisan League, Farm Bureau, and Farmers' Holiday. Emphasis is given to possible roles students may play through these groups in South Dakota. Designed to meet needs of students in agriculture and others planning to work with rural people. P, 15, 31.

168 The Family 3(3,0) S
Development of family as social institution. Main emphasis on contemporary American family under rural and urban conditions, and impact of urbanization and industrialization upon various facets of family life. P, 15.

170 Intermediate Sociology 3(3,0) F
Analysis of structure and changes of society. Social relationship studied in terms of their specific forms, varieties, patternings, and systems. Social organization studied in terms of sustaining forces and change. P, 15.

172 Leadership and Group Organization 3(3,0) W
Emergence and types of leadership in group situations; analysis of leader-follower roles, functions and relationships in groups and organizations. P, 15 and consent of instructor.

175 Social Stratification 3(3,0) S
Analysis of societies in terms of the relationship between class, status, power and prestige, and attitudes and behavior. P, 15, 170, or consent of instructor.

181 Rural Social Systems 3(3,0) W
Rural organizations and institutions studied as systems of social interaction having common elements which permit analysis and understanding of structure and functioning of rural society. Relevant concepts from sociological theory will be introduced in building an analytical framework. P, 15, 31.

199 Special Problems in Sociology 1-3 credits FWS
Advanced work or special problems in such areas as population, marriage and family, rural sociology, criminology, social disorganization or urban sociology. P, open to seniors and graduate students with sufficient background.

GRADUATE DIVISION

240 Social Thought 3(3,0)
Brief survey of history and development of world's most important social theories and schools of social thought, evaluated in light of present knowledge. P, 15, 170.

245 Contemporary Sociological Theory 3(3,0)
Critical examination of main sociological theories beginning with sociological system of Auguste Comte and ending with those of present time. P, 15, 170.

250 Research Methods in Rural Sociology 3(3,0)
Use of scientific method in sociological research; basic tools of research design; some special applications of statistical techniques to social data. P, 15, 170; Econ 81, or Ed 168.

261 Social Institutions 3(3,0)
Pivotal institutional fields with special reference to major social institutions such as: religious, economic, political, educational, and familial. P, 15, 170.

280 Social Change 3(3,0)
Theories concerning factors and processes in social-cultural change. Consideration of various interpretations of social-cultural change in terms of stages, cycles, and trends. P, 15, 170.

285 Special Topics in Rural Sociology 2-5(2-5,0)
Supervised study of a selected sociological problem. P, open to graduate students with sufficient background and consent of instructor.

287-295 Seminars in Rural Sociology 1-3 credits for each seminar elected
Maximum of 6 credits for Master's degree.

287 Anthropology
288 Collective Behavior
289 Family
290 Population and Migration
291 Social Disorganization
292 Social Interaction
293 Social Organization
294 Social Welfare

295 Sociological Theory
P, open to graduate students, with sufficient background and consent of instructor.

299 Thesis in Rural Sociology 7-10 as arranged

Curriculum in Technical Agriculture, Rural Sociology Major

Leading to the degree of Bachelor of Science in Agriculture

(See Curriculum in Rural Sociology in Division of Science and Applied Arts)

Freshman Year—See curriculum in Technical Agriculture

Sophomore Year	**F**	**W**	**S**
Elementary Organic Chemistry, Ch 21	5		
Introduction to Sociology, RS 15	5		
General Zoology, Z 20-21	4	4	
Soils, Agron 25-26	3	3	
Oral Communication, Sp 22		3	
Social Deviation, RS 35		3	
Livestock Nutrition, AH 25		4	
Introduction to Literature, Engl 20			3
Principles of Economics, Econ 21			3
Agricultural Engineering, AE 24			3
Rural Sociology, RS 31			3
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	**F**	**W**	**S**
General Botany, Bot 11-12	4	4	
Veterinary Science, Vet 20	5		
Principles of Economics, Econ 22	3		
Elementary Psychology, Psy 25	3		
Urban Sociology, RS 44	3		
Statistical Methods, Econ 81; or		(5)	
Educational Statistics, Ed 168		(3)	
General Anthropology, RS 50		3	
Plant Pathology in Human Affairs, Path 20		3	
General Entomology, Ent 20			5
Writing for Technical Students, Engl 43			3
Elements of Leadership, RS 32			3
Farm and Ranch Management, Econ 38			3
Sociology Electives			

Senior Year	**F**	**W**	**S**
Intermediate Sociology, RS 170	3		
National Government, PS 34	4		
Genetics, Z 42	3		
Rural Social Systems, RS 181		3	
General Bacteriology, Bac 30		5	
State Government, PS 36		4	
The Family, RS 168			3
Human Physiology, Z 22			4
Local Government, PS 45			4
Electives			

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: RS 15, 31, 32, 35, 44, 50; Econ 81 or Ed 168; RS 168, 170, 181, and sociology electives to total 36 credits.
MINOR: RS 15, 31, 35, 44, 168, and sociology electives to total 24 credits.

Veterinary (Vet)

Professors Harshfield, Taylor; Associate Professors Dorsey, Jones; Assistant Professor McAdaragh

The development of our complex systems of livestock farming and transportation has greatly increased the chances of introduction of animal disease into herds and flocks. Through the necessity of protecting their own interests, livestock and poultry raisers are giving more attention to disease prevention and control. The courses in this department are planned to meet this demand.

A two-year preveterinary curriculum is offered for superior students who plan to enter a school of veterinary medicine prior to completion of work for the Bachelor of Science degree.

LOWER DIVISION

20 Veterinary Anatomy and Physiology 5(5,0) FW
Anatomy and physiology of various species of domestic animals. P, Z 20.

30 Livestock Disease Control 4(4,0) S
Causes of disease, principles of livestock sanitation and accepted methods of prevention and control of more prevalent parasitic and infectious diseases. P, Bac 30.

UPPER DIVISION

141 Poultry Diseases 3(3,0) W (Offered in 1960)
Prevalent diseases in flocks of this area and sanitation practices in disease control. P, Bac 30.

Suggested Two-Year Preveterinary Curriculum*

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2	4	4	
Inorganic Qualitative Analysis, Ch 9			4
General Zoology, Z 20-21	4	4	
Introductory Animal Husbandry, AH 3	4		

Elements of Dairying, DH 1			4
Poultry Production, PH 1			3
College Algebra, Math 10		5	
Introduction to Social Science, GS 1			3
Physical Education, PE 1-2-3	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Orientation, 1	1		
Sophomore Year	**F**	**W**	**S**
Oral Communication, Sp 22	3		
Organic Chemistry, Ch 26-27	4	4	
Gravimetric Analysis, Ch 23			4
Elementary Physics, Phy 10-11	4	4	
Trigonometry, Math 11			5
General Botany, Bot 11	4		
Principles of Economics, Econ 21-22	3	3	
Livestock Nutrition, AH 25			4
Genetics, Z 42		3	
National Government, PS 34			4
General Psychology, Psy 25		3	
Military, Mil 20-21-22 or 25-26-27	1	1	1

*The above curriculum does not meet the preveterinary requirements of all Schools of Veterinary Medicine. The student, with his counselor, may alter the preveterinary curriculum to meet specific requirements of certain schools.

Wildlife Techniques and Conservation

(See Entomology-Zoology in Division of Agriculture)

Zoology

(See Entomology-Zoology in Division of Agriculture)

Non-degree Course

Two-Year Curriculum in Agriculture

The Division of Agriculture offers a two-year college level program leading to a certificate in Agriculture. This course is designed especially for (1) those who cannot spend the time necessary to earn a Bachelor's degree; (2) those who want to specialize in certain fields without meeting the requirements for the Bachelor's degree.

Usually, the two-year program will carry a student about half way through the regular four-year course. It does not follow, however, that a student can meet all the requirements for the Bachelor's degree in two more years if he should change his objective.

Below are the minimum requirements for the Certificate in Agriculture.

English 1-2-3 or 4-5-6	9
Science (Chemistry, Botany, Zoology, Math, Physics)	8
Social Science	6
Military Science	6
Physical Education	3
Orientation	1
Agriculture	45
Elective	24
	102

The Agricultural Experiment Station

Orville G. Bentley, Director

The Agricultural Experiment Station conducts investigations through organized research in Agriculture and Home Economics to find new facts with which to solve the problems of the farm, ranch, home and related businesses.

Research workers probe the unknown to discover the nature of living organisms and inert materials and their relation to man and his environment. New facts discovered through research are the basis of the teaching and Extension programs and are therefore the basis of progress.

The application of new facts brings new wealth and therefore the results of research benefits all citizens.

The research program is carried out through planned projects in the several departments of Agriculture and Home Economics.

The following departments have active projects in progress: Agricultural Engineering, Agronomy, Animal Husbandry, Bacteriology, Dairy Economics, Entomology-Zoology, Horticulture, Plant Pathology, Poultry, Rural Sociology, Station Biochemistry, and Veterinary in Agriculture; and Food and Nutrition, and Textiles and Clothing, in Home Economics.

Research work is in progress at the main station located at Brookings and at the five sub-stations located near Buffalo, Cottonwood, Eureka, Highmore, and Presho with cooperative work at the U. S. Field Station at Newell. Other smaller research sites are scattered about the state.

The research program is supported with funds from State appropriations, Federal grants, Industrial grants, endowments and sale of products. Details of the source of funds and the projects will be found in the annual report of the Experiment Station.

The results of research are published in the "Farm and Home Research" quarterly, in bulletins, circulars, and the "Annual Report" all of which are available at the County Agents Office or by direct request.

The Agricultural Extension Service

John T. Stone, Director

The Smith-Lever Act passed by Congress in 1914 appropriated a sum of money to the various states for which extension work in agriculture and home economics should be established. The State Legislature of South Dakota at each session has appropriated funds to meet the requirements of the Smith-Lever Act. All extension work in South Dakota therefore is a cooperative enterprise participated in by the United States Department of Agriculture, the State College, and by various local and county organizations. The aim of this service is to carry education to the people of the state on the results of investigations of the Experiment Station and the State College .

Communities and counties in the state may secure the benefits of the extension work when the County Commissioners appoint a County Extension Board in accordance with the State Extension Law, and make the necesssary appropriation. The assistance available through the Extension Service is in the form of Country Agricultural Agents, Home Extension Specialists, Boy's and Girl's Club work, and the assistance of Extension Specialists in Animal Husbandry, Dairy Husbandry, Horticulture and Entomology, Animal Health, Field Crops and Soils, Poultry, Farm Management, Marketing, Foods and Nutrition, Clothing and Health.

County Agricultural Agents are giving their efforts to the urgent agricultural problems of quality production, organization and marketing. They follow closely the counsel of the local advisory committees in the county. Home Extension Agents are serving from one to three counties each in the state and work with groups of women organized into more than 18,000 Home Extension Club members giving demonstrations and instruction along lines of foods, clothing, health and home. Sixteen thousand farm boys and girls in South Dakota are assisted yearly through the Extension Service in obtaining instruction in better agricultural and marketing practices, in better home making, in improvement of health and in aspirations toward better citizenship. The 4-H Club Work is an active project of every extension worker in South Dakota.

As far as personnel and funds will permit, a program service is provided for the various Community Clubs; also assistance in securing speakers, demonstrators, and judges. Assistance is also given in the control of plant diseases, insect pests and animal diseases, by specialists from the Extension Service. Bulletins on timely and important subjects are written and available for distribution to the public. A news service on agriculture and home economics is also made available to the newspapers and to radio stations of the state.

Short courses, fairs and demonstrations are held each winter in a limited number of counties.

The School of Agriculture

Arlington Eddy, Director

The School of Agriculture offers training in vocational agriculture beyond the high school level. Course work is non-technical as compared to degree courses in agriculture but includes instruction in animal husbandry, agricultural engineering, agricultural economics, dairy husbandry, animal diseases and parasites, crops and soils, farm carpentry, welding, and poultry. Generally speaking, the facilities for instruction are the same as those available to degree course students. In this connection, reference is made to laboratories, shops, classrooms, current experiments, plots, herds and flocks of college livestock. Teaching is done by regular college instructors.

Extra-curricular activities include crops and livestock judging, basketball, voice, instrumental music, Little International and debate. In addition to these activities, enrollees are privileged to join such agricultural organizations as the Agricultural and Block and Bridle Clubs, as well as their own Short Course Association.

The School of Agriculture program of work is designed to meet the needs of post-high school students who have an agricultural preference but do not enroll in courses leading to a degree. Older rural youth who have reached their sixteenth birthday may enroll but young men eighteen years of age or older will get the most out of the subjects offered in the School of Agriculture. A farming or ranching background, though not required, contributes much toward the success of students who choose the agricultural short course.

Instruction begins the third Monday in October and comes too a close the third Friday in March. Classes are arranged Monday through Friday based on twenty weeks of actual school time.

Approximately ninety per cent of the graduates return to the farm or ranch. Seven per cent usually find work in positions closely allied to agriculture. Three per cent transfer to degree course work in regular college.

In addition to post-high school instruction, older rural youth who have not completed their high school studies, may enroll in English, mathematics, history, government and typewriting courses, thus earning the equivalent of a high school diploma. Appropriate diplomas and certificates are awarded to both post-high school and high school graduates at regularly scheduled graduation exercises.

For a special bulletin giving outlines of this course and other information, write to the Director of the School of Agriculture, College Station, Brookings, South Dakota.

DIVISION OF ENGINEERING

The Division of Engineering offers degrees in: (1) Agricultural Engineering, (2) Civil Engineering, (3) Electrical Engineering, (4) Engineering Physics, and (5) Mechanical Engineering. The curricula, departments, and courses are described below.

The Four-Year Curricula in Engineering

The four-year curricula in Civil Engineering, Electrical Engineering, and Mechanical Engineering are accredited by the Engineers' Council for Professional Development, which is composed of representatives of seven of the largest and oldest national engineering societies and the National Council of State Boards of Engineering Examiners.

The first two years in each engineering curriculum are concerned primarily with the fundamental courses common to all branches of engineering. A student may delay his choice of a curriculum until he has learned by counsel, observation, and experience something about the various fields of engineering. During this period the student will have a counselor from one of the engineering departments who will assist him in planning his course work, and who will cooperate in the general counseling and orientation program provided by the Office of Student Personnel.

During the last two years, special courses offer opportunities for the student to (1) acquire an understanding of fundamental principles, and (2) become familiar with the applications of these principles to practical problems in his chosen field. Problem work and laboratory work are essential features of such courses.

Each curriculum devotes considerable time to English, public speaking, economics, humanities, and social science which should broaden the student's interests and background and so prepare him for working with men as well as machines.

Students are encouraged to participate in the activities of the local student chapters of national professional engineering societies. Outstanding students are invited to join local chapters of national honor societies.

Refer to the section on "General Information" for information on credits and grade points.

Refer to the specific departmental curriculum to determine the credits and grade points required.

In addition to the requirements which follow, each department may arrange and supervise an industrial inspection trip for its Senior students. Each student bears his own expense.

Common Curriculum for Freshman Engineers

Freshman Year	F	W	S
College Algebra, Math 14	5		
Inorganic Chemistry, Ch 1-2-3	4	4	4
Orientation 1	1		
English, Engl 1-2-3 or 4-5-6	3	3	3
Engineering Drawing, GE 3-4	2	2	
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1
Trigonometry, Math 15		5	
Technical Sketching, GE 21		1	
Analytic Geometry & Calculus, Math 16			5
Descriptive Geometry, GE 5			2
Engineering Problems, GE 10			1
	17	17	17

General Engineering (GE)

Administrative Committee: Professors Froslie, Gamble, Johnson, Moe, Sandfort; Associate Professor Skubic.
Departmental Instructors: Assistant Professor Burris; Instructors Appleton, Johnson, and Engineering Staff

Several of the courses in the Engineering curriculum are fundamental in the curricula of all the engineering departments. These courses are listed under General Engineering and are taught by members of the combined engineering staff.

LOWER DIVISION

2 Blue Print Reading 2(0,6)

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

3 Engineering Drawing 2(0,6)

Development of skill in the use of drawing instruments. Elements of engineering graphics including the fundamentals of shape and size description. Engineering lettering, applied geometry, orthographic projection, and pictorial drawings. P, High School mathematics, plane geometry.

4 Engineering Drawing 2(1,3)

Theory of graphics as applied to conventional working drawings emphasizing the fundamentals of auxiliary projection, sectional views, dimensioning, and thread representation. P, 3.

5 Descriptive Geometry 2(0,6)

Graphic solution of space problems relating to points, lines, planes, and solids. Theory of graphics as applied to various types of engineering problems, auxiliary views, revolutions, intersections, and developments. P, 4.

10 Engineering Problems 1(0,3)

Use of slide rule and other calculating devices. Habits of neatness and orderliness in calculation are cultivated. P, Math 15.

21 Technical Sketching 1(0,3)

Development of skill and technique in the freehand sketching of intricate geometric shapes, assemblies, exploded views, and design layouts. Practice in orthographic and pictorial representations rendered with shading. P, concurrent with 4.

31 Architectural Drafting 3(1,6)

Drafting concerning all phases of frame building construction, including concrete, plumbing and electrical details. Practice in modern drafting procedures. Student will be given opportunity to plan and design a building of his choice. P, GE 34, or consent of instructor.

32 Statics 4(4,0)

Force systems, centroids, and moment of inertia. P, Math 26.

UPPER DIVISION

40 Saftey Training 2(2,0)

Employer liability, accident cost, safety devices, accident-prone worker, employee health, occupational diseases, accident and fire prevention, and organization for safety control.

42 Strength of Materials 4(4,0)

Stresses and deformation in structural and machine elements. P, 32; Math 27.

43 Strength of Materials Laboratory 2(0,6)

Verification of principles of elastic behavior of structural and machine elements and tests for properties of materials. P, with 42.

44 Strength of Materials Laboratory 1(0,3)

Verification of principles of elastic behavior of structural and machine elements and tests of properties. P, concurrent with 42.

75 Specifications and Contracts 3(3,0)

Law of contracts, agency, and other legal points affecting engineers. Preparation of specifications. Engineering ethics. P, Senior standing.

145 Dynamics 3(3,0)

Motion of a solid body, work, power, impulse, momentum, and impact. P, 32 or Phy 40, Math 27.

177 Engineering Economy 3(3,0)

Economic aspects of engineering, cost estimating, and financing. P, Senior standing.

Agricultural Engineering (AE)

Professors Moe, DeLong, Wiersma, Frisby; Associate Professors Hinkle, Zoerb; Instructors Young, Hamann, Paine

Agricultural Engineering is the science of engineering as applied to the agricultural industry. Students who take the four-year curriculum in Agricultural Engineering are trained in mathematics and the fundamental principles of engineering. They are also required to take many of the courses below emphasizing the application of the principles of engineering to the agricultural industry.

With this preparation students are fitted for the following lines of work: land improvement, including drainage, irrigation, land clearing and soil conservation; positions with farm machinery and tractor companies; positions with building materials concerns; positions in rural electrification, land and building appraisal work, and agricultural climatology work.

Curriculum in Agricultural Engineering

Leading to the Degree of Bachelor of Science in Agricultural Engineering

213 credits and 426 grade points required for the Bachelor's Degree

Freshman Year—See common curriculum for Freshman Engineers.

Sophomore Year	F	W	S
Calculus, Math 25-26-27	5	5	4
General Physics, Phy 20-21-22	5	5	5
Humanities, GS 30-31-32	2	2	2
Oral Communication, Sp 10	2		
Engineering Materials and Processes, ME 38; or Engineering Materials, CE 34		2	
Plane Surveying, CE 3			3
Principles of Economics, Econ 21-22	3	3	
Rural Electric Problems, AE 29			3
Military, Mil 20-21-22 or 25-26-27	1	1	1
	18	18	18

Junior Year	F	W	S
Statics, GE 32	4		
Dynamics, GE 145		3	
Strength of Materials, GE 42			4
Farm Structures, AE 41	4		
Thermodynamics, ME 49		5	
Fluid Mechanics, CE 170			3
Farm Power and Machinery, AE 48	4		
Differential Equations, Math 148		4	
Writing for Technical Students, Engl 43			3
Soils, Agron 25-26	3	3	
Oral Communication, Sp 20			2
*Electives**	3	3	6
	18	18	18

Senior Year	F	W	S
Crop Processing Machinery, AE 140	3		
Agricultural Tractors, AE 171		3	
Instrumentation, AE 170			4
Farm Land Engineering, AE 164-165	3	2	
Business Law, Econ 41-42	3	3	
Farm Structure Design Considerations, AE 141		4	
Soil Physics, Agron 172			3
Business Principles, Econ 69; or Basic Accounting Essentials, Econ 44	3		
Agricultural Engineering Seminar, AE 195		1	
*Electives**	6	5	11
	18	18	18

TECHNICAL ELECTIVES

Farm Structures	F	W	S
Elementary Structural Theory, CE 161			5
Structural Design of Farm Buildings, AE 142			4
Heating and Air Conditioning Design, ME 167			4
Reinforced Concrete Theory, CE 163	3		
Heat Transfer, ME 143			3
Power and Machinery			
Mechanisms, ME 48		4	
Agricultural Machinery Design, AE 172			3
Design of Machine Elements, ME 144	5		
Heat Transfer, ME 143			3
Metallurgy, ME 145	3		
Rural Electric and Crop Processing			
Agricultural Cooperatives, Econ 179		3	
Electricity and Magnetism, EE 50	5		
Heating and Air Conditioning Design, ME 167			4
A.C. Circuits, EE 59		4	
Design of Farm Electric Equipment, AE 173	3		
Heat Transfer, ME 143			3
Soil and Water Engineering			
Farm Land Engineering, AE 166			3
Irrigation Crop and Soil Practices, Agron 170		3	
Hydrology, CE 174			3
Topographic Surveying, CE 25	3		
Elementary Engineering Soils, CE 164	4		
Advanced Theoretical Hydraulics, CE 173		3	

*Elective courses are provided to permit the student to concentrate in the applied technical area of his particular interest, and to provide for further cultural growth and education in the humanistic-social sciences area.

Accordingly the elective program for each student must be planned with his counselor, and approved by the Head of the Agricultural Engineering Department. Generally this will include a minimum of 15 hours of technical electives in the appropriate phases shown above, and 12 hours of humanistic-social science electives selected from the representative list appearing on page 20 of this section.

Courses Offered by the Department

LOWER DIVISION

29 Rural Electric Problems 3(2,3) S

Farm Electric problems in small motor types and applications, water systems and machinery, wiring and lighting problems, and introductory study of the rural electric cooperative.

UPPER DIVISION

41 Farm Structures 4(3,3) F

A study of materials and applications, heat and moisture transmission in farm buildings, and the functional requirements for animal shelters and crop storage units. P, Phy 22.

48 Farm Power and Machinery 4(3,3) F

Farm machinery features, field performance tests, power consumption and measurement, cost of operation, maintenance of machinery, hydraulic systems, power trains and motors. P, Phy 20.

51 Introductory Meteorology 3(3,0)

Characteristics of the atmosphere; interaction of land, sea, and air; measurement of meteorological elements; air mass analysis and forecasting.

53 Introductory Climatology 3(3,0)

Circulatory systems; world distribution of precipitation, temperature, and wind; world climates and their global distribution.

54 Agricultural Climatology 3(3,0)

A study of micro-climate and instruments for measuring them; application of weather information to specific agricultural processes.

60 Farm and Home Utilities 3(2,3)
Farm water supply, sanitary equipment, waste disposal, electric service, heating, lighting and refrigeration.

140 Crop Processing Machinery 3(2,3) F
Principles and applications of processing agricultural products. Design and operational features of equipment, including drying grain and hay, processing by cooling and freezing, separation of seeds, grinding and mixing of feeds, handling and conveying equipment. P, 29, 48; Phy 20-21; Math 27.

141 Farm Structure Design Consideration 4(3,3) W
Design of the farm home and farmstead; economic considerations and cost estimating; and procedures for the design of columns, beams, connection methods, and covering materials to form a complete structure. P, 41; GE 42.

142 Structural Design of Farm Buildings 4(2,6) S
Design of farm buildings emphasizing structural design drawings and specifications, and design short cuts. P, 141.

164-165-166 Farm Land Engineering 3(2,3) 2(2,0) 3(2,3)

164 Principles and design of open and tile drains, field surveys, soil tests for drainability; formulae for rainfall frequency, intensity, and outlet capacities needed. P, CE 3, 170; Agron 25-26.

165 Farm design for land preparation, and application of irrigation water by gravity or by closed pipe systems; soil tests for suitability for irrigation; and construction of small irrigation structures. P, 164.

166 Wind and water erosion control practices, and design of structures needed, stock water supply structures, and land clearing. P, 165.

170 Instrumentation 4(3,3) S
A study of available instruments commonly used in Agricultural Engineering research. Includes principles and methods of measuring temperature, humidity, pressure, and flow with indicating and recording equipment. Application and instrumentation of SR-4 strain gage pressure and force traducers. P, Senior in Engineering.

171 Agricultural Tractors 3(2,3) W
A study of factors affecting gasoline and diesel engine operation and efficiency. Engine design features, transmissions, traction and hitches. Analysis of tractor chassis stability and tractor performance tests. P, AE 48.

172 Agricultural Machinery Design 3(2,3) S
Analysis of farm machine mechanisms, forces and actions, design, development and field testing. P, 171; ME 144.

173 Design of Farm Electric Equipment 3(2,3) F
Proper design of ventilating, cooling, feed handling, and feed processing machinery with respect to adequate wiring and proper controls. P, 29; EE 50; Phy 22.

195 Agricultural Engineering Seminar 1(1,0) W
Review of current technical literature in Agricultural Engineering. Oral and written reports and discussion. P, Senior standing.

GRADUATE DIVISION

201-202 Engineering Problems in Soil Conservation 3 credits each
Graduate students in Agricultural Engineering who wish further study in problems of wind or water erosion control, irrigation, or drainage. P, 166.

210-211 Farm Power and Machinery Problems 3 credits each
Graduate students in Agricultural Engineering who wish to continue detailed studies of particular farm machines and allied problems in soil management, processing of agricultural products, cost of operation, and improvement of design. Problems pertinent to area selected. P, 172.

220-221 Farm Building Problems, 3 credits each
For graduate students who wish to continue detailed studies of farm building design, with special reference to their functional requirements for livestock or crop storage. Problems pertinent to area selected. P, 142.

230 Research Methods in Agricultural Engineering 3(3,0)
Engineering phases of Agricultural research. Selection of subjects, analysis of problem, proper procedures, evaluation of primary forces, possibilities of mathematical solutions, coordination of engineering and biological research, time and motion studies, and cost studies included in course. P, BS Degree in Agricultural Engineering.

240 Engineering Phases of Crop Processing 3(3,0)
Detailed analytical studies of cutting and shearing, collecting, packaging, size reduction, dehydrating, hauling, cleaning, and storing of agricultural crops. Includes one or more complete crop harvest and storage problems with reference to cost, labor, power requirements, and quality of finished product. P, 140, 173.

299 Thesis in Agricultural Engineering 7-10 as arranged

Courses for Agricultural Students

(For full description see Division of Agriculture)

20 Farm Shop Practices
24 Agricultural Engineering
25 Farm Buildings and Plans
26 Farm Power Machinery
39 Electricity for Farm and Home
42 Graphic Methods
47 Soil and Water Conservation Engineering
150-151 Senior Problem
162 Food Processing Equipment

Civil Engineering (CE)

Professor Johnson; Associate Professors Dornbush, Hargett, Koepsell; Assistant Professors Andersen, Anderson, Shoukry; Instructor Abdul-Shafi, Alger, Larson; Assistant Rittershaus

Civil Engineering includes the location, design, construction, operation and maintenance of railways, highways, bridges, dams, water supply and distribution systems, sewage systems and sewage disposal plants, irrigation systems, river and harbor improvements and many other works essential to modern existence.

The course in Civil Engineering is planned to give students a foundation in the exact sciences—mathematics, physics, and chemistry; a thorough training in the technical phases of Civil Engineering—drawing, surveying, hydraulics, testing of construction materials, and principles of design involved in engineering work; and an introduction to the humanistic subjects in order to prepare for responsible positions.

Curriculum in Civil Engineering

Leading to the Degree of Bachelor of Science in Civil Engineering

214 credits and 428 grade points required for the Bachelor's Degree

Freshman Year—See common curriculum for Freshman Engineers

Sophomore Year	F	W	S
Calculus, Math 25-26-27	5	5	4
General Physics, Phy 20-21-22	5	5	5
Humanities, GS 30-31-32	2	2	2
Military, Mil 20-21-22 or 25-26-27	1	1	1
Plane Surveying, CE 3	3		
Oral Communication, Sp 10	2		
Advanced Surveying, CE 23		3	
Topographic Surveying, CE 25			3
Engineering Materials, CE 34		2	
Statics, GE 32			4
	18	18	19

Junior Year	F	W	S
Strength of Materials, GE 42	4		
Strength of Materials Lab, GE 43	2		
Elements of Sanitation, CE 53	3		
Principles of Economics, Econ 21-22	3	3	
Electrical Machinery, EE 40	4		
Oral Communication, Sp 20	2		
Dynamics, GE 145		3	
Transportation Engineering, CE 50		3	
Cement and Concrete Lab, CE 65		1	
Seminar, CE 57		1	
Differential Equations, Math 148		4	
Writing for Technical Students, Engl 43		3	
Geology, Agron 171			3
Route Surveying, CE 52			3
Elementary Structural Theory, CE 161			5
Fluid Mechanics, CE 170			3
Fluid Mechanics Lab, CE 71			1
Hydrology, CE 174			3
	18	18	18

Senior Year	F	W	S
Structural Design, CE 162	3		
Reinforced Concrete Theory, CE 163	3		
Water Supply, CE 171	3		
Engineering Economy, GE 177		3	
Thermodynamics, ME 49		5	
Sewerage, CE 172		3	
Specifications and Contracts, GE 75			3
Reinforced Concrete Design, CE 168			3
Advanced Theoretical Hydraulics, CE 173			3
*Electives**	9	7	9
	18	18	18

TECHNICAL ELECTIVES

	Credits
Structural	
Elementary Engineering Soils, CE 164	4
Foundations, CE 167	3
Advanced Mechanics of Materials, CE 146	3
Indeterminate Structures, CE 166	4
Structural Lab, CE 74	2
Social and Humanistic Electives	9
Sanitary	
General Bacteriology, Bac 30	5
Microbiology of Water and Sewage, Bac 46	4
Sanitary Lab, CE 72	2
Applied Hydraulic Engineering, CE 175	3
Municipal Sanitary Engineering, CE 176	3
Social and Humanistic Electives	9
Highway	
Elementary Engineering Soils, CE 164	4
Foundations, CE 167	3
Bituminous Materials Lab, CE 73	2
Highway Engineering, CE 179	3
Advanced Engineering Soils, CE 165	3
Social and Humanistic Electives	9
Irrigation and Hydraulics	
Elementary Engineering Soils, CE 164	4
Foundations, CE 167	3
Irrigation, Crop and Soil Practices, Agron 170	3
Sanitary Lab, CE 72	2
Applied Hydraulic Engineering, CE 175	3
Social and Humanistic Electives	9
Construction	
Elementary Engineering Soils, CE 164	4
Basic Accounting Essentials, Econ 44	4
Managerial Cost Accounting, Econ 154	3
Construction Engineering, CE 141	3
Estimating, CE 143	2
Social and Humanistic Electives	9

*A total of at least nine hours must be selected from the Social and Humanistic courses on page 20 of this section.

Courses Offered by the Department

LOWER DIVISION

3 Plane Surveying 3(1,6) FS

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

23 Advanced Surveying 3(2,3) W

Triangulation, base lines, astronomy, map projections, state wide coordinates, map production methods. P, 3.

25 Topographic Surveying 3(1,6) S

Transit stadia and plane-table surveys of representative field areas. Preparation of a finished map. P, 23.

26 Summer Surveying 6 credits 5 weeks Su

Topographic surveys and maps, route surveys and plans, curve and earthwork calculations, triangulation observations and calculations, base line measurements, astronomical observations and calculations. P, 23. May be substituted for CE 25 and CE 52.

34 Engineering Materials 2(2,0) W

Principles underlying the physical properties of materials. P, Ch 3; Phy 20.

UPPER DIVISION

50 Transportation Engineering 3(3,0) W

Basic engineering principles involved in designing facilities for common means of transportation. P, 23.

52 Route Surveying 3(2,3) S

Theory and practice of curves and earth work computations for highways, railroads, and other routes. P, 23; Math 26.

53 Elements of Sanitation 3(3,0) F

Public health problems, sanitation of water and food, industrial wastes, stream pollution, rodent control, and other related topics. P, Ch 3.

55 Airports and Air Transportation 3(3,0) S

Location, design, and operation of airports. Problems of aerial transport. P, Junior standing.

57 Seminar 1(1,0) W

Review of current technical literature. Oral and written reports and discussion. Personnel problems. P, Junior standing.

65 Cement and Concrete Laboratory 1(0,3) FWS

Design and control of concrete mixes. Standard tests on cement and aggregates. P, 34.

71 Fluid Mechanics Laboratory 1(0,3) FS

Flow of water through weirs, orifices, and pipes. Tests of hydraulic machinery. P, with 170.

72 Sanitary Laboratory 2(0,6) W

Standard tests of water and sewage, and engineering analysis of results of these tests. P, with 172.

73 Bituminous Materials Laboratory 2(0,6) W

Classification, design, and control tests on materials and mixtures for asphalt paving.

Tests on structural materials, structural elements, and models. P, 34, 162.

74 Structural Laboratory 2(0,6) S

135 Elements of Photogrammetry 3(1,6)

Theory and practice in construction of mosaics, planimetric maps, and contour maps from aerial photographs. P, 35, 50, 52.

141 Construction Engineering 3(3,0) W

Construction equipment. Construction methods and procedures. P, Senior standing.

143 Estimating 2(2,0) S

Quantity estimates. Costs and prices of construction work. Labor requirements on construction.

146 Advanced Mechanics of Materials 3(3,0) W

A continuation of GE 42 with particular attention given to applications of Strength of Materials to advanced topics in structural analysis. P, GE 42.

161 Elementary Structural Theory 5(4,3) S

Applications of laws of statics to calculations of stresses in beams and trusses under various forms of loading. P, GE 42.

162 Structural Design 3(0,9) F

Design of bridges and buildings of steel and timber. P, 161.

163 Reinforced Concrete Theory 3(3,0) F

Reinforced concrete theory and design. Application to design of beams, slabs, and columns. P, GE 42.

164 Elementary Engineering Soils 4(3,3) F

Application of soils physics to engineering problems. Standard soil tests and soil classifications. P, 34, 50; GE 42.

165 Advanced Engineering Soils 3(2,3)

Application of principles of soil physics and soil mechanics to engineering problems. Particular reference to stability problems, compaction, embankments, seepage, drainage, and stabilization. P, 164.

166 Indeterminate Structures 4(4,0) S

Elastic theory and its application to analysis of statically indeterminate structures. P, 146, 161, 163.

167 Foundations 3(2,3) W

Theory and design of foundations of bridges and buildings, retaining walls, and dams. P, 162, 163, 164.

168 Reinforced Concrete Design 3(1,6) S

Advanced theory and design of reinforced concrete structures. Detailed plans and cost analysis. P, 163.

170 Fluid Mechanics 3(3,0) FS

Laws governing fluids at rest and in motion. Theory of hydraulic measurements and study of hydraulic machinery. P, GE 145.

171 Water Supply 3(3,0) F
Principles and present-day practice necessary for solution of the problems of water supply and treatment. Engineering problems in design and operation of a waterworks system. P, 53, 170.

172 Sewerage 3(3,0) W
Principles and present-day practice necesssary for solution of the problems of sewerage and sewage treatment. Engineering problems in design and operation. P, 171.

173 Advanced Theoretical Hydraulics 3(3,0) W
Methods of water measurements, laws of similitude, flood flows, flow analysis, and special advanced problems. P, 170.

174 Hydrology 3(3,0) S
Precipitation, runoff, evaporation, storage and ground water problems and related topics. P, concurrent with 170.

175 Applied Hydraulic Engineering 3(3,0) S
Engineering problems in irrigation, flood control, drainage, and river and harbor development. Irrigation and drainage law. P, 162, 170.

176 Municipal Sanitary Engineering 3(1,6) S
Waterworks, sewage works and refuse disposal design problems including cost comparisons. Plumbing codes. P, 72, 172.

178 City Administration and Planning 2(2,0)
Engineering problems in city planning and administration. P, 23, 52, 53.

179 Highway Engineering 3(2,3) S
Advanced problems in the location, design, and maintenance of modern roads. Studies of traffic control and regulation on rural and urban streets. P, 50, 52.

180-181 Special Engineering Problems 1-5
Elective course for special or detailed study or investigation. P, Senior standing in civil engineering.

GRADUATE DIVISION

262 Prestressed Concrete 3(3,0)
Theory and practice of prestressed concrete design. Pretensioning and post-tensioning. Anchorage of steel. P, graduate standing in Civil Engineering.

263 Advanced Indeterminate Structures 3(3,0)
Beams on elastic foundations. Continuous beams, rigid frames and arches with special reference to beams with non-uniform moment of inertia. Column analogy, moment distribution, and energy methods. P, graduate standing in Civil Engineering.

264 Advanced Indeterminate Design 3(1,6)
Continuation of 263.

265 Long Span Bridge Design 3(1,6)
Design features of long span bridges. Secondary stresses. P, graduate standing in Civil Engineering.

266 Plastic Design in Structural Steel 3(0,9)
Modes of failure, plastic hinges, design rules and applications. P, graduate standing in Civil Engineering.

267 Elastic Stability 3(3,0)
Buckling of columns and plates. Lateral buckling of beams. Stability of rings. P, graduate standing in Civil Engineering.

268 Advanced Structural Design 5(2,9)
Application of theory to design of indeterminate structures of steel, concrete, and aluminum. P, graduate standing in Civil Engineering.

271 Sanitary Engineering 3(3,0)
Principles of general sanitation as related to engineering aspects of public health. P, graduate standing in Civil Engineering.

273 Water Treatment Plant Design 3(1,6)
Design of water treatment plants and distribution systems including plans, specifications and cost comparisons. P, graduate standing in Civil Engineering.

274 Waste Treatment Plant Design 5(2,9)
Industrial wastes, design of waste facilities including plans, specifications and cost comparisons. P, graduate standing in Civil Engineering.

277 Highway Engineering Economics 3(3,0)
The study of the highway location and design as influenced by economic considerations such as user benefits, property value, salvage value and area served. P, graduate standing in Civil Engineering.

278 Advanced Highway Engineering 5(2,9)
Advanced problems in design of interstate, state primary, and state secondary highways. Including such terms as geometrics of alignment, interchange consideration, drainage, and pavement type design.

279 Highway Engineering Administration 3(3,0)
A study of federal, state, and local administration, financing and jurisprudence problems as applied to rural and urban highways. P, graduate standing in Civil Engineering.

Electrical Engineering (EE)

Professors Gamble, Crothers (Emeritus), Cheadle, Lindley, Manning, Storry; Assistant Professor Essler; Instructors Aggerwal, Knabach; Assistants Furchner, Ho, Lee

The object of the work offered in the Electrical Engineering Department is to develop a thorough understanding of the laws and principles on which Electrical Engineering practice is based, and to introduce the student to present-day engineering practices in the fields of power and electronics.

In the Electrical Machinery laboratory, the student becomes familiar with the operation and analysis of modern electrical equipment

such as generators, motors, transformers, magnetic control circuits, and instrumentation used in circuit measurements. This laboratory work supplements the classroom work and gives the student greater understanding of how the different kinds of equipment operate together in a system.

In the Electronics laboratories, the student works with electronic control equipment and communications equipment.

An A.C. system analyzer and an analog computer are available for some instructional use.

During the Senior year, there is a scheduled inspection trip of about one week to some industrial center, such as Minneapolis, Milwaukee or Chicago. This trip is considered a part of the electrical curriculum.

Curriculum in Electrical Engineering

Leading to the Degree of Bachelor of Science in Electrical Engineering
213 credits and 426 grade points required for the Bachelor's Degree

Freshman Year—See common curriculum for Freshman Engineers.

Sophomore Year	**F**	**W**	**S**
Calculus, Math 25-26-27	5	5	4
General Physics, Phy 20-21-22	5	5	5
Humanities, GS 30-31-32	2	2	2
Principles of Economics, Econ 21-22	3	3	
Statics, GE 32			4
Metal Processing, ES 22-23		2	1
Military, Mil 20-21-22 or 25-26-27	1	1	1
Oral Communication, Sp 10	2		
*Electives**			1
	18	18	18

Junior Year	**F**	**W**	**S**
Electricity and Magnetism, EE 50	5		
A.C. Circuits, EE 51-52		5	5
Analysis of Electric Apparatus, EE 61			4
Differential Equations, Math 148	4		
Writing for Technical Students, Engl 43	3		
Advance Engineering Mathematics, Math 151		5	
Strength of Materials, GE 42		4	
Dynamics, GE 145			3
Atomic Physics, Phy 180	3		
Electrical Circuit Lab, EE 55		1	
Electrical Apparatus Lab, EE 65			1
Oral Communication, Sp 20			2
*Electives**	3	3	3
	18	18	18

Senior Year	**F**	**W**	**S**
A.C. Circuits, EE 153	5		
Analysis of Electrical Apparatus, EE 62	3		
Electrical Apparatus Lab, EE 66-67	1	1	
Electronics, EE 71-72	3	3	
Electronics Lab, EE 75-76	1	1	
Technical Electives†		3	6
Thermodynamics, ME 49		5	
Heat Transfer, ME 143			3
Fluid Mechanics, CE 170	3		
Business Law, Econ 41		3	
Engineering Economy, GE 177			3
*Electives**	2	2	6
	18	18	18

TECHNICAL ELECTIVES

Industrial Electronics, EE 78, 3 credits
Industrial Electronics Laboratory, EE 79, 1 credit
Transient Currents, EE 154, 3 credits
Analysis of Electrical Apparatus, EE 163, 3 credits
Electrical Power Transmission, EE 164, 3 credits
Electrical Apparatus Laboratory, EE 168, 1 credit
Electrical Design, EE 169, 2 credits
Special Electrical Problems, EE 170, 1-5 credits
Electronics, EE 173, 3 credits
Communication Circuit Theory, EE 174, 3 credits
Electronic Laboratory, EE 177, 1 credit
Electric Wave Theory, EE 185, 3 credits
Servomechanisms, EE 187, 3 credits
Transistor Electronics, EE 189, 3 credits
Matrices, Math 147, 3 credits
Partial Differential Equations, Math 149, 4 credits
Measurements Laboratory, ME 46, 1 credit
Industrial Management, ME 70, 3 credits
Introduction to Quantum Mechanics, Phy 152, 3 credits
Atomic and Molecular Spectra, Phy 182, 3 credits
Physics of the Solid State, Phy 190, 3 credits

*Program of electives must be approved by the head of the Electrical Engineering Department. In general no more than six credit hours from any department may be counted toward graduation and at least 14 must be taken from the Humanistic and Social Science courses. See suggested list which appears on page 20 of this section.

†Students will work with their adviser in selecting a minimum of nine credit hours of technical elective courses.

Courses Offered by the Department

UPPER DIVISION

40 Electrical Machinery 4(3,3)
Electric and magnetic circuits; direct and alternating current machinery. For non-electrical engineering students. P, Math 26; Phy 21.

50 Electricity and Magnetism 5(4,3)
Laws of electric and magnetic fields and circuits. Measurements of electric and magnetic properties. P, Math 26; Phy 21.

51-52 A.C. Circuits 5(4,3)
Analysis of steady-state and transient circuits, network equations, mesh and nodal analysis, network theorems, coupled circuits, resonance, complex frequency, locus plots, Fourier series, and Laplace transformations. P, 50.

55 Electrical Circuit Laboratory 1(0,3)

Experimental work in instrumentation and application of theory to D.C. single phase and polyphase circuits. P, concurrent with 51.

59 A.C. Circuits 4(4,0)

Alternating currents voltage and power in single phase and polyphase circuits. For Mechanical and Agricultural Engineering students. P, 50.

60 Electrical Equipment 4(3,3)

Characteristics of electric motors, generators, and other equipment used in applying electrical power to mechanical drive. For ME students. P, 59.

61-62 Analysis of Electrical Apparatus 4(4,0) 3(3,0)

Analysis of operation and characteristics of transformers and rotating electro-mechanical machines such as D.C. and A.C. generators, motors and control equipment. P, 51 and 55.

65-66-67 Electrical Apparatus Laboratory 1(0,3)

Laboratory investigations of the application of apparatus theory to conventional transformers and electrical machines. P, 65 concurrent with 61, 66 concurrent with 62.

68 Electronic Control 3(3,0)

Electronic tubes and basic electronic circuits with emphasis on rectifiers, control devices and engineering applications. For non-electrical students. P, 59.

71-72 Electronics 3(3,0)

Analysis of electron tubes, solid-state devices, audio, video and R.F. amplifiers, oscillators, detectors, and modulators. P, 51.

75-76 Electronics Laboratory 1(0,3)

Experimental analysis of electron tubes solid-state devices, audio, video and R.F. amplifiers, modulators, detectors, oscillators, and electronic test equipment. Concurrent with 71-72.

78 Industrial Electronics 3(3,0)

Ignition and thyration rectifiers, high frequency induction and dielectric heating, photo-tube and control devices, industrial X-ray, resistance welding and industrial X-ray resistance welding and industrial control devices. P, 71.

79 Industrial Electronics Laboratory 1(0,3)

Electronic voltage regulators and speed controls, high frequency heating, industrial X-ray units, resistance welders, ignition and mercury-vapor rectifiers. May be taken, with permission of counselor, for one credit with less emphasis on report writing. P, 68 or concurrent with 78.

153 A.C. Circuits 5(5,0)

Concepts and techniques in the synthesis of two-part networks to obtain required circuit performance. P, 52.

154 Transient Currents 3(3,0)

Theory in simple series circuits, with steady voltage and with alternating voltages applied. P, 153 and grades of C or above in Math and EE subjects.

163 Analysis of Electrical Apparatus 3(3,0)

Refinements in analysis of apparatus operation; polyphase systems of apparatus under balanced and unbalanced conditions; per unit notation; causes, effect and corrections for harmonics. P, 62.

164 Electric Power Transmission 3(3,0)

Advanced A.C. circuit theory as applied to power circuits distributed constants, long line equations. P, 153.

168 Electrical Apparatus Laboratory 1(0,3)

Independent group laboratory investigations of topics included in 163. Concurrent with 163.

169 Electrical Design 2(0,6)

Computation of principle dimensions and drawing for a transformer, motor, or generator. P, 62.

170 Special Electrical Problems 1-5

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

173 Electronics 3(3,0)

Analysis of electron tubes and solid-state devices in wave-shaping circuits and in analog and digital computer circuits. P, 72.

174 Communication Circuit Theory 3(3,0)

Advanced circuit theory applied to communication networks. P, 153.

177 Electronics Laboratory 1(0,3)

Experimental analysis of electron tubes and solid-state devices in wave-shaping circuits and in analog and digital computer circuits. Concurrent with 173.

185 Electric Wave Theory 3(3,0)

Application of vector analysis to electric waves and high frequency radiation. P, 153 and Math 151.

187 Servomechanisms 3(3,0)

Servomechanism principles, dynamics of servo systems, transient and frequency response, block diagram notation, requirements for stability, Nyquist stability criterion and its application. P, 52-153 and grade of C or above in Math and EE subjects.

189 Transistor Electronics 3(3,0)

Structure and circuit applications of transistors and other semi-conductor devices. P, 71.

191 Analog Computer 3(3,0)

Study of the operational amplifier and its use in electronic addition, multiplication, and integration. Study of function multipliers and non-linear function generators. Problem solving. P, consent of instructor.

GRADUATE DIVISION

211-212-213 Advanced Circuit Theory 3-5

Method of symmetrical components for unbalanced polyphase systems. General mathematical treatment of steady states and transient states in complex networks. Electrical filters, uniform lines and cables, combined mechanical-electrical systems, and other special topics as arranged. P, graduate standing in electrical engineering with high average in mathematics.

217-218 Electric Transients 3(3,0)

Solution of transients in circuits with non-linear elements. Transient analysis in the general network. Use of Laplace transform in the solution of transients especially for excitations other than D.C. and harmonic. P, consent of instructor.

221-222-223 Electrical Machine Theory 2-4

More detailed and accurate analysis of characteristics of electrical machinery. Mainly technical literature, but may be accompanied by special laboratory tests.

299 Thesis in Electrical Engineering

7-10 as arranged

Engineering Shops (ES)

Professor Anderson; Assistant Professors Wakeman, Svec; Instructor Salmen; Assistant Jacobson

Engineering students are required to take certain courses in the Engineering Shops in order that they may have an opportunity to become acquainted with the various shop processes which are closely associated with practical applications of the principles of engineering. In working with the machines and other equipment the student will acquire some understanding of the properties of materials, and various treatments of materials for specific operations and purposes.

The Engineering Shops are well equipped for the particular operations involved in machine tool operations, and welding.

Certain shop courses are required of Engineering and Industrial Arts students and facilities are available for advanced elective courses in these fields.

Courses Offered by the Department

LOWER DIVISION

2 Machine Shop 1(0,3)

A study of machine tools and their use in industry, principles of operation, production methods and related equipment. Introduction to jigs and fixtures.

3 Welding 1(0,3)

The science of joining metals. Lectures, demonstrations and exercises. Gas and arc welding, cutting, heat treatment, spot welding and related information.

4 Machine Shop 1(0,3)

A closer study of the more complicated processes involving the operation of machine tools. Introduction of tool and die work and methods of inspection. P, 2.

5 Welding 1(0,3)

Lectures and exercises in the practical application of arc and gas welding, position welding, pipe welding and joining of non-ferrous metals. Identification of metals. P, 3.

20 Machine Shop Problems 2(0,6)

Opportunity to undertake detailed and specialized studies of particular machines or to undertake comprehensive problems. P, 2, 4.

21 Machine Shop Problems 2(0,6)

Specialized study, particular problems with emphasis on tool making and the solution of individual problems in set up work.

22 Metal Processing 2(0,6)

A lecture and laboratory course designed to acquaint the engineering student with metal processing in relation to engineering science. A study of problems and their solutions as related to industrial machine tools, metal lathes, mills, boring machines and automatics.

23 Metal Processing 1(0,3)

An engineering approach to the science of joining metals. A survey of the capabilities and limitations of present equipment. Brief introduction to metallurgy, heat treatment of steel and a look at the characteristics of other metals and alloys. Gas welding, arc welding and related equipment.

24 Shop 1(0,3)

Use of sheet metals in the manufacture of electrical equipment. Layout, punch press dies, spot welding, soldering and mechanical methods of fastening sheet metal. P, GE 5.

Mathematics (Math)

Professors MacDougal, Walder, Wente; Associate Professors Engebretson, Kranzler, McKenzie, Richards; Assistant Professor Scholten; Instructors Amen, Baker, Christian, Flesner, Kundel, Mackintosh, Monahan; Assistants Hook, Straw

The general work of this department is planned to cultivate habits of systematic and accurate thinking, as well as facility in making calculations. Independent effort is encouraged to the greatest possible extent, the solutions of problems and original demonstrations forming an important part of each course.

At the end of four or five weeks those students enrolled in course 3 who have shown sufficient ability will be allowed to go into course 14. Also, those students in course

14 who do not have sufficient knowledge of high school algebra may be required to take course 3.

Science and Applied Arts students who have unusual ability in mathematics should take courses 14, 15 and 16 rather than 10, 11 and 12 in the Freshman year. Students who take both Algebra 10 and 14 will receive credit in only one of the courses.

A major in mathematics is offered in the Division of Science and Applied Arts. An outline of the curriculum is given below.

Curriculum in Science and Applied Arts, Mathematics Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

LOWER DIVISION

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 14	5		
Trigonometry, Math 15		5	
Analytic Geometry and Calculus, Math 16			5
Inorganic Chemistry, Ch 1-2-3	4	4	4
General Botany, Bot 11-12-13	4	4	4
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		

Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20 and elective (Engl 21-27)		3	3
Oral Communication, Sp 22			3
Analytic Geometry and Calculus, Math 25	5		
Calculus, Math 26-27		5	4
General Physics, Phy 20-21-22	5	5	5
Introduction to Social Science, GS 1-2-3	3	3	3
General Psychology, Psy 25	3		
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

UPPER DIVISION

Junior Year	**F**	**W**	**S**
Theory of Equations, Math 145	3		
Differential Equations, Math 148			4
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15		5	
American Government, PS 34			4
Solid Analytic Geometry, Math 144		3	
Statistical Methods, Econ 81	5		
*Elective**			

Senior Year	**F**	**W**	**S**
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
*Elective**			

*Students preparing to teach in high school should consult with the head of the Education department before registering for the first term of their junior year. All students must complete 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type.*

MAJOR: Math 14, 15, 16, 25, 26, 27, 145, 148, plus three hours of elective credit.

MINOR: Math 14, 15, 16, 25, 26, 27.

Courses Offered by the Department

LOWER DIVISION

2 Solid Geometry 2(2,0) F

Recommended for Freshman engineering students who enter without high school credit in subject. Not counted towards graduation.

3 Algebra (1st year H. S. continued) 5(5,0) FW

Required of Freshman engineering students entering with credit in only two semesters of algebra. Not open to other students. Not counted towards graduation.

10 College Algebra (for Agriculture, Science and Applied Arts and Pharmacy Students) 5(5,0) FWS

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 Science and Applied Arts and Pharmacy students) 5(5,0) WS

Principles of Plane Trigonometry and their applications to solutions of triangles, inverse functions, solutions of trigonometric equations. DeMoivre's Theorem. P, 10 or equivalent.

12 Analytic Geometry (for Science and Applied Arts students) 5(5,0) S

Co-ordinates, loci, the straight line, circle, ellipse, parabola and hyperbola. P, 10, 11, or equivalent.

14 College Algebra 5(5,0) FWS

Elementary topics, functions and their graphs, review of quadratic equations, complex numbers, theory of equations, permutations and combinations; partial fractions, and determinants. P, three semesters of high school algebra. Required in Freshman engineering course. May be taken in place of 10 by Science and Applied Arts students of unusual mathematical ability.

15 Plane Trigonometry 5(5,0) FWS

Functions of acute angles, solution of right triangle, solution of oblique triangle, general applications of trigonometry. P, one year of plane geometry and one and one-half years of high school algebra. Required in Freshman engineering, elective in Science and Applied Arts and Agricultural courses.

16 Analytic Geometry and Calculus 5(5,0) FWS

Co-ordinate systems, common curves, limits, differentiation of algebraic functions, applications of derivatives, differentials. P, 14, 15. Required in Freshman engineering, elective in Science and Applied Arts and Agricultural courses.

20 Topics in High School Mathematics 5 credits Su

This course will begin with an introduction to logic followed by selected topics from those recommended for high schools participating in the School Mathematics Study Group project. Textbooks for this course will be those prepared by the S.M.S.G.

23 Descriptive Astronomy 5(5,0) S

Introductory course. P, a knowledge of plane trigonometry.

25 Analytic Geometry and Calculus 5(5,0) FWS

Mean Value Theorem, definite integrals, curve tracing, differentiation of transcendental functions, differentiation of polar relations. P, 16. Required in engineering, elective in other courses.

26 Calculus 5(5,0) FWS

Conic sections, rotation of axes, integration by standard forms and by special methods, applications of definite integrals, topics in solid analytic geometry. P, 25. Required in engineering, elective in other courses.

27 Calculus 4(4,0) FWS

Partial derivatives, multiple integrals, and their applications, infinite series, expansion of functions, hyperbolic functions. P, 26. Required in engineering, elective in other courses.

UPPER DIVISION

140 Mathematical Statistics 5(5,0) W

Analysis of data by certain elementary principles; curve fitting, measures of correlation, and meaning and calculation of a number of statistical constants. P, 27.

141 College Geometry 3(3,0) F

A synthetic approach to plane geometry at the college level. A course especially valuable for teachers of high school mathematics. Open only to Juniors and Seniors. P, 27 or consent of instructor.

142-143 Mathematics of Finance 3(3,0) 2(2,0) WS

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 for 142; 142 for 143.

144 Solid Analytic Geometry 3(3,0) W

Application of coordinate systems of geometry of three dimensions. P, 16. Offered primarily for students who are interested in advanced mathematical study and graduate work.

145 Theory of Equations and Determinants 3(3,0)

Complex numbers, DeMoivre's Theorem, cubic and biquadratic equations, determinants. P, 25 or consent of instructor.

146 Higher Algebra 3(3,0)

Number system, introduction to theory of groups, fields and rings. P, 145 or consent of instructor.

147 Matrices 3(3,0)

Operations with matrices, equivalent, orthogonal, and similar matrices with applications. P, 146 or consent of instructor.

148 Differential Equations 4(4,0) FWS

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

149 Partial Differential Equations 4(4,0) F

Series solutions, total differential equations. Simultaneous equations, approximate solutions, partial differential equations of first and higher orders. Applications. P, 148.

150 Projective Geometry 3(3,0)

Projective geometry from a synthetic standpoint. Prime forms, projective and metric properties, harmonic sets, triangles, poles and polars, and involution. P, 25 or consent of instructor.

151 Advanced Engineering Mathematics 5(5,0)

Determinants, matrices and systems of linear equations; complex variables, conformal mapping, integration in the complex plane; Fourier series; some special functions (Beta, Gamma, etc.); vector algebra and calculus; some partial differential equations; the Laplace transform and applications. P, 148.

152 Introduction to Abstract Algebra 5 credits Su

Introduction to number theory, groups and fields, sets, Boolean algebra, matrices. P, differential and integral calculus.

153 Algebra and Number Theory 3(3,0) FWSSu

A study of the foundations of algebra, an introduction to number theory by sets and a consideration of modern algebra as it is expected to affect the high school curriculum. P, 27.

154-155-156 Advanced Calculus 3(3,0) FWS

Infinite series, elliptic integrals, Fourier series, solutions of equations, multiple integrals, line, surface and space integrals, ordinary differential equations, Bessel functions, partial differential equations, vector analysis, and probability. P, 27.

168-169 Complex Variable 3(3,0) FW

Algebra of complex numbers, classifications of functions, differentiation, and integration, mapping, transformations, and infinite series. P, 27.

GRADUATE DIVISION

210 Laplace Transform 3-5(3-5,0)

Main features of Laplace transform theory. P, 151 or 156 or consent of instructor.

250-251 Advanced Topics in Mathematics 1-3(1-3,0) FWS

Selected topics in mathematics to fit needs of graduate students. Limited to total of five credits. P, consent of staff.

299 Thesis in Mathematics 7-10 as arranged

Mechanical Engineering (ME)

Professors Sandfort, Amidon; Associate Professor Ma; Assistant Professors Christianson, Paradise, Ulmer; Instructor Lee; Assistants Knofczynski, Seversky

Mechanical Engineering includes the following major divisions: design of machinery and apparatus for all purposes; steam power generation, internal combustion engines; heating, ventilation, refrigeration, and air conditioning; automotive; aeronautical; production methods, and industrial management.

The curriculum is planned to give a thorough training in the theoretical concepts underlying mechanical research, design, and operation. Emphasis is laid on the understanding of fundamentals rather than on detailed and descriptive work in highly specialized fields of the profession. Throughout the entire course, classroom theory is supplemented by practical training in drafting and design rooms, shops, and laboratories. Some inspection trips are arranged to power and manufacturing plants.

The Mechanical Engineering laboratories are equipped for experimental work in steam and gas engineering; internal combustion engines; heating, ventilation and air conditioning; fans; steam, air and gas flow apparatus; fuels; lubricants; metallography; and aeronautics.

The college power and heating plant is available for the study and testing of power plant auxiliaries.

Curriculum in Mechanical Engineering

Leading to the Degree of Bachelor of Science in Mechanical Engineering

213 quarter credits and 426 grade points are required for the Bachelor's Degree

Freshman Year—See common curriculum for Freshman Engineers

Sophomore Year	F	W	S
Calculus, Math 25-26-27	5	5	4
General Physics, Phy 20-21-22	5	5	5
Humanities, GS 30-31-32	2	2	2
Military, Mil 20-21-22 or 25-26-27	1	1	1
Metal Processes, ES 22-23	2	1	
Principles of Economics, Econ 21	3		
Engineering Materials and Processes, ME 38		3	
*Electives**		1	
Statics, GE 32			4
Oral Communication, Sp 10			2
	18	18	18

Junior Year	F	W	S
Differential Equations, Math 148	4		
Dynamics, GE 145	3		
Electricity and Magnetism, EE 50	5		
Metallurgy, ME 145	3		
Principles of Economics, Econ 22	3		
A.C. Circuits, EE 59		4	
Fluid Mechanics, CE 170		3	
Mechanisms, ME 48		4	
Writing for Technical Students, Engl 43		3	
Thermodynamics, ME 140-141		4	4
Strength of Materials, GE 42			4
Heat Transfer, ME 143			3
Electric Equipment, EE 60			4
Mechanical Engineering Measurements Lab, ME 46			1
Oral Communication, Sp 20			2
	18	18	18

Senior Year	F	W	S
Design of Machine Elements, ME 144	5		
Fuels and Combustion, ME 142	3		
Atomic Physics, Phy 180	3		
Seminar, ME 176	1		
Advanced Mechanical Lab, ME 163-164-165	2	2	2
*Electives**	4	7	11
Machine Design, ME 161-162		3	2
Industrial Management, ME 170-171		3	3
Electronic Control, EE 68		3	
	18	18	18

TECHNICAL ELECTIVES

Aeronautics	Credits
Simple Aerodynamics, ME 146	2
Advanced Aerodynamics, ME 147	3
Mechanical Vibrations, ME 175	3
Heat Power	
Power Plant Engineering, ME 168	3
Steam and Gas Turbines, ME 169	3
Refrigeration and Air Conditioning, ME 174	3
Heating and Air Conditioning Design, ME 167	3
Internal Combustion Engines, ME 166	3
Industrial Engineering	
Plant Production Controls, ME 181	3
Time and Motion Study, ME 182	3
Industrial Man Power, ME 183	3
Safety Engineering, ME 184	3
Plant Layout, ME 185	3
Machine Design	
Mechanical Vibrations, ME 175	3
Elementary Structural Theory, CE 161	5
Jig and Fixture Design, ME 41	3
Nuclear Engineering	
Nuclear Physics, Phy 184	3
Nuclear Physics Lab, Phy 185	1
Nuclear Power Plants, ME 159	3
Nuclear Power Plants, ME 160	3

*Elective courses are provided to permit the student to concentrate in the applied technical area of his particular interest, and to provide further cultural growth and education in the humanistic-social science areas.

Accordingly the elective program for each student must be planned with his counselor, and approved by the Head of the Mechanical Engineering Department. It will include a minimum of nine hours of technical electives in the appropriate technical elective groups shown above, and 12 hours of humanistic-social science electives selected from the representative list shown on page 20 of this section.

Courses Offered by the Department

LOWER DIVISION

38 Engineering Materials and Processes 3(3,0)
Study of the basic engineering materials, their processing, foundry, forming, machining, shaping and powder metallurgy. P, ES 22 and concurrent registration in ES 23.

UPPER DIVISION

41 Jig and Fixture Design 3(2,3)
Introductory course in modern machine shop tool procedure; fundamentals of jig and fixture design. P, GE 4, 21; ES 22.

44 Heat Engines 5(5,0)
Introductory course; including survey of power generation fields, types of plants and equipment; power units and equipment for various services. P, Junior standing.

46 Mechanical Engineering Measurements Laboratory 1(0,3)
Instrumentation, temperature and pressure measuring instruments. Calibration of instruments. P, 140.

48 Mechanisms 4(2,4)
Analysis of motion and design of linkages, cams, belts, gears, gear trains, and planetary gears. Graphical solution of velocities, accelerations, forces, inertia forces, and balancing of various machine elements. P, GE 145.

49 Thermodynamics 5(4,2)
Terminal course for non-mechanical engineering students. Properties and fundamental equations of gases and vapors. Thermodynamic cycles and their application to heat, power equipment. P, Phy 22; Math 27.

70 Industrial Management 3(3,0)
Industrial ownership and organization, production control technique, personnel problems, wage systems. For non-mechanical engineering students only. P, Senior standing.

140-141 Thermodynamics 4(4,0), 4(4,0)
Thermodynamic properties of gases, vapors, and mixtures. First and second laws of thermodynamics. Power cycles and refrigeration cycles. Thermodynamics of steam power plants, internal combustion engines, refrigeration systems and compressors, nozzles, turbines and air conditioning. P, Phy 22.

142 Fuels and Combustion 3(2,3)
Combustion stoichiometry, properties of fuels, fuel burning equipment. Fuels testing, flue gas analysis, test of steam generator. P, 141 or 49.

143 Heat Transfer 3(3,0)
Introduction to conduction, convection, and radiation of heat and their utilization in engineering applications. Study of heat exchangers. P, Phy 22; Math 148.

144 Design of Machine Elements 5(3,6)
Properties of materials, fundamental mechanics, working stresses, fabrication and proportioning of part sizes involved in design of fastenings, shafting, fly wheels, gears, bearings, connecting linkages and other machine elements. P, 48; GE 42.

145 Metallurgy 3(3,0)
Effects of composition, mechanical treatment, and heat treatment on the microstructure and properties of metals. Properties of common alloys and their production. Refining, casting, and processing of iron and its alloys. P, 38.

146 Simple Aerodynamics 2(2,0)
Airfoil characteristics, wing shapes, static and dynamic forces, stability and control, construction. P, Junior standing; GE 145.

147 Advanced Aerodynamics 3(3,0)
Viscosity phenomena, compressibility, flaps and slots, propellors, design. P, 146.

159 Nuclear Power Plants 3(3,0)
Nuclear reactions and radiations, reactor theory for steady and unsteady conditions, nuclear reactor instrumentation and control. P, Phy 180.

160 Nuclear Power Plants 3(3,0)
Processing of nuclear reactor fuel, reactor materials, radiation shielding, heat transfer aspects of reactor systems. P, 159.

161-162 Machine Design 3(0,9), 2(0,6)
Actual stress analysis and design of machine such as punch press, crane, steam turbine, or internal combustion engine; assembly and detail drawings of machine design. Opportunity given to select project of interest to student. P, 144.

163-164-165 Advanced Mechanical Laboratory 2(0,3), 2(0,3), 2(0,3)
Standard tests and analysis of boilers, steam pumps, condensers, engines and turbines; internal combustion engines, including gas, gasoline, oil, automotive and aviation; tests and determination of characteristics of fans, steam, air, and hydraulic flow devices; heating, ventilation, air conditioning, and refrigeration equipment. P, 46, 141.

166 Internal Combustion Engines 3(3,0)
Theory, design and operation of gas, gasoline, and oil engines of various types. P, 141 or 49.

167 Heating and Air Conditioning Design 3(1,6)
Principles of heating, ventilating and air conditioning systems in current use. Heat loss and gain computations. Design and layout of heating and air conditioning systems. P, 141 or 49, 143.

168 Power Plant Engineering 3(3,0)
Design and operation of modern power plants; power units and appurtenances; fuel handling and storage; power generation costs in steam and diesel plants, economics of design and operation. P, 142, 143.

169 Steam and Gas Turbines 3(3,0)
Theory, design, and operation of steam and gas turbines. P, 141, 143.

170-171 Industrial Management 3(3,0), 3(3,0)
Industrial ownership, organization and leadership. Production layout and control, time and motion studies, labor problems, wage incentives and systems, employment and personnel work, safety engineering. P, Senior standing.

172 Advanced Metallurgy 3(3,0)
Continuation of course 145. Elasticity, plasticity, structure of alloys, high temperature metals. P, 145.

173 Metals Laboratory 2(0,6)
Principles of metallography; properties of metals used in engineering practice. P, concurrent registration in 172.

174 Refrigeration and Air Conditioning 3(3,0)
Principles of refrigeration, analysis of refrigeration cycles. Air conditioning analysis. Steady flow processes involving air-water vapor mixtures. P, 141, or 49, 143.

175 Mechanical Vibrations 3(3,0)
Elementary phases of vibrations and some methods of control and isolation. P, 48; Math 148; GE 145.

176 Seminar 1(1,0)
Group discussion and reports on current events and development in field of mechanical engineering. P, Senior standing.

180 Special Mechanical Engineering Problems
(Credit as arranged)
Elective course to provide an opportunity for study or investigation of a special problem. Problems chosen may be analytical, design, or laboratory studies.

181 Plant Production Control 3(3,0)
A study of methods and procedures required to plan and process the flow of materials in industrial plants. P, 170.

182 Time and Motion Study 3(3,0)
Methods analysis and techniques of micro and stop-watch time study. P, 170.

183 Industrial Man Power 3(3,0)
Personnel selection, standard job tests, labor relations, job analysis. P, 170.

184 Safety Engineering 3(3,0)
Compensation, safety codes, safety education, safeguards to building and equipment, health and hygiene, and safety methods. P, 170.

185 Plant Layout 3(3,0)
Studies involving the arrangement of the physical facilities and efficient processing of work in the industrial plant. P, 170.

GRADUATE DIVISION

225-226-227 Advanced Engineering Management 3-5
Plant production, control, time and motion study, personnel selection and standard job tests, safety and industrial hygiene, cost analysis, organization. P, graduate standing.

230-231-232 Advanced Machine Design 3-5
Stress analysis, elastic energy theory, photoelasticity, curved beams, thin plates and shells, torsion, fatigue and stress concentration. Other topics may be arranged. P, graduate standing.

240-241 Advanced Engineering Thermodynamics 3-5
Fundamental concepts of thermodynamics, thermodynamic laws, temperature, entropy. Thermodynamic equations. Special topics. P, graduate standing.

243-244 Advanced Heat Transfer 3-5
Advanced study of heat transfer by conduction, radiation and convection. Problems may cover steady and unsteady state heat conduction. P, graduate standing.

265-266-267 Central Stations 3-5
Choice and arrangement of apparatus; design and operation; economics of plant operations. P, graduate standing.

268 Advanced Refrigeration and Air Conditioning 3-5
Analysis and design of refrigeration and air conditioning processes, cycles and systems. Special topics. P, graduate standing.

299 Thesis in Mechanical Engineering
7-10 as arranged

Physics (Phy)

Professors Froslie, Duffey, Nickell; Associate Professors Miller, Williams; Assistant Professors Graetzer, Sippel; Assistants Cannon, Wilson

Two main objectives have been kept in mind in the organization of the course work of this department. First, it is intended that the courses should meet the needs of students in the various divisions of the College who need the basic subject matter of physics in their chosen fields. Second, the sequence of courses makes it possible for a student to complete a strong major in physics. The department is well supplied with laboratory and lecture demonstration equipment and other facilities in support of these objectives.

Two curricula in physics are offered. First is the major under the Division of Science and Applied Arts. This major should be followed by those who expect to teach physics at the high school or junior college level. Second, a curriculum in engineering physics is offered. Students who expect to enter industrial work should elect the curriculum in engineering physics listed directly below. The Science and Applied Arts curriculum is listed following physics course descriptions on page 18 of this section.

Curriculum in Engineering Physics

Leading to the Degree of Bachelor of Science in Engineering Physics
213 credits and 426 grade points required for the Bachelor's Degree

Freshman Year—See common curriculum for Freshman Engineers

Sophomore Year	F	W	S
Analytic Geometry and Calculus, Math 25	5		
Calculus, Math 26-27		5	4
General Physics, Phy 20-21-22	5	5	5
Humanities, GS 30-31-32	2	2	2
Principles of Economics, Econ 21-22	3	3	
Oral Communication, Sp 10	2		
Metal Processing, ES 22-23		2	1
Statics, GE 32			4
Military, Mil 20-21-22 or 25-26-27	1	1	1
*Elective**			1
	18	18	18

Junior Year	F	W	S
Electricity and Magnetism, EE 50	5		
A.C. Circuits, EE 51		5	
Thermodynamics and Statistical Mechanics, Phy 146			4
Atomic Physics, Phy 180	3		
Optics, Phy 144		4	
Heat Lab, Phy 147			1
Differential Equations, Math 148	4		
Optics Lab, Phy 145		1	
English, Engl 43			3
Theoretical Mechanics, Phy 172	4		
Methods of Theoretical Physics, Phy 150		4	
Introduction to Quantum Mechanics, Phy 152			4
Mechanics Lab, Phy 173	1		
Oral Communication, Sp 20		2	
*Elective**	1	2	6
	18	18	18

Senior Year	F	W	S
Atomic and Molecular Spectra, Phy 182	3		
Nuclear Physics, Phy 184		3	
Nuclear Measurements Lab, Phy 185			1
Atomic Physics Lab, Phy 183	1		
Advanced Calculus, Math 154-155-156	3	3	3
Electronics, EE 71-72	3	3	
Heat Transfer, ME 143			3
Theory of Electricity, Phy 174-175		3	3
Electrical Measurement, Phy 170			2
*Elective**	8	6	6
	18	18	18

TECHNICAL ELECTIVES

Fluid Mechanics, CE 170, 3 credits
Strength of Materials, GE 42, 4 credits
Dynamics, GE 145, 3 credits
Electric Wave Theory, EE 185, 3 credits
Transistor Electronics, EE 189, 3 credits
Electronics Laboratory, EE 75, 1 credit
Electronics Laboratory, EE 76, 1 credit
Partial Differential Equations, Math 149, 4 credits
Higher Algebra, Math 146, 3 credits
Matrices, Math 147, 3 credits
Metallurgy, ME 145, 3 credits
Reactor Physics, Phy 186, 3 credits
Physics of Solid State, Phy 190, 3 credits
Analog Computer, EE 191, 3 credits

*Elective courses are provided to permit the student to concentrate in the applied technical area of his particular interest, and to provide for further growth and education in the humanistic-social science areas. The program of electives must be approved by the Head of the Physics Department. A minimum of 12 credit hours must be chosen from the listing in the Humanistic-Social area which appears on page 20 of this section. In general no more than six credit hours may be taken from any department or area. Twelve hours must be chosen from the list of Technical Electives.

Courses Offered by the Department

LOWER DIVISION

5 Household Physics 5(5,0) W
General review of physics. Emphasis placed upon practical application of physical principles in home.

7 Introductory Physics 5(5,0) F
One-term course including fundamentals of mechanics, heat, sound, electricity, and light with emphasis on practical applications. P, high school algebra.

10-11-12 Elementary Physics 4(3,2) FWS
Suitable for students with limited mathematical background. Open to freshmen. Offered in general to all students outside engineering groups. Mechanics, heat, sound, electricity and light considered. P, high school algebra. (Credit will not be allowed in both 10-11-12 and 20-21-22.)

15 Physics for Secondary School Teachers I 5(3,4) Su
A course treating the basic branches of physics, heat, mechanics, light, sound and electricity. Intended primarily for secondary teachers with little or no previous training and experience in other natural sciences. No specific prerequisite, but the student should be well grounded in arithmetic, simple algebra, and geometry. Offered only in Summer in National Science Foundation Institute.

20-21-22 General Physics 5(4,2) FWS or WSF
Mechanics of solids and fluids, sound, heat, electricity, magnetism, and light. P, concurrent registration in Math 25. (Credit will not be allowed in both 10-11-12 and 20-21-22.)

UPPER DIVISION

140 Physics for Secondary School Teachers II 5(3,4) Su
Lectures, demonstrations, laboratory work and discussions on specific topics in mechanics, heat, electricity, light and sound, directed toward the problems encountered in teaching these topics at the secondary level. Part of the course will deal with recent developments in physics. A clear understanding of the foundation of physics is emphasized. Prerequisite, minimum of one year of general college physics and several years experience teaching physics at the secondary level. Offered only in Summer in National Science Foundation Institute.

144 Optics 4(4,0) W
Intermediate course in geometrical and physical optics. Treatment of reflection, refraction and interference and including lenses, mirrors, optical instruments, resolving power, Fresnel and Fraunhofer diffraction, interference from extended sources, double refraction, and polarization. P, 12 or 22; Math 27.

145 Optics Laboratory 1(0,3) W
Experimental work covering material in course 144. P, concurrent registration in 144.

146 Thermodynamics and Statistical Mechanics 4(4,0) S
Theoretical thermodynamics in connection with temperature measurement, specific heat, properties of gases, heat transfer, and changes of state. P, 12 or 22; Math 27.

147 Heat Laboratory 1(0,3) S
Experimental work covering material in course 146. P, concurrent registration in 146.

150 Methods of Theoretical Physics 4(4,0) W
Advanced mathematical concepts used in discussing thermodynamics, electricity and magnetism, relativity, and quantum mechanics. P, Math 148.

152 Introduction to Quantum Mechanics 4(4,0) S
Photon theory, particle diffraction, deBroglie's equation. Application of deBroglie's equation to particle in a box and to rotation. Derivation of Schrodinger's equation and its application to hydrogen atom. Use of hydrogen atom as a model for polyelectronic and nuclear energy levels. P, 150.

168 Laboratory Problems 1-3 W or S
Electricity, acoustics, micro-wave optics, light, electronics.

170 Electrical Measurements 2(0,6) S
Capacitance, inductance, galvonometer constants, resistance, permeability and frequency. P, 174 or concurrently.

172 Theoretical Mechanics 4(4,0) F
Motion in various force fields, particle dynamics, dynamics and statics of rigid bodies. Oscillatory motion, deformable bodies and wave motion, mechanics of fluids. P, GE 32.

173 Mechanics Laboratory 1(0,3) F
Measurements on mechanical systems with emphasis on precision and evaluation of experimental data with consideration of errors. P, 172 or concurrently.

174-175 Theory of Electricity 3(3,0) WS
Electro and magneto statics, steady currents, chemical, thermal, and magnetic effects of currents, motion of ions in electric and magnetic fields, electromagnetic inductions and electromagnetic theory. P, Senior standing in Physics; Math 148.

176 Special Problems 1-4
Elective course to provide opportunity for study or investigation of special problems.

180 Atomic Physics 3(3,0) F
Evaluation of experimental evidence concerning atomic and nuclear particles; basic kinetic theory of atoms and electrons; elements of atomic and nuclear structure; survey of nuclear processes. P, 22.

182 Atomic and Molecular Spectra 3(3,0) F
Systematic study of the spectra of atoms and molecules with interpretation in terms of the vector model and quantum mechanics. P, 180 and Math 148.

183 Atomic Physics Laboratory 1(0,3) F
Experiments related to material in 180 and 182 such as measurement of electronic charge, ratio of charge to mass of electron, analysis of simple spectra. P, concurrent registration in 182.

184 Nuclear Physics 3(3,0) W
Study of radioactivity; properties of particle accelerators; interaction of nuclear particles with matter; nuclear forces and nuclear structure. P, 180 and Math 148.

185 Nuclear Measurements Laboratory 1(0,3) S
Experiments in alpha, beta, and gamma ray detection and absorption; properties of various particle detectors and specialized electronic circuits used in particle counting; interaction of neutrons with matter including moderation, diffusion, absorption, and scattering. P, concurrent registration in 184.

186 Reactor Physics 3(3,0)
Elementary reactor theory; types of reactors; reactor design problems; instruments used in reactor control. P, 180; Math 148.

188 Nuclear Engineering 3(3,0)
Unusual problems associated with a nuclear power plant such as shielding; radiation damage and corrosion; fission product utilization and disposal; biological effects and hazards. P, 184.

190 Physics of the Solid State 3(3,0)
Electronic processes with reference to the electrical properties of metals, semiconductors and insulators and general electron emission processes. P, 182.

195 Physics Colloquium 1(1,0) or 0(1,0) FWS
Registration required of all graduate majors in physics. Maximum of two hours may be counted toward graduate major in physics. Participation primarily by staff and graduate majors. Open for undergraduate credit by special arrangement.

GRADUATE DIVISION

210-211-212 Introduction to Theoretical Physics 2-5
Classical theoretical physics including mechanics, elasticity, hydrodynamics, electricity, electro-magnetic theory, optics, and thermodynamics. P, graduate standing in physics with a strong background in mathematics.

220-221-222 Advanced Modern Physics 3-5
Atomic and molecular spectra, X-rays, nuclear physics. Elementary discussion of wave mechanics with application to selected topics in spectra. P, graduate standing in physics with strong background in mathematics and mathematical physics.

299 Thesis in Physics 7-10 as arranged

Curriculum in Science and Applied Arts, Physics Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 14	5		
Trigonometry, Math 15		5	
Analytic Geometry and Calculus, Math 16			5
Inorganic Chemistry, Ch 1-2-3	4	4	4
Introduction to Social Science, GS 1-2-3	3	3	3
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or PE 10-11-12	1	1	1
Orientation, 1	1		

Sophomore Year	F	W	S
Introduction to Literature, Engl 20 and *elective*	3	3	
General Psychology, Psy 25			3
Analytic Geometry and Calculus, Math 25	5		
Calculus, Math 26-27		5	4
General Physics, Phy 20-21-22	5	5	5
Elementary Botany, Bot 11-12-13	4	4	4
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	F	W	S
Optics, Phy 144		4	
Optics Laboratory, Phy 145		1	
Principles of Economics, Econ 21-22		3	3
Oral Communication, Sp 22			3
Differential Equations, Math 148	4		
Atomic Physics, Phy 180	3		
Theoretical Mechanics, Phy 172	4		
Mechanical Lab, Phy 173	1		
National Government, PS 34		4	
Introduction to Sociology, RS 15			5
Elective			

Senior Year	F	W	S
Atomic and Molecular Spectra, Phy 182	3		
Atomic Physics Lab, Phy 183	1		
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Nuclear Physics, Phy 184		3	
Nuclear Measurements Lab, Phy 185			1
Thermodynamics and Statistical Mechanics, Phy 146			4
Heat Laboratory, Phy 147			1
Theory of Electricity, Phy 174		3	
Electrical Measurements, Phy 170			2
Elective			

Prescribed courses are in Roman type, elective and optional courses are in *Italic type*.
MAJOR: Phy 20-21-22, 144-145, 146-147, 170, 172-173, 174, 180, 182-183, 184-185.
MINOR: Phy 10-11-12 or 20-21-22, 146, 172, 174, 180.

SUGGESTED ELECTIVES

German, 1-2-3, 4-5-6; Chemistry, 21; French, 1-2-3, 4-5-6; Electrical Engineering, 50, 51; Mathematics, 151-152; 154-155-156; Courses in Education to complete teacher training requirement.

Two-Year Terminal Curricula in Engineering

Many individuals do not find it advisable to enter a regular four-year (twelve quarters) college schedule, but desire elementary phases of the college experience. To accommodate these people several two-year terminal curricula are offered.

In the engineering division two-year terminal curricula are offered in Draftsmanship, Shop Practices, and Surveying. Upon satisfactory completion of the courses of study prescribed in these curricula, the appropriate certificate is awarded.

Two-Year Terminal Courses

DRAFTSMANSHIP

Freshman Year	F	W	S
Algebra, Trigonometry, Analytic Geometry, Math 10-11-12	5	5	5
English, Engl 1-2-3 or 4-5-6	3	3	3
Engineering Drawing, GE 3-4	2	2	
Descriptive Geometry, GE 5			2
Engineering Shop, ES 2, 4	1	1	
Engineering Shop, ES 3, 5	1	1	
Design, Art 1-2	2	2	
Drawing and Composition, Art 4			2
Physical Education, PE 1-2-3	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Engineering Problems, GE 10			1
Orientation, Or 1	1		
Elective			

Sophomore Year	F	W	S
Elementary Physics, Phy 10-11-12	4	4	4
Typography, J 20	3		
Oral Communication, Sp 22			3
Technical Sketching, GE 21		1	
Principles of Economics, Econ 21-22	3	3	
Plane Surveying, CE 3	3		
Engineering Materials and Processes, ME 38		3	
Sheet Metal, IAE 40			3
Military, Mil 20-21-22 or 25-26-27	1	1	1
Architectural Drafting, GE 31			3
Elective			

SHOP PRACTICES

Freshman Year	F	W	S
Algebra, Trigonometry, Analytic Geometry, Math 10-11-12	5	5	5
English, Engl 1-2-3 or 4-5-6	3	3	3
Engineering Drawing, GE 3-4	2	2	
Descriptive Geometry, GE 5			2
Engineering Shop, ES 2, 4	1	1	
Engineering Shop, ES 3, 5	1	1	
Woodworking, IAE 10			2
Physical Education, PE 1-2-3	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Engineering Problems, GE 10			1
Orientation, Or 1	1		
Elective			

Sophomore Year	F	W	S
Plane Surveying, CE 3	3		
Oral Communication, Sp 22	3		
Technical Sketching, GE 21			1
Engineering Shop, ES 20-21	2	2	
Principles of Economics, Econ 21-22		3	3
Elementary Physics, Phy 10-11-12	4	4	4
Military, Mil 20-21-22 or 25-26-27	1	1	1
Engineering Materials and Processes, ME 38		3	
Sheet Metal, IAE 40			3
Humanities, GS 30-31-32	2	2	2
Elective			

SURVEYING

Freshman Year	F	W	S
Algebra, Trigonometry, Analytic Geometry, Math 10-11-12	5	5	5
Engineering Drawing, GE 3-4	2	2	
English, Engl 1-2-3 or 4-5-6	3	3	3
Descriptive Geometry, GE 5			2
Engineering Shop, ES 2, 4	1	1	
Engineering Shop, ES 3, 5	1	1	
Plane Surveying, CE 3			3
Physical Education, PE 1-2-3	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Orientation, Or 1	1		
Elective			

Sophomore Year	F	W	S
Elementary Physics, Phy 10-11-12	4	4	4
Oral Communication, Sp 22	3		
Principles of Economics, Econ 21-22		3	3
Topographic Surveying, CE 25			3
Advanced Surveying, CE 23		3	
Route Surveying, CE 52			3
Engineering Materials, CE 34		2	
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

Representative Humanities and Social Science Electives for Students Enrolled in the Division of Engineering

In general Humanities and Social Science electives should be selected from two or more of the following departments: Art, English, Foreign Languages, General Studies, History, Journalism, Music, Political Science, Psychology, Economics, Rural Sociology and Speech.

The courses listed below are to be considered only as representative courses in the various fields which would qualify as Humanistic and Social Sciences courses. This incomplete list is to serve only as a guide. The program of elective courses must be approved by the Department Head.

SUGGESTED ELECTIVES

Art
Art Appreciation, Art 35, 2 credits FW
History of American Art, Art 37, 1 credit

Economics
Money and Banking, Econ 48, 4 credits WS
Economic Geography, Econ 30, 3 credits S

English
Introduction to Literature, Engl 20, 3 credits FWS
The Novel, Engl 21, 3 credits W
Drama, Engl 22, 3 credits W
Poetry, Engl 23, 3 credits WS
Ideas in Prose, Engl 24, 3 credits W
Biography, Engl 25, 3 credits WS
Short Story, Engl 26, 3 credits W
Literature of the American West, Engl 27, 3 credits FS

Foreign Languages
First Year French, German, Russian or Spanish, FL 1-2-3, 4 credits FWS

General Studies
Directed Reading, GS 9, 1 credit WS
Languages in Everyday Living, GS 28, 1 credit to 3 credits FS
Principles of Ethics, GS 42, 3 credits S
Psychology of Religion, GS 46, 3 credits W
Introduction to Philosophy, GS 140, 3 credits FWS
Logic and the Scientific Method, GS 141, 3 credits WS
World Religion, GS 154, 3 credits WS
Philosophy of Science, GS 161, 3 credits S

History
World History, Hist 4-5-6, 3 credits FWS
American History, Hist 23-24, 4 credits FW
Recent American History, Hist 25, 4 credits FWS
Reading in Current Affairs, Hist 31, 2 credits S
History of Russia, Hist 51, 3 credits S (1961 and alternate years)

Political Science
National Government, PS 34, 4 credits FWSSu
State Government, PS 36, 4 credits FWS
Public Administration, PS 52, 3 credits WS

Psychology
General Psychology, Psy 25, 3 credits FWS
Applied Psychology, Psy 35, 3 credits F
Business and Industrial Psychology, Psy 81, 3 credits W

Rural Sociology
Introduction to Sociology, RS 15, 5 credits FWS
Race and Nationality Problems, RS 47, 3 credits W
General Anthropology, RS 50, 3 credits W

Speech
Argumentation and Debate, Sp 40, 2 credits F
Development of Theater, Sp 150, 3 credits W

DIVISION OF HOME ECONOMICS

The aims of the division are to guide each student (1) in the use of educational opportunities made available by the division, the college and the community for effective and satisfying modern living as based upon an understanding of the changing social, biological and physical sciences and the humanities; (2) in becoming an intelligent homemaker, responsible citizen and in choosing a gainful occupation; (3) in developing a wholesome personality; (4) in maintaining optimum physical and mental health; (5) in developing a capacity for enriching her own life and the lives of others through an appreciation of the arts; and (6) in the interpretation and use of research findings.

In homemaking she should be able to deal successfully with those experiences which make up family life, and to use the resources at her command for the welfare of the family and its individual members. She should be aware of the responsibilities of the family and the individual in a democratic way of life in a world community.

In a vocation she should be able to find and give satisfaction through an understanding of the technical aspects and social significance of her work.

Students may obtain broad general training in home economics and specialize in Child Development and Family Relations, Foods and Nutrition, Home Economics Education, Restaurant Management, Technical Journalism, or Textiles and Clothing.

The requirements in the first two years, except for Technical Journalism majors are essentially the same for all students completing the four-year course.

Non-majors, both men and women, may elect courses in the division of home economics. Courses contributing to general education include the following: CD 19, 35, 56; FN 19, 40; HM 32, 50, 75; and TC 11, 12, 21. A minor in home economics may be secured by completing 23 credit hours.

Core Curriculum in Home Economics

(Required of all Home Economics students)

	Credits	
A. HOME ECONOMICS		**42–41**
1. *Child Development and Family Relations*		9–10
The Individual in the Family, CD 19	3	
Child Development and Personality I, CD 35	3	
Experience with Children, CD 47*, or Child Development and Personality II, CD 179	4–3	
2. *Foods and Nutrition*		*12*
Family Foods, FN 19	4	
Family Foods, FN 20	4	
Fundamentals of Nutrition, FN 40	4	
3. *Home Economics*		*2*
Survey, HE 16	1	
Senior Seminar, HE 80	1	
4. *Home Management and Household Equipment*		*9*
Basic Household Equipment, HM 32	2	
Home Management, HM 50	3	
Home Management House, HM 72	4	
5. *Textiles and Clothing*		*9*
Costume Selection,† TC 11	3	
Beginning Construction,† TC 12	3	
Fabrics and Finishes, TC 21	3	

*Required of all Home Economics Education majors.
†Restaurant Management majors may substitute suggested electives for TC 11-12, HM 72.

B. HUMANITIES			28
1. *Arts*		9	
Related Art I, Art 3	3		
Art Appreciation, Art 35	2		
Family Housing, HM 75	4		
2. *Communication Skills and Literature*		19	
English, Engl 1-2-3 or 4-5-6	9		
Oral Communication, Sp 10	2		
Oral Communication, Sp 20	2		
Introduction to Literature, Engl 20	3		
Option	3		
Newswriting and Reporting, J 24	2		
Newswriting and Reporting Lab, J 37	1		
Publicity Methods, J 66	3		
The Novel, Engl 21	3		
Drama, Engl 22	3		
Poetry, Engl 23	3		
Essay, Engl 24	3		
Biography, Engl 25	3		
Literature of the Middle West, Engl 27	3		
C. SOCIAL SCIENCES			28
1. *Introduction to Social Science,* GS 1-2		6	
2. *Principles of Economics,* Econ 21		3	
3. *History*		8	
American Nation, Hist 23, 24, or 25	4		
American Government, PS 34	4		
4. *Elementary Psychology,* Psy 25		3	
5. *Principles of Sociology,* RS 20		5	
6. *Electives*		3	
D. PHYSICAL AND BIOLOGICAL SCIENCES			30
1. *Physical*			
Inorganic Chemistry, *Ch 1-2	8		
Organic Chemistry, *Ch 19	5		
Household Physics, Phy 5	5		
College Algebra, Math 10 or 14	5		
2. *Biological*			
General Bacteriology, Bac 30	5		
General Botany, Bot 11-12-13	12		
General Zoology, Z 20-21	8		
Human Physiology, Z 22	4		
E. PHYSICAL EDUCATION, PE 10-11-12		3	
F. ORIENTATION 1		1	131–132

*Required courses, remainder of 30 credits to be chosen from courses listed.

SUGGESTED ARRANGEMENT OF COURSES IN THE CORE CURRICULUM

(Students will work out schedules each quarter with help of their counselor)

FRESHMAN YEAR:	Credits
CD 19 The Individual in the Family	3
FN 19 Family Foods	4
HE 16 Home Economics Survey	1
TC 11 Costume Selection	3
TC 12 Beginning Construction	3
Art 3 Related Art I	3
Engl 1-2-3 or 4-5-6 English	9
Sp 10 Oral Communication	2
GS 1-2 Introduction to Social Science	6
*Ch 1-2 Inorganic Chemistry	8
*Ch 19 Organic Chemistry	5
PE 10-11-12 Physical Education	3
Or 1 Orientation	1

*Chemistry 1-2-19 required in freshman or sophomore year of all home economics majors.

SOPHOMORE YEAR:

CD 35 Child Development and Personality I	3
FN 20 Family Foods	4
HM 32 Basic Household Equipment	2
TC 21 Fabrics and Finishes	3
Art 35 Art Appreciation	2
Sp 20 Oral Communication	2
Engl 20 Introduction to Literature	3
Option Communication Skills and Literature	3
Econ 21 Principles of Economics	3
Hist 23, 24, or 25 American History	4
PS 34 American Government	4
Psy 25 Elementary Psychology	3
RS 20 Principles of Sociology	5
Physical and Biological Sciences	12–15

JUNIOR YEAR:

CD 47 Experience with Children; or CD 179, Child Development and Personality	4–3
FN 40 Fundamentals of Nutrition	4
HM 50 Home Management	3
Social Sciences	3
Physical and Biological Sciences	5

SENIOR YEAR:

HE 80 Senior Seminar	1
HM 72 Home Management House	4
HM 75 Family Housing	4

Departmental Curricula in Home Economics

Leading to the degree Bachelor of Science in Home Economics
(Student to select major curriculum by the end of the sophomore year)

Child Development and Family Relations

Home Economics Courses	Credits
CD 36 Fundamentals of Parenthood	3
FN 41 Nutrition for Special Age Groups	3
CD 52 Creative Play Materials and Activities	3
CD 56 Dynamics of Family Development	3
CD 58 Methods of Nursery School Teaching	3
CD 59 Introduction to Parent Education	2
CD 90 Child Development Practicum	9
CD 172 Problems of Child Development and Family Relations	3
CD 179 Child Development and Personality II	3
	32
Other Required Courses	
RS 168 The Family	3
Sociology Elective	3
Psychology Electives	6
	12
Total	44
Core	131
Electives	29
Total for Graduation	204

Foods and Nutrition

Home Economics Courses	Credits
FN 41 Nutrition for Special Age Groups	3
FN 73 Institution Foods	3
FN 74 Institution Economics	3
FN 145 Institution Organizaton and Management	3
FN 150 Experimental Cookery	3
FN 162 Diet in Disease	3
FN 164 Food and Nutrition Literature	3
	21
Other Required Courses	
Bac 155 Food Bacteriology	4
Ch 25 Food Analysis	3
Ch 162 Physiological Chemistry	5
Ed 45 Educational Psychology	3
Education Elective	2–3
Z 22 *Human Physiology	4
Econ 34 *Accounting	4
	26
Total	47
Core	132
Electives	25
Total Credits for Graduation	204

*May be included as part of core courses.

Home Economics Education

Home Economics Courses	Credits
FN 41 Nutrition for Special Age Groups	3
TC 30 Creative Clothing	4
CD 56 Dynamics of Family Development	3
HEd 51 Philosophy and Methods in Home Economics	3
HEd 52 Curriculum and Evaluation in Home Economics	3
HEd 62 Special Needs in Home Economics Teaching	3
HEd 63 Adult Homemaking Education	2
HEd 65 Supervised Student Teaching in Home Economics	8
HEd 66 Extended Student Teaching Experiences	3
TC 68 Textile Purchasing	3
FN 150 Experimental Cookery	3
	38
Other Required Courses	
Ed 40 Principles of Secondary Education	4
Ed 45 Educational Psychology	3
Ed 87 High School Organization and Administration	2
N 81 Family Health	2
Art 48 Advanced Related Art	2
	13
Total	51
Core	131
Electives	22
Total Credits for Graduation	204

Home Economics Extension

Although a specific major in Extension is not offered, those students interested in Extension work as a career should elect as many of the following courses as possible during the junior and senior year:

Course	Credits
*Extension Organization and Methods, RS 141	3
*Sociology of Extension Work, RS 161	2
*Field Practice Training, RS 171	2–8
*Elements of Leadership, RS 32	3
Leadership and Group Organization, RS 172	3
The Small Town, RS 165	3
Advanced Public Speaking, Sp 44	3
*Discussion, Sp 45	3
Parliamentary Procedure, Sp 56	3
*Farm and Ranch Management, Econ 38	3
Farm Budgets and Records, Econ 45	2
Public Administration, PS 52	3
*Publicity Methods, J 66	3

*Courses to be given priority consideration.

Home Economics and Journalism

Home Economics Courses	Credits
CD 56 Dynamics of Family Development	3
TC 68 Textile Purchasing	3
HM 75 Family Housing	4
FN 150 Experimental Cookery	3
HM 173 Household Equipment	3
	16
Journalism Courses	
J 20 Typography	3
J 24, 25 Newswriting	4
J 28 Elementary Photography	2
J 29 Press Photography	2
J 37, 38 Newswriting Laboratory	2
J 40 Newspaper Editing and Makeup	2
J 43, 44 Feature Writing	4
J 45 Magazine Editing	3
J 61, 62 Editing Laboratory	2
J 140 Journalism Seminar	1
J 158 Law of the Press	3
J Electives	4
	32
Total	48
Core	131
Electives	25
Total Credits for Graduation	204

Restaurant Management

Home Economics Courses	Credits
FN 73 Institution Foods	3
FN 74 Institution Economics	3
FN 145 Institution Organization and Management	3
FN 150 Experimental Cookery	3
FN 164 Foods and Nutrition Literature	3
FN 182 Experimental Cookery	3
	18

Other Required Courses	
Bac 155 Food Bacteriology	4
Ch 25 Food Analysis	3
Ed 45 Educational Psychology	3
Econ 34*-35 Accounting	8
AH 23 Meat Studies	2
Econ 41 Business Law	3
Sec S 33 Commercial Correspondence	2
	25
Total	43
Core	131
Electives	30
Total Credits for Graduation	204

*May be included as part of core courses.

NOTE: Restaurant Management students may substitute suggested electives for TC 11, 12 and HM 72 in core curriculum.

Suggested Electives	
FN 41 Nutrition for Special Age Groups	3
FN 162 Diet in Disease	3
Psy 81 Business and Industrial Psychology	3
Econ 37 Introduction to Marketing	3
GE 2 Blue Print Reading	2
GE 3 Engineering Drawing	2
HE 58 Demonstration Techniques	3
Econ 48 Money and Banking	4
Econ 154 Managerial Cost Accounting	3
Ch 162 Physiological Chemistry	5
Sec S 11, 12 or 13 Typing	2
Sec S 16 Calculating Machines	2

Textiles and Clothing

Home Economics Courses	Credits
TC 30 Creative Clothing	4
TC 43 Restyling and Alteration	2
TC 45 History of Costume	3
TC 67 Children's Clothing	2
TC 68 Textile Purchasing	3
TC 144 Tailoring	3
TC 145 Costume Draping	3
TC 156 Fashion Economics	3
TC 188 New Developments in Textiles	3
	26

Other Required Courses		
Econ 34 *Accounting		4
Econ 37 Introduction to Marketing		3
Art 27 Applied Design		2
Art 5 Figure Drawing		2
Elective in Art		2
Journalism		5
Photography, J 30	2	
Advertising, J 50	3	
Radio Journalism, J 56	2	
*Publicity Methods, J 66	3	
		17
Total		43
Core		131
Electives		30
Total Credits for Graduation		204

*May be included as part of core courses.

Departments of Instruction

Home Economics (HE)

Professor Hettler

1 Orientation 1(2,0)
Required, see Student Personnel.

16 Home Economics Survey 1(1,0) F
Designed to develop appreciation of the scope of home economics from the professional and non-professional standpoint—its contributions to preparation for vocations and for home and family life. Open to all students.

58 Demonstration Techniques 3(1,6) WS
Experience in demonstration for film production, illustrated talks, radio and television. Open to students of all divisions who may be interested in this media of co-education. P, FN 40, TC 12, HM 32 or consent of instructor.

80 Senior Seminar 1(1,0) W
Consideration of professional ethics, organizations, literature, and procedures for securing positions.

279 Seminar in General Home Economics 1(1,0)
On demand
Reports and discussions of contribution of land-grant institutions to higher education and development of home economics.

Child Development and Family Relations (CD)

Professor Young; Associate Professor Samenfink

Family Life Laboratory

The Department of Child Development and Family Relations through its Family Life Laboratory provides opportunities for both study and experiences in the area of human development and family relationships from infancy through parenthood. In the Family Life Laboratory, the student has an opportunity to work with the nursery school children and their parents. The nursery school parents cooperate by permitting students to visit in their homes to observe the dynamics of family living.

Marriage and Family Counseling Center

The Marriage and Family Counseling

Center, located in East Men's Dormitory in the Department of Child Development and Family Relations, deals with premarital, marital and family problems. Clients are assisted in gaining insight into problems and in weighing advantages and disadvantages of alternative adjustments. College students will find understanding and help in the solution of their premarital and marital problems.

Merrill-Palmer School Affiliation

The Division of Home Economics and the department of Child Development and Family Relations are affiliated with the Merrill-Palmer School, Detroit, Michigan. Students interested in various phases of child development and personality, parent education, family life education, or extension work in family relations, may apply and be selected to study at Merrill-Palmer during one quarter of the senior year.

LOWER DIVISION

19 The Individual and the Family 3(3,0) FWS
Consideration of human development, behavior, and relationships with emphasis on the social and emotional needs of the individual and his family. Open to men and women from all divisions. (A personal consultation service is available.)

35 Child Development and Personality 3(2,1) FWS
Study of the biological and psychological growth and development of the child and of his relationships with his family, peers, and institutions; study begins with neo-natal developments and continues through preschool years. Observation in the Family Life Laboratory P, 19 and Psy 25.

36 Fundamentals of Parenthood 3(2,1) W
An intensive study of the beginning and childbearing stages of the family life cycle, stressing the importance of the family as an end in itself. Open to men and women of all divisions.

UPPER DIVISION

47 Experience with Children 4(1,4) FWS
An opportunity to more fully understand children as well as oneself while observing and working with children in the Family Life Laboratory. P, 35.

52 Creative Play Materials and Activities 3(2,3) W
Play equipment, literature, art and music for children. P, 35.

56 Dynamics of Family Development 3(3,0) WS
Developmental growth of parents and children in the various stages of the family life-cycle. Emphasis on achieving "healthy" inter-personal relationships in the family group. P, Psy 25.

58 Nursery School Planning 3(3,0) F
Organizing, planning, and administering various types of nursery school problems. P, 35, 47.

59 Introduction to Parent Education 2(2,0) S
Principles of parent education. Opportunities for formulation and presentation of programs for nursery school parents.

90 Child Development Practicum 9(0,5 every day) FWS
Planning and conducting various phases of nursery school program under supervision and finally taking complete charge—weekly conference. P, 36, 52, 58, 59.

UNDERGRADUATE OR GRADUATE DIVISION

172 Problems in Family Relations and Child Development 3(3,0) W
Problem areas in modern family living—husband-wife relations, parent-child relations, status of women, disruption of marital relationships, divorce, value conflicts, and the factors which bring them about. Open to men and women from all divisions. P, 35, or consent of instructor.

176 The American Women 3(3,0) On demand
Recent literature regarding the changing role of women and the unique tasks they face in maintaining stability in a dynamic 20th century world. P, RS 20.

179 Child Development and Personality 3(3,0) S
An intensive study of the application of the principles of the child development point of view as related to nursery school education, home economics education, nursing, dietetics, and other areas. Actual experience in the Family Life Laboratory. P, 35.

GRADUATE DIVISION

210, 211, 212 Seminars 1-3 each
Reports and discussions of current literature in various areas of child development and family relations. A maximum of 6 seminar credits may be applied on an advanced degree. P, consent of instructor.

210 Seminar in Child Development and Personality
211 Seminar in Family Relationships
212 Seminar in Marriage and Family Counseling
For teachers, social workers, guidance specialists and others interested in professional approach to marital adjustments.

225 Nursery School Administration Practicum (3-5) (2, 3, 3-6)
Practical experience in the administration of a nursery school program. P, 36, 52, 56, 58, 59.

235 Special Problems in Child Development and Family Relations 1-5
Individual study for qualified students. P, consent of instructor.

299 Thesis in Child Development and Family Relations 7-10 as arranged.

Foods and Nutrition (FN)

Professors Hollen, Burrill; Assocate Professors Colburn, Wills; Assistant Professsor Little; Assistant Howard

The program in foods and nutrition meets the standards of the American Dietetics Association in permitting graduates to enter dietetic internships in approved hospitals. Students receiving degrees in restaurant management meet the academic requirements for the Executive Apprenticeship Training Program sponsored by the National Restaurant Association.

LOWER DIVISION

19 Family Foods 4(2,6) FWS
Stresses principles involved in selection, care, preparation and meal planning of basic foods served for breakfast and luncheon. P, Ch 1.

20 Family Foods 4(2,6) FWS
Stresses principles involved in preparation of protein foods, batters, doughs, and food preservation. Also includes serving family meals and work in planning nutritionally adequate family dietaries at moderate cost. P, 19.

25 Foods and Nutrition 4(2,6) FW
Basic principles of nutrition in health; fundamentals of food selection and preparation; meals for the family in health and illness.

UPPER DIVISION

40 Fundamentals of Nutrition 4(3,3) FW
Principles of human nutrition; relation of food to health; dietaries for adults. P, 20, Ch 19 or Ch 3.

41 Nutrition for Special Age Groups 3(3,0) WS
Nutrition study of special groups with emphasis on nutritional needs of infants, children, pregnant and lactating women, and aged. P, 40.

73 Institutional Foods 3(1,6) W
Principles of cookery applied to quantity preparation; experience in planning and preparation of meals for college food service. P, 40, junior standing in home economics.

74 Institution Economics 3(3,0) S
Problems involved in purchasing, use and care of food and equipment for quantity cookery. P, 40, junior standing in home economics.

145 Institution Organization and Management 3(1,6) F
Study and experience in managing food service in college cafeteria, work on personnel policies, including position descriptions, job analysis, and employee training. P, 40.

150 Experimental Cookery 3(1,6) FS
Investigation of cookery principles from chemical and physical standpoint. Emphasis on egg cookery, emulsions, batters and doughs. P, 40.

162 Diet in Disease 3(2,3) S
Diet for abnormal conditions. Preliminary course for those who wish to become hospital dietitians. P, 40; senior classification.

164 Foods and Nutrition Literature 3(3,0) W
Assigned readings and discussion of topics in field of food and nutrition research. P, 40.

168 Special Problems in Foods and Nutrition 1-3 On demand
Opportunity offered for special study in Foods and Nutrition. P, consent of instructor.

182 Experimental Cookery 3(1,6) W
Investigation of cookery principles from chemical and physical standpoint. Emphasis on fats and oils, meat cookery and completion of special problem. P, 150.

186 Advanced Nutrition 3(3,0) On demand
A study of the more complex aspects of metabolism of proteins, fats and carbohydrates in human nutrition. P, 40 or consent of instructor.

187 Advanced Nutrition 3(3,0) On demand
A study of the more complex aspects of the metabolism of minerals and vitamins in human nutrition. P, 40 or consent of instructor.

GRADUATE DIVISION

268 Special Problems in Foods and Nutrition 1-6 On demand
Opportunity offered for special study in Foods and Nutrition. P, consent of instructor.

277-278-279 Seminars 1 each
Reports and discussion of current literature in the various areas of foods and nutrition. A maximum of 3 credits may be applied on an advanced degree. P, consent of instructor.

277 Seminar in Foods and Nutrition

278 Seminar in Foods

279 Seminar in Nutrition

281 Techniques in Nutrition Research 3(1,6) On demand
Fundamental techniques used in studying energy, protein, mineral and vitamin metabolism and in evaluating the nutritional status of individuals. P, Ch 162 or consent of instructor.

299 Thesis in Foods and Nutrition 7-10 As arranged

Home Economics Education (HEd)

Professors Galbraith, McArthur (Emeritus); Associate Professor Johnson; Assistant Professor Petrich; Instructors in High Schools Carlson, Doescher, Fokken, Grebner, Kurtz, MacLean, Sickles, Simek

The Home Economics Education Department is approved by the Vocational Division of the United States Office of Education. Seniors participate in an off-campus teaching program in which they live in the community, teach homemaking in the high school and take part in school and community activities for a period of six weeks. They

qualify as teachers of homemaking in vocationally approved departments in South Dakota and other states.

UPPER DIVISION

51 Philosophy and Methods in Home Economics 3(3,0) FWS

Philosophy and objectives in home economics as they relate to those of general education and are specific to home economics. Methods of classroom teaching used in attaining objectives. P, Ed 40.

52 Curriculum and Evaluation in Home Economics 3(3,0) FWS

Emphasis given to curriculum development and unit planning for vocational programs. Teaching aids studied and evaluation emphasized. P, 51; Ed 45.

62 Special Needs in Home Economics Teaching 3(6,0) FWS ½ term

Problems of classroom teaching as they relate to pupil interests and needs, home visits and home experience program, equipping and managing of department, opportunities in and obligation to profession and entire school program. P, 52 and senior standing in home economics.

63 Adult Homemaking Education 2(2,0) FWS

History, philosophy and objectives of general and home economics adult education. Curriculum and methods of teaching applied particularly to home economics. Opportunity provided for developing teaching units, planning means of publicity and for observation of adult classes. P, 52.

65 Suprevised Student Teaching in Home Economics 8 FWS

Teaching under supervision in at least two phases of home economics. Group and individual conferences. Home experience programs and FHA included. P, 52, "C" average, and senior standing in home economics. Full-time one-half term.

66 Extended Student Teaching Experiences 3(6-0) FWS ½ term

Study, discussion and evaluation of practices and problems experienced in student teaching. Individual problems for personal improvement. P, 65.

160 Teaching Family Living 3(3,0) On demand

Resume of various aspects of family life which concern adolescents, with methods of teaching same in high school homemaking classes or youth groups such as 4-H Clubs. P, 52, RS 20, and RS 168 or CD 56.

165-166 Home Economics Problems 1-5 FWS

Investigation of selected problems in area of Home Economics Education. P, open to students with qualifications for problem.

GRADUATE DIVISION

261 Supervision in Home Economics Education 3(3,0) On demand

Programs in home economics studies with special emphasis on supervised student teaching: Roles of state supervisor, city supervisor, student teaching supervisor, and student teachers analyzed. Opportunity to work on individual problems. P, teaching experience and consent of staff.

262 Curriculum in Home Economics 3(3,0) On demand

Curriculum in secondary schools of South Dakota and other states. New ideas developed. P, 52 or equivalent.

263 Evaluation in Home Economics 3(3,0) On demand

Methods and techniques used in evaluating programs in homemaking. Evaluation instruments developed. P, 52 or equivalent.

265 Advanced Problems in Home Economics Education 1-6 On demand

Problem selected from Home Economics Education fields, such as adult education, evaluation, space and equipment and trends in home economics. P, teaching experience and consent of staff.

274-275-276 Seminar in Home Economics Education 1(1,0) On demand

Maximum credits—three, review and discussion of current literature in home economics education. Required of all graduate students.

280 Research Problems 3-4(2,0)

Required of graduate students qualifying for Master's degree without writing thesis. (See procedure under Graduate Study.) Problem selected in some area of Home Economics education. Problem analyzed, data gathered, treated statistically and reported in approved form.

299 Thesis in Home Economics Education 7-10 As arranged

Home Management and Household Equipment (HM)

Assistant Professors Luchsinger, Herold

LOWER DIVISION

32 Basic Household Equipment 2(2,0) FWS

Basic principles in the selection, use, care, and arrangement of household equipment with special emphasis on small equipment.

UPPER DIVISION

50 Home Management 3(3,0) FW

Applications of principles of scientific management to budgeting time, energy, and money. P, Econ 21.

72 Home Management House 4(5,24)

Six weeks residence in home management house with experience in problems that arise in a home. P, 50, FN 20, senior standing in home economics.

75 Family Housing 4(3,3) FWS

Consideration of planning, financing, building, and furnishing a home in relation to varied family situations with emphasis on function, beauty, suitability and cost. P, Art 3.

169 Special Problems 1-3 On demand

Opportunity offered for special study in Home Management and Household Equipment. P, consent of instructor.

173 Household Equipment 3(1,4) S
Operation and selection of household equipment through application of the principles of physics. Kitchen Planning. Time and energy management in arrangement, use and care of equipment. P, Phy 5.

175 America's Housing 3(3,0) On demand
America's housing as affected by the following factors: history; philosophy; tradition; climate; geographical area; population; local, state, and federal laws; and financing. P, 50 and consent of instructor.

GRADUATE DIVISION

269 Special Problems in Home Management (1-6) On demand
Opportunity offered for special study in particular areas of home management. P, open to students with qualification for problem.

280 Seminar in Home Management 1(1,0) On demand
Review and discussion of current literature in the various areas of home management.

Textiles and Clothing (TC)

Professors Rosenberger, Lund; Instructors Diez and Semeniuk

LOWER DIVISION

11 Costume Selection 3(2,3) FW
Application of art principles to individual appearance and costume selection.

12 Beginning Construction 3(1,6) WS
Techniques of basic clothing construction and fitting with use of commercial patterns. P, 11 or consent of instructor.

21 Fabrics and Finishes 3(2,2) WS
A study of textile fibers, yarns, fabrics, and finishes.

30 Creative Clothing 4(0,9) FWS
Pattern study; creation and adaptation of basic pattern design; selection and fitting of commercial pattern to the basic pattern; development of construction techniques for garments using various fabrics. P, 12.

UPPER DIVISION

43 Restyling and Alateration 2(0,6) W 1961-62 and alternate years
Emphasis on principles of fitting in making over and altering, successful handling of garment material, with smart styling for the individual. Short cuts in construction utilized. P, 30.

45 History of Costume 3(3,0) F 1960-61 and alternate years
History of Costume of important periods as means for better understanding costumes of today; as foundation for costumes of plays and pageants. P, Hist 23 or 24.

46 Fashion Design 2(0,6) On demand
Techniques in fashion designing and illustrating.

67 Children's Clothing 2(1,3) S
Selection and construction of suitable clothing for children. P, 30.

68 Textile Purchasing 3(3,0) FW
Selection, use and care of textiles in the home. P, 21.

144 Tailoring 3(1,6) FWS
Problems in tailoring a suit, dress or coat. P, 30.

145 Costume Draping 3(0,9) On demand
Application of dress design principles through draping techniques; working on own dress form. Problems will be developed in muslin and one garment constructed using suitable fabric and finishes. P, 30; Art 5.

156 Fashion Economics 3(3,0) offered 1960-61 and alternate years
Economic aspects of clothing which directly or indirectly affect consumer. P, Econ 21.

158 Sewing as a Business 1 or 2(1,3) or (2,3) On demand
Organization and operation of a business in clothing construction. Cost, methods, equipment, location, techniques, and salesmanship considered. P, 144.

170 Special Problems 1-3 On demand
Opportunity offered for special study in Textiles and Clothing. P, consent of instructor.

188 New Developments in Textiles 3(3,0) S 1961-62 and alternate years
A study of the newer fibers, fabrics, and finishes, their use and care. P, 68.

GRADUATE DIVISION

267 Advanced Textiles 3(2,3) On demand
Intensive fiber study, their properties and use. Lectures and laboratory work using modern testing equipment. P, 188.

270 Special Problems in Textiles and Clothing 1-6 On demand
Opportunity offered for special study in textiles and clothing.

276-277-278 Seminars 1 each
Review and discussion of current literature in various areas of textiles and clothing. A maximum of three credits may be applied toward an advanced degree. P, consent of instructor.

276 Seminar in Textiles and Clothing

277 Seminar in Textiles

278 Seminar in Clothing

288 Costumes and Textiles Through the Ages 3(3,0) On demand
Analysis of development of modern dress from primitive textiles as influenced by modes of living throughout the world down to modern times. Also includes a study of art influences to each period as it affected textiles and dress. P, 45.

289 Applied Problem in Period Costume 2(0,6) On demand
A contemporary garment to be designed from historic source material, pattern developed, and garment constructed from appropriate fabrics. P, 144, 145; Art 5.

299 Thesis in Textiles and Clothing 7-10 As arranged

DIVISION OF NURSING

The Division of Nursing offers a program leading to the Bachelor of Science Degree in Nursing for two groups of students (1) the high school graduate and (2) the licensed professional nurse. The program is accredited by the South Dakota Board of Nursing and the North Central Association of Colleges and Secondary Schools. Candidates for graduation in the basic curriculum are eligible to write the State Board Examinations for licensure. The professional program is four academic years of nine months each.

There are four departments offering courses: (1) General Nursing, (2) Clinical Nursing, (3) Rural Nursing, and (4) Public Health Nursing.

The Division is a member agency in the National League for Nursing Department of Baccalaureate and Higher Degree Programs. Graduates are eligible for membership in The American Association of University Women.

Upon graduation, the nurse has access to the many positions available through the College Placement Office. She is qualified to accept first level staff positions in hospitals, clinics, and health agencies.

The aims of the division are:

1. To prepare selected college women and men:
   a. To engage cooperatively in any aspect of community or institutional nursing service.
   b. To have a broad understanding of the basic principles involved, and to have knowledge of the techniques and skills required in the care of the sick, in the prevention of disease, and in the promotion of health.
2. To stimulate the growth of young women and men as individuals so they may contribute to society, culturally and socially, as professional workers and good citizens.
3. To provide the type of preparation that will be a good foundation for further study in advanced programs of nursing.

The Curriculm in Nursing

The students who major in nursing have clinical experience in hospitals and health agencies which are chosen by the college on the recommendation of the Division of Nursing.

In these hospitals, students are taught principles of professional nursing care under the supervision of the South Dakota State College faculty. All students have an opportunity to participate in patient care through:

1. Rural and urban hospitals.
2. Out-patient clinics.
3. Public health agencies.
4. General and specialized hospitals.

They learn the concepts of long-term and short-term patient care in the fields of Maternal-Child Health, Medical-Surgical Nursing, Communicable Diseases, Public Health and Psychiatric Nursing. Social and cultural concepts are integrated throughout all areas of instruction.

The hospitals, clinics, and health agencies currently used for student experiences are:

1. Memorial Hospital, Watertown, South Dakota.
2. St. Ann Hospital, Watertown, South Dakota.
3. Madison Community Hospital, Madison, South Dakota.

4. Charles T. Miller Hospital, St. Paul, Minnesota.
5. Brookings Municipal Hospital, Brookings, South Dakota.
6. Bartron Clinic, Watertown, South Dakota.
7. Brown Clinic, Watertown, South Dakota.
8. Madison Clinic, Madison, South Dakota.
9. Sioux Sanatorium, Rapid City, South Dakota.
10. Crippled Children's School and Hospital, Sioux Falls, South Dakota.
11. Health Agencies through:
    a. South Dakota State Department of Health.
    b. United States Public Health Service (USPHS), Division of Indian Affairs.
    c. Omaha-Douglas County Health Department, Omaha, Nebraska.
12. Rural Hospitals arranged individually to meet student's needs.

Students must have a 2.0 grade point average in nursing and related science subjects and an overall grade point average of 1.8 before they are allowed to enter the Department of Clinical Nursing.

The sequence of courses is designed to cover the regular four-year (36-month) college program. The college calendar (see page ii general information) is followed except where distances prevent classes from beginning on the day following registration.

Curriculum in Nursing

Leading to the Degree of Bachelor of Science in Nursing

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Chemistry, Ch 1-2-19 or 1-17-18	4	4	4–5
Anatomy-Physiology, Z 26-27-28	4	4	4
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, Or 1	1		
Introduction to Sociology, RS 15			5
General Psychology, Psy 25		3	
Hygiene, GN 2	3		
Nursing Survey, GN 1		2	
Oral Communication, Sp 10	2		

Sophomore year	**F**	**W**	**S**
Child Development, CD 35	3		
Pharmacology, Pha 20	4		
Foods, FN 25	4		
Introduction to Nursing, GN 30	5		
Medical-Surgical Nursing, CN 39	2		
Oral Communication, Sp 20		2	
History, Hist 23 or 24 or 25		4	
General Bacteriology, Bac 30		5	
National Government, PS 34		4	
Educational Psychology, Ed 45		3	
Medical-Surgical Nursing, CN 40			4
Medical-Surgical Nursing, CN 41			4
Applied Medical-Surgical Nursing, CN 42			2
Medical-Surgical Out-Patient Nursing, CN 51			2
Introduction to Medical Science, Z 50			3
Administration of Medications, GN 20			2

Junior Year	**F**	**W**	**S**
Principles of Psychiatric Nursing, CN 43	4		
Variants of Personality, CN 38	3		
Applied Psychiatric Nursing, CN 44	6		
Psychiatric Nursing, CN 45	3		
Obstetric Nursing, CN 66		6	
Obstetric Nursing, CN 67		3	
Obstetric Out-Patient Nursing, CN 53		2	
Maternal-Child Health, CN 68		3	
Dynamics of Family Development, CD 55		3	
Pediatric Nursing, CN 64			4
Applied Pediatric Nursing, CN 65			4
Pediatric Out-Patient Nursing, CN 52			2
Introduction to Literature, Engl 20			3
Principles of Economics, Econ 21			3
Social Work Fields, RS 33			3

Senior Year	**F**	**W**	**S**
Medical-Surgical Nursing, CN 60	5		
Applied Medical-Surgical Nursing, CN 61	6		
Team Nursing, CN 62	3		
Medical-Surgical Nursing, CN 59	3		
Principles of Public Health Nursing, PHN 67		3	
Public Health Nursing Practice, PHN 68		6	
Communicable Diseases, PHN 83		3	
Applied Communicable Diseases, PHN 84		3	
Rehabilitation Nursing, PHN 72		2	
Public Health Administration, PHN 80			3
Nursing History and Trends, GN 98			5
Jurisprudence for Nurses, GN 79			3
Principles of Supervision, GN 95			3

Summary of requirements for Bachelor of Science Degree in Nursing

A. General Academic Credits	**Total 97-107**
1. English and communication skills (includes one course in literature and speech)	18
2. Humanities and social science (at least one course in economics, history, government, psychology, sociology and education)	45–50
3. Physical and biological sciences	30–35
4. Physical education and orientation	4

B. Professional Credits	**Total 97–107**
1. General Nursing	18–22
2. Clinical Nursing	64–68
3. Public Health Nursing	15–18

Registered professional nurses who are graduates from a hospital school of nursing have an opportunity to complete course requirements leading to a Bachelor of Science Degree. The length of time required to complete this program is based upon an individual evaluation of student's transcript of record and college entrance tests. The Graduate Nurse Qualifying Examination prepared by the National League for Nursing is required. The student should arrange for individual counseling and assistance in the selection of courses to meet her particular needs.

Students preparing for the field of professional nursing must show a reasonably stable personality and demonstrate an ability to meet the demands of the profession. In addition to the specific grade point average (2.0) in required courses, a student must be acceptable in character to the Committee on Scholastic Standards of the Division of Nursing. This is in accordance with the South Dakota State Law governing the licensing of all who nurse for compensation.

Section 4. (1) Registered Nurses

Qualifications of applicants. An applicant for a license to practice professional nursing shall be a citizen of the United States, or have declared intention of becoming a citizen, excepting in the case of students from foreign countries who have come here for training and intend to return to their native countries upon completion of their courses, shall submit to the board a verified written application that such applicant is of good moral character, has graduated from an approved four-year high school course or the equivalent thereof as determined by an appropriate educational agency, and has completed requirements of an accredited professional nursing educational program and holds a diploma.

Statewide Nursing Service

The Division of Nursing through the Department of Rural Nursing provides statewide service in two areas, (1) to hospital schools of nursing and (2) to rural hospitals in South Dakota. These programs have been developed in response to the expressed needs of the hospitals, the schools of nursing, and the persons working for the preservation of health and prevention of disease. The purpose of these programs is to raise the level of patient care in the rural areas of the state.

The Department of Rural Nursing plans and conducts an educational program in rural nursing, without college credit, for students in hospital schools of nursing in South Dakota, using selected rural hospitals where both the hospital and community provide a teaching situation. A local Citizens Advisory Committee assists and provides counsel in developing concepts of community health activities.

The department also offers to rural hospitals a statewide program for inservice staff education. This service is available to any rural hospital in South Dakota within the limits of personnel and funds of the Division of Nursing. The faculty of the department will cooperate with the hospitals in planning inservice educational programs for nursing service personnel that will fit local needs; assist with securing materials and resource persons, and provide guidance in implementing the programs.

Requests for these services should be made to the Department of Rural Nursing, Division of Nursing, South Dakota State College, Brookings, South Dakota.

Departments of Instruction

Department of General Nursing (GN)

Assistant Professor Swanson; Professors Erickson, Hinsvark; Associate Professor Hubbs; Assistant Professors Miller, Boekelheide, Peterson

LOWER DIVISION

1 Nursing Survey 2 (2, 0) WS

Brief survey of fields of nursing, ethical theories, analysis and discussion of nursing problems. Open to all students.

2 Hygiene 3 (3, 0) FS

Methods of promoting personal health; emphasis on such hygienic application as care of body, prevention of disease, and general health habits. Open to all students.

3 Community Health 2 (2, 0) WS

Deals with community hygiene, health organizations and their relationship to the individual. Open to all students.

20 Administration of Medications 2 (1, 2) FWS

Systems of weights and measures; problems in preparing solutions, computing dosage, and administering drugs. Hospital practice. P, sophomore standing; Pha 20 or concurrent. Open to basic students.

30 Introduction to Nursing 5 (3, 8) FWS

Fundamental principles which underlie all good nursing. Special emphasis on basic supportive care. P, Z 28; Ch 18 or 19 or concurrent.

UPPER DIVISION

79 Jurisprudence for Nurses 3 (3, 0) FWS

Regulation and control of nursing practice through state laws; application of legal principles to some problems of nurses in work and social situations. P, junior in nursing.

81 Family Health 2 (2, 2) FWS

Promotes understanding of community and family health practices; fuller understanding or prenatal and post-partum care and develops the principles involved in the prevention of accidents, control of disease, and care of the sick in the home. Open to junior and senior Home Economics students. Special arrangements for others desiring course.

82 Foundations of Nursing Education 3 (3, 0)F

Survey course introducing student to work of school of nursing as a whole, includes historical development of nursing schools, organizations, educational objectives, content of educational programs and essentials for efficient operation. P, junior standing.

93 Instructors Course in Home Nursing 2 Su

Thirty-six hour workshop which includes lecture and laboratory for teachers and graduate nurses who will be teaching classes of community groups. Offers special training in effective methods of teaching home care of the sick. Limited to 14 students. P, consent of instructor.

95 Principles of Supervision 3 (3, 0) W

Designed to identify principles underlying successful supervision in permissive settings. (May be counted as an education elective). P, junior standing.

98 Nursing History and Trends 5 (5, 0) WS

Development of nursing under religious, military, and secular control from ancient to modern times. Stresses movements and change affecting the professional practice of nursing. Considers nursing in its relation to legislation, education, patient care programs and nursing organizations. P, senior in nursing.

140-146 Special Problems in Nursing
1-5 credits On Demand

Workshop and special sessions in specific areas of nursing. Approximately 30 hours of work required for each credit, including lecture, conference, committee and group activity, and outside assignments. Workshops in nursing may range from 1 to 3 weeks. P, consent of instructor. Students limited to 6 credits to apply toward degree.

140 Special Problems in Community Nursing

141 Special Problems in Medical-Surgical Nursing

142 Special Problems in Maternal and Child Health

143 Special Problems in Public Health

144 Special Problems in Nursing Education

145 Special Problems in Nursing Service

146 Special Problems in Administration

Department of Clinical Nursing (CN)

Associate Professor Moxnes; Professor Dodds; Associate Professor Moorhead; Assistant Professors Hartman, Klock, Miller, Mortvedt, Peterson, Wittkopf; Instructors Lilla, Scoville, Raymond, Rishoi

LOWER DIVISION

38 Variants of Personality 3 (3, 0) FWS

Theories of personality development; patterns of adjustment; mental health movements. (May be counted as an education elective). P, 6 credits of Psychology.

39 Medical-Surgical Nursing 2 (1, 4) FWS

Application of scientific principles in the development of aseptic techniques basic to patient care. P, GN 30.

UPPER DIVISION

40 Medical-Surgical Nursing 4 (3, 4) FWS

Lecture, demonstration, and supervised practice of nursing techniques. P, GN 30, CN 39.

41 Medical-Surgical Nursing 4 (4, 0) FWS

Introduction to the nursing care needs of the patient with a medical or surgical condition. P, Z 50 or concurrent.

42 Applied Medical-Surgical Nursing 2 (0, 8) FWS

Clinical experience in planning for and meeting nursing needs of the patient. P, GN 20, CN 39, 40, 41, 51 or concurrent.

43 Principles of Psychiatric Nursing 4 (4, 0) FWSSu

The nurse's role in current therapeutic programs, interpersonal relationships, nursing care of functional and organic disorders. P, CN 41, 42.

44 Applied Psychiatric Nursing 6 (0, 24) FWSSu

Supervised nursing experience in admission and continued treatment units, including participation in team conferences in planning for patient care. CN 43 concurrent.

45 Psychiatric Nursing 3 (2, 4) FWS

Planned field trips to various outside agencies dealing with emotional problems and behavior disorders in the child, adult, and the aged.

51-52-53 Out-Patient Nursing FWS

A study of the nurse's role in the care of patients in the incipient and convalescent stages of disease with special attention to the specific concurrent area of study. Observation of diagnostic examinations and tests. Health teaching and use of community resources are stressed.

51 Medical-Surgical Out-Patient Nursing 2 (1, 4) FWS P, CN 40, 41, 42 concurrent

52 Pediatric Out-Patient Nursing 2 (1, 4) FWS P, CN 64, 65 concurrent.

53 Obstetric Out-Patient Nursing 2 (1, 4) FWS P, CN 66, 67 concurrent.

59 Medical-Surgical Nursing 3 (2, 4) FWS

Activities which supplement CN 60. Lecture demonstration, and supervised practice of complex nursing techniques. P, CN 41, 42.

60 Medical-Surgical Nursing 5 (5, 0) FWS

Advancement of knowledge pertaining to nursing needs of the patient with a medical or surgical condition. P, CN 41, 42.

61 Applied Medical-Surgical Nursing 6 (0, 24) FWS

Clinical experience in planning for and meeting the more complex nursing needs of the patient. P, CN 41, 42; CN 59, 60, 62 concurrent.

62 Team Nursing 3 (2, 4) FWS

Study of nursing service personnel organized on a team basis to achieve the most effective patient-centered nursing care. Opportunity is provided to observe and participate as a team member. P, CN 59, 60, 61 or concurrent.

64 Pediatric Nursing 4 (4, 0) FWS

Study of the ill child and effects of illness on the child; includes study of the diseases of childhood, their etiology, symptoms, treatment and prevention.

65 Applied Pediatric Nursing 4 (0, 16) FWS

Supervised nursing experience in caring for the acutely and chronically ill child, observation of the effects of illness on the child. Emphasis on patient and parent teaching. P, CN 41; CN 64 concurrent.

66 Obstetric Nursing 3 (3, 0) FWS

Study of the mother and infant in all phases of the reproductive cycle with emphasis on total nursing care in the home, hospital and community, P, CN 42, 43, 44.

67 Applied Obstetric Nursing 6 (0, 24) FWS

Supervised nursing experience in caring for patients during labor, delivery, post-partum and newborn periods. Includes patient care planning and patient teaching. Presented by conference, demonstration and practice. P, CN 66 concurrent.

68 Maternal-Child Health 3 (2, 4) On Demand

Application of scientific principles from medical, biological, and physical sciences in planning comprehensive care for the expectant family with emphasis on the public health aspects. May earn six (6) credits through field work.

87-88-89 Comprehensive Nursing 3 (2, 4) FWS

Application of scientific principles from the biological, physical, and medical sciences in planning comprehensive nursing care. The public health aspects of each illness will be integrated in the respective units. For registered nurses. P, Ch 18 or 19.

99 Elective Nursing 6-12 credits S

Supervised clinical experience in planning and executing nursing care; directed studies designed to increase and broaden understanding of factors involved in health and disease. P, senior in Nursing and consent of instructor.

Department of Public Health Nursing (PHN)

Associate Professor Johnson; Assistant Professors Holter, Lautzenheiser, Rea

66 Public Health Nursing 3 (1, 8) On Demand

Lectures, demonstrations and supervised practice in a public health agency carrying a generalized public health nursing program. Practice through clinics, conferences and home services; including maternity, infant, preschool, school, noncommunicable and communicable diseases. Emphasis on family health and health education. By arrangement with instructor.

67 Principles of Public Health Nursing 3 (3, 0) FWS

Basic philosophies underlying the development of public health programs on local, state, national and international levels. Public health nursing principles and practices as applied to meeting family health services and community needs. P, CN 65, 67.

68 Public Health Nursing 6 (2, 16) FWS

Lectures, demonstrations and supervised practice in a public health agency carrying a generalized public health nursing program. Practice through clinics, conferences and home services; including maternity, infant, preschool, school, noncommunicable, and communicable diseases. Emphasis on family health and health education. P, PHN 67 or concurrent.

71 Rehabilitation Nursing 3 (3, 0) On Demand

Nursing procedures applied to the patient who needs rehabilitation. Emphasis on relation of nurse to professional workers in fields other than nursing. P, senior standing.

72 Rehabilitation Nursing 2 (1, 4) FWS

Practice in planning rehabilitative nursing care. Independent study.

80 Public Health Administration 3 (3, 0) FWS

Current health problems, organization and administration of health agencies, principles of epidemology, biostatistics, and sanitation in relation to home, school and community. P, senior standing in nursing and open to students with other professional majors with consent of instructor. P, PHN 67, 68 or concurrent.

83 Communicable Diseases 3 (3, 0) FWS

Planned to give a broad understanding of present day communicable disease problems including venereal diseases and control. Emphasis on tuberculosis. P, CN 41, 42.

84 Applied Communicable Disease Nursing 3 (0, 12) FWS

Guided practice in caring for patients, adults and children with communicable diseases, in planning for individual care, in instructing patients in disease control. Emphasis on caring for tuberculous patients and family health teaching. Group conferences and demonstration. PHN 83 concurrent.

85 Industrial Health 2 (2, 0) S

Industrial hygiene and environment sanitation; influence of occupation upon health, legal regulation, inspection and control, union health services, size and scope of modern industrial health program, application of public health principles and medical nursing and engineering practice to places of employment, relationship to community health program. P, junior or senior Engineering students.

Department of Rural Nursing (RuN)

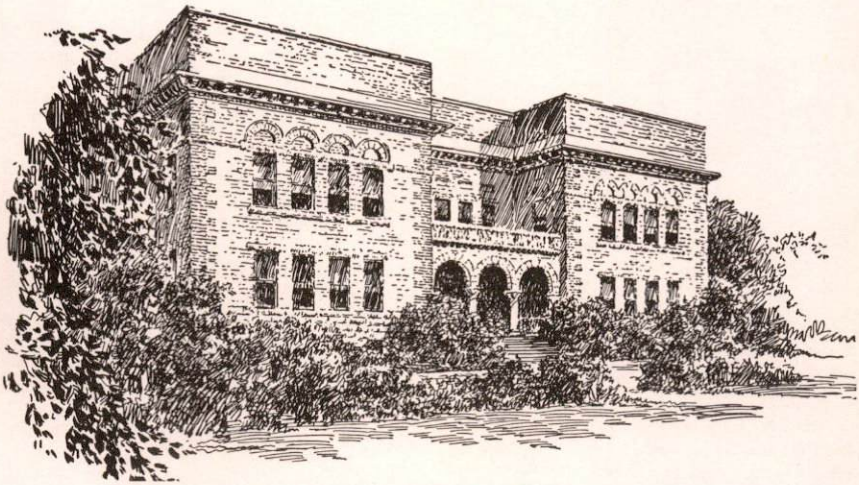
Associate Professor Hubbs; Assistant Professor Boekelheide

69 Rural Nursing 6 (4, 32) FWS

Experience in a rural hospital with a health program. Problems involved in meeting the needs of a rural community for health care. P, senior in Nursing. Six weeks course.

70 Nursing and the Community 2 (4, 0) FWS

Problems of illness as they affect the family and the community. The role of the community in the total health program. Field trips and participation in community activities. P, RuN 69 concurrent.



OLD ENGINEERING BUILDING

DIVISION OF PHARMACY

In 1887 the Board of Regents of the Territory of Dakota authorized the teaching of a course in Pharmacy at South Dakota State College. The first students were enrolled in 1889 and the first degrees were granted in 1891.

The Division of Pharmacy has been a member of the American Association of Colleges of Pharmacy since 1908 and is accredited by the American Council on Pharmaceutical Education.

The Division of Pharmacy offers an opportunity to students to earn a Bachelor of Science Degree in Pharmacy. Beginning with the class entering in the Fall of 1960 five years will be required to complete the work for this degree. A total of 250 credits and 500 grade points must be earned for graduation. Advanced courses are offered and the Master of Science Degree is conferred upon graduates of the five-year course who have completed at least one year of graduate work and presented a satisfactory thesis.

The staff of the division is primarily interested in the scientific and professional training of its students, but faculty interest extends over a much wider field. It is the objective of the division that its students develop, not only scientifically and professionally, but that they are also provided with a general education for complete living, including full adjustment to the responsibilities of citizenship.

For information concerning other requirements for the degree, see the academic information under General Information.

The Course in Pharmacy

Pharmacy offers many opportunities to young men and women. The requests of the pharmacists of our state and of other states for our graduates have always exceeded the supply. Many of our graduates are successful drugstore owners and managers. Additional fields of endeavor such as employment in hospital pharmacies, as medical representatives for large pharmaceutical houses, as narcotic agents, as teachers of pharmacy and allied sciences, and many other positions connected with the profession are open to our graduates.

Applicants for licensure to practice in South Dakota must meet the standards established by the State Board of Pharmacy. In order to qualify for registration by examination each candidate will be required to obtain an average rating of 75 per cent and not less than 60 per cent in any one subject. A grade of 75 per cent must be obtained in Practical Pharmacy. The subjects upon which the candidates will be examined are: (1) Pharmacy, (2) Pharmacology-Materia Medica, (3) Chemistry, (4) Pharmaceutical and Chemical Mathematics, (5) Practical Pharmacy-Laboratory and Written, (6) Toxicology and Jurisprudence, and (7) such oral examination as each Board member may see fit to give.

In order to harmonize the work of the division with these standards, the completion of four years of high school is required for admission.

Our graduates have been uniformily successful in passing their State Board of Pharmacy examinations.

Below is a brief outline of the courses and the credit required for each of the five years.

Curriculum in Pharmacy

Leading to the Degree of Bachelor of Science in Pharmacy

First Year	F	W	S
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, Or 1	1		
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2	4	4	
Semi-micro Qualitative Analysis, Ch 20			5
Zoology, Z 20	4		
Algebra, Math 10		5	
Trigonometry, Math 11			5
Oral Communication, Sp 10	2		
Principles of Economics, Econ 21			3
Electives *		3	
	16	17	18

Second Year	F	W	S
Military, Mil 20-21-22 or 25-26-27	1	1	1
Physics, Phy 10-11-12	4	4	4
Organic Chemistry, Ch 150-151-152	5	5	3
Oral Communication, Sp 20		2	
Introduction to Literature, Engl 20	3		
Commercial Correspondence, SecS 33			2
English Elective, Engl 21-27		3	
National Government, PS 34 or State Government, PS 36	4		
Introduction to Sociology, RS 15			5
Electives *		3	2
	17	18	17

Third Year	F	W	S
Pharmaceutical Calculations, Pha 44	4		
Pharmacy, Pha 45		4	
Pharmacy, Pha 46			5
Anatomy and Physiology, Z 40-41		4	4
Pharmaceutical Botany, Pha 41	4		
Pharmacognosy, Pha 42-43		4	4
General Bacteriology, Bac 30	5		
Principles of Infection and Immunity, Bac 142		5	
Drug Store Accounting, Econ 43	4		
Electives *			4
	17	17	17

Fourth Year	F	W	S
Pharmacy, Pha 62	5		
Inorganic Pharmacy, Pha 63		5	
Physical Pharmacy, Pha 64-65		4	4
Chemistry and Pharmacy of Organic Medicinals, Pha 70-71-72	4	4	4
Quantitative Pharmaceutical Analysis, Pha 66-67-68	3	3	3
Pharmaceutical Biochemistry, Pha 73-74	3	3	
Electives *	3		6
	18	19	17

Fifth Year	F	W	S
Dispensing, Pha 80-81-82	4	4	4
Pharmacology, Pha 83-84-85	4	4	4
Agricultural Pharmacy, Pha 87-88	2	3	
Store Management, Pha 89		3	
Pharmaceutical Jurisprudence, Pha 86			4
Business Law, Econ 41-42	3	3	
Electives *	4		5
	17	17	17

The courses as listed above are required courses.

*Electives are to be chosen subject to the approval of the Dean of the Division.

Pharmacy (Pha)

Professors Eidsmoe, LeBlanc; Associate Professor Webb; Assistant Professor Omodt

UPPER DIVISION

44 Pharmaceutical Calculations 4 (4, 0) F

Systems of weights and measures and of calculations used in pharmaceutical practice. P, junior standing.

45 Pharmacy 4 (3, 2) W

Fundamental principles of pharmacy including background material in pharmaceutical history, ethics, literature, and terminology; and the application of these principles to pharmaceutical procedures. Laboratory consists of exercises in weighing and measuring, specific gravity determinations, and other pharmaceutical techniques. P, 44

46 Pharmacy 5 (3, 4) S

A study of various classes of pharmaceutical preparations and official and non-official representatives of each class. Waters, syrups, and other galenicals will be prepared in the laboratory. P, 45

49 Pharmaceutical Photography 2 (1, 2) W

Designed to acquaint pharmacy students with elementary photographic techniques. Considerable time is devoted in acquainting students with operation and use of various types of photographic equipment.

62 Pharmacy 5 (3, 4) F

Continuation of galenicals begun in Pharmacy 46 with laboratory compounding of representative preparations. P, 46

63 Inorganic Pharmacy 5 (3, 4) W

Inorganic substances used in pharmacy, and in preparation of pharmaceutical products, with laboratory compounding of selected formulas. P, 62.

64-65 Physical Pharmacy 4 (3, 3) WS

Theory and application of physicochemical principles and laws as applied to a study of pharmaceutical systems. P, 62.

70-71-72 Chemistry and Pharmacy of Organic Medicinals 4 (4, 0) FWS

A two phase discussion of all classes of organic compounds having pharmaceutical or medicinal value stressing (1) synthesis, chemical properties, and structure-activity relationships, and (2) physical properties, incompatibilities, use, dose and official preparations. P, 46; Ch 152.

80-81-82 Dispensing 4 (2, 4) FWS
Principles involved in extemporaneous compounding of medicines with particular emphasis on incompatibilities and their possible correction in prescription filling. P, 65, 72.

86 Pharmaceutical Jurisprudence 4 (4, 0) S
History, Literature and Ethics of Pharmacy. State and Federal laws and regulations concerned with practice of pharmacy, including food and drug, narcotic, and fair trade laws. P, 81.

89 Store Management 3 (3, 0) W
Student is given a practical knowledge in operation of drugstore. P, 62.

94 Pharmaceutical Research 1-5 (0, 3 per credit)
Undergraduate students of superior ability may elect research problems in any of the following areas: manufacturing pharmacy, dispensing pharmacy, development of new products, improvement of existing products, and stabilization and preservation of medicinal items.

180 Manufacturing Pharmacy 3 (2, 3) FWS
Designed to acquaint the student with the use of equipment similar, on a pilot plant scale, to that used in industry, and to give experience in the quantity production of formulations. P, 62.

GRADUATE DIVISION

200-201 Product Formulation 2 (0, 6) FW or WS
Study of all dosage forms of medication with emphasis on the formulation of preparations suitable for quantity production in Manufacturing Pharmacy 180. P, 180. Offered on sufficient demand.

264 Pharmaceutical Research 1-5 (0, 3 per credit)
Graduate students may elect research in any of the following fields: manufacturing pharmacy, dispensing pharmacy, development of new products, improvement of existing products, and stabilization and preservation of medicinal items.

273-274-275 Seminar 1 (1, 0) FWS
Required of all graduate students taking graduate majors in the Division of Pharmacy. Offered on alternate years as required.

299 Thesis in Pharmacy 7-10 as arranged

Pharmaceutical Chemistry

Professors LeBlanc, Bailey; Assistant Professor Omodt

UPPER DIVISION

66-67-68 Quantitative Pharmaceutical Analysis 3 (2, 3) FWS
Principles of quantitative analysis and their application to analysis of drugs and pharmaceutical preparations. P, Ch 152.

70-71-72 Chemistry and Pharmacy of Organic Medicinals 4 (4, 0) FWS
A two phase discussion of all classes of organic compounds having pharmaceutical or medicinal value stressing (1) synthesis, chemical properties, and structure-activity relationships, and (2) physical properties, incompatibilities, use, dose, and official preparations. P, 26; Ch 152.

73-74 Pharmaceutical Biochemistry 3 (2, 3) FW
Chemistry of living organisms as basis for understanding metabolism and pharmacological action of medicinal preparations.

94 Pharmaceutical Research 1-5 (0, 3 per credit)
Undergraduate students of superior ability may elect a research problem in one of the following: pharmaceutical analysis, organic medicinal chemistry or pharmaceutical biochemistry.

GRADUATE DIVISION

250 Bionucleonics 4 (4, 0) FWS
The theory and technique required for the application of radioactive and stable isotopes to biological research.

251 Bionucleonics Laboratory 2 (0, 6) FWS
Laboratory experiments in the application of isotope technique to biological research. P, 250 which may be taken concurrently.

264 Pharmaceutical Research 1-5 (0, 3 per credit)
Graduate students may select as elective one of the following areas in which to conduct research: pharmaceutical analysis, organic medicinal chemistry or pharmaceutical biochemistry.

266-267 Advanced Drug Analysis 4 (2, 6)
A study of drug analysis employing various types of industrial laboratory apparatus. Offered on sufficient demand.

270 Advanced Pharmaceutical Chemistry 3 (3, 0) F
Chemistry of organic compounds used as therapeutic agents with emphasis on synthesis and structure-physiological activity relationships. Offered on sufficient demand.

271-272 Advanced Pharmaceutical Chemistry 5 (3, 6) WS
A continuation of Pharmacy 270. Laboratory experiments in the synthesis of organic medicinals. Offered on sufficient demand.

273-274-275 Seminar 1 (1, 0) FWS
Required of all graduate students taking majors in the Division of Pharmacy. Offered on alternate years as required.

299 Thesis in Pharmaceutical Chemistry 7-10 as arranged

Pharmacology

Professor Gross

LOWER DIVISION

20 Pharmacology 4 (3, 3) F
Basic principles of pharmacology and therapeutics; consideration of the more important drugs in current use with emphasis on their pharmacologic actions and therapeutic applications. For students in Nursing. P, sophomore standing.

UPPER DIVISION

83 Pharmacology 4 (4, 0) F
Basic principles of pharmacology and therapeutics; systematic study of the important drugs in current use, their pharmacologic actions, therapeutic applications and toxic effects. For students in Pharmacy. P, 65.

84-85 Pharmacology 4 (3, 3) WS
Continuation of 83. Laboratory experiments to illustrate the actions of drugs. P, 83.

90 Toxicology 2 (2, 0) F
Consideration of the more common poisons with emphasis on antidotal measures. Primarily for those students electing one term's work in the field. P, 65.

91-92 Toxicology 4 (2,4) WS
Systematic study of the common poisons, their properties, toxic effects, antidotes and detection. P, 65.

94 Pharmaceutical Research 1-5 (0, 3 per credit)
Undergraduate students of superior ability may elect a research problem in pharmacology or toxicology.

GRADUATE DIVISION

264 Pharmaceutical Research 1-5 (0, 3 per credit)
Graduate students may elect a research problem in pharmacology or toxicology.

283-284 Pharmacology 4 (2, 6)
Theories of drug action and techniques used in pharmacological research and testing. P, 85. Offered on sufficient demand.

273-274-275 Seminar 1 (1, 0) FWS
Required of all graduate students taking graduate majors in the Division of Pharmacy. Offered on alternate years as required.

299 Thesis in Pharmacology 7-10 as arranged.

Pharmacognosy

Professor Redman

UPPER DIVISION

41 Pharmaceutical Botany 4 (3, 3) F
Principles of plant morphology, physiology, reproduction, cell chemistry and taxonomy; limited study of life histories of plants, with special reference to those of medicinal importance.

42-43 Pharmacognosy 4 (3, 3) WS
Source, characteristics, chemistry of constituents, and uses of crude plant and animal drugs. P, 41.

51 Cultivation of Medicinal Plants 2 (0, 6) SSu
Cultivation of medicinal and poisonous plants with emphasis on plants adapted to South Dakota.

87-88 Agricultural Pharmacy 2 (2, 0); 3 (2, 3) WS
Biologicals, rodenticides, fungicides, weedicides, insecticides, fumigants, local and systemic anti-infectives. P, 43.

94 Pharmaceutical Research 1-5 (0, 3 per credit)
Undergraduate students of superior ability may elect a research problem on products from the medicinal and poisonous plant garden or on other drugs from natural sources.

GRADUATE DIVISION

264 Pharmaceutical Research 1-5 (0, 3 per credit)

Research on products from the medicinal and poisonous plant garden or on other drugs from natural sources.

268 Microscopy of Foods and Drugs 4 (2, 6)

Microscopic structure and characteristics of powdered drugs and foods with methods of identification of adulterants. Offered on sufficient demand.

273-274-275 Seminar 1 (1, 0) FWS

Required of all graduate students taking graduate majors in the Division of Pharmacy. Offered on alternate years as required.

299 Thesis in Pharmacognosy 7-10 as arranged.

DIVISION OF SCIENCE AND APPLIED ARTS

This Division offers four-year curricula leading to the Bachelor of Science degree. Several two-year terminal curricula, which are recognized by a Certificate of Completion, are also available.

The four-year curricula provide the student with the opportunity to major in most of the natural and social science fields, as well as in applied art, English, foreign languages, industrial arts, journalism, music, physical education, printing management, psychology and speech.

The division also assumes the function of providing a wide range of "service" courses for students enrolled in Agriculture, Engineering, Home Econnomics, Nursing, and Pharmacy. These courses provide the work prerequisite to the more technical professional curricula as well as the general and cultural background necessary for educating leaders in all fields. It is a matter of record that professional groups are placing more emphasis on cultural subjects than has been the case in former years. Hence it is becoming increasingly important that a well-balanced program of general education subjects be made available to technical students.

Many of the students who graduate in the Natural and Social Science curricula find their work in fields related to agriculture, engineering, and home economics. These curricula also provide the background usually required for high school teaching and for graduate work in the various fields. They also can be adapted to provide the background for admission to colleges of medicine, dentistry, law, theology and other professional schools.

Limited Credit Subjects

Most colleges today teach a number of subjects which have not hitherto found a place of credit in regular curricula. In recognition of their educational value this College has made provisions by a system of limited credits, for allowing these subjects to count toward a degree in this division. Unless these limited credit subjects are part of a course which has been outlined in advance and approved by the dean of the division, no more than three credits each year and no more than ten in all will be allowed for such work. If limited credit subjects should be prescribed in a student's course, he will be allowed to count additional limited credits only up to the numbers mentioned.

For information concerning credit, grade-point, and other requirements for graduation and degrees in connection with the various curricula see section on academic requirements under General Information.

1. Curricula Leading to the Degree of Bachelor of Science

A. Natural Science Major

This curriculum is adapted to the needs of students who wish to specialize in the physical or biological sciences, or in mathematics. Natural science majors are required to complete approximately forty-five quarter hours of credit in the humanities and the social sciences.

The following summary shows the distribution of subject matter requirements of this curriculum:

Group I—Language Arts

English, Engl 1-2-3 or 4-5-6	9
*Introduction to Literature, Engl 20	3
Oral Communication, Sp 10, 20; or Oral Communication, Sp 22	4–3
	18–19

Group II—Social Science

Introduction to Social Science, GS 1-2-3	9
Principles of Economics, Econ 21-22	6
Introduction to Sociology, RS 15	5
National Government, PS 34	4
General Psychology, Psy 25	3
	27

Group III—Natural Science and Mathematics

Inorganic Chemistry, Ch 1-2-3	12
Elementary or General Physics, Phy 10-11-12 or 20-21-22	12–15
General Zoology, Human Physiology, Z 20-21-22	12
General Botany, Bot 11-12	8
General Botany, Bot 13; or General Bacteriology, Bac 30	4–5
Algebra, Math 10 or 14	5
Trigonometry, Math 11 or 15	5
	58–62

Group IV—General Requirements

Orientation, 1	1
Military, Mil 1-2-3, 20-21-22 or 5-6-7, 25-26-27	6
General Physical Education (Men PE 1-2-3) (Women PE 10-11-12)	3
	10

Group V—Majors, Minors, Education, Electives 89–91

Total required for graduation 204†

*Natural Science majors who have completed 21 credits in an approved foreign language are exempt from the requirement in Introduction to Literature and elective in English.

†All students must complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

B. Social Science Major

The special curriculum in the social sciences is designed to furnish a broad background of human societal knowledge, but with considerable room for specialization in either Economics, Rural Sociology, History, Journalism, Political Science or Psychology.

The offerings in Economics include courses in each of the following fields: General Economics, Farm and Ranch Management, Cooperation and Marketing, Public and Agricultural Finance, Land Economics, Statistical Analysis, Economic Theory, and Accounting.

Sociology courses are organized mainly within the fields of Rural Sociology, Family Relationships, Population Problems, Sociological Theory, Social Pathology, and Social Welfare.

The fields emphasized in political science are American Government, Comparative Government, Political Theory, and International Relationships and Public Administration. In History, in addition to various standardized courses, special emphasis is given to the field of Economic History.

The majors in Art, English, Foreign Languages, Music, Journalism, Physical Education, Printing Management and Speech are special adaptations of the Social Science Curriculum.

The following summary shows the distribution of subject matter requirements in the Social Science Curriculum:

Group I—Language Arts

English, Engl 1-2-3 or 4-5-6	9
Introduction to Literature, Engl 20	3
English elective (Selected from Engl 21-27)	3
Oral Communication, Sp 10, 20; or Oral Communication, Sp 22	4–3
	18–19

Group II—Social Science

Introduction to Social Science, GS 1-2-3	9
Approved History Sequence	8–9
Principles of Economics, Econ 21-22	6
Introduction to Sociology, RS 15	5
National Government, PS 34	4
General Psychology, Psy 25	3
Statistical Methods, Econ 81 or Ed 168	3–5
	38–41

Group III—Natural Science and Mathematics

Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	12
Biological Science	13
Algebra, Math 10	5
	30

Group IV—General Requirements

Orientation, 1	1
Military, Mil 1-2-3, 20-21-22 or 5-6-7, 25-26-27	6
General Physical Education (Men PE 1-2-3) (Women PE 10-11-12)	3
	10

Group V—Majors, Minors, Education, Elective 104–107

Total required for graduation 204*

*All students must complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

2. Two-Year Terminal Curricula Leading to the Certificate of Completion

Two-year terminal curricula in a number of Science and Applied Arts fields have been worked out to accommodate students who cannot devote sufficient time to their education to qualify for the bachelor of science degree. Upon the satisfactory completion of one of these programs of study the student will be granted the Certificate of Completion.

Specific fields in which this Certificate may be taken include industrial arts, printing, and secretarial science.

3. Pre-Professional Training

Persons wishing to qualify for admission into the professional schools of medicine, dentistry, law and other schools which require pre-professional training, ordinarily enroll in the Division of Science and Applied Arts.

Since the requirements for admission to the professional schools vary somewhat, no special curricula are outlined in this catalog but courses required by practically all of these schools are available on the campus and every assistance will be given the student in working out a program to meet the requirements. The Dental Aptitude tests are administered on the campus each year. As an institution accredited by the North Central Association of Colleges, credits are accepted at face value when the student transfers to a professional school.

Divisional Requirements

A. Sophomore Comprehensive Examinations

Before being formally admitted to junior rank, all Science and Applied Arts students must take a comprehensive examination to test their proficiency in English usage and their knowledge in basic subject-matter fields usually completed in the freshman and sophomore years. Students are required to present themselves for these examinations when scheduled if at the completion of that term their total accumulation of credits can be expected to approximate 100 credits.

Junior and senior transfer students are required to take these examinations upon being admitted to the College.

The results of the tests are used to aid the student in selecting his major and minor and in advising with the student in the selection of electives necessary or desirable to round out his or her education.

B. Majors and Minors

Subject to the approval of the dean and the head of the department concerned, the student must select a major field of concentration early in the junior year. With few exceptions the majors require 36 quarter hours of credit in a department and the minor a total of 24 quarter hours of credit in a given department. Minors are not required in most curricula. It is recommended, however, that persons wishing to teach in the secondary schools prepare themselves to meet the certification requirements in one or two additional fields. (See outline of teaching majors under Education Department.)

Majors may be chosen in Art, Bacteriology, Botany, Chemistry-General, Chemistry-Professional, Chemistry-Clinical Laboratory Technology, Economics, English, Entomology, Foreign Languages, History, Industrial Arts, Journalism, Political Science, Mathematics, Music, Physical Education, Physics, Printing Management, Psychology, Rural Sociology, Speech and Zoology. Curricula with these majors have been outlined and appear on the following pages.

Minors may be chosen in any of the above mentioned fields and in the additional fields of secretarial science and in certain engineering departments. The major and minor may not be selected from the same department.

After the choice of a major has been approved, the student should refer to the curriculum concerned and follow that program as closely as possible. Failure to do so may result in schedule difficulties and a possible extension of the graduation date.

C. Quality of Work

Upon the recommendation of the dean and the department head and with the approval of the Committee on Scholastic Stand-

ards, a student may be required to change his major or minor if the quality of his work in these fields is regarded as unsatisfactory. For purposes of interpreting this regulation, less than a "C" average in major or minor fields will be regarded as unsatisfactory.

D. Elective Courses

Elective courses completed in the junior and senior years should be selected from among those numbered 40 or above. Upper division students who elect courses ordinarily completed in the freshman and sophomore years may be required to do additional or a higher quality of work than is normally required of lower division students. All students must complete a minimum of 60 quarter hours of credit in courses numbered 40 or above to qualify for the B.S. degree in Science and Applied Arts. Calculus 25-26-27 may be counted toward this total.

In the curricula outlined in the following pages are frequently found statements such as "Elective in Economics," etc. Although a student may select from a wide range of such courses he **must** select as many credits in the specified field as is indicated. In other words, these are in reality required courses and not "free electives," unless the course titles are printed in Italic type.

E. Preparation for High School Teaching

Students who plan to teach in high school should start taking professional Education courses in the first quarter of their junior year if they expect to meet certification requirements by the time all of the degree requirements are met. While it is often possible to complete the Education sequence if the student does not begin the program in the first term of his junior year there can be no assurance that this will be the case. **All students who wish to teach are urged to consult with the head of the Education department when registering for the first term of the Junior year or earlier.**

In order to attain certification as a teacher in South Dakota the student must complete certain required Education courses, which, together with electives in Education, must total 30 quarter hours. This does not include elementary psychology, which should be completed in the sophomore year.

In addition to the professional course requirements there are certain subject matter requirements for high school teaching. These requirements are outlined under an appropriate heading under the Education and Psychology Department.

General Studies (GS)

State College, like many other institutions, offers a number of general courses which are taught by two or more departments, or which cannot properly be listed under existing departments.

The courses falling in this classification are described below. All of them carry regular college credit. For further information see Dean of the Division of Science and Applied Arts.

LOWER DIVISION

1-2-3 Introduction to Social Science 3(3,0) FWS

Integrated study of man's social life and problems with special attention to the help social science can give in understanding and finding solutions to these problems. Taught through cooperation of departments of Economics, History and Political Science, and Rural Sociology.

5 English for Foreign Students 3(3,0) F

Designed for students who use English as second language. Open only to those students who have difficulty in understanding and using English. P, consent of instructor. Taught by Foreign Languages department.

8 Reading Improvement 1 (0,3) FWSSu

Attempts to increase reading efficiency by improving comprehension and by developing motor skills involved in reading speed. Motivates reading interest through use of films, slides, and papers. Passing grade reported as "E" (satisfactory).

9 Directed Reading 1(1,0)

The reading of significant books selected with the students interests and needs in view. Short oral reports and class discussions of reading required. May not be substituted for courses required for major or minor.

10 Survey of New Testament 2(2,0)

New Testament, giving historical setting for the peoples and problems of the time.

11 Survey of Old Testament 2(2,0)

Old Testament, life and times of the people and prophets.

12 Life and Teachings of Christ 2(2,0)

Broad survey of life and teachings of Christ, and their bearing on thought, religion and world situation in which He lived.

13 Introduction to Church History 2(2,0)
Survey of founding of New Testament Church, and spread and development of Christianity in Europe up through the 18th Century.

14 Christian Heritage of America 2(2,0)
Contemporary American churches, their beginnings and development, their differences, their similarities and their contributions to life and culture of United States.

15 Meaning of Religion 2(2,0)
Significance of religion for personal and community life. Careful examination of meaning of five great ideas—Religion, Faith, Prayer, Morality and God; seeks to stimulate student to achieve satisfactory philosophy of life.

24 Introduction to Aviation 3(3,0) FWS
Aerodynamics; principles of flying, civil air regulations, meteorology, radio and navigation. Administered by Physical Education department.

25 Basic Flight Training 1 or 2 credits FWS
Ten hours of actual flying time. Approximately eight hours of dual instruction and two hours of solo flight including pre-flight and post-flight briefings before and after each flight. One credit will be given if student does not solo. P, GS 24 or concurrent with GS 24. Fee $85.00. Administered by Physical Education department.

26 Intermediate Flight Training 2(1,2) FWS
Cross-country phase of flying; designed to advance student toward private license. Cross-country dual and solo flying with pre-flight and post-flight briefings before and after each flight. P, GS 25 or equivalent. Fee $100.00. Administered by Physical Education.

27 Advanced Flight Training 2(1,2) FWS
Covers advanced phases of flying, including cross-country and all phases of flight planning. Student will be given a check ride to determine level of flying ability. Course will be given in full compliance with CAA regulations. P, GS 26 or equivalent. Fee $100.00. Administered by Physical Education.

28 Languages in Everyday Living 1-3(2,3,0) FS
For students in any field. Course is descriptive, consisting primarily of lecture and reading. Language families and individual languages are considered from standpoint of their history, relationship, form, development, and social aspects. Students taking course for one credit have little outside preparation; passing grades reported as "E" (satisfactory). Taught by Foreign Languages department.

30-31-32 Humanities 2(2,0) FWS
Designed to give students an insight into man's intellectual and artistic heritage, and an understanding of its applicability to life today. In its treatment of art, literature, music, philosophy and religion, the course seeks (1) to arouse student interest in these fields, (2) to stress the relationship between the arts and the sciences.

33 Pronunciation of German 1(0,3) (Offered 1960-61) F
Analysis and practice in pronunciation. Emphasis on correct pronunciation for fields of communications, music, politics and science. Includes common words and phrases, geographical and personal names. Class and individual practice in language laboratory. Primarily for non-language majors. Alternate years taught by Foreign Languages Department.

34 Pronunciation of Italian and Spanish 1(0,3) (Offered in 1960-61) W
Same course description as 33.

35 Pronunciation of French 1(0,3) (Offered 1960-61) S
Same course description as 33.

38 Religion in American Life 2(2,0) F
Examples of how religion has influenced American life and continues to affect various aspects of individual habits and social living.

39 Arts in Everyday Living 1 or 2(2,0) W
Provides opportunity to gain some appreciation of how art, music, literature and philosophy may contribute to enrichment of everyday living. Lectures and demonstrations with very little outside preparation required of students. For one credit passing grade will be reported as "E" satisfactory. Taught jointly by departments of Art, English and Music.

UPPER DIVISION

42 Principles of Ethics 3(3,0) S
Chief ethical theories and their application to concrete individual and social morality.

46 Psychology in Religion 2(2,0) W
Psychological factors in religious beliefs and practices, stages of developments, and impact of religion on psychic health and social maturity.

80 Multiple Engine Flight Training 2(1,2) FWS
Prepares students for multiple-engine rating. CAA flight examination (not part of course) required before rating can be issued. Course consists of ten hours of local dual flight training in twin-engine aircraft. Students should confer with flight instructor before enrolling. P, valid pilot's license. Fee $500.00.

140 Introduction to Philosophy 3(3,0) FWS
Philosophical inquiry for those who desire cultural acquaintance with nature and place of philosophy in human thought; its chief problems and achievements.

141 Logic and Scientific Method 3(3,0) WS
Practical applications of logical principles. Aids students in clear, unbiased thinking so that he may avoid self-deception and deception by others, in forming judgments on social, political, economic, moral, and religious questions.

154 World Religions 3(3,0) WS
Comparative study of the world's great religions; Hinduism, Buddhism, Confucionism, Taoism, Shinto, Islam, Judaism, and Christianity. P, at least one course in world history; junior standing.

161 Philosophy of Science 3(3,0) S
Analysis of the nature and goals of scientific knowledge and its relation to all kinds of experience. Review of scientific theories, concepts, and explanation in relation to research goals, methods and results; interrelations and values of science. P, 24 credits in basic science courses.

Econ 164 Ethics in Economics 3(3,0) W
(See Economics Department)

172 Philosophy of Education 3(3,0) W
Survey of major current philosophies of education and their effects upon educational goals and standards on the different levels of education today. P, senior standing. May count as Education credit.

190-191-192-193 Divisional Honors Seminar 1 cr.
An intensive and extensive study of the scope and philosophy of a selected area of knowledge. P, Honor student, non-major, approval of Honors Council.

190 Social Science

191 Humanities

192 Physical Science

193 Biological Science

198 Divisional Honors Project 2 cr.
Individual research report in an honors area of knowledge. P, senior honors program student.

GRADUATE DIVISION

245 General Semantics 3(3,0) (Offered 1960-61) S
Theory and practice of reliable language usage in personal and group growth, health and survival. Alternate years. Required course for graduate majors in language skills. Administered jointly by English and Speech departments.

290 Modern American Thought 3(3,0) (Offered 1961-62) F
Analysis of selected economic, social, and philosophical problems of late 19th and 20th Centuries; and their expression in American literature. P, 24 hours in English or 30 hours in combination of language arts, or consent of instructor. Alternate years.

Departments and Curricula

On the following pages are curricula which have been outlined in connection with the departments which offer majors for the bachelor's degrees conferred in the division.

Instead of selecting a curriculum that has been outlined the student may, with the approval of the dean of the division and the heads of the major and minor department, formulate his curriculum in accordance with requirements on the preceding pages.

Department of Art (Art)

Professors Ritz, Moore; Assistant Professors Edie, Ober; Instructor Allie

The courses offered in this department are intended to stimulate an interest in and an appreciation of the Fine and Applied Arts. They are designed to develop a knowledge of the basic principles underlying the various phases of design, drawing, painting, color, applied arts and crafts. Many of them are required in other curricula.

LOWER DIVISION

1-2 Design 2(0,6) FW
Fundamentals of design. Two and three dimensional experiments in line, form and color.

3 Related Art 3(2,3) FWS
Principles of design and color with emphasis on their application to the area of homemaking.

4-5-6 Drawing and Composition 2(0,6) FWS
First quarter perspective. Second quarter figure drawing. Third quarter composition in line, dark and light, and color.

20 Composition 2(0,6) F
Design experience related to composition for graphics and painting. P, 2.

21 Graphics 2(0,6) W
Tools and processes of print making with experience in printing from plastic, linoleum and metal plates. P, 6 or consent of instructor.

22 Commercial Art 2(0,6) S
Problems pertaining to advertising and illustration. Processes of reproduction, layouts, and finished drawings. P, 20 or consent of instructor.

25 Applied Design 2(0,6) FWS
Problems in decorative design involving various materials, tools and techniques. P, 2.

26 Screen Printing 2(0,6) S
Experience in the use of screen printing for textile decoration and as a graphic medium. P, 21.

27 Weaving 2(0,6) FWS
Design and execution of handwoven fabrics. Experience with various types of looms. P, 2 or 3.

30 Architectural Drawing 2(0,6) W
Technique of drawing to scale. Reading blue prints. Experience in drawing floor plans, elevations, and sections.

35 Art Appreciation 2(2,0) FW
Place of visual arts in the development of civilization and as a part of our cultural heritage. Major emphasis on pleasurable and intelligent appreciation of artistic achievements.

37 History of American Art 1(1,0) WS
Survey of the development of the arts in America from colonial to present times.

UPPER DIVISION

41 Lettering 2(0,6) F
History of lettering, use of tools and practice in the development of calligraphic forms. P, 2.

42 Ceramics 2(0,6) WS
Experience in the design and execution of ceramic objects. Throwing, glazing. P, 2.

43 Jewelry 2(0,6) W
Tools, processes, and materials involved. Experience in the manipulation of metals, soldering, stone setting. P, 2.

44 Sculpture 2(0,6) S (Offered 1961-62)
Three dimensional design executed in clay, plaster and metals. P, 42. Alternate years.

45-46-47 History of Art 3(3,0) FWS
Chronological presentation of principal periods in history of art that have contributed to Western culture.

48 Related Art 2(1,3) FWS
Further study of the elements of art and the principles of design with experience in their application to problems related to the home. P, 3.

51 Interior Design 2(1,[1]) S
Comprehensive study of problems of interior decoration of domestic structures with emphasis on the contemporary. Desirable prerequisites, 2, 3, 4; HEc 75.

60-61-62 Painting 2(0,6) FWS
Color and its properties. Emphasis given to problems of composition in oil. P, 2, 4-5-6, 20 or consent of instructor.

63 Painting in Water Color 2(0,6) F
Still life, landscape, and abstract painting in water color and gouache. P, 20.

65-66-67 Problems in Applied Art 2(0,6) FWS
Individualized course permitting advanced work in chosen areas of art expression. Open only to Juniors and Seniors.

68 Seminar 1(1,0) (Offered 1961-62) F
For juniors and seniors in art only. Alternate years. P, GS 140.

70 Methods of Teaching Arts and Crafts 3(2,3) (Offered 1961-62)
Methods and materials for teaching arts and crafts at various levels. Alternate years.

Curriculum in Science and Applied Arts, Art Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science, GS 1-2-3	3	3	3
Design, Art 1-2	2	2	
Oral Communication, Sp 10			2
Drawing and Composition, Art 4-5-6	2	2	2
Biological Science	4	4	
Algebra, Math 10			5
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Orientation 1	1		

Sophomore Year	F	W	S
Composition, Art 20	2		
Graphics, Art 21		2	
Commercial Art 22			2
Applied Design, Art 25	2		
Screen Painting, Art 26		2	
History of American Art, Art 37			1
Introduction to Literature, Engl 20 and elective (Engl 21-27)		3	3
General Psychology, Psy 25	3		
Oral Communications, Sp 20		2	
Introduction to Sociology, RS 15		5	
National Government, PS 34	4		
Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	4	4	4
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	F	W	S
History of Art, Art 45-46-47	3	3	3
Lettering, Art 41	2		
Ceramics, Art 42		2	
Jewelry, Art 43			2
Painting, Art 60-61-62	2	2	2
Biological Science	5		
Principles of Economics, Econ 21-22		3	3
Introduction to Philosophy, GS 140			3
French, FL 1-2-3	4	4	4
*Elective**			

Senior Year	F	W	S
Painting in Water Color, Art 63		2	
Sculpture, Art 44			2
Problems in Applied Art, Art 65-66-67	2	2	2
Seminar in Art, Art 68	1		
French, FL 21-22-23	3	3	3
*Elective**			

*Students preparing to teach in high school should consult with the head of the Education department before registering for the first term of their junior year. All students must complete a total of 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: Art 1-2, 4-5-6, 20, 21, 22, 25, 26, 37, 41, 42, 43, 44, 45-46-47, 60-61-62, 63, 65-66-67, 68. Additional electives in art recommended.

MINOR: Art 1-2, 4-5-6 and electives to total 24 credits.

Department of Bacteriology (Bac)

Curriculum in Science and Applied Arts, Bacteriology Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See Bacteriology Major Curriculum in Technical Agriculture under Division of Agriculture

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Trigonometry, Math 11 or 15			5
College Algebra, Math 10 or 14	5		

Inorganic Chemistry, Ch 1-2-3	4	4	4
Introduction to Social Science, GS 1-2-3	3	3	3
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		
Analytic Geometry, Math 12 or 16			5

Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20			3
General Psychology, Psy 25			3
Introduction to Sociology, RS 15		5	
Elementary Physics, Phy 10-11-12	4	4	4
Oral Communication, Sp 10		2	
National Government, PS 34			4
General Bacteriology, Bac 30	5		
Elementary Organic Chemistry, Ch 21	5		
Military, Mil 20-21-22 or 25-26-27	1	1	1
Dairy Bacteriology, DH 44		5	
Elective			

Junior Year	**F**	**W**	**S**
Writing for Technical Students, Engl 43		3	
Oral Communication, Sp 20	2		
Principles of Economics, Econ 21-22		3	3
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Biometry, Agron 182		3	
Food Analysis, Ch 25	3		
Principles of Infection and Immunity, Bac 142		5	
Pathogenic Bacteria, Bac 143			5
Advanced Dairy Bacteriology, DH 162			3
*Elective**			

Senior Year	**F**	**W**	**S**
General Botany, Bot 11-12	4	4	
Genetics, Z 42	3		
Bacteriological Literature, Bac 152		2	
Bacteriology Seminar, Bac 71-72-73	1	1	1
Microbiology of Water and Sewage, Bac 46		4	
Physiology of Viruses, Bac 178		5	
Food Bacteriology, Bac 155	4		
Soil Microbiology, Bac 163			5
Bacteriological Problems, Bac 165	2		
Systematic Bacteriology, Bac 180		5	
*Elective**			

*Students who expect to continue the study of bacteriology at the graduate level should include among their junior and senior electives (or optional courses) a minimum of two year-courses in French or German. Those who expect to teach in high school should consult with the head of the Education department before registering for the first term of their junior year. All students must complete a total of 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: Bac 30, DH 44, 46, 71, 72, 73; Bac 152, 155, 180 or Bac 30, 71, 72, 73, 142, 143, 152, 178, 180, plus additional courses in Bacteriology to total 36 credits. Public health option available for qualified students who complete the course, Bac 83.

MINOR: 24 credits in Bacteriology in an approved sequence.

Department of Botany (Bot)

Curriculum in Science and Applied Arts, Botany Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See Botany Major Curriculum in Technical Agriculture under Division of Agriculture

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 10 or 14	5		
Trigonometry, Math 11 or 15		5	
General Botany, Bot 11-12-13	4	4	4
Inorganic Chemistry, Ch 1-2-3	4	4	4
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		
Analytic Geometry, Math 12 or 16			5

Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20			3
Writing for Technical Students, Engl 43		3	
Oral Communication, Sp 10			2
Introduction to Sociology, RS 15		5	
General Psychology, Psy 25			3
Introduction to Social Science, GS 1-2-3	3	3	3
Elementary Organic Chemistry, Ch 21	5		
Basic Taxonomy, Bot 27	4		
Plant Anatomy, Bot 147			5
General Zoology, Z 20-21	4	4	
Military, Mil 20-21-22 or 25-26-27	1	1	1
*Elective**			

Junior Year	**F**	**W**	**S**
Elementary Physics, Phy 10-11-12	4	4	4
National Government, PS 34	4		
Oral Communication, Sp 20		2	
Principles of Economics, Econ 21-22	3	3	
Human Physiology, Z 22			4
General Plant Physiology, Bot 141	5		
Mineral Nutrition, Bot 177			5
Environment and Physiology, Bot 173			5
*Elective**			

Senior Year	**F**	**W**	**S**
Genetics, Z 42	3		
Botany Seminar, Bot 186			1
Plant Microtechnique, Bot 43			4
Plant Ecology, Bot 155-156-157	4	4	4
Morphology, Bot 161-162-163	5	5	5
*Elective**			

*Students who expect to continue the study of botany at the graduate level should include among their junior and senior electives two year-courses in French or German. Those who expect to teach in high school should consult with the head of the Education department before registering for the first term of their junior year. All students must complete a total of 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: Bot 11-12, 13, 27 (or 23 or 24) and 186 plus 20 or more credits elected from courses in the department. These electives must include a 3-course sequence in either anatomy, morphology, physiology, or taxonomy-ecology.

MINOR: Bot 11-12, 13, 27, and additional courses to total 24 credits.

Department of Chemistry (Ch)

Professor Webster; Professor Emeritus Binnewies; Professors Johnson, Klug; Associate Professors Erickson, Greb, Tanaka; Assistant Professors Brandwein, Howard, Krzyzaniak; Instructors McRoberts, Alcott; Mr. Dahm, Mr. Duncan, Mr. Falk, Mrs. Ho, Mr. Kuo, Mr. Miedoma, Miss Slagle, Mr. Travis.

This department is on the approved list of the American Chemical Society for training professional chemists. Graduates of this curriculum will be certified to the American Chemical Society as being eligible for full membership following two years of graduate work or other experience in chemistry and will receive a certificate from the society.

The courses of the Chemistry Department are organized to serve three purposes: First, since chemistry is so closely related to other fields of study, a number of courses are offered to give the student sufficient training to meet the needs of chemistry in his profession.

Second, a general chemistry major is available to students who wish to take additional work in chemistry, but who do not care for the curriculum in professional chemistry or clinical laboratory technology.

Third, a professional major is offered to those students who intend to pursue the profession of chemistry.

General Chemistry

The general chemistry curriculum is designed for those students who have more than a passing interest in chemistry but who are not necessarily interested in chemistry as a profession. It is especially adapted to those interested in teaching chemistry and other sciences in the secondary schools and junior colleges. Students who have this in mind should begin taking courses in education at the start of the Junior year in order to meet the requirements of the State Department for teachers. The requirements of the professional major must be satisfied, however, before the students may be recommended for graduate work in chemistry.

Clinical Laboratory Technology

Those who are interested in the laboratory work connected with physicians' offices, hospitals and clinics should select the curriculum in Clinical Laboratory Technology. Following three years of regular college work the student must complete twelve to eighteen months training in a clinical or hospital laboratory approved by the Council on Medical Education and Hospitals of the American Medical Association in order to qualify for the B.S. degree. Graduates of this curriculum will be eligible to take the examination for registry as a Clinical Laboratory Technician. There are many opportunities in this field for both men and women.

Professional Chemistry

Those students who intend to pursue the profession of chemistry should select this curriculum. Only those students who demonstrate definite ability in chemistry, however, will be permitted to continue toward the professional major. Because of the specialization required in this training a number of the Science and Applied Arts requirements are dropped, with the substitution of additional chemistry, mathematics and foreign language. Graduates of this curriculum will be certified to the American Chemical Society as being eligible for full membership following two years of graduate work or other professional experience in chemistry and will receive a certificate from the society.

Agricultural Chemistry

This curriculum is professional chemistry with emphasis on the applications of chemistry to agriculture. Since this course is administered under the Division of Agriculture, please refer to the index for details.

Credit by Examination

All entering students who have completed high school chemistry will be required to take an examination in chemistry prepared by the staff of South Dakota State College covering chemistry 1, 2 and 3 and including a portion on laboratory technique. Students who score sufficiently high in the examination may be excused from Chemistry 1, 2 and 3. Those excused from any part of Chemistry 1, 2 and 3 will be given credit for the excused portion only after the completion of a course for which Chemistry 1 or 2 or 3 is prerequisite.

Graduate Study

Facilities are available in this department for graduate study leading to the degree Master of Science with a major in any of the branches of chemistry. On completion of

this graduate work, capable students are usually able to obtain fellowships or assistantships from one of the larger institutions where study toward the doctorate may be continued. Work leading to the degree Doctor of Philosophy with a major in biochemistry is offered.

LOWER DIVISION

1-2-3 Inorganic Chemistry 4(3,3) FWS
Emphasis on elementary principles and a study of the elements.

9 Inorganic Qualitative Analysis 4(3,3) S
Analysis of mixtures of common inorganic compounds; systematic study of metals. Designed to meet the requirements of the Pharmacy Division. P, 2.

10-11 Experimental Inorganic Chemistry 1(0,3) FW
Additional laboratory work to accompany course 1-2. Required of all students planning to major in chemistry.

17-18 Survey of Biochemistry for Nurses 4(3,3) WS
A survey of biochemistry with special emphasis on the chemistry of biological materials. P, 1 with a B average.

19 Survey of the Chemistry of Carbon Compounds 5(4,3) S
Compounds of carbon with emphasis on those of special interest to students of Home Economics and Nursing Education. P, 2. Open to Home Economics and Nursing students.

20 Semi-micro Qualitative Analysis 5(3,6) FS
Principles of solution chemistry, analysis of inorganic compounds using semi-micro techniques. P, 3; Math 10 or 14. (Usually offered during Summer Session.)

21 Elementary Organic Chemistry 5(3,6) FWS
Compounds of carbon with special emphasis on those of interest to students of agriculture and applied science. P, 3. (usually offered during the summer session).

23 Quantative Analysis 4(2,6) S
Fundamental principles of laboratory practice in gravimetric analysis; introduction to volumetric analysis. P, 3, 9 or 20.

24 Quantitative Analysis 4(2,6) W
Principles of laboratory practice in volumetric analysis; introduction to instrumental analysis, P, 23.

25 Food Analysis 3(1,6) (Offered 1960-61) F
Quantitative analysis of food materials. P, 19 or equivalent.

26-27 Elementary Organic Chemistry 4(2,6) FW
Designed to meet the requirements of the Pharmacy Division. P, 3 or 9.

28-29 Analytical Calculations 1(1,0) WS
Advanced problems to supplement the elementary problems in Chemistry 23 and 24. P, 3 or 9; registration in 23, 24.

UPPER DIVISION

45 General Technical Analysis 3(1,6) S
Analysis of commercial materials as steels, alloys, ores. P, 24.

60 Chemistry Refresher for High School Teachers 5(5,4) Su (8 weeks)
A general survey of modern atomic theory and kinetic molecular theory, including an introduction to organic chemistry. P, 3 or equivalent.

91-92-93 Undergraduate Seminar 1(1,0) FWS
Required of all students majoring in chemistry. Presentation of topic based on reference reading or original research. P, minor in chemistry.

146 Inorganic Preparations 3(1,6) (Offered 1960-61) W
Methods of preparation and purifying typical inorganic compounds. P, 3.

147 Advanced Inorganic Chemistry 3(3,0) (Offered 1960-61) F
Selected topics in inorganic chemistry in light of modern theory. P, 3.

148 Modern Chemistry for High School Teachers 5(5,4) Su (8 weeks)
A review of modern concepts of chemistry. P, 3, 20, 21, 23 or 24 or equivalent.

150-151-152 Organic Chemistry 3-5(3,0-3,6)FWS
Compounds of carbon in aliphatic and aromatic series. P, 3, 9 or 20.

153 Qualitative Organic Analysis 3(1,6) F
Separation of mixtures and identification of organic compounds. P, 152.

160 Instrumental Analysis 3(1,6) F
Operation and use of instruments in analysis. P, 23 and 24.

162 Physiological Chemistry 5(3,6) S
Especially suited for pre-medic students and advanced students in Home Economics and Nursing Education. P, 19 or equivalent and 23 or 25.

163-164-165 Physical Chemistry 3-5(3,0-6) FWS
An introductory course. P, 24; Math 27; Phy 22.

166 Organic Preparations 3(1,6) (Offered 1959-60) F
Preparation of typical organic compounds with emphasis on yield and purity of product. P, 152.

167-168 Agricultural Biochemistry 5(3,6) FW
First term to satisfy requirements of students of agricultural science and includes feed and mineral analysis. Second term chemistry of biological processes of plants and animals. P, 21 or equivalent.

170 Chemical Literature and Reports 1(1,0) F
Use of chemical literature and methods of preparation of reports. For students majoring in chemistry. P, minor in chemistry, reading knowledge of German, French or Russian recommended.

171 Radio Chemistry 3(3,0) W
Naturally occuring radio-active substances, atomic nuclei, nuclear reactions, chemistry of low concentrations, tracer methods. P, 3; Math 27; Phy 22.

172 The Chemical Bond 3(3,0) S
Bond Energies, atomic orbitals, directed valences, multiple bonds, resonance. P, 3; Math 27; Phy 22.

174 Special Problems *(0,*) FWS
Research problems in chemistry. P, junior standing, consent of instructor. Limited to 6 credits.

GRADUATE DIVISION

230-231-232 Advanced Physical Chemistry 3(3,0) FWS
Selected topics in physical chemistry. P, 165.

240 Quantitative Organic Analysis 2-3 (1,3-6) F
Quantitative analysis of common elements found in organic compounds. P, 24, 152.

241 Chemistry of Hormones 3(3,0) W
Chemical structure and functions of compounds secreted by ductless glands in the animal body. P, 168.

242 Chemistry of Enzymes 3(3,0) F
Kinetics, modes of action and properties of enzymes and enzyme systems. P, 168.

243 Biochemistry of Nutrition 3(3,0) W
Recent developments in biochemistry of animal nutrition. P, 167.

244 Intermediate Metabolism 3(3,0) S
Intermediate metabolism of carbohydrates, proteins and fats in animals, plants and micro-organisms. P, 168.

245 Chemistry of Vitamins 3(3,0) F
Chemical structure and functions of vitamins in living organisms. P, 168.

246 Stereochemistry of Carbon Compounds 3(3,0) W
Isomerism due to spatial arrangement of atoms or groups. P, 152.

247 Plant Biochemistry 3(3,0) S
Biochemistry of plant life processes, structural materials and growth regulating substances. P, 167.

248 Biochemical Techniques *(1,*) FWS
Research techniques of modern biochemistry pertaining to separation, isolation, purification and measurement of compounds of biological importance. P, 168

251 Carbohydrates 3(3,0) S
Configuration, proof of structure, synthesis and reactions. P, 152.

252 Lipids 3(3,0) W
The chemistry, metabolism and function of glycerides, sterols, waxes, compound lipids, plant pigments and plant soluble growth factors. P, 152.

253 Chemistry of Proteins 3(3,0) W
Composition, structure, properties and functions of proteins. P, 152.

254-255-256 Advanced Organic Chemistry 3(3,0) FWS
Selected topics in organic chemistry. P, 152.

260-261-262 Seminar 1(1,0) FWS
Required of all graduate majors in chemistry.

299 Thesis in Chemistry 7-10 as arranged

Curriculum in Science and Applied Arts, Professional Chemistry Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	F	W	S
Inorganic Chemistry, Ch 1-2	4	4	
Experimental Inorganic Chemistry, Ch 10, 11	1	1	
Semi-micro Qualitative Analysis, Ch 20			5
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 14	5		
Plane Trigonometry, Math 15		5	
Analytic Geometry, Math 16			5
Introduction to Social Science, GS 1-2-3	3	3	3
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		

Sophomore Year	F	W	S
Organic Chemistry, Ch 150-151	5	5	
Quantitative Analysis, Ch 23			4
Analytical Calculations, Ch 28			1
German or French, FL 1-2-3	4	4	4
Differential Calculus, Math 25	5		
Integral Calculus, Math 26		5	
Applied Calculus, Math 27			4
General Physics, Phy 20-21-22	5	5	5
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	F	W	S
Quantitative Analysis, Ch 24		4	
Analytical Calculations, Ch 29		1	
Physical Chemistry, Ch 163-164-165	5	5	5
Organic Chemistry, Ch 152			5
Elective in Biological Science	4	4	
German or French, FL 24-25-26	3	3	3
National Gorvernment, PS 34	4		
Oral Communication, Sp 22			3
Introduction to Literature, Engl 20	3		
General Psychology, Psy 25			3

Senior Year	F	W	S
Quantitative Analysis elective	3		
Undergraduate Seminar, Ch 91-92-93	1	1	1
Atomic Physics, Phy 180	3		
*Electives**			

*Four hours of chemistry elective and 4 hours of social science elective are required. All students must complete a total of 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type.*

MAJOR: Ch 1-2, 10-11, 20, 23, 24, 28-29, 91-92-93, 150-151-152, 163-164-165, and 7 hours elective.

MINOR: No Professional Minor is available.

Curriculum in Science and Applied Arts, Clinical Laboratory Technology Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	**F**	**W**	**S**
Inorganic Chemistry, Ch 1-2	4	4	
Semi-micro Qualitative Analysis, Ch 20			5
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 10 or 14	5		
Trigonometry, Math 11 or 15		5	
National Government, PS 34			4
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		
Sophomore Year	**F**	**W**	**S**
Quantitative Analysis, Ch 23			4
Elementary Physics, Phy 10-11-12	4	4	4
Oral Communication, Sp 22			3
Elementary Organic Chemistry, Ch 26-27	4	4	
Physiological Chemistry, Ch 162			5
General Psychology, Psy 25	3		
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
Introduction to Sociology, RS 15		5	
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective	3		
Junior Year	**F**	**W**	**S**
Quantitative Analysis, Ch 24		4	
General Bacteriology, Bac 30	5		
Principles of Infection and Immunity, Bac 142		5	
Pathogenic Bacteria, Bac 143			5
Principles of Economics, Econ 21-22	3	3	
Mammalian Anatomy, Z 142			5
Vertebrate Histology, Z 140-141	4	4	
General Parasitology, Z 162			3
Elective	3	4	4
Senior Year	**F**	**W**	**S**

Twelve months training in a school of Clinical Laboratory Technology approved by the Council on Medical Education and Hospitals of the American Medical Association for which 48 quarter hours credit will be granted.

Curriculum in Science and Applied Arts, General Chemistry Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	**F**	**W**	**S**
Inorganic Chemistry, Ch 1-2	4	4	
Semi-micro Qualitative Analysis, Ch 20			5
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 10 or 14	5		
Plane Trigonometry, Math 11 or 15		5	
Analytic Geometry, Math 12 or 16			5
Introduction to Social Science, GS 1-2-3	3	3	3
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		
Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
Oral Communication, Sp 10			2
Quantitative Analysis, Ch 23			4
General Psychology, Psy 25	3		
General Botany, Bot 11-12	4	4	
Introduction to Sociology, RS 15	5		
General Botany, Bot 13; or General Bacteriology, Bac 30			4–5
Elementary Organic Chemistry, Ch 21			5
Analytical Calculations, Ch 28			1
Military, Mil 20-21-22 or 25-26-27	1	1	1
National Government, PS 34		4	
*Elective**			
Junior Year	**F**	**W**	**S**
Quantitative Analysis, Ch 24		4	
Analytical Calculations, Ch 29		1	
Elementary Physics, Phy 10-11-12	4	4	4
Oral Communication, Sp 20	2		
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Principles of Economics, Econ 21-22		3	3
*Elective**	7	5	6
Senior Year	**F**	**W**	**S**
Undergraduate Chemistry Seminar, Ch 91-92-93	1	1	1
Elective*	16	16	16

*Seven hours chemistry electives are required. Prospective teachers should consult with the head of the Education department before registering for the first term of their junior year. All students must complete a total of 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type*.

MAJOR: Ch 1-2, 20, 21, 23, 24, 91-92-93, and 7 hours of elective.

MINOR: Ch 1-2, 20, 21, 24 (Ch 23 or 25 may be substituted for Ch 24).

SUGGESTED ELECTIVES

German, FL 1-2-3, 24-25-26, French, FL 1-2-3, 24-25-26; Food Analysis, Ch 25; Instrumental Analysis, Ch 160; Physiological Chemistry, Ch 162; Advanced Inorganic Chemistry, Ch 147; Advanced Composition, Engl 32; General Bacteriology, Bac 30; Calculus, Math 25, 26, 27; Inorganic Preparations, Ch 146; Courses in Education to complete the teacher training requirement.

Department of Economics (Econ)

Curriculum in Science and Applied Arts, Economics Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See also curricula in Economics under Division of Agriculture

Freshmen Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science, GS 1-2-3	3	3	3
Oral Communication, Sp 10		2	
Biological Science	4	4	5
College Algebra, Math 10			5
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1

Orientation, 1	1		
Elective			
Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20 and Elective (Engl 21-27)	3	3	
Oral Communication, Sp 20			2
General Psychology, Psy 25	3		
Introduction to Economics, Econ 21-22-23	3	3	3
Introduction to Sociology, RS 15			5
Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	4	4	4
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			
Junior Year	**F**	**W**	**S**
Statistical Methods I, Econ 81	5		
Introduction to Marketing, Econ 37		3	
Money and Banking, Econ 48		4	
Intermediate Economic Analysis, Econ 150	3		
Economic History of the U. S., Hist 43-44	3	3	
Sociology Elective			3
Economics Elective	3		
*Elective**†			
Senior Year	**F**	**W**	**S**
National Government, PS 34	4		
State Government, PS 36		4	
Public Administration, PS 52			3
Economics Seminar, Econ 60			1
Economics Elective	3		4
*Elective**†			

*Students wishing to prepare for high school teaching should consult with the head of the Education department before registering for the first term of their junior year. All students must complete 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

†Students wishing to take a major in Economics with emphasis on mathematics and statistics should consult adviser.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: Econ 21-22, 23, 37, 48, 60, 81, 150 and 11 elective credits.

MINOR: Econ 21-22, 37, 48, 81 and 6 elective credits.

Department of Education, Psychology, and Industrial Arts (Ed, Psy, IAE)

Professors Sundet, Wiseman (Emeritus); Associate Professors Herold, Huls, Puttmann; Assistant Professors Foreman, Gadda, Holdridge, Petrides (on leave), Scholten, Whitemore; Instructor Sheldon; Assistant Bell, Brooks, Horrigan, Johnson, Miller, White; Graduate Assistant Smith

The department of Education, Psychology, and Industrial Arts has for its chief purpose the training of teachers of agriculture, homemaking, industrial arts, physical education, secretarial science, music and the academic areas. Certain of the psychology courses are service courses for students who are enrolled in the several divisions of the college but who do not wish to teach. There is a special program for those who wish to prepare for counseling and guidance work in schools or industry.

State College has been approved for training teachers of vocational agriculture and vocational homemaking by the State Board of Education and by the Division of Vocational Education of the United States Office of Education. The latter office administers vocational education under the Smith-Hughes Act and subsequent acts providing for federal aid for such work.

The curricula for the training of high school teachers at State College have been approved by the State Department of Education. By an early action of the Board of Regents, students who are not above freshmen rank are not permitted to enroll in professional education courses.

The Department of Education holds membership in the American Association of Colleges for Teacher Education (AACTE), an autonomous department of the National Education Association. This is the national voluntary association of colleges and universities organized to improve the quality of institutional programs of teacher education.

Admission and Quality of Work

Students desiring admission into professional courses in education for the purpose of earning a teaching certificate must file an application in the Department of Education prior to enrolling in education courses. A Teacher Selection and Admission Committee appointed by the Head of the Department of Education will have the responsibility of selection for admission and retention.

Staff members outside of the Department of Education who are in departments in which the student is majoring (or minoring) may be asked to serve on the Teacher Selection and Admission Committee.

Credits of Transfer students from other institutions and of those with degrees in other areas will likewise be evaluated by the Committee. Students entering the teacher education program must meet the following qualifications:

1. Minimum all-college G. P. A. of 2.0 for admission to the education curriculum. Students must also maintain a G. P. A. of 2.0 to remain in the program.
2. Acceptable college entrance test scores.
3. Must possess satisfactory personal, moral, psychological and physical qualifications.

Preparation for Teaching

For teaching the candidate should have good personal qualities that fit in with such work, and should have a good background in general education, generally attained in the first two years at college. He should have required training in the subject areas he expects to teach and should have completed the necessary education and psychology courses. The State Department of Public Instruction in issuing the teacher certificates makes particular note of subject matter background and professional education courses taken.

Students in Science and Applied Arts Division have their major and minors. From these they can make up their teaching major and minors. The education and psychology courses do not count as a major or minor but they are one of the requirements for the teaching certificate. Because of the nature of the work of the high school curricula in our small and medium sized high schools in South Dakota a more general preparation of teachers seems desirable. Teachers may expect to teach in more than one area of specialization. Their electives in college beyond their major and minors can serve this purpose. In science they should plan their preparation for all usual subjects in science rather than in just one special science, or in Social Studies they should plan their preparation for various areas in Social Studies rather than just one special area of history or sociology. The requests for teachers usually specify directing some one or several extra-curricular activities.

Fields—Teachers prepare in different combinations of these fields: Science, Mathematics, Social Studies, English, Foreign Languages, Secretarial Sciences, Physical Education, Music, Art, and Industrial Arts.

High School teachers are permitted to teach in subjects where their preparation is adequate according to the State Department standards.

Standards—To teach in most subject matter areas the student must have completed 23 quarter hours of academic preparation. The amount of preparation in any particular subject varies from 8 to 12 quarter hours. In the field of Language Arts the student must have completed 36 quarter hours of preparation with a minimum of 8 quarter hours preparation in any specific subject matter field except English, in which the academic preparation must total 23 quarter hours.

Some schools hiring teachers place their local requirements above the minimum set by the State Department of Public Instruction.

Students planning to teach should consult the Education Department and college major and minor departments early in the junior year for more detailed interpretations of these regulations.

Teaching Certificates

Teaching certificates in South Dakota are issued by the State Department of Public Instruction. The Secondary Certificate qualifies the holder to teach subjects in high school. The certificate states the major and minor subjects and subject groups which the teacher may teach.

Placement Service

A placement service for graduates and former students of the College who are prepared to teach is provided in the Bureau of Recommendations in the Department of Education. The Bureau also serves local school officers by helping them find qualified teachers. The annual fee is $3.00 for registration in the Bureau.

Graduate Study in Education

There is a strong trend toward higher certificates which requires graduate work in professional education. The Education Department is well prepared to provide such graduate training in certain areas, for teachers, principals, superintendents, and other school personnel. Superintendents and principals in South Dakota, must hold the respective administrator's certificate. The State Department of Public Instruction specifies certain courses in Administration, Supervision, Curriculum, and Guidance, as well as

certain minimum years of teaching experience for the administrator's certificates. The Education Department offers, usually through summer session work, all the graduate-level courses required by the State Department. Graduate courses in Education are also available for teachers who do not plan to go into the administrative positions but who wish to up-grade their professional training to meet the requirements of advanced training established by certain local schools, or to meet certification requirements in other states.

Special graduate courses have been set up to enable the student to qualify for the Master's degree in Agricultural Education, Home Economics Education, and in Physical Education. Specific course descriptions can be found under these department headings, while the general requirements for the Master's degree are outlined in the section under Graduate Study, and in the Graduate Bulletin. With careful planning of the graduate program it is possible to qualify for the Administrative Certificate while meeting the requirements for the graduate degree in Agricultural Education, Home Economics Education, and Physical Education.

A superintendent must have a Master's degree to qualify for the Superintendent's Administrative Certificate.

In order to qualify for a Principal's Administrative Certificate at either the elementary school or high school level, the individual must have completed a certain amount of specified professional education courses at the graduate level.

For a statement of specific requirements for the different Administrator's Certificates the student should write the State Department of Public Instruction or consult with the Head of the Education Department.

Education Curriculum for Teachers of Academic Branches

LOWER DIVISION

Sophomore Year	F	W	S
General Psychology, Psy 25*	3 or 3	or	3
Junior Year			
History and Principles of Education, Ed 40	4 or 4	or	4
Educational Psychology, Ed 45	3 or 3	or	3
Senior Year			
First Half of Term:			
Methods of Teaching in High School, Ed 75	4 or 4	or	4
Educational Measurements, Ed 164	3 or 3	or	3
Second Half of Term:			
Student Teaching in High School, Ed 74	8 or 8	or	8
Full Term:			
Principles of Guidance, Ed 85	3 or 3	or	3
High School Organization and Administration, Ed 87	2 or 2	or	2
Elective (May be taken in Junior Year)	3 or 3	or	3
TOTAL	33		

SUGGESTED ELECTIVES

Education, Ed 50, 161, 168, 169; Psychology, Psy 146, 166, 167

*General Psychology is a prerequisite to education courses but does not count as education credits for the teaching certificate. In order to complete the Education Curriculum as outlined above, the prospective teacher should take Psychology 25 in the sophomore year. Then he should start the education courses in the fall term of his junior year. Students failing to do this are irregular and run into problems of prerequisites and scheduling difficulties.

Curricula for Teachers of Special Areas

The curricula for special groups such as agricultural education, home economics education, industrial arts and physical education are found elsewhere in this bulletin (see index).

Inasmuch as requests for teachers of these special areas frequently specify that candidates must also be prepared to teach in some academic area as well as in the specialty, it is recommended that the student prepare himself in one or two minor fields. Frequently such teachers are also called upon to direct some extracurricular activity.

EDUCATION (ED)

UPPER DIVISION

40 History and Principles of Education 4(4,0) FWS
An introductory course in Education. Aims and functions of American Education with emphasis on South Dakota. The development of education in the United States. Important educational philosophies are considered. P, Psy 25, junior standing.

42 Principles of Vocational Agriculture Education 3(3,0) F
Development of Vocational Agriculture, establishment and organization of Vocational Agriculture departments in secondary schools, problems of management and relationship of Vocational Agriculture to whole secondary school program. Some visitation. P, Ag students, junior standing.

45 Educational Psychology 3(3,0) FWSSu
Nature of learning in man, learning curves, economical learning, rates and limits of improvement, retention of experience, differences in learning capacity, transference and interference. Required for certification. P, junior standing, Psy 25, Ed 40 or 42.

PE 49 Driver Education (See PE for men)
(May be counted as Education elective.)

50 Audio-Visual Aids in Teaching 3(2,3) FSSu

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

HEd 51-66 Education Courses
(See Home Economics Division.)

HEd 51 Philosophy and Methods in Home Economics

HEd 52 Curriculum and Evaluation in Home Economics

HEd 62 Special Needs in Home Economics Teaching

HEd 63 Adult Homemaking Education

HEd 65 Supervised Student Teaching in Home Economics

HEd 66 Extended Student Teaching Experiences

PE 60 Teaching of Physical Education 3 (3, 0) WS
(See P. E. for men and women)

PE 70 Supervised Student Teaching in Physical Education (Junior High School) 2 WS
(See P. E. for men and women)

PE 71 Supervised Student Teaching in Physical Education (Senior High School) 2 FWS
(See P. E. for men and women)

70 Special Methods in Vocational Agriculture 4(4,0) FS

Aims, course study, selection and organization of subject matter, methods in field, laboratory, classroom, and supervised farming. Taken first half of quarter in which student does his student teaching. P, 42, 45.

71 Program Planning in Vocational Agriculture 3(3,0) FS

Offered first half of Fall and Spring quarters. The Future Farmers of America program, public relations, community service, vocational education, judging contests, reports, and reimbursement. P, senior standing.

72 Teaching Farm Mechanics 3(3,0) W

Objectives, materials and methods, and management in teaching farm mechanics in vocational agriculture schools. Required of agricultural education students. P, senior standing.

73 Student Teaching in Vocational Agriculture 8 FS

Required of seniors in Agricultural Education for teacher certification. Student must have completed at least 40 credits in technical agriculture. Must have a 2.0 GPA in education courses, including Psy 25. Offered last half of term in which student is qualified to teach. Application for course must be made by students in Spring term of junior year.

74 Student Teaching in High School 8 FWS

Assignment in student's teaching major, or sometimes in teaching minor. Must have a 2.0 GPA in education courses, including Psy 25, and in courses in which student is qualified to teach. Offered last half of term. Application for course must be made by student in Spring term of junior year on proper application form.

75 Methods of Teaching in High School 4(3,1) FWS

A combination of general and special methods. Taken first half of quarter in which student does his student teaching. Required for certification. P, 40, 45.

78 Supervised Farming and Adult Education 3(3,0) W

Characteristics of good farming programs, determining needs and scope, budgeting, agreements, plans, records, and evaluation. Objectives and methods of organizing and conducting young farmer and adult farmer instruction.

GN 82, 95 Nursing Education Courses (see Nursing Division)

GN 82 Foundation of Nursing Education 3(3,0) F

GN 95 Principles of Supervision 3(3,0) WS

85 Principles of Guidance 3(3,0) FWS

Purpose and scope of guidance services, including meanings, philosophy, and concepts, basic elements of such service, personnel involved and the organization and evaluation of guidance programs. P, senior in Education.

87 High School Organization and Administration 2(2,0) FWS

High School and its problems; schedule, extra-curricular activities, student participation, student management, guidance. For teachers, superintendents and principals. P, senior in Education.

145 Comparative Education 3-9 credits Su

A study of foreign educational systems with emphasis on the study of educational departments of foreign governments, city school systems, and educational associations. Involves foreign travel. Lectures by foreign educators and tours of schools. Graduate credit limited to 6 quarter credits. Fee - $75.00.

PE 149 Advanced Driver Education 2(2,0) (See PE for Men) Su
(May be counted as Education elective.)

160 Public School Administration 3(3,0) FSu

Organization, administration and services of school systems in state, county, and local school districts. Constitutional and statutory provisions. Work and responsibilities of State Board of Education, State Department of Public Instruction, County and local boards, and of superintendents, and principals. Some attention to financial matters. P, senior in Education.

161 Principles of Vocational Education 3(3,0) WSu
General philosophy and history of vocational work in schools. Federal and state legislation and regulations. Organization, financing and administration of vocational education programs. Adult education and part time education. Teacher relationships. P, senior in Education.

164 Educational Measurements 3(3,0) FWS
Measurements and evaluation applied largely to achievements in secondary school subjects. Underlying principles and best practices. Functional in emphasizing best and newest in teacher-made tests and understanding and some useage of standardized tests. Emphasis on interpretations of results. P, senior in Education.

Psy 165 Psychological Testing 3(3,0) FSu 1961
See under Psychology

J 165 Institutional Public Relations 3(2,3) SSu
(See Printing and Journalism.) Graduate Education students may count as Education elective.

168 Educational Statistics 3(3,0) FSSu
Emphasis on meanings and interpretations and on applications. Deals with data from educational and psychological measures. Exercises on tabulating and calculating various statistical measurements and graphic representations. Required of most candidates with a graduate major in education. P, senior in Education.

169 The School Curriculum 3(3,0) FSu
Nature and principles of the curriculum in elementary and secondary schools. Newer trends and modern curriculum development procedures. P, senior in Education.

170 Workshop in Education 1-5 Su
Workshop sessions, in several areas of education: methods, curriculum, guidance, administration, supervision, etc. Generally requires 30 hours of work per credit in workshop sessions, lectures, and outside assignment. A concentrated course. Credit at rate of 1½ credits per week. No more than 6 credits may be earned in workshop. P, experienced teachers, consent of instructor.

GS 172 Philosophy of Education
(May count as Education elective.)

175 Education Seminar 2-3(2-3,0)
Reviews of scientific investigations of problems of education. Problems for investigation and research assigned to students. P, open to seniors and graduate students in education by permission of instructor.

176 Seminar in Agricultural Education 2-3(2,0) or (3,0) SSu
Specific problems dealing with instruction in vocational agriculture, project work, course of study, farm enterprise analysis, local survey. Reading and problem work. P, 70-71, 73.

183 Occupational Information and Analysis in Guidance 3(3,0) SSu
Using, reviewing, and evaluating occupational information. The study of sources and types of material and occupational filing plans. Practical work in securing occupational information. P, 85.

185 Principles of College Teaching 3(3,0) W
Procedures, objectives, and evaluation of instruction; professional relationships. Individual studies according to student's field. Not open to students who have had other professional education courses.

187 Introduction to Counseling 3(3,0) SSu
Intensive study of the use of interviewing techniques. Emphasis is given to such approaches as the "directive," "non-directive" and "eclectic" methods, with opportunity provided for their application. P, 85 or equivalent.

GRADUATE DIVISION

220 Organization and Administration of Elementary Education 3(3,0) SSu 1962
Principles and modern practices of organizing and administering work of elementary school. Required by State Department of Public Instruction of school superintendents and elementary school principals. Offered in alternate summers. P, Ed 160 and graduate standing.

240 Advanced Educational Psychology 3(3,0) FSu
Modern psychological theories of education with particular emphasis on learning processes; critical analysis of recent research in educational psychology; application to present-day educational problems. P, 45, and graduate standing.

245 Administration of School Guidance Program 3(3,0) WSu 1961
Principles of guidance; organizing school guidance program; tests and testing; guidance library and materials; interviewing and counseling. For those seeking administrative certificate. P, graduate standing.

250 Counseling Practicum 3(3,0) SSu
Practice in use of tools and techniques of counseling and guidance. The work is done in Division of Student Personnel and supervised there. P, 24 credits in graduate program for counseling and guidance and permission of Dean of Student Personnel.

260 Elementary School Supervision 3(3,0) FSu 1961
Required of school superintendents and elementary school principals for respective administrative certificates. Emphasis upon cooperative participation of school personnel in improvement of instruction in elementary school subjects. P, 160 and graduate standings.

261 Secondary School Supervision 3(3,0) SSu
Required of school superintendents and high school principals by State Department of Education for respective administrative certificates. Procedures for improvement of instruction in secondary school subjects. P, 160 and graduate standing.

262 Business Administration of Schools 3(3,0) S Su
Business aspects of school administration. Organization and work of school board, equipment and supplies, janitor service, and school finances including budgeting procedure and insurance. Alternates with Ed 264. P, 160 and graduate standing.

264 School Buildings and Grounds 3(3,0) Su 1961
Management, care and operation of school plant. Needs and evaluation of existing facilities, new buildings and remodeling. Not a technical course in design and materials. Alternates with 262. P, 160 and graduate standing.

266 School Law 3(3,0) Su 1960
Legal character of the public schools; legal powers of the school boards, administrators, and teachers; legal aspects of parent-child-school relationships. Emphasis will be placed on South Dakota school law. P, 160.

270 Research Methods in Education 3(3,0) W Su
Main objectives are (a) understanding standard and newer research procedures in education, (b) acquaintance with up-to-date research on present-day educational problems, (c) understanding and using evaluation standards for educational research, (d) practical procedural suggestions to graduate students who are undertaking thesis or research problems. (Required of most graduate majors in education.) P, graduate standing, preferably Ed 168 and 15 credits in graduate education courses.

272 Adult Education in Vocational Agriculture 3(3,0) Su 1960
Young farmer and adult farmer work. Emphasizes needs and techniques in administering and conducting adult education program in vocational agriculture. P, graduate student in agricultural education.

273 Supervised Farm Practice and Future Farmer Programs 3(3,0) Su 1961
Emphasizes needs, scope, and techniques in building supervised farm practice and Future Farmer programs. Stresses integration of these programs with high school vocational agricultural curriculum. P, graduate student in agricultural education.

277 Curriculum in Vocational Agriculture 3(3,0) Su 1962
For teachers and administrators of vocational agriculture. Survey of scientific studies and literature in field; principles and procedures in curriculum building as applied to vocational agriculture. P, graduate student in agricultural education.

280 Research Problem in Education or in Agricultural Education 3 (3,0)
Individual work. Problem selected, analyzed and data gathered and tested statistically. Reported in approved research form. Required of all graduate students in Education qualifying for Master of Education degrees under Option "A." P, graduate standing in Education, Ed 168 and Ed 270, 15 graduate education credits.

282 Research in Agricultural Education 3-4 (3,0)

299 Thesis in Education 7-10 as arranged

INDUSTRIAL ARTS EDUCATION (IAE)

Students completing this curriculum will find their chief opportunity for employment in the field of teaching industrial arts in high school.

To qualify for the teaching certificate the student must complete thirty quarter hours in Education as indicated in the Education curriculum. Students who are definitely not planning to teach may be excused from some or all of the Education courses but anyone planning to eliminate the Education courses from this curriculum should do so only after considerable thought. Permission of the dean and the department head will be required if the Education work is to be waived. Electives replacing the Education courses must be taken in courses numbered 40 or above.

Opportunities for employment in fields other than Education will present themselves, such as semi-professional engineering jobs, and employment in the building trades and industry. Persons going into these fields usually will find it necessary to start relatively near the bottom but because of the training received in the college program they will usually be able to progress much more rapidly in securing positions of responsibility than without such training.

Students who expect to enter the teaching profession should prepare themselves to teach in one or more academic fields since not all high schools require a full-time industrial arts instructor.

LOWER DIVISION

ES 2 Shop 1 (0,3)
(See Engineering Shops)

ES 3 Shop 1 (0,3)
(See Engineering Shops)

ES 4 Shop 1 (0,3)
(See Engineering Shops)

ES 5 Shop 1 (0,3)
(See Engineering Shops)

GE 3-4 Engineering Drawing 2 (0,6)
(See General Engineering)

GE 5 Descriptive Geometry 2 (0,6)
(See General Engineering)

10 Woodworking 3 (2,4)
Use, care and conditioning of tools. Properties of various kinds of woods and processing of woods for specific purposes. Safety in the shop stressed.

11-12 Design 2 (0,6) FW
(Same as Art 1-2)

14 Drawing and Composition 2 (0,6) F
(Same as Art 4)

ES 20 Machine Shop Problems 2 (0,6)
(See Engineering Shops)

ES 21 Machine Shop Problems 2 (0,6)
(See Engineering Shops)

22 Graphics 2 (0,6) W
(Same as Art 21)

24 Wood Turning 2 (0,6)
Exercises in the use of the wood lathe. Spindle, face plate, drive chuck, and template turning operations in turning of various items including patterns for foundry work. P, 10

25 Carpentry 3 (2,4)
Continuation of elementary woodworking with emphasis on framing and rafter cutting. Special materials, such as insulation, finishes, roofing, and flooring available for use in modern building. P, 10.

26 Auto Mechanics 3 (2,4) S
Engine rebuilding and tune-up; servicing and repairing engine accessories; testing valves, carburetors, ignition system; installing new pistons, rings, valves and the general work required of mechanics. The course will be lecture and laboratory work. P, ES 2.

28 Typography 3 (2,3) FW
(Same as Journalism 20)

GE 31 Architectural Drafting 3 (1,6)
(See General Engineering)

CE 34 Engineering Materials 2 (2,0) W
(See Civil Engineering)

AE 39 Electricity for Farm and Home 3 (2,3) FW
(See Agricultural Engineering)

UPPER DIVISION

40 Sheet Metal 3 (2,4) F
Operations in raising, forming, bending, spinning, chasing, seaming, piercing, of metals. Work in copper, brass, aluminum, stainless steel, and steel sheeting. Practice in layout. The course will be lecture and laboratory work. P, ES 20, GE 5.

42 Ceramics 2 (0,6) FWS
(Same as Art 42)

43 Jewelry 2 (0,6) W
(Same as Art 43)

60 Cabinet Making 2 (0,6)
Cabinet construction and machine wood turning. Cupboards, furniture, finishing, machine set-up, and production. P, 24.

61 Elementary Pattern Making 2 cr
Instruction and exercises in making of simple patterns in preparation for metal casting and problems involved in shrinkage and draft. P, 10, 24.

65 Cement and Concrete Laboratory 1 (0,3) FWS
(See Civil Engineering)

140 History of Industrial Arts 3 (3,0) Su
Development of industrial arts from the Russian Military Craft School through the fireside crafts of the Scandinavian countries. The introduction of Manual training into the curriculum of education in the United States and the changes that resulted in our present course of exploration in the various trades of today. P, minor in industrial arts.

150 Metal and Wood Finishing 3 (3,0) Su
Finishes of the past and modern types which includes lacquers, synthetic products, bleaches, stains, etc. Theory and use of all types of applicators including types of spray guns, solvents, brushes, etc. Comparative testing of all finishes. P, minor in industrial arts.

Curriculum in Science and Applied Arts, Industrial Arts Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

LOWER DIVISION

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
Engineering Drawing, GE 3-4	2	2	
Descriptive Geometry, GE 5			2
Shop, ES 3	1		
Shop, ES 2		1	
Shop, ES 4			1
Woodworking, IAE 10			3
Oral Communication, Sp 10			3
Algebra, Trigonometry, Math 10, 11	5	5	
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3	1	1	1
Orientation, 1	1		

Sophomore Year	F	W	S
Introduction to Literature, Engl 20		3	
Oral Communication, Sp 20			2
Elementary Physics, Phy 10-11-12	4	4	4
Shop, ES 5			1
Carpentry, IAE 25			3
Auto Mechanics, IAE 26			3
General Psychology, Psy 25		3	
Drawing and Composition, IAE 14	2		
Design, IAE 11-12	2	2	
First Aid, PE 13	2		
Botany, Bot 11-12	4	4	
Introduction to Social Science, GS 1-2-3	3	3	3
Military, Mil 20-21-22 or 25-26-27	1	1	1

UPPER DIVISION

Junior Year	F	W	S
Architectural Drafting, GE 31		2	
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15			5
Writing for Technical Students, Engl 43	3		
Engineering Materials, CE 34		3	
Cement and Concrete Lab, CE 65		1	
Sheet Metal, IAE 40	3		
Wood Turning, IAE 24	2		
Electricity for Farm and Home, AE 39		3	
Human Physiology, Z 22			4
History and Principles of Education, Ed 40	4		
Educational Psychology, Ed 45		3	
*Elective**			

Senior Year	F	W	S
Cabinet Making, IAE 60	2		
Machine Shop Problems, ES 20			2
Elementary Pattern Making, IAE 61		2	
Student Teaching in High School, Ed 74	8	or 8	or 8
Methods of Teaching in High School, Ed 75	4	or 4	or 4
Educational Measurements, Ed 164	3	or 3	or 3
Guidance in High School, Ed 85			3
High School Administration, Ed 87			3
Labor Economics, Econ 140			3
Industrial Management, ME 70			3
*Elective**			

*Electives must be taken in courses numbered 40 or above. All students must complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type.*
MAJOR: ES 2, 3, 4, 5, 20, 21; GE 3, 4, 5, 31; CE 34, 65; IAE 10, 11-12, 14, 24, 25, 60, 61; AE 39.
MINOR: A minor consisting of a total of 24 quarter hours of the courses required for the major may be arranged.

PSYCHOLOGY (Psy)

The offerings in Psychology are intended to serve the needs of students majoring in other fields as well as to provide a sound program for Psychology majors.

Students who wish to make a career in Psychology should plan to carry their studies to the Masters degree level and beyond. In addition to high scholarly attainment, the student is expected to develop a mastery of the basic tools and skills considered essential to the scientific study of human behavior.

Students planning to teach in high school are advised to select one or more teaching minors in subjects or areas usually taught in high school.

LOWER DIVISION

25 General Psychology 3(3,0) FWS
Scientific approach to basic problems of human behavior. Lectures, laboratory exercises and demonstrations. Pre-requisite to all Psychology courses. Required of all students in Education. P, Sophomore standing.

35 Applied Psychology 3(3,0) F
Survey of the applications of psychology; vocational guidance, scientific management, mental illness, social work, propaganda and public opinion, business, art and music, education. P, 25.

UPPER DIVISION

40 Child Psychology 3(3,0) FSu
Physical, social, emotional and intellectual changes which take place in child at different stages of chronological maturation. Emphasis will be placed on an interpretation of child's behavior in terms of his environment. Educational significance of growth, personality patterns, and adjustment mechanisms will be considered. May be counted as an Education elective. P, Psy 25.

Ed 45 Educational Psychology 3(3,0)
(See section on Education above.)

GS 46 Psychology in Religion (See General Studies)
(May count as Psychology elective)

50 Experimental Psychology 3(1,4) W
Laboratory course in the application of scientific methods to the study of behavior and mental processes. Lectures, assigned readings and laboratory work. P, 25.

70 Adolescent Psychology 3(3,0) FSu 1960
Physical, intellectual, emotional, and social development of adolescents and their adjustment in the home, school, and community. P, 6 credits in Psychology and consent of instructor. (May be counted as Education credit.)

81 Business and Industrial Psychology 3(3,0) W
Application of psychological principles to industrial, business, and personnel problems arising in selection, training and supervision of workers; motivation and morale, merit ratings, leadership factors; job efficiency as affected by fatigue, safety and working conditions. P, 10 or 25 and consent of instructor.

90 Learning 3(3,0) S
Examination of theories which attempt to explain processes of learning and memory. Principal types of theories examined are behavior and field theories. Other views are studied as variations of these. P, 50.

91 Seminar in Psychology 2(2,0) S
Serves as a guidance function for prospective graduate students in psychology. Includes a mature perspective of the student's undergraduate program and orients him to professional problems in psychology. P, senior standing and a major in psychology.

UNDERGRADUATE AND GRADUATE

146 Exceptional Child 3(3,0) SSu
Critical consideration of physical, social, emotional and intellectual qualities which characterize child who deviates from normal to such an extent as to require special educational consideration. Special attention will be given to study of desirable provisions in educational program of gifted child. May be counted as an Education elective. P, 6 credits in Psychology.

165 Psychological Testing 3(3,0) FSu 1961
Standardized group tests in the fields of mental abilities, special aptitudes, interests, and aptitudes. Theory and practice of administration, scoring and interpretation. P, 25 and Ed 45. (Education students may count this as education credit.)

166 Mental Hygiene 3(3,0) WSu
Nature of personality; 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 or consent of instructor. (May be counted as Education credit if preceded by Ed 45.)

167 Social Psychology 3(3,0) SSu

Basic principles, concepts and methods utilized in analyzing the interaction of the individual and the group. Examination of basic concepts; role, self, personality, and culture. P, 6 credits in psychology and consent of instructor. Alternate years.

171 Abnormal Psychology 3(3,0) FSu

Critical consideration of major abnormalities. Emphasis upon adjustive and nonadjustive character of these disorders and theory and treatment of such disorders. P, 12 credits in psychology and consent of instructor.

175 Personality 3(3,0) WSu

A consideration of major systematic theories accounting for nature, development and evaluation of personality. P, 12 credits in psychology and consent of instructor. Alternate years.

180 Individual Mental Testing 3(3,0) SSu 1962

Intensive training in the administration and scoring of individual intelligence tests such as the Stanford Binet, Wechsler Bellevue, and Grace Arthur. P, advanced standing in psychology and/or Master degree candidate in counseling and guidance program, plus consent of instructor.

Ed 240 Advanced Educational Psychology 3(3,0) FSu 1961

(See under Education.)

Curriculum in Science and Applied Arts, Psychology Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

LOWER DIVISION

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science, GS 1-2-3	3	3	3
Oral Communication, Sp 10	2		
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
College Algebra, Math 10			5
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		
Elective			

Sophomore Year	F	W	S
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
General Psychology, Psy 25	3		
Oral Communication, Sp 20			2
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15			5
Approved History Sequence	3-4	3-4	3
Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	4	4	4
Military, Mil 20-21-22 or 25-26-27	1	1	1

UPPER DIVISION

Junior Year	F	W	S
Experimental Psychology, Psy 50		3	
American Government, PS 34	4		
Genetics, Z 42	3		
Learning, Psy 90			3
Elective in Psychology	3		
*Electives**			

Senior Year	F	W	S
Seminar in Psychology, Psy 91			2
Psychological Testing, Psy 165	3		
Educational Statistics, Ed 168	3		
Abnormal Psychology, Psy 171	3		
Personality, Psy 175		3	
Individual Mental Testing, Psy 180			3
*Electives**			

*Students who plan to qualify for a teaching certificate should consult with the Education Department head relative to the selection of teaching minors. Students must complete 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type*.

MAJOR: Psy 25, 50, 90, 91, 165, 171, 175, 180; Ed 168 and electives to total 38 credits. (3 credits—Psy 40, 70, 81, 167; in consultation with advisor 9 upper division credits from recommended courses in related areas: RS 50, 170, Z 142, 143, 144-145, 164; Math 140, GS 154, 172.)

MINOR: Psy 25, 40, 70, 166, 167; RS 50 and electives to total 24 credits. (Ed 168 or Psy 50, GS 172 or Psy 90.)

GRADUATE MAJOR: Just as a student working for a Master's Degree in Education may concentrate in Administration, Supervision or Agricultural Education, so he may also concentrate on Guidance and Counseling.

Department of English (Engl)

Professors Giddings, Fox, Harrison, Shane; Associate Professor Nelson; Assistant Professors Brown, Nagle; Instructors Bingham, Hakutani, Purcell, Rezatto, Schmidt, Sheimo; Graduate Asistants Brickwedel, McClellan, Newton

The required courses in English aim to give the student that command of the English language and literature which every educated person should have. All freshmen are required to take 1-2-3 or 4-5-6. Sophomores in the Divisions of Home Economics and Science and Applied Arts must take 20 and, unless English majors or minors, either 21, 22, 23, 24, 25, 26, or 27. Juniors in the Division of Engineering must take English 43. Students in the Division of Agriculture may take 20 and 43 to meet their English-Journalism requirement.

Freshmen will be assigned, on the basis of proficiency examinations, to either English 1-2-3 or 4-5-6. No student may change from one series to the other without permission of the head of the English department. Completion of one series or the other is required for graduation.

Freshmen whose work is clearly below average will be advised but not required to enroll in English 11 (Remedial English) during any quarter in which their instructor finds that they are not likely to pass English 1-2-3 without additional help.

Courses 21, 22, 23, 24, 25, 26, and 27 will not all be offered any one quarter. From this group those courses will be scheduled for which a sufficient number of students have expressed a preference.

The English Major and Minor

A major in English is offered and is outlined to meet South Dakota requirements for high school teachers of English. However, English majors who do not contemplate high school teaching may make substitutions for courses in Education and certain other required courses and by taking additional electives in English prepare themselves for graduate study in the subject.

English majors must take English 1-2-3 or 4-5-6, 40-41-42, 45-46-47, 60, 141, and twelve hours of English electives. They must complete the second year of college work in a foreign language. For those who expect to teach in high school, English 20, 23, 52, and 156 are especially recommended as electives.

English minors must take English 1-2-3 or 4-5-6, 20, 40-41-42 or 45-46-47, 141, and electives to total thirty-three hours.

Master of Science in Language Skills

Graduate students who wish to improve themselves to teach college freshman composition-literature or communications courses may work toward a Master of Science degree in Language Skills. This is essentially a program for graduate assistants in English. Course offerings arranged to permit graduate assistants to complete degree requirements in two academic years. Further information on this program may be found in Graduate Study section of this catalog.

LOWER DIVISION

1-2-3 English 3(3,0) FWS

Provides training in efficient, accurate reading; in clear, effective writing, and in vocabulary building. Includes instruction in conventions of standard English usage, grammar and punctuation.

4-5-6 English 3(3,0) FWS

Equivalent to 1-2-3, but with less emphasis on reading and more writing.

11 Remedial English no credits WS

Thorough drill in grammar, punctuation, spelling, and sentence structure. Recommended for all Freshmen who show serious deficiencies in English.

20 Introduction to Literature 3(3,0) FWS

Principal literary types—fiction, drama, essay, biography, and poetry. Although primarily a literature course, reasonable standards of composition must be met in student papers.

Required of every Sophomore unless some other arrangement is made in his division. P, 1-2-3 or 4-5-6. Open to students exempt from 4.

21 The Novel 3(3,0) WSu

Narrative prose with emphasis on modern novel. May be elected to complete Sophomore English requirement. P, 20.

22 Drama 3(3,0) SSu

Selected plays, ancient and modern. May be elected to complete Sophomore English requirement. P, 20.

23 Poetry 3(3,0) WSu

Selected poems, English and American. May be elected to complete Sophomore English requirement. P, 20.

24 Ideas in Prose 3(3,0) WSu

Challenging essays, chiefly modern, which deal with great ideas. May be elected to complete Sophomore English requirement. P, 20.

25 Biography 3(3,0) Su

Reading from great biographies from past and present. May be elected to meet Sophomore English requirement. P, 20.

26 Short Story 3(3,0) WSu

Reading course, but students who wish may substitute short story writing for other required written exercises. May be elected to meet Sophomore English requirement. P, 20.

27 Literature of the American West 3(3,0) FS

Various concepts of the West as seen in frontier literature. May be elected to complete Sophomore English requirement. P, 20 or exemption from 4 or 5.

UPPER DIVISION

40-41-42 English Literature 3(3,0) FWS

Historical survey from Beowulf to modern times. P, minor or consent of instructor.

43 Writing for Technical Students 3(3,0) FWS

Advanced course in writing. Required of juniors in Division of Engineering and open to other students majoring in technical fields.

45-46-47 American Literature 3(3,0) FWS

From its beginning to present day. P, minor or consent of instructor.

52 Language in Public Affairs 3(3,0) S

Analysis of how language is used to influence public opinion. Articles, news reports, press releases, speeches and advertisements examined from this point of view. Meets English elective requirement. P, 1-2-3 or 4-5-6.

60 Shakespeare 3(3,0) F or Su
Representative comedies, tragedies, and chronicle-histories. P, 40, 22 or consent of instructor.

141 Creative Writing 3(3,0) FS
Writing of fiction, drama, biography or poetry. Required of English majors and minors. P, 18 hours of English.

153 Advanced Shakespeare 3 (3,0) (Offered 1961-62) S
Intensive study of selected plays with deference to significant Shakespearian criticism. Alternate years.

154 Modern Drama 3(3,0) (Offered 1960-61) S
Beginning with Ibsen, but concerned chiefly with significant dramatists since his time. Alternate years.

155 Recent American and British Literature 3(3,0) (Offered 1961-62) S
American and British literature from 1900 to present. P, 24 hours of English or 30 hours in combination of language arts or consent of instructor. Alternate years.

156 The English Language 3(3,0) (Offered 1960-61) S Su
Development and structure of language. Special emphasis placed on grammar, treated with historical perspective. Attention also given to etymology and semantics. Alternate Years.
Students intending to teach English should select this course or 165. P, 20 or consent of instructor.

LS 159 Research Tools in the Humanities 2-3(2-3,0) F
Survey of research and reference materials of special value and interest to student of the Humanities. Literature search may be made for third credit.

161 The Comparative Novel to 1870 3(3,0) (Offered 1960-61) F
Study of selected novels of Fielding, Stendhal, Balzac, Dickens, Dostoevsky, and others. P, 24 hours of English or consent of instructor. Every third year.

162 The Comparative Novel Since 1870 3(3,0) (Offered 1961-62) F
Study of selected novels of Flaubert, Tolstoy, Proust, Mann, Joyce, and others. P, 24 hours of English or consent of instructor. Every third year.

165 Advanced Grammar and Usage 3(3,0) (Offered 1961-62) S
Basic English grammar with emphasis on modern American usage. Language as a dynamic, evolving phenomenon. P, minor or consent of instructor. Alternate years.

174 Milton 3(3,0) (Offered 1960-61) S
His English poems and some prose. His poetic development and relation to his times. P, 24 hours of English or 30 hours in combination of language arts or consent of instructor. Every third year.

176 Eighteenth Century Poetry and Prose 3(3,0) (Offered 1961-62) S
Chief works of Pope, Swift, Johnson, and Boswell with emphasis on literary trends. P, 24 hours in English or 30 hours in combination of language arts or consent of instructor. Every third year.

178 The Romantic Movement 3(3,0) (Offered 1962-63) F
Chief writers in English poetry and prose from 1798-1832, with emphasis on intellectual trends. P, 24 hours in English or 30 hours in combination of language arts or consent of instructor. Every third year.

182 The Transcendentalists 3(3,0) (Offered 1960-61) W
The movement in America with its contributions to American thought and literature. P, 24 hours in English or 30 hours in combination of language arts or consent of instructor. Every third year.

183 Hawthorne and Melville 3(3,0) (Offered 1961-62) W
Analysis of their writings and their search for meaning in a universe containing both general and specific evil. P, 24 hours in English or 30 hours in combination of language arts or consent of instructor. Every third year.

184 Realists and Early Naturalists 3(3,0) (Offered 1962-63) F
American writers including Howells, James, Twain, Crane, Dreiser and the artistic and intellectual significance of the movements they fostered. P, 24 hours in English or 30 hours in combination of language arts or consent of instructor. Every third year.

195 Principles of Literary Criticism 3(3,0) (Offered 1960-61) W
Problems of literary communication and bases of literary evaluation. P, 24 hours in English or consent of instructor. Alternate years.

GRADUATE DIVISION

205 Special Problems in Composition-Literature 1 to 4 credits
Special problems in several areas of composition-literature: writing, grammar, reading, and testing. May be repeated but limited to total of 6 credits.

210-211-212 Problems of Teaching Composition 1(1,0) FWS
Analysis of problems encountered in teaching composition; evaluation of techniques in teaching writing skills. Required in the Composition-Literature and Communication options of the Language Skills program.

213 Problems of Teaching Literature 3(3,0) F
Analysis of problems and evaluation of techniques used in teaching literature at college level. Required in the Composition-Literature option of the Language Skills Program.

GS 290 Modern American Thought 3(3,0) (Offered 1961-62) F
Analysis of selected economic, social and philosophical problems of the late 19th and 20th centuries and their expression in American Literature. P, 24 hours in English or 30 hours in combination of language arts or consent of instructor. Alternate years.

Curriculum in Science and Applied Arts, English Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science, GS 1-2-3	3	3	3
Oral Communication, Sp 10	2		
Biological Science	4	4	
College Algebra, Math 10			5
Foreign Language	3–4	3–4	3–4
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Orientation, 1	1		

Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20	3		
English Literature, Engl 40-41-42	3	3	3
General Psychology, Psy 25			3
Inorganic Chemistry, Ch 1-2-3, or Elementary Physics, Phy 10-11-12, or General Physics, Phy 20-21-22	4–5	4–5	4–5
Foreign Language	3	3	3
History Sequence, Hist 4-5-6 or acceptable substitute	3	3	3
Oral Communication, Sp 20		2	
Military, Mil 20-21-22 or 25-26-27	1	1	1

Junior Year	**F**	**W**	**S**
American Literature, Engl 45-46-47	3	3	3
Creative Writing, Engl 141	3	or 3	
Shakespeare, Engl 60		3	
National Government, PS 34			4
Introduction to Sociology, RS 15	5		
Principles of Economics, Econ 21-22	3	3	
Biological Science			5
*Elective**			

Senior Year	**F**	**W**	**S**
English Electives (total of 9 hours)	3–6	3–6	3–6
Statistical Methods, Econ 81 or Ed 168	5	or	3
*Elective**			

*Students who plan to teach in high school consult with the head of the Education Department before registering for the first term of their junior year. All students must complete 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: Engl 1-2-3 or 4-5-6, 20, 40-41-42, 45-46-47, 60, 141, and 9 hours of electives in English. For those who expect to teach in high school Engl 23, 52, and 156 are especially recommended.

MINOR: Engl 1-2-3 or 4-5-6, 20, 40-41-42 or 45-46-47, 141, plus electives in English to total 33 hours.

RECOMMENDED ELECTIVES

Journalism, J 24-25, 37, 38; *Library*, 60, 61, 62, 159; *Speech*, 16, 19, 23, 24, 28, 29, 47

Department of Entomology-Zoology (Ent-Z)

Curriculum in Science and Applied Arts, Entomology Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See Entomology Major in Curriculum in Technical Agriculture under Division of Agriculture

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
College Algebra, Math 10 or 14	5		
Trigonometry, Math 11 or 15		5	
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
General Entomology, Ent 20			5
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		

Sophomore Year	**F**	**W**	**S**
Taxonomy of Insects, Ent 43-44	3	3	
Genetics, Z 42			3
Introduction to Literature, Engl 20, and elective (Engl 21-27)	3	3	
Introduction to Social Science, GS 1-2-3	3	3	3
Oral Communication, Sp 10		2	
General Psychology, Psy 25	3		
General Botany, Bot 11-12-13	4	4	4
General Bacteriology, Bac 30			5
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

Junior Year	**F**	**W**	**S**
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15			5
Oral Communication, Sp 20		2	
Organic Chemistry, Ch 21 or 26-27	5		
Elementary Physics, Phy 10-11-12	4	4	4
Approved electives in Entomology	3	3	3
Electives			

Senior Year	**F**	**W**	**S**
National Government, PS 34		4	
Approved electives in Entomology	3–6	3–6	3–6
Electives			

*Students who wish to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. Students planning to study entomology on the graduate level should include among their electives, courses in French and German. All students must complete a total of 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: Ent 20, 43-44; plus 25 counselor-approved credits in entomology, 12 of which must be selected from Ent 141, 143, 144, 147, 162 and 170.

MINOR: Ent 20, 43-44; plus 13 counselor-approved credits in entomology, 9 of which must be selected from Ent 141, 144, 147, 162 and 170.

Curriculum in Science and Applied Arts, Zoology Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See Zoology Major in Curriculum in Technical Agriculture under Division of Agriculture

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
College Algebra, Math 10 or 14	5		
Trigonometry, Math 11 or 15		5	
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Oral Communication, Sp 10			2
Orientation, Or 1	1		
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1

Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
General Entomology, Ent 20			5
General Botany, Bot 11-12	4	4	
General Bacteriology, Bac 30			5
Introduction to Social Science, GS 1-2-3	3	3	3
Oral Communication, Sp 20			2
General Psychology, Psy 25		3	
Genetics, Z 42	3		
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

Junior Year	**F**	**W**	**S**
Elementary Physics, Phy 10-11-12	4	4	4
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15			5
Approved electives in Zoology	3–4	3–4	3–4
*Electives**			

Senior Year	**F**	**W**	**S**
National Government, PS 34	4		
Approved electives in Zoology		3–4	3–4
*Electives**			

*Students preparing to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. Students who expect to continue the study of Zoology on the graduate level should include among their electives, courses in French and German. All students must complete a total of 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type*.
MAJOR: Z 20-21, 22, 42; Ent 20; plus Z 143, 144, 145 or Z 146-147-148, plus counselor-approved electives to total 36 credits.
MINOR: Z 20-21, 22, 42, plus counselor-approved electives to total 24 credits.

Department of Foreign Languages (FL)

Professor Uhrhan; Professor Emeritus MacLaggan; Associate Professor Hasslinger; Instructors Kaleps, Martin

The department offers three types of courses: 1. general courses in language designed for students who are interested in languages but do not have time to spend a year or more in the field (GS 28, 33, 34, 35), 2. the usual series of language courses which develop the student's ability in a particular language, and 3. courses for graduate students designed to give them a reading knowledge of the language required for advanced degrees.

The aim of each undergraduate language course, apart from the General Studies courses, is to enable the student at that particular level of his language study to have a command of the four skills of language: speaking, understanding, reading, and writing. At the same time he gains a knowledge of the culture, history, and geography of the country, thus developing an appreciation of and better understanding of its people.

The department has a language laboratory and each student, as part of the work of the course, devotes a specified amount of time each week in the laboratory listening to foreign language records and making recordings. Films, songs, and other realia are essential parts of the courses and serve to correlate and supplement knowledge gained from formal classroom work.

The first-year courses are basic, non-specialized courses. Those beyond the first year are designed to meet the needs of the students in the various divisions of the college; the emphasis on each language skill depends on the course chosen. For students wishing to obtain a general knowledge of foreign language, courses including literary readings, conversation, and composition are offered. For students in the sciences and engineering, second-year courses in scientific and technical reading are offered.

Not less than one year of any foreign language will be counted toward a degree unless the student has credit for at least one year of high school work. A student should preferably take two years of work in the language (or languages) chosen, with the two years of work being taken in successive years.

All entering students who have studied one or more years of a foreign language in high school will be required to take an examination in the foreign language including a portion on oral-aural skills. Students will be assigned to the college course in language

according to their score on the examination. Those excused from FL 1 will be given credit for this course upon satisfactory completion of FL 2-3. Those excused from FL 1-2-3 will receive credit for these courses upon completion of FL 21-22-23. Transfer students may be required to take the placement examination.

The Foreign Languages Major and Minor

A major in foreign languages is offered from the three languages, French, German and Spanish. The major consists of twenty-four hours in the major foreign language (including the course in composition and conversation), and eleven hours in the minor foreign language (including 41), exclusive of courses 1-10.

The student must pass an examination covering oral-aural skills in the languages in the last quarter before graduation in order to be recommended for a major in foreign languages.

The student who follows the program outlined for a foreign languages major is prepared to teach two languages in the high schools of South Dakota. Students who plan to teach should include in their program GS 28 and the course in pronunciation of the language not included in their major, and are encouraged to include English 156 and 160. The student is strongly urged to choose his electives so that he will be prepared to teach in another field in addition to his field of languages. English, history, mathematics, and science are suggested minor teaching fields.

Foreign language majors who do not contemplate high school teaching may make substitutions for courses in Education, and by taking additional electives prepare themselves in other fields (political science, secretarial science, etc.) or for graduate study in language.

A minor in foreign languages consists of a minimum of eighteen hours in any one language, exclusive of courses 1-2-3. Students who wish a minor should consult the head of the department not later than the second year of study. A teaching minor in language consists of twenty-three quarter hours in the language to be taught.

FRENCH (Fr)

LOWER DIVISION

1-2-3 First Year French 4(4,0) FWS
Fundamentals of language, enabling student to speak, understand, read, and write simple French. Through vocabulary and reading he gains knowledge of practical everyday expressions, life of French people, and history and geography of France. Students with one year of high school French will begin with French 2.

21-22-23 Second Year French 3(3,0) FWS
Aims of First Year French continued. Reading of prose and poetry of well-known modern authors, practice in conversing and writing in French. Review and further study of principles of grammar. Classwork supplemented with outside reading. Prerequisite French 1-2-3 (or its equivalent) or two years of high school French.

24-25-26 Second Year Scientific French 3(3,0) FWS
Primary emphasis on reading and translation of scientific French; practice also given in other language skills. Essential points of grammar reviewed and further developed. Outside reading chosen from field in which student is majoring. Prerequisite French 1-2-3 (or its equivalent) or two years of high school French.

GS 35 Pronunciation of French (See General studies)

UPPER DIVISION

41-42-43 French Composition and Conversation
2(2,0) (Offered 1960-61) FWS
Development of ability in composition and conversation, with emphasis upon study of grammar fundamentals. Alternate years.

51-52-53 Third Year French 3(3,0)
(Offered 1961-62) FWS
Reading from French literature. Period and type of literature studied may vary from year to year. Further development of language skills. Outside reading and reports. Prerequisite French 21-22-23 (or its equivalent). Alternate years.

71-72-73 Directed Individual Study 1-3(1-3,0) FWS
Individual reading and study on assigned topics. Meeting with instructor biweekly. P, 53.

91-92-93 French Reading for Advanced Degrees
2(2,0) (Offered 1960-61) FWS
Reading course for those interested in meeting language requirements for advanced degrees. Basic grammar with intensive study of essentials for reading knowledge. Third quarter includes reading in student's particular field. Credit may not be counted toward Bachelor of Science degree. No prerequisites. Auditing not permitted. Alternate years.

GERMAN (Ger)

LOWER DIVISION

1-2-3 First Year German 4(4,0) FWS

Fundamentals of language, enabling student to speak, understand, read, and write simple German. Through vocabulary and reading he gains knowledge of practical everyday expressions, life of German people, and history and geography of Germany. Word study emphasized. Students with one year of high school German will begin with German 2.

21-22-23 Second Year German 3(3,0) FWS

Aims of first year German continued. Reading of prose and poetry of well-known modern authors, practice in conversing and writing in German. Review and further study of principles of grammar. Classwork is supplemented with outside reading. Prerequisite German 1-2-3 (or its equivalent) or two years of high school German.

24-25-26 Second Year Scientific German
3(3,0) FWS

Primary emphasis on reading and translation of scientific German; continued practice in understanding German. Essential points of grammar are reviewed and further developed. Outside reading chosen from field in which student is majoring. Prerequisite German 1-2-3 (or its equivalent) or two years of high school German.

GS 33 Pronunciation of German
(See General Studies)

UPPER DIVISION

41-42-43 German Composition and Conversation
2(2,0) (Offered 1961-62) FWS

Development of ability in composition and conversation, with emphasis on study of grammar fundamentals. Alternate years.

51-52-53 Third Year German
3(3,0) (Offered 1960-61) FWS

Readings from German literature. Period and type of literature studied may vary from year to year. Further development of language skills. Outside reading and reports. Prerequisite German 21-22-23 (or its equivalent). Alternate years.

71-72-73 Directed Individual Study 1-3(1-3,0) FWS

Individual reading and study on assigned topics. Meetings with instructor biweekly. P, 53.

91-92-93 German Reading for Advanced Degrees
2(2,0) (Offered 1961-62) FWS

Reading course for those interested in meeting language requirements for advanced degrees. Basic grammar with intensive study of essentials for reading knowledge. Third quarter includes reading in student's particular field. Credit may not be counted toward Bachelor of Science degree. No prerequisites. Auditing not permitted. Alternate years.

RUSSIAN (Rus)

LOWER DIVISION

1-2-3 First Year Russian 4(4,0) FWS

Fundamentals of language, enabling student to speak, understand, read, and write simple Russian. Students with one year of high school Russian will begin with Russian 2.

24-25-26 Second Year Russian 3(3,0) FWS

Primary emphasis on reading and translation of scientific Russian; continued practice in understanding Russian. Essential points of grammar are reviewed and further developed. Outside reading chosen from field in which student is majoring. Prerequisite Russian 1-2-3 (or its equivalent) or two years of high school Russian.

91-92-93 Russian Reading for Advanced Degrees
2(2,0) (Offered 1960-61) FWS

Reading course for those interested in meeting language requirements for advanced degrees. Basic grammar with intensive study of essentials for reading knowledge. Credit may not be counted toward Bachelor of Science degree. No prerequisite. Auditing not permitted. Alternate years.

SPANISH (Span)

LOWER DIVISION

1-2-3 First Year Spanish 4(4,0) FWS

Fundamentals of language, enabling students to speak, understand, read, and write simple Spanish. Through vocabulary and reading he gains knowledge of practical everyday expressions, life of Spanish-speaking people, and history and geography of Spanish-speaking countries. Students with one year of high school Spanish will begin with Spanish 2.

21-22-23 Second Year Spanish 3(3,0) FWS

Aims of First Year Spanish continued. Reading of prose and poetry of well-known modern authors, practice in conversing and writing in Spanish. Review and further study of principles of grammar. Classwork is supplemented with outside reading. Prerequisite Spanish 1-2-3 (or its equivalent) or two years of high school Spanish.

24-25-26 Second Year Technical Spanish
3(3,0) FWS

Practical side of language stressed. Emphasis on reading modern technical Spanish journals; practice in speaking Spanish. Essential points of grammar reviewed and further developed. Outside reading chosen from field in which student is majoring. Prerequisite Spanish 1-2-3 (or its equivalent) or two years of high school Spanish.

GS 34 Pronunciation of Italian and Spanish
(See General Studies)

UPPER DIVISION

41-42-43 Spanish Composition and Conversation 2(2,0) (Offered 1961-62) FWS

Development of ability in composition and conversation, with emphasis upon study of grammar fundamentals. Alternate years.

51-52-53 Third Year Spanish 3(3,0) (Offered 1960-61) FWS

Readings from Spanish or Latin American literature. Period and type of literature studied may vary from year to year. Further development of language skills. Outside reading and reports. Prerequisite Spanish 21-22-23 (or its equivalent). Alternate years.

71-72-73 Directed Individual Study 1-3(1-3,0) FWS

Individual reading and study on assigned topics. Meetings with instructor biweekly. P, 53.

91-92-93 Spanish Reading for Advanced Degrees 2(2,0) (Offered 1961-62) FWS

Reading course for those interested in meeting language requirements for advanced degrees. Basic grammar with intensive study of essentials for reading knowledge. Third quarter includes reading in student's particular field. Credit may not be counted toward Bachelor of Science Degree. No prerequisites. Auditing not permitted. Offered alternate years if sufficient demand.

Curriculum in Science and Applied Arts, Foreign Languages Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	**F**	**W**	**S**
Foreign Language (1), 1-2-3	4	4	4
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science, GS 1-2-3	3	3	3
Biological Science	4	4	
College Algebra, Math 10			5
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Orientation, 1	1		

Sophomore Year	**F**	**W**	**S**
Foreign Language (1), FL 21-22-23	3	3	3
Foreign Language (2), FL 1-2-3	4	4	4
Foreign Language (1), 41-42-43	2	2	2
Introduction to Literature, Engl 20	3		
Oral Communications, Sp 22		3	
Inorganic Chemistry, Ch 1-2-3 or Elementary Physics, Phy 10-11-12 or General Physics, Phy 20-21-22	5	5	5
Military, Mil 20-21-22 or 25-26-27	1	1	1
General Psychology, Psy 25			3

Junior Year	**F**	**W**	**S**
Foreign Language (1), 51-52-53	3	3	3
Foreign Language (2), 21-22-23	3	3	3
English Elective	3		
History Sequence, Hist 23-24 or acceptable substitute	4	4	
National Government, PS 34			4
History and Principles of Education, Ed 40		*4*	
Educational Psychology, Ed 45			*3*
*Electives**			

Senior Year	**F**	**W**	**S**
Foreign Language (2), 41	2		
Biological Science	5		
Introduction to Sociology, RS 15	5		
Principles of Economics, Econ 21-22	3		3
Methods of Teaching in High School, Ed 75		*4*	
Educational Measurements, Ed 164		*3*	
Student Teaching in High School, Ed 74		*8*	
Principles of Guidance, Ed 85			*3*
High School Organization and Administration, Ed 163			*2*
Educational Statistics, Ed 168			*3*
*Electives**			

*Students who plan to teach in high school consult with the head of the Education Department before registering for the first term of their junior year. All students must complete 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type*.

MAJOR: First, Second, Third year, and Composition and Conversation course of major language; First and Second year, and first quarter of Composition and Conversation course of minor language. For those who expect to teach in high school GS 28, 33 or 34 or 35, and Engl 156 and 160 are especially recommended .

MINOR: First and Second year of one language, plus sufficient electives in the same language to total 30 hours.

Department of History and Political Science (Hist, PS)

Professors Parker, Engberg, Volstorff; Professor Emeritus Young; Associate Professors Hendrickson, Sewrey; Assistant Professors Kellar, Massmann

The courses in this department, in addition to their cultural values, are designed to serve as a necessary background for intelligent citizenship. They aim to meet the needs of the following groups of students: First, students in the Division of Science and Applied Arts who are majoring in any of the social sciences; second, those majoring in History and Political Science; and lastly, those in the Division of Science and Applied Arts or other divisions not majoring in this department.

The courses in Political Science are designed to introduce the student to the political institutions, practical politics and international relations of the United States and leading foreign nations.

All students majoring in either history or political science should pay careful attention to sequences, and build a program based on continuity and development.

Students who expect to teach American History, in order to qualify for the South Dakota teaching certificate, must take 12 hours of American History, namely 23-24-25.

HISTORY (Hist)

LOWER DIVISION

4-5-6 World History 3(3,0) FWS
Major emphasis on European culture, but civilization and culture of India, China, Japan, Egypt, Arabia, and the New World receive considerable attention. Course number 4 covers from 5000 B.C. to 1300 A.D.; 5 from 1300 to 1815; 6 from 1815 to date.

23-24 American History 4(4,0) FW
Political, social, and economic development, 1492 to 1865; 1865 to 1918.

25 Recent American History 4(4,0) FWS
Political, social, and economic developments, 1918 to the present.

31 Reading in Current Affairs 2(2,0) FWS
To introduce students to a more consistent and selective reading of better newspapers and periodicals.

33 History of the West 3(3,0) (Offered 1960-61)
Westward movement of United States, 1790 to 1900. Stress on Midwest, Dakotas and Minnesota. Roles of government and of individual enterprise in the development of West are appraised. Contribution of frontier to American folkways and institutions. Alternate years. P, 23.

UPPER DIVISION

43-44 Economic History of the United States 3(3,0) FW
Main emphasis is economic but with a study of correlated political and social developments, 1492 to 1865; 1865 to present.

51 History of Russia 3(3,0) (Offered 1961-62) S
From earliest times to present, with special emphasis on the background and history of the communist regime; treats cultural and social as well as political aspects. Alternate years.

52-53 English History 3(3,0) S
Main currents of political and cultural events in British Isles as basis for better understanding of our common inheritance in literature, government, and social outlook. May be counted toward English major. Course 52 covers from earliest times to 1600; 53 from 1600 to date. P, 4 for 52, 5 for 53.

57 South Dakota History 2(2,0) W
Primarily for prospective teachers who may teach state history. Early exploration and settlement, fur trade, coming of steamboats and railroads, Dakota Boom of 1880's, territorial government, main developments since statehood, 1889. P, 23-24.

140-141-142 Modern Europe 2(2,0) FWS
Europe from 1450 to 1919, covering political, cultural, and intellectual developments; 1450-1700, 1700-1815, 1815-1919.

143-144-145 Contemporary World 4(4,0) FWS
143 covers the world between two wars, 1919-1938. Comparative forms of government, domestic and foreign affairs, national leaders and ideologies, failures of League of Nations, and crises leading to World War II. 144 covers the second World War, 1938-1945. Fundamental causes, theatres of operation, United Nations in theory, and important international conferences on war goals. 145 covers recent and profound developments since 1945, the unfinished peace settlements, the Cold War, Soviet Russia and her satellites, European and Near Eastern and Asian problems of nationalism, collective action to restrain aggression in Korea and elsewhere. P, 4-5-6; 25 recommended.

146 History of the South 3(3,0) (Offered 1961-62) F
Colonization, sectional strife, slavery, plantation system, impact of soil and climate, Civil War and reconstruction, agriculture and industry, society and culture, segregation. P, 8 credits in American history; PS 34. Alternate years.

147 Latin American History 4(4,0) (Offered 1960-61)
P, a year of college history, including 5. Alternate years.

148 History of Canada 3(3,0) (Offered 1961-62)
Colonization, French and British struggle and rule, immigration, position in the Empire, achieving dominion status, economic, cultural and social developments, minority problems. P, 23 or PS 34. Alternate years.

150-151-152 American Diplomatic History 3(3,0) (Offered 1961-62) FWS
Historical treatment of American foreign policy. P, 23-24. Alternate years.

154-155-156 Cultural History of the United States 3(3,0) (Offered 1960-61) FWS
The intellectual, social, and cultural development of the American people. P, 5-6, or 23-24, or 140-141-142. Alternate years.

LS 159 Research Tools in the Humanities 2-3(2-3,0) F
(See Library Study 159.) Credited toward a major in the department.

160 Intellectual History 4(4,0) (Offered 1960-61) S
Great ideas of Western Civilization from earliest times to the present. P, 4, 5, 154, 155; PS 171 recommended. Alternate years.

164 Methods and Philosophy of History 3(3,0) S
Historiography and historical bibliography; brief survey of historical method. P, junior standing; required of majors.

Econ 175 History of Economic Thought 3(3,0) S
(See Econ 175.) Credited toward a major in the department.

180 Special Problems in History 2-6 credits FWSSu
Selected studies to meet the needs of advanced students. P, junior standing and minoring in history, or consent of instructor. May be repeated but limit is 6 credits.

GRADUATE DIVISION

RS 240 Social Thought (History)
(See Rural Sociology 240.)

251 Seminar in History 1-2-3(1-2-3,0)
Studies in selected history fields. Arranged according to demand.

POLITICAL SCIENCE (PS)

LOWER DIVISION

34 National Government 4(4,0) FWSSu
Theory of Constitution and Federalism as applied in organization of American national government.

36 State Government 4(4,0) FWS
State government in general with references to South Dakota Government and constitution.

UPPER DIVISION

45 Local Government 4(4,0) (Offered 1961-62) S
Analysis of rural local government as found in special districts, townships and counties. Alternate years. P, none, recommended 36.

46 Political Parties 4(4,0) F
Development, characteristics, and functions of parties. P, 34 or Hist 23-24.

52 Public Administration 3(3,0) WS
Theory and practical organization of responsibility in government as it pertains to public servant and technical expert. P, none, but recommend 34, 36, or 45.

141 American Foreign Policy 3(3,0) (Offered 1960-1961) F
The formulation, implementation and constitutional basis of American foreign policy with reference to contemporary problems. P, 34 or Hist 25. Alternate years.

142 Government and Public Policy 3(3,0) (Offered 1960-61) W
Practical application of national government to the development of American industry and agriculture. P, 34. Alternate years.

146 Municipal Government and Administration 4(4,0) (Offered 1961-62) W
Analysis of government and administrative problems of municipalities. P, 34, 36. Alternate years.

147 Constitutional Law 4(4,0) F
Analysis of government as determined by prevailing court decisions. P, 34.

150 Political Administration 2(2,0) (Offered 1960-61) S
Selected studies in administration of various fields of business and government organization. P, 34, 36 or 52 or consent of instructor if of upper division standing. Alternate years.

152 Administrative Principles and Practices 3(3,0) (Offered 1961-62) SSu
Critical analysis of governmental and business administrative principles and practices. P, 34 and 52, or consent of instructor if graduate student. Alternate years.

153 Administrative Law 3(3,0) (Offered 1960-61) S
An interpretation of administrative activities in government and business as defined by law and the courts. P, 34, 52. Alternate years.

LS 159 Research Tools in the Humanities 2-3(2-3,0) F
(See Library Study 159.)

160 European Governments 3(3,0) (Offered 1960-61) S
Comparative study of principles and organization of European governments. P, 34 or Hist 25, or consent of instructor. Alternate years.

161 Political Geography 3(3,0) F
Geopolitics, geographical basis of national power and international relations in terms of material culture and human resources of major countries and regions. P, 34 or Hist 25, or consent of instructor.

162 International Politics 3(3,0) (Offered 1961-62) W
Nationalism, its origins, forms and results in international society; problems on the international level of peaceful change, pacific settlement of disputes, and enforcement. P, 34 or Hist 25, or consent of instructor. Alternate years.

164 International Relations 3(3,0) (Offered 1961-62) F
Analysis of origins and development of the modern nation-state system with special reference to sovereignty, international law, balance of power and collective security. P, 34 or Hist 25, or consent of instructor. Alternate years.

165 Theory of Political Control 2(2,0) (Offered 1961-62) S
Selected studies of philosophy and methods involved in maintaining democratic administration. P, 34 or 36 and 52, or consent of instructor. Alternate years.

166 International Organization 3(3,0) (Offered 1961-62) S
Development of international organization and analysis of the structure, operation and future possibilities of international organization. P, 34 or Hist 25, or consent of instructor. Alternate years.

169 Near East and Africa 3(3,0) (Offered 1960-61) W
Political, economic, social and cultural developments of these areas as background for understanding their contemporary problems. P, 34 or Hist 25. Alternate years.

170 Governmental Problems of Eastern Asia 3(3,0) (Offered 1961-62) S

Political, economic, social, cultural developments as a background for understanding contemporary problems in these areas. P, 34 or Hist 25 or consent of instructor. Alternate years.

171 American Political Theory 3(3,0) (Offered 1961-62) W

Development of American political thought in relation to changing problems of democracy. P, junior standing and seven hours of political science and American history. Alternate years.

190-191-192 Special Problems in Political Science 2-3-4(2-3-4,0) FWSSu

Selected studies to meet needs of graduate students. P, junior standing and minoring in political science, or consent of instructor.

GRADUATE DIVISION

241 Seminar in Political Science 1-2-3(1-2-3,0)

Studies in selected Political Science fields. Arranged according to demand.

Curriculum in Science and Applied Arts, History Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

LOWER DIVISION

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science, GS 1-2-3	3	3	3
World History, His 4-5-6	3	3	3
Oral Communication, Sp 10	2		
Biological Science	4	4	
College Algebra, Math 10			5
Orientation, 1	1		
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Elective			

Sophomore Year	F	W	S
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
Oral Communication, Sp 20	2		
General Psychology, Psy 25	3		
Principles of Economics, Econ 21-22		3	3
Introduction to Sociology, RS 15			5
National Government, PS 34	4		
State Government, PS 36		4	
Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	4	4	4
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

UPPER DIVISION

Junior Year	F	W	S
American History, Hist 23-24; or Cultural History of United States, Hist 154-155-156	3–4	3–4	3
Recent American History, Hist 25			4
Contemporary World, Hist 143	4		
Statistical Methods I, Econ 81 or Ed 168	5	or 5	3
Biological Science			
Language in Public Affairs, Engl 52			3
Contemporary World, Hist 144-145		4	4
*Elective**			

Senior Year	F	W	S
Methods and Philosophy of History, Hist 164			3
American Foreign Policy, PS 141			3
The Family, RS 168	3		
Public Finance, Econ 145		3	
Population Problems, RS 145			3
Advanced Public Speaking, Sp 44	3		
Research Tools in the Humanities, LS 159	3		
International Politics, PS 162		3	
Economic Geography, Econ 30			3
Introduction to Philosophy, Hist 20	3		
*Elective**			

*Students preparing to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. All students must complete 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type.*

MAJOR: Hist 4-5-6, 23-24 or 154-155-156, 25, 143, 164, plus electives in history numbered 140 or above, to total 36 credits.

MINOR: Hist 4-5-6, 23-24-25, plus three additional credits of history.

History of Economic Thought, Econ 175 and Research Tools in the Humanities LS 159 may be counted as a history course.

Curriculum in Science and Applied Arts, Political Science Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

UPPER DIVISION

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Oral Communication, Sp 10	2		
Introduction to Social Science, GS 1-2-3	3	3	3
National Government, PS 34	4		
Biological Science	4	4	4
College Algebra, Math 10		5	
Introduction to Sociology, RS 15			5
Orientation, 1	1		
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1

Sophomore Year	F	W	S
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
Oral Communication, Sp 20	2		
General Psychology, Psy 25			3
Principles of Economics, Econ 21-22	3	3	
Recent American History, Hist 25			4
Political Parties, PS 46	4		
State Government, PS 36		4	
Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	4	4	4

Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

UPPER DIVISION

Junior Year	**F**	**W**	**S**
Statistical Methods I, Econ 81 or Ed 168	5	or	3
Advanced Public Speaking, Sp 44			3
Constitutional Law, PS 147	4		
Government and Public Policy, PS 142		3	
Local Government, PS 45			4
Economics elective		3	
Sociology elective	3		
Political Science electives		3	3
History elective		4	
*Elective**			

Senior Year	**F**	**W**	**S**
Methods and Philosophy of History Hist 164			3
Contemporary World, Hist 144		4	
Population Problems, RS 145		3	
American Foreign Policy, PS 141	3		
Political Science, elective	3	3	3
Public Finance, Econ 145	3		
*Elective**			

*Those planning to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. All students must complete 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type.*

MAJOR: Hist 25, 164, and 36 credits in political science, including PS 34, 36, 46, 147; 8 credits of PS numbered 140 or above, plus 12 optional credits of PS. (Hist 31, 147, Econ 175 and LS 159 may be counted as political science courses in meeting the requirements above.)

MINOR: Hist 25, plus 24 credits in political science, including PS 34, 36, 46, and 12 optional credits.

Department of Library Study (LS)

Professor and Librarian Trump; Associate Librarian and Assistant Professor Janecek; Instructors Kelley, Oehlerts, Pabst, Pulsifer, Van Den Berg

While the instruction in librarianship is not organized into a major department the following courses are offered in this field.

UPPER DIVISION

60 Library Administration 3(3,0) F

Stating problem of school libaries. Objectives and methods of service in small high school libraries, organization, budget and ordering, classification and cataloging, student library club, housing and equipment, records to be kept, reports to make, and methods of publicity.

61 Book Selection and Reference 3(3,0) W

Standards of criteria which may be used in appraising books for school libraries and use of basic reference works.

62 Cataloging and Classification 3(3,0) S

To teach students how to catalog and classify books for high school libraries.

159 Research Tools in the Humanities 2-3(2-3,0) F

Survey of research and reference materials of special value and interest to student of Humanities. Study of literature may be made for third credit. Acceptable for major or minor credit in economics, English, history, political science and rural sociology.

Department of Mathematics (Math)

Curriculum in Science and Applied Arts, Mathematics Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See Department of Mathematics under Division of Engineering for Mathematics course descriptions

LOWER DIVISION

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 14	5		
Trigonometry, Math 15		5	
Analytic Geometry and Calculus, Math 16			5
Inorganic Chemistry, Ch 1-2-3	4	4	4
General Botany, Bot 11-12-13	4	4	4
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, 1	1		

Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20 and elective (Engl 21-27)		3	
Oral Communications, Sp 22			3
Analytic Geometry and Calculus, Math 25	5		
Integral Calculus, Math 26		5	
Applied Calculus, Math 27			4
General Physics, Phy 20-21-22	5	5	5
Introduction to Social Science, GS 1-2-3	3	3	3
General Psychology, Psy 25	3		
Military, Mil 20-21-22 or 25-26-27	1	1	1
*Elective**			

UPPER DIVISION

Junior Year	**F**	**W**	**S**
Theory of Equations, Math 145	3		
Differential Equations, Math 148			4
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology RS 15		5	

National Government, PS 34			4
Solid Analytic Geometry, Math 144		3	
Statistical Methods I, Econ 81	5		
*Elective**			
Senior Year	**F**	**W**	**S**
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
*Elective**			

*Students planning to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. All students must complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type.*

MAJOR: Math 14, 15, 16, 25, 26, 27, 145, 148, plus three hours of elective credit.
MINOR: Math 14, 15, 16, 25, 26, 27.

Department of Military (Mil)

Frank G. Schultz, Co-ordinator, ROTC Affairs

Under the provisions of the Act of Congress approved July 2, 1862, usually referred to as the Morrill Act, the State of South Dakota designated South Dakota State College as a Land-Grant College. The act requires that the College maintain military training in its curriculum as its contribution towards National Defense, in return for which instruction, equipment, uniforms and funds are furnished to the College by the United States.

Military training is offered through a Reserve Officers' Training Program in both Army and Air Force categories. Basic Military has been offered since the beginning of the College in 1884. A Senior Infantry Unit was established in 1920. The Air Force Unit was established on September 1, 1946.

The ROTC programs are planned with a view to enrich the educational resources of the institution by supplying additional equipment and emphasizing civic responsibility. Its aims are to coordinate discipline of mind and body, and development of character, initiative, all vital elements of executive leadership; and to furnish the Armed Forces with personnel during an emergency.

Basic and Advanced Phases

The program is organized into two phases. The Basic phase consists of two years of Military or Air Science, which is required of all male students except as otherwise indicated below. The Advanced phase is open to qualified juniors and seniors upon the successful completion of which (including the required attendance of an ROTC Summer Camp) the student is eligible for a commission as second lieutenant in his respective branch of service, provided that he meets all other requirements for the Bachelor of Science degree.

Basic Military Requirements

In fulfillment of the requirements of the Morrill Act referred to above, enrollment in and successful completion of two years of Basic military training is required of all male students, unless excused for previous military service, physical disability, or disqualified by reason of age, citizenship, or exempt under transfer student regulations. All ROTC enrollees must sign a loyalty oath upon enrollment in the Basic course. Unless excused for reasons given below, each male student must enroll in a basic military science course each term until the requirement is met.

The requirement can be met by enrolling in either Basic Air or Army ROTC. The specific bases for exemption are indicated as follows:

A. Exemptions for previous military service* (These are College requirements for Basic and not Army or Air Force.)
   (a) For six continuous months or more of active service in the Armed Forces, including six months continuous service under the Reserve Force Act of 1955, credits not to exceed that of the active Basic courses in ROTC (freshman and sophomore years) will be allowed for a total of six quarter credits. No duplication of credit will be allowed. No credit allowed for active service of less than six months. (Note: this will not, however, meet the prerequisite for Advanced ROTC.)

*Credit may be allowed for advanced ROTC (junior and senior years) for service in the Armed Forces as a commissioned officer if recommended by the ROTC PMS&T or PAS, and is validated by examination.

B. Exemption because of physical disability.
   (a) Certificates of disability must be procured from the College Physician and must be signed by the College President. This does not waive the requirement when disability is only temporary.

C. Exemption because of age.
   (a) Students who are less than 14 years of age or who have reached 23 years of age at the time of initial enrollment are not required to take military science.

D. Persons who are not citizens of the United States are not admitted to the ROTC program unless they have applied for their first papers.

E. Military requirements for transfer students:
   (a) Students transferring to State College with 67 acceptable quarter credits and 134 grade points, or higher standing, will not be required to take any military work.
   (b) Students transferring to State College with 45 acceptable quarter credits and 90 grade points to 67 acceptable quarter credits and 134 grade points will be required to enroll in and successfully complete a minimum of one school year of Basic ROTC training.
   (c) Students transferring to State College with less than 45 acceptable quarter credits or 90 grade points will be required to enroll in and satisfactorily complete two years (freshman and sophomore courses) of Basic ROTC.

Uniforms

Students enrolled in the Basic ROTC courses are furnished a complete government issue, officer-type uniform for use while pursuing the course.

Students enrolled in the Advanced course are furnished an officer-type uniform individually tailored. This uniform is given to the students upon successful completion of the Advanced course.

A deposit of $20.00 with the cashier of the College is required of each Basic and Advanced ROTC student prior to enrollment. The deposit will be returned to the student at the end of the first year, or upon withdrawal from the College, upon the return of all items of the uniform.

Monetary Allowance

Formally enrolled students of the Advanced course are paid a monetary allowance in lieu of subsistence at a daily rate specified by the Department of Defense (presently $0.90) for a total period not in excess of 595 days Army; 609 days Air Force. Payments are made monthly in the case of the Army and every three months by the Air Force. This allowance will not be paid during the period of the Advanced ROTC Camp or Summer Training Units whether or not attended by the student.

For unauthorized absences from Advanced instruction, two days pay ($1.80) will be deducted from the student's pay.

Any emoluments mentioned for the Advanced course are in addition to benefits received through the "G.I. Bill of Rights."

Department of Military Science and Tactics

Colonel Frederic D. Ray, PMS&T; Major Dean D. Bekken; Captain Nolan J. Peters, Captain Edward Mundy; 1st Lt. Thomas E. Nesbitt; M/Sgt. Harvey N. Hedstrom; SFC Walter S. Halverson, SFC Walter A. Herrig, SFC Denver D. George

Basic Army ROTC Course

The basic course consists of formal instruction for a minimum of three hours per week for two academic years of 32 weeks each. This instruction will be of a general type.

Advanced Army ROTC Course

All students accepted for formal enrollment in the advanced course must:

(1) Be a citizen of the United States and must be able to complete the advanced course, graduate and be

commissioned prior to attaining the age of 28 years.

(2) Be physically qualified under standards prescribed by the Department of the Army.

(3) Successfully complete such survey and general screening tests as may be prescribed.

(4) Be selected by the Professor of Military Science and Tactics and the President of the institution.

(5) Execute a written agreement with the Government, in consideration of commutation of subsistence to be furnished in accordance with law, agreeing to complete the advanced course, to devote five hours per week (minimum of 150 hours per year) during such period to military training prescribed, and to pursue the courses of summer camp training during such period as prescribed by the Secretary of the Army. This contract remains in force as long as the student is enrolled in this institution or any other institution where such course is given until the advanced course is completed.

(6) Have completed the basic course, Senior Division ROTC, or received credits for honorable active service as indicated above.

Advanced Army ROTC Camp

Attendance at Summer Training Camp is required of students enrolled in the advanced course, normally upon the completion of the first year of the advanced course. Camp will ordinarily open in June of each year and will continue for a period of six weeks.

ROTC students attending training camp are paid for attendance at such camps at the rate prescribed for soldiers of the first grade of the Regular Army, $78.00 per month. Students are also paid travel allowance at the rate of five cents per mile for the distance by the shortest usually travelled route from the places from which they are authorized to proceed to the camp and for the return travel thereto.

Requirement for Commission

Upon successful completion of the advanced military course, including attendance at a six-weeks summer camp, and four years of education at a college or university level, a candidate is eligible to be tendered a commission in the Officer's Reserve Corps in the grade of second lieutenant. Students who have more than twelve months honorable active service in the Army, Navy, Marine Corps, Coast Guard or Air Force are required to successfully complete all academic subjects during the two years of college concurrent with their training in the advanced course only.

Regular Army Appointments

The Secretary of the Army now appoints second lieutenants from among persons designated as distinguished military students. A distinguished military student is one who has been so designated by the Professor of Military Science and Tactics on the basis of the following criteria:

(1) Possesses outstanding qualities of military leadership, high moral character and definite aptitude for the Military service.

(2) Has distinguished himself either academically or by demonstrated leadership through his accomplishments while participating in recognized campus activities, and

(3) Is scheduled to complete the advanced course, senior division, ROTC, within one school year, and whose current standing in military subjects is among the upper third of his ROTC class.

LOWER DIVISION

1-2-3 Military Science 1(3,0) FWS
Required of all able-bodied male students except veterans with equivalent in-service credit or of students selected for Air Science 5-6-7.

20-21-22 Military Science 1(3,0) FWS
Required of all able-bodied male students except veterans with equivalent in-service credit or of students enrolled in Air Science 25-26-27.

UPPER DIVISION

40-41-42 Military Science 3 FWS
First-year advanced course.

60-61-62 Military Science 3 FWS
Second-year advanced course.

Department of Air Science

Colonel Arthur C. Stone, PAS; Major V. I. Cole, Major P. R. Leavitt; Capt. V. R. Hardisty, Capt. J. A. Herriott, Capt. B. H. Lawrence; M/Sgt. W. W. Eakins, M/Sgt. J. M. Gilmore; S/Sgt. G. F. Barlow, S/Sgt. D. P. Ford, S/Sgt. C. L. Wood.

Basic Air ROTC

The Basic Cadet must:

(1) Be physically qualified under the standards as prescribed by the Air Force.
(2) At the time of enrollment be not less than 14 years of age and have at least two academic years left before graduation or completion of graduate work.
(3) Sign a loyalty certificate, certifying that he has never been a member of a subversive organization.

Advanced Air ROTC

The Advanced Cadet must:

(1) Be a citizen of the United States and of good moral character.
(2) Be physically qualified under standards prescribed by the Air Force.
(3) Be accepted by the College as a regularly enrolled student.
(4) At the time of enrollment be not less than 16 years of age and not of such age that he will be unable to complete all requirements for appointment as an Air Force reserve officer in a non-flying capacity before reaching his 28th birthday. Applicants for flying training must be of such age as to be commissioned before they are 26½ years old.
(5) Successfully complete a qualification test.
(6) Have an overall academic grade-point average of 2.000.
(7) Have completed the basic phase or have credit given in lieu thereof.
(8) Sign the advanced course contract and other documents.

Summer Training Units

Attendance at summer training units is required of all students enrolled in the advanced course, upon completion of the first year of the advanced course, i.e., junior year.

Length of time spent at a summer training unit will be from four to six weeks and will take place during the months of June, July and August.

During the time spent at a summer training unit, the cadet will be paid at the rate of $78.00 per month. Each cadet will be furnished food, clothing, shelter and round trip mileage at the rate of five cents per mile.

Requirements for Commission

Upon successful completion of the advanced course and the Summer Training Unit, the cadet will be commissioned a second lieutenant in the United States Air Force Reserve. Upon commissioning and entry upon active duty the second lieutenant is eligible for pilot training or observer training in officer grade provided he is physically and otherwise qualified.

Regular Air Force Appointments

Students who, upon graduation and commissioning, are designated Distinguished AFROTC Graduate by the Professor of Air Science, are eligible to make application for a regular commission in the United States Air Force.

LOWER DIVISION

5-6-7 Air Science 1(3,0) FWS
Air Science I. Foundations of Air Power.

25-26-27 Air Science 1(3,0) FWS
Air Science II. Foundations of Air Power.

UPPER DIVISION

45-46-47 Air Science 3 FWS
Air Science III. Air Force Development.

65-66-67 Air Science 3 FWS
Air Science IV. Global Relations.

Department of Music (Mu)

Professors Rezatto, Theman; Professors Emeritus Christensen, Peterson; Assistant Professors Carpenter, Orvis, Whitcomb; Mr. Frohrip

The study of music is an important factor in the cultural and intellectual development of a well-rounded personality. An appreciation and understanding of music will enrich the lives of all students, regardless of their specialized fields.

In recognition of its desirability for students in technical as well as in non-technical curricula, the Regents of Education have provided for both private and group instruction in the various musical subjects. A resolution of the Regents, adopted March 18, 1933, provided that students may study music for college credit if at the same time they pursue an equal number of hours in some other subjects unrelated to music.

For students who wish to earn a music major or minor, the department offers instruction in the disciplines of music theory, critical analysis, history, and all phases of applied music. Students who plan to teach music in junior or senior high schools may qualify for the certificate to teach music by completing the Education courses prescribed for the certificate. Music majors who do not plan to teach are advised to take two years of a foreign language in place of the professional Education course.

In addition to private class lessons, valuable training and experience is offered to all students in the following organizations: College chorus, orchestra, marching and concert bands, the Statesmen, and the Pasquettes.

The Chorus presents two outstanding productions, Handel's Oratorio "The Messiah" and a popular light opera. The Statesmen, an all-male chorus, performs for various college and off-campus events throughout the year. The Orchestra appears in concert and at various college functions. The famous State College Marching Band is featured at all football games and is well known for both its musicianship and colorful formations. The Concert Band appears in formal campus concerts and throughout the State and also sponsors the annual band clinic for high school band directors. Clinic directors of national reputation are engaged for this event. The Pasquettes is open to women students who are talented in the fields of vocal and instrumental music, dramatics, dancing, and other entertainment specialties. This versatile group is in great demand both on and off the campus.

The following courses are offered by the department.

LOWER DIVISION

1-2-3 Music Theory and Ear Training 3(3,0) FWS
Notation of pitch, meter, four-part harmonic writing using triads, dominant and supertonic seventh chords. Basic music fundamentals.

4-5-6 Class Voice 1(2,0) FWS

7-8-9 Class Strings 1(2,0) FWS

10 Pasquettes ⅓ cr FWS

15 Orchestra ⅓ cr FWS

18 Band ⅓ cr FWS

20 Chorus ⅓ cr FWS

21 Class Brass 1(2,0) F

22 Class Woodwinds 1(2,0) W

23 Class Percussion 1(2,0) S

24-25-26 Music Theory 3(3,0) FWS
Four-part harmonic writing including altered chords. P, 3 or consent of instructor.

27-28-29 Music History 2(3,0) FWS
An intensive study of the rise and growth of music from primitive music to the present.

UPPER DIVISION

41 Counterpoint 2(2,0) F
Writing in two voices, both strict and free. Canon, invention, and fugue. Limitation sequences and the invention in two parts.

42-43 Composition 2(2,0) WS
Composition in two and three part forms, variation forms leading to the sonata form. P, 26 or consent of instructor.

45 Choral Techniques and Materials 2(2,0) F
The technique of choral directing. A cappella choir, men's and women's glee clubs. For school music teachers, church choir directors, and singers.

46-47 Instrumental Conducting 2(2,0) WS
The technique of band and orchestra conducting.

48 Arranging for Orchestra and Band Instruments 3(3,0) W
A practical course for band and orchestra directors including the study of transposition and arrangements from piano score.

60 Special Methods of Teaching Applied Music 3(3,0) S
Open to juniors and seniors who have completed 30 quarter hours of credit in music. Intended for the student who desires an opportunity for advanced training in special applied music fields. P, consent of department head.

61 Teaching Music in Junior and Senior High School 3(3,0) F
Philosophy, objectives and administration of public school music. P, Ed 45.

Private Lessons

In addition to the above courses, private lessons in applied music may be arranged by payment of following special fees:
Two half-hour lessons per week.....$30.00 per quarter
One half-hour lesson per week.....$18.00 per quarter

Practice pianos may be rented at the following rates:

One hour per day per quarter	$2.50
Two hours per day per quarter	$4.00
Organ practice, per hour	$ .20

Private lessons in the following earn ⅓ to 1 credit each quarter for each half-hour lesson per week. Those majoring or minoring in music receive one credit per term for one-half hour lesson per week. All others receive ⅓ credit.

11 Percussion
12 Piano
13 Organ
14 Strings
16 Brass
17 Reeds
19 Voice

Curriculum in Science and Applied Arts, Music Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
Music Theory and Ear Training, Mu 1-2-3	3	3	3
Major Instrument	1	1	1
Class Music	1	1	1
Music Organization (Band, Chorus, Orchestra)	⅓	⅓	⅓
Introduction to Social Science, GS 1-2-3	3	3	3
Biological Science	4	4	
College Algebra, Math 10			5
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, Or 1	1		

Sophomore Year	**F**	**W**	**S**
Music Theory, Mu 24-25-26	3	3	3
Major Instrument	1	1	1
Class Music	1	1	1
Music Organization (Band, Chorus, Orchestra)	⅓	⅓	⅓
Oral Communication, Sp 10			2
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
Principles of Economics, Econ 21-22	3	3	
General Psychology, Psy 25			3
Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	4	4	4
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

Junior Year	**F**	**W**	**S**
History of Music, Mu 27-28-29	2	2	2
Major Instrument	1	1	1
Music Organization (Band, Chorus, Orchestra)	⅓	⅓	⅓
National Government, PS 34	4		
Oral Communication, Sp 20	2		
Introduction to Sociology, RS 15		5	
Biological Science			5
Statistical Methods I, Econ 81 or Ed 168		5	or 3
*Elective**			

Senior Year	**F**	**W**	**S**
Choral Techniques and Materials, Mu 45; or Instrumental Conducting, Mu 46-47	2 or	2	2
Major Instrument	1	1	1
Music Organization (Band, Chorus, Orchestra)	⅓	⅓	⅓
*Elective**			

*Students preparing to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. Those who do not plan to teach should elect either French or German in the junior and senior years. All students must complete 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

MAJOR: Mus 1-2-3, 24-25-26, 27-28-29, 45 or 46-47, plus required courses in class music and major instrument.
MINOR: A minor, consisting of 24 credits in music, may be worked out with the head of the department.

Orientation (Or)

1 Orientation 1 (2,0) F Required of all Freshmen
Meet with assigned counselor, divisional dean, or with entire class each week during first quarter at school. College rules and regulations, attention to study habits and practices, self appraisal, health problems, campus social affairs and vocational and career planning. Counselors are also students' classifying officers for first two years.

Department of Physical Education and Recreation (PE)

Professors Frost, Ginn; Associate Professors Emmerich, Huether, Robinson; Assistant Professors Crabbs, Kendall (Emeritus), Iverson, Marshall, Utley, Williamson; Instructors J. Johnson, Forsythe, Sinning; Mr. Berg, Mr. Campbell, Mr. Foss, Mrs. Foss, Mr. Smith, Mr. Welton

The work of this department can be divided into four major categories each related to the other but each with a purpose of its own.

a. The required or service program. This is a program of class work designed to increase physical development, to teach skills, and to foster character and personality traits which will make the individual a better citizen.

General Physical Education (Men 1-2-3; Women 10-11-12) is required of all students

entering with less than junior standing. These courses are preferably to be taken in the Freshman year.

b. The intramural program. The student receives the opportunity to use the skills learned in competition with others. Recreational opportunities are offered and habits of participation in wholesome, vigorous sports are developed. Women students find opportunities for intramurals through the activities of the Women's Recreation Association.

c. The major and minor program. This is designed to train leaders who are able to properly direct these activities in their communities.

d. The intercollegiate athletic program. The participant learns habits of activity and recreation and receives educational value from competing and from traveling. The spectator learns to relax and to lose himself while watching the contests. Both receive lessons of sportsmanship. Athletics also serve as a focal point around which loyalties, school spirit, friendships and tradition are built.

Uniforms

Men in required physical education are supplied uniforms. Women are required to provide a standard gym suit. Both men and women must provide gym shoes.

Physical Education Major and Minor for Men

Men students who wish to qualify for the physical education major may do so by completing the curriculum outlined on the following pages. Since this curriculum is largely for persons who expect to enter the secondary school teaching field, the student is urged to choose elective courses which will qualify him or her to teach high school courses in academic fields as well as in physical education. (See list of suggested teaching minors under the Education Department.)

The minor in physical education for men may be obtained by completing 24 hours of physical education work which shall include courses 1-2-3, 14, 18, 19, 25-26-27, 43 and 61.

Physical Education Major and Minor for Women

Women students may qualify for a major in physical education by completing the curriculum outlined on the following pages.

A minor for women may be obtained by completing a total of 24 hours in physical education including courses 10-11-12, 18, 30-31-32, 33-34-35, 44-45-46, 54, 60 and 61.

Physical Therapy Option

Students may qualify for a physical therapy option by completing three years of the physical education major and earning a physical therapy certificate or diploma from an approved school of physical therapy. The certificate is counted as 51 credits.

Students selecting this option will not be required to take the professional education courses, nor will they be required to take certain physical education courses.

Graduate Major in Physical Education

A graduate major leading to either the Master of Science degree or the Master of Education degree has been established. See section under Graduate Study for general requirements.

MEN

LOWER DIVISION

1-2-3 General Physical Education 1(0,2) FWS

Theories and practice through class and squad work, of techniques, fundamental conditioning exercises, apparatus, tumbling and stunts, and games and contests.

19 Prevention and Care of Injuries (1,2) W

General care and treatment of athletic injuries, conditioning and training, equipment of training room, taping for athletic injuries Minimum of ten hours of laboratory required. Essential for men going into coaching field

25 Minor Team Sports 1(0,2) F

26 Fundamental Conditioning Exercises 1(0,2) W

27 Individual and Dual Sports 1(0,2) S

UPPER DIVISION

40 Combatives 1(0,2) F

41 Self Testing Activities 1(0,2) W

42 Rhythmics 1(0,2) S

50-51-52 Theory and Practice of Officiating 1(1,0) FWS

Techniques of officiating football, basketball, track, and minor sports. Practice in officiating intramural sports and varsity meets.

62 Football Coaching 3(3,0) S
Open to juniors and seniors. Offensive and defensive team play and strategy; correct technique and execution of fundamentals.

63 Basketball Coaching 3(3,0) F
Open to all juniors and seniors who intend to coach or teach. Theory and practice of individual and team plays.

64 Track and Field Coaching 3(3,0) F
Open to all juniors and seniors who intend to coach or teach. Textbook work, lectures, practice drills and demonstrations of track and field events.

WOMEN

LOWER DIVISION

10-11-12 General Physical Education 1(0,2) FWS
Required of all women students.

30-31-32 General Physical Education 1(0,2) FWS
Continuation of 10-11-12. Required of women majoring in physical education.

33 Gymnastics and Tumbling 1(0,2) F

34 Low Organized Games 1(0,2) W

35 Singing Games and Elementary Folk Dancing 1(0,2) F

36 Social Games and Activities 1(0,2) FSu
Materials and methods used in the conduct of social games, music, and drama for recreation. Designed for leaders in camp, school, and community recreation.

38 Rhythmic Fundamentals 1(0,2) S
Basic dance course for men and women. Prerequisite to 65 and 73.

UPPER DIVISION

42 Modern Dance I 1(0,2) F
Beginning modern dance; techniques and elements of dance.

44 Teaching of Field Sports 1(0,2) F

45 Teaching of Volleyball 1(0,2) W

46 Teaching of Softball 1(0,2) S

48 Modern Dance II 1(0,2) W
Intermediate modern dance. Advanced techniques and beginning composition. P, 38.

54 Teaching of Basketball 1(0,2) W

55 Teaching of Archery 1(0,2) S

59 Modern Dance III 1(0,2)
Advanced techniques and composition. P, 48.

65 Theory of Dance 2(1,2) S
Elements of dance, choreography, and dance history. P, 38, 42.

73 American Folk and Social Dancing 1(0,2) S

75 Self-Testing Activities 1(0,2) F

MEN AND WOMEN

LOWER DIVISION

13 First Aid 2(2,1) F
Includes material specified by the Red Cross for the standard and advanced courses. Satisfactory completion of course will qualify student for Red Cross certificate.

14 Introduction to Physical Education 2(2,0) F
Trends in physical education, history, philosophy, principles, and objectives.

17 Beginning Swimming 1(0,2) Su
Various types of strokes and elementary water safety. May be substituted for 1 credit of required physical education.

18 Nature, Function, and Organization of Play 2(2,0) S
Historical significance of play, theories and philosophies of play, play as social movement, practical conduct of playground.

24 Curriculum in Physical Education 2(2,0) S
Designed to acquaint students with procedure for constructing complete physical education course of study; principles underlying selection and arrangement of activities in physical education program.

28 Advanced Swimming 1(0,2) Su
Advanced techniques in swimming and water safety. P, 17 or permission of instructor. May be substituted for 1 credit of required physical education.

37 Golf 1(0,2) SSu
Techniques and skills of golf. Physical Education elective.

39 Intermediate Tennis 1(0,2) S

UPPER DIVISION

43 Intramural Sports 2(2,0) W
Methods of directing intramural sports. Opportunity given to assist in supervising and managing various intramural sports.

49 Driver Education 3(2,2) FSu
Basic course for preparation of driver education instructors for secondary schools and "out-of-school" programs. Techniques, materials, equipment and facilities in the organization, administration, and teaching of driver education. Classroom instruction and road practice. P, Ed 45 and consent of instructor.

56 Kinesiology 3(3,0) W

58 Tests and Measures in Physical Education 2(2,0) S
Principles of body mechanics, mechanical and anatomical analysis of physical activities. P, Z 142.

58 Tests and Measures in Physical Education 2(2,0)S

Place of measurement in physical education. Analytical survey of tests and measures now available; technique and procedure in planning and administering tests and measurements.

60 Teaching of Physical Education 3(3,0) WS

Theory and practice of program planning, lesson planning, group teaching, and criticism of class.

61 Organization and Administration of Physical Education 3(3,0) F

History and principles which have determined past and present programs, aims and objectives of physical education, administration of curricula, professional attitudes and ethics, administration of facilities, equipment and supplies.

66 Community Recreation 3(3,0) W

Organization and administration of recreational departments, legal aspects, budgeting, relation to community, state and national agencies.

70 Supervised Student Teaching in Physical Education (Junior High School) 2 FWS

In most cases carried on in Brookings High School. P, scholastic average of C, junior standing. Application must be made on approved form

71 Supervised Student Teaching in Physical Education (Senior High School) 2 FWS

Time arranged to fit schedule of Brookings High School. P, scholastic average of C, junior standing. Application must be made on required form.

72 Health and Safety Education 3(3,0) F

Curriculum content at elementary and secondary levels. Methods of presentation including direct, correlated, and integrated health instruction. Organization of health and safety education. P, Z 22, Ed 45.

83 Instructors' First Aid 1(0,2)

Preparation for teaching first aid. Opportunity will be given students to qualify for the American Red Cross instructors' certificates. P, 13 or standard and advanced certificates.

88 Adapted Activities 3(3,0) S

Principles and techniques involved in use of exercise for prevention and amelioration of functional defects. Adaptation of physical activities to individual.

149 Advanced Driver Education 2(2,0) Su

Traffic accident problems; survey of research studies in driver education and protection; source of teaching materials; measurement of driver attitudes. May be conducted as regular two hour course during summer session or as short course consisting of 40 hours of recitation, demonstration, or laboratory work. Undergraduate and graduate credit.

158 Evaluation in Health, Physical Education, and Recreation 3(3,0)FSu

Techniques for evaluating outcomes of physical education. Practice in test performance and administration. Some laboratory work may be required. P, senior standing.

160 Philosophy of Physical Education 3(3,0) WSu

Sociological, biological, and psychological foundations of physical education; historical background of physical education; recent trends. P, PE 61, 66, senior standing, permission of staff.

162 Analysis of Methods of Teaching Physical Education and Athletics 3(2,2) FSu

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

164 Physical Education for the Elementary School 3(3,0) Su

Analysis of activities, materials, techniques, and methods used in the conduct of physical education for the elementary grades. Progression in curriculum planning in the areas of rhythm, games, self-testing, and tumbling.

171 Advanced Problems in the Administration of Interschool Athletics 3(3,0) SSu

Budgets, public relations problems, subsidization, objectives of athletics, staff organization, control of athletics both interscholastic and intercollegiate, and general policies of athletics. P, PE 61, senior standing, permission of staff.

180-187 Workshop in Health, Physical Education, and Recreation 1½ to 4½ credits

Workshop sessions in specific areas taught by the department. Approximately 30 hours of work normally required for each credit, including lectures, conferences, committee work and outside assignments. Workshops may range from one to three weeks. P, consent of instructor.

180 Administration

181 Health Education

182 Safety Education

183 Dance Education

184 Curriculum Construction

185 Camping

186 Community Recreation

187 Coaching

GRADUATE DIVISION

255 Physiology of Exercise 3(3,0) WSu

Body processes as they relate to exercise; efficiency of muscular work; fatigue and exercise; age, sex, and body type as related to exercise; nervous control of muscular activity; effect of exercise on the circulatory system. P, Z 142, minor in Physical Education, permission of staff.

257 Body Dynamics 3(3,0) Su

Muscular, mechanical and physiological analysis of body movements, both those of everyday life and of physical education. P, 56 and graduate standing in Physical Education.

262 Problems in Health and Safety Education 3(3,0) SSu

Methods of health instruction; problems of health service; problems in supervision of health environment; recent trends and problems in safety education. P, PE 61, graduate standing, permission of staff.

265 Psychology of Physical Education and Athletics 3(3,0) SSu

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

266 Advanced Problems in Organization and Administration of Community Recreation 3(3,0) WSu

Problems related to equipment; establishing programs; budget and finance; selecting and supervising staff; public relations activities. P, minor in physical education, graduate standing, permission of staff.

276 Supervision of Health and Physical Education 3(3,0) FSu

Techniques, principles, organization and philosophy of supervision in this field. P, graduate standing in PE.

280 Basic Issues in Health, Physical Education and Recreation 3(3,0)

Directed reading of recent literature in the field; discussion of current problems; critical analysis of recent research. P, graduate standing and permission of staff.

282 Research Methods in Health, Physical Education and Recreation 3(3,0) FSu

Study of the methods and techniques of research in the field; critical analysis of master's and doctor's theses; practice of research techniques. P, graduate standing and permission of staff.

289 Seminar 2-6

Seminars dealing with special aspects of health, physical education and recreation. Seminars may be offered in the following areas:

Scientific Basis of Physical Education
Advanced Physiology of Exercise
Mechanical Analysis of Motor Skills
History of Physical Education
Muscle Testing and Therapeutic Exercise
Body Growth and Development through Physical Education
Physical Education of the Handicapped
Techniques of Relaxation
Safety Education
Social Hygiene

290 Individual Research and Study in Health Education, Physical Education and Recreation 2 to 4

Study of special problems by individuals. Results of study presented in special reports and term papers. P, major in this field.

299 Thesis in Physical Education 7-10 as arranged

Curriculum in Science and Applied Arts, Physical Education Major (Men)

Leading to the degree of Bachelor of Science in Science and Applied Arts

LOWER DIVISION

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science; GS 1-2-3; or World History, Hist 4-5-6	3	3	3
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Oral Communication, Sp 10	2		
College Algebra, Math 10		5	
Introduction to Physical Education, PE 14	2		
Nature, Function and Organization of Play, PE 18			2
General Physical Education, PE 1-2-3	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Orientation, 1	1		
Elective in Minor Teaching Field			3

Sophomore Year	F	W	S
Inorganic Chemistry, Ch 1-2-3	4	4	4
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
General Psychology, Psy 25	3		
National Government, PS 34		4	
Oral Communication, Sp 20	2		
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15			5
Minor Team Sports, PE 25	1		
Fundamental Conditioning Exercises, PE 26		1	
Individual and Dual Sports, PE 27			1
First Aid, PE 13		2	
Curriculum in Physical Education, PE 24			2
Military, Mil 20-21-22 or 25-26-27	1	1	1
Prevention and Care of Injuries, PE 19			2
Elective in Minor Teaching Field			3
Elective		1	2

UPPER DIVISION

Junior Year	F	W	S
Organization and Administration of Physical Education, PE 61	3		
Theory and Practice of Officiating, PE 50-51-52	1	1	1
Combatives, PE 40	1		
Self-Testing Activities, PE 41		1	
Rhythmics, PE 38 or PE 42			1
Tests and Measurements in Physical Education, PE 58			2
Mamalian Anatomy, Z 142	5		
Intramural Sports, PE 43		2	
Kinesiology, PE 56		3	
Adapted Activities, PE 88			3
History and Principles of Education, Ed 40	4		
Educational Psychology, Ed 45		3	
Principles of Guidance, Ed 85			3
Elective in Minor Teaching Field	3	6	6
Elective		1	2

Senior Year	F	W	S

The following courses make up the "Block Program" for the Department of Education require-

ments, and may be taken during the Fall, or Winter, or Spring terms. It should be noted that no other course with the possible exception of Advanced ROTC may be taken concurrently with the "Block Program."

Student Teaching in High School, Ed 74	8
Methods of Teaching in High School, Ed 75	4
Educational Measurements, Ed 164	3
	15

The following courses may be taken in the Fall, Winter, or Spring; however, not in conjunction with the "Block Program." It may be advisable to take these the junior year in the corresponding quarter in which the student teaching is planned.

Supervised Student Teaching in Physical Education, PE 70 or 71	2
Senior Education Electives	6

	F	W	S
Health and Safety Education, PE 72	3		
Track and Field Coaching, PE 64	3		
Community Recreation, PE 66		3	
Basketball Coaching, PE 63	3		
High School Organization and Administration, Ed 87			2
Methods of Teaching Physical Education, PE 60			3
Football Coaching, PE 62			3

Physical Therapy Option (Men and Women)

UPPER DIVISION

Junior Year	F	W	S
Mammalian Anatomy, Z 142	5		
Elementary Physics, Phy 10-11-12	4	4	4
Psychology Elective	3		3
General Bacteriology, Bac 30		5	
Community Recreation, PE 66		3	
Kinesiology, PE 56		3	
Tests and Measurements in Physical Education, PE 58			3

Electives to bring total for three years to 153 credits.

Senior Year

The fourth year will be spent in an accredited school of physical therapy. Upon the completion of the requirements for a certificate recognized by the American Physical Therapy Association, the student will receive 51 quarter hours of credit toward the degree. Students should select a School of Physical Therapy early in their junior year. From 12 to 15 months is **required** to earn the certificate in most schools of physical therapy.

*Students who do not wish to qualify for teaching may substitute upper division sociology courses for the stipulated Education courses. Students expecting to teach in high school should consult with the head of the Education Department before registering in the first term of their Junior year.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type*.

MAJOR: Physical Education Option: PE 1-2-3, 13, 14, 18, 19, 25-26-27, 40-41-42, 43, 50-51-52, 56, 57, 58, 60, 61, 62-63-64, 66, 70, or 71, 72, 88*

Physical Therapy Option: PE 1-2-3 13, 14, 18, 25-26-27, 56, 57, 58, 66, plus certificate in physical therapy.

MINOR: Physical Education Option: PE 1-2-3, 14, 18, 19, 25-26-27, 43, 61, plus electives to total 24 quarter hours.

Curriculum in Science and Applied Arts, Physical Education Major (Women)

Leading to the degree of Bachelor of Science in Science and Applied Arts

LOWER DIVISION

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Oral Communications, Sp 10	2		
Zoology, Z 20-21	4	4	
Social Science, GS 1-2-3; or World History, Hist 4-5-6	3	3	3
Introduction to Physical Education, PE 14	2		
First Aid, PE 13	2		
Physical Education, PE 10-11-12	1	1	1
Orientation, 1	1		
Community Health, GN 3		2	
Algebra, Math 10 or 14		5	
Human Physiology, Z 22			4
Hygiene, GN 2			3
Nature, Function, and Organization of Play, PE 18			2
Rhythmic Fundamentals, PE 38			1

Sophomore Year	F	W	S
Chemistry, Ch 1-2-3	4	4	4
Introduction to Literature, Engl 20 and Elective (Engl 21-27)	3	3	
General Psychology, Psy 25	3		
Oral Communications, Sp 20	2		
Modern Dance I, PE 42	1		
Teaching of Field Sports, PE 44	1		
Singing Games and Elementary Folk Dance PE 35	1		
Physical Education, PE 30-31-32	1	1	1
Gymnastics and Tumbling, PE 33	1		
Principles of Economics, Ec 20-21		3	3
National Government, PS 34		4	
Modern Dance II, PE 48		1	
Games of Low Organization, PE 34		1	
Introduction to Sociology, RS 15			5
Curriculum in Physical Education, PE 24			2
Teaching of Softball, PE 46			1
American Folk and Social Dance, PE 73			1

UPPER DIVISION

Junior Year	F	W	S
Mammalian Anatomy, Z 142	5		
History and Principles of Secondary Education, Ed 40	4		
Organization and Administration of Physical Education, PE 61	3		
Self-Testing, PE 75	1		
Social Games and Activities, PE 36	1		
Kinesiology, PE 56		3	
Teaching Physical Education, PE 60		3	
Educational Psychology, Ed 45		3	
Teaching of Volleyball, PE 45		1	
Teaching of Basketball, PE 54		1	
Guidance, Ed 85			3
Tests and Measurements in Physical Education, PE 58			2
Adapted Activities in Physical Education, PE 88			3
Theory of Dance, PE 65			2

Teaching of Archery, PE 55	1
Intermediate Tennis, PE 39	1
Golf, PE 37	1
Interpretation, Sp 47	3

Senior Year	**F**	**W**	**S**
Health and Safety Education, PE 72	3		
Supervised Teaching of Physical Education, PE 70 or 71	2 or 2 or 2		
Education Elective	3 or 3 or 3		
Community Recreation, PE 66		3	
High School Organization and Administration, Ed 87			2
Methods of Teaching in High School, Ed 75 (Block)	4 or 4 or 4		
Educational Measurements, Ed 164 (Block)	3 or 3 or 3		
Student Teaching, Ed 74 (Block)	8 or 8 or 8		

*Students who do not wish to qualify for teaching may substitute upper division sociology courses for the stipulated Education courses. Students expecting to teach in high school should consult with the head of the Education Department before registering in the first term of their Junior year.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type.*

MAJOR: Physical Education Option: PE 10-11-12, 13, 14, 18, 24, 30-31-32; 33, 34, 35, 36, 38, 39, 42, 44, 45, 46, 48, 54, 55, 56, 58, 60, 61, 65, 66, 70 or 71, 72, 73, 75, 88.
Physical Therapy Option: PE 10-11-12, 13, 14, 18, 30-31-32; 33, 34, 35, 38, 56, 57, 58, 66, plus certificate in physical therapy.

MINOR: Physical Education Option: PE 10-11-12, 18, 30-31-32, 33, 34, 35, 44, 45, 46, 54, 60, 61, plus electives to total 24 quarter hours.

Department of Plant Pathology (Path)

Curriculum in Science and Applied Arts, Plant Pathology Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See Plant Pathology Major in Curriculum in Technical Agriculture under Division of Agriculture

Freshman Year	**F**	**W**	**S**
English 1-2-3 or 4-5-6	3	3	3
Inorganic Chemistry, Ch 1-2-3	4	4	4
General Botany, Bot 11-12-13	4	4	4
College Algebra, Math 10 or 14	5		
Trigonometry, Math 11 or 15		5	
Analytical Geometry, Math 12 or 16			5
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education PE 1-2-3 or 10-11-12	1	1	1
Orientation, Or 1	1		

Sophomore Year	**F**	**W**	**S**
Elementary Physics, Phy 10-11-12	4	4	4
General Zoology, Z 20-21	4	4	
Elementary Organic Chemistry, Ch 21			5
General Bacteriology, Bac 30	5		
Oral Communication, Sp 10		2	
Introduction to Literature, Engl 20			3
General Psychology, Psy 25		3	
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15			5
Military, Mil 20-21-22 or 25-26-27	1	1	1
Electives*			

Junior Year	**F**	**W**	**S**
Principles of Plant Pathology, Path 45	5		
Genetics, Z 42		3	
Plant Anatomy, Bot 47			5
Basic Taxonomy, Bot 27	4		
Soils, Agron 25-26	3	3	
Writing for Technical Students, Engl 43		3	
Oral Communication, Sp 20		2	
National Government, PS 34			4
Electives*			

Senior Year	**F**	**W**	**S**
Principles of Mycology, Path 170	4		
Diseases of Field Crops, Path 152		4	
Diseases of Vegetables, Fruits and trees, Path 153			4
General Plant Physiology, Bot 41	5		
Soil Microbiology, Bac 163			5
Plant Pathology Seminar, Path 195		1	
Electives*			

*All students must complete 45 quarter credits in Humanities and Social Study courses and 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree. Students intending to pursue Plant Pathology as a career should elect a foreign language and physical and natural science courses in the Division of Agriculture and/or Science and Applied Arts in consultation with the head of the Plant Pathology Department. Students wishing to prepare for high school teaching should consult with the head of the Education Department for the election of appropriate courses before registering for the first quarter of their junior year.

SUGGESTED ELECTIVES:
Agron 58, 142, 152, 172, 182; Bot 23, 43; Ch 23, 24, 28, 29, 150-151-152, 163-164-165; Engl 52; Ent 20; French 1-2-3; GS 42, 141; German 1-2-3; Math 25, 26, 27; Plant Pathology 178, 182, 197-198-199; PS 52; Psy 50; Spanish 1-2-3; Sp. 49.

Department of Physics (Phy)

Curriculum in Science and Applied Arts, Physics Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See Engineering Physics Curriculum in Division of Engineering and course descriptions

LOWER DIVISION

Freshman Year	**F**	**W**	**S**
English, Engl 1-2-3 or 4-5-6	3	3	3
College Algebra, Math 14	5		
Trigonometry, Math 15		5	
Analytic Geometry and Calculus, Math 16			5
Inorganic Chemistry, Ch 1-2-3	4	4	4

	F	W	S
Introduction to Social Science, GS 1-2-3	3	3	3
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or PE 10-11-12	1	1	1
Orientation, 1	1		
Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
General Psychology, Psy 25			3
Analytic Geometry and Calculus, Math 25	5		
Calculus, Math 26-27		5	4
General Physics, Phy 20-21-22	5	5	5
Elementary Botany, Bot 11-12-13	4	4	4
Military, Mil 20-21-22 or 25-26-27	1	1	1

UPPER DIVISION

Junior Year	**F**	**W**	**S**
Optics, Phy 144		4	
Optics Laboratory, Phy 145		1	
Principles of Economics, Econ 21-22		3	3
Oral Communication, Sp 22			3
Differential Equations, Math 148	4		
Atomic Physics, Phy 180	3		
Theoretical Mechanics, Phy 172	4		
Mechanical Lab, Phy 173	1		
National Government, PS 34		4	
Introduction to Sociology, RS 15			5
Elective			
Senior Year	**F**	**W**	**S**
Atomic and Molecular Spectra, Phy 182	3		
Atomic Physics Lab, Phy 183	1		
General Zoology, Z 20-21	4	4	
Human Physiology, Z 22			4
Nuclear Physics, Phy 184		3	
Nuclear Measurements Lab, Phy 185			1
Thermodynamics and Statistical Mechanics, Phy 146			4
Heat Laboratory, Phy 147			1
Theory of Electricity, Phy 174		3	
Electrical Measurements, Phy 170			2
Elective			

*Students planning to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. All students must complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: Phy 20-21-22, 144, 145, 146, 147, 170, 172, 173, 174, 180, 182, 183, 184, 185.

MINOR: Phy 10-11-12 or 20-21-22, 146, 172, 174, 180.

SUGGESTED ELECTIVES

German 1-2-3, 4-5-6; Chemistry 21; French 1-2-3, 4-5-6; Electrical Engineering, 50-51; Mathematics, 151-152, 154-155-156; Courses in Education to complete teacher training requirements.

Department of Printing and Journalism (P-J)

Professor Phillips; Associate Professors Abel, Blinn (on leave), Evenson; Assistant Professors Dickinson, Hvistendahl (on leave), Jess; Instructors Buckbee, Condit, Horst, Leary, Miller, Smith, Stensaas, Mr. Rollo

This department offers courses in Journalism, Printing, and Secretarial Science. Four-year courses of study leading to the B.S. degree are offered in:

(a) Journalism
(b) Home Economics Journalism
(c) Agricultural Journalism
(d) Printing Management
(e) Printing and Journalism
(f) Printing-Education

Students majoring in other subjects may take certain courses in journalism, printing or secretarial science. Those interested in minors in printing or journalism should consult the head of the department.

Journalism (J)

The four-year course of study in Journalism consists of a broad background in social sciences, natural sciences, a major in journalism, and about 60 credits of free electives.

The major consists of 43 credits in required journalism courses. Not more than 51 credits in journalism may be counted toward the B.S. degree. A student must have no grade lower than C in freshman English in order to continue to major in Journalism. A student may not be graduated with a major in Journalism with less than a C average (see "Divisional Requirements" in Science and Applied Arts).

The course of study in Journalism is aimed at training students for work on weekly and daily newspapers, press services, and public information services.

Printing and Journalism

The course of study in Printing and Journalism consists of the four-year Printing Management course with a major in journalism (see Printing Management for further information).

Agricultural Journalism

The course of study in Agricultural Journalism consists of a journalism major for students in the Division of Agriculture. It aims to train students for work as agricultural editors (extension editors and experiment station editors) in colleges, farm editors of newspapers and magazines, and for positions with banks, insurance companies, advertising agencies, co-ops and other busi-

nesses which have agricultural departments. (See the catalog of the Division of Agriculture for the curriculum and further information).

Home Economics Journalism

Home Economics Journalism consists of a major in journalism for students in the Division of Home Economics. The course of study trains students for positions with newspapers and magazines, with college editorial offices, and for various kinds of public information work. (See the catalog of the Home Economics Division for the curriculum).

Master of Science Degree in Journalism

A graduate major in journalism leading to the master of science degree is available. The department also cooperates with the English, Speech and Education departments in offering a major in communications on the degree master of science in education. (See the Graduate Bulletin for further information.)

Journalism (J)

LOWER DIVISION

1 Introduction to Journalism 2(2,0) W
Survey of journalism, including study of occupations and jobs in field. Open to freshmen only. P, consent.

10 Printing and Journalism Assembly No credit FWS
Selected speakers and programs dealing with communications, publishing, graphic arts. Required of all printing and journalism students, but open to others as well. Meets alternate weeks through year.

20 Typography 3(2,3) FW
Fundamental operations and materials used in printing; kinds of type, printing plates, printing processes, printers' measurements; proofreading.

24-25 Newswriting and Reporting 2(2,0) FW, WS, Su
Basic course in journalism. Actual practice in gathering, evaluating, and writing news. P, Engl 1-2-3 with no grade lower than C and ability to type. Must be taken concurrently with J 37, 38.

28 Elementary Photography 2(1,2) FW
Designed for journalism students as prerequisite to Press Photography. Camera manipulation and darkroom technique are stressed. P, consent of instructor.

29 Press Photography 2(1,2) WS
Gives journalism students practical experience and knowledge in field of newspaper photography. Also includes discussion of newspaper darkroom and press photography equipment. P, J 28 or consent of instructor.

30 Basic Photography 2(1,2) FS
Fundamentals of photography. Includes use of camera, and darkroom equipment. Open only to non-journalism students.

37-38 Newswriting and Reporting Laboratory 1(0,3) FW, WS, Su
Students write news for publications under guidance of instructor. Required of all journalism majors.

UPPER DIVISION

40-41 Newspaper Editing and Makeup 2(2,0) WS
Practice in copyreading and headline writing. Includes news evaluation, editing problems, and makeup for weekly and daily papers. P, 24-25. Must be taken concurrently with J 61, 62.

43-44 Feature Writing 2(2,0) WSSu
Writing of features and special articles. P, consent of department.

45 Magazine Editing 3(3,0) S
Preparation and editing of magazines and technical publications.

50 Advertising 3(3,0) W
History, principles, psychology, and practice of newspaper advertising. Includes writing advertisements, making layouts, and use of mat services.

Engl 52 Language in Public Affairs 3(3,0) WS
(See English department.)

54 History of Journalism 3(3,0) F (Offered 1961-62)
Development of journalism in the United States. Alternate years.

56 Radio Journalism 2(2,0) (Offered 1960-61) F
Writing, editing, and building of radio news programs. Students prepare newscasts for college station KAGY. P, J 24-25. Alternate years.

61-62 Editing Laboratory 1(0,3) WS
Practice in editing. Required of all journalism majors. Two terms must be taken concurrently with J 40-41.

66 Publicity Methods 3(3,0) FWSSu
Newswriting, organizing publicity campaigns, press relations. For students expecting to become county agents, home economics leaders, or teachers. P, Engl 1-2-3. Not for journalism majors or minors.

70-75 Senior Professional Group 17 credits, FWS
Courses numbered 70 through 75 constitute the Senior Professional Group of courses, and are required of seniors majoring in Journalism or in Printing and Journalism. They must all be taken as a group. Students may not enroll in any other courses while enrolled in the Senior Professional Group of courses. Only in exceptional circumstances, with consent of department, may a student majoring in Journalism enroll in one of these courses without taking the entire group. See the curriculum.

70 Problems and Methods 3 (Part of Senior Professional Group) FWSSu
Individual study of problems selected by student and instructor as determined by student's interests and aptitudes. P, consent of department.

71 Newspaper Publishing Practice 4 (Part of Senior Professional Group) FWSSu
Writing and editing news on "The Volga Tribune" or on other commercial newspapers under supervision of instructors and publishers. One credit for participation in one field trip of one week's duration. P, J 40-41, and consent of department.

72 News Illustration 2 (Part of Senior Professional Group) FWS
Use of illustrations in newspapers, including cropping and fitting, layout, captions, preparation of copy for engravers, and selection of proper illustrative material. P, consent of department.

73 Newspaper Management 3 (Part of Senior Professional Group FWS
Covers main points in financing, organization, location, equipment, revenue, circulation, advertising, and audits. P, senior standing.

74 Advanced Reporting 3 (Part of Senior Professional Group) FWS
Reporting of public affairs, political, scientific, technical events. P, J 24-25.

75 Advertising Salesmanship 2 (Part Senior Professional Group) FWSSu
Methods of selling advertising for weekly or daily newspapers or commercial job printing plants. Practice in practical salesmanship and use of layouts. Includes practical work on commercial or college publications. P, J 50.

141 Journalism Seminar 1(1,0) FW
Study and discussion of problems and current trends in fields of printing, journalism, and publishing. P, senior standing.

Sp 144 Persuasion 3(3,0) S
(See Speech Department)

148 Law of the Press 3(3,0) W
Study of libel, privilege, right to privacy, constitutional guarantees, copyright, and regulations pertaining to advertising and publishing.

165 Institutional Public Relations 3(3,0) (See Education Department) SSu
Interpreting institutional programs to public. P, 15 hours of English and/or Journalism.

170 Workshop in School Publications 1-5 Su
Specifically arranged short courses. P, experience in handling school publications, or 20 credits in language arts. Requires 30 hours of work per credit in workshop sessions, lectures, or in outside assignments or combination of these three activities.

175 The Magazine in America 3(3,0) FSu
History and development of magazine in America. P, 20 credits in language arts.

190 Reporting in Special Fields (Science, Agriculture, Public Affairs, Education, Home Economics, Nursing) 3(3,0) FWSSu
Reporting in selected field, and study of major periodicals therein; special assignments in reporting in selected fields. P, 15 credits in communication and consent of department.

GRADUATE DIVISION

200 Interpretative Writing 3(3,0) W
Interpreting technical, scientific, agricultural, and social data to general public. Includes use of illustrative materials, problems, concerning readability and reader interest. P, 15 hours of English and/or Journalism.

210 Research Methods in Communication 3(3,0)FSu
Objective analysis of communication problems; use of statistical methods; survey of major research and methods employed. P, basic statistics.

220 Problems in Photo-Journalism 3(3,0)
Study of photo-journalism in various types of publications; special applications to chosen problems. P, 210 or equivalent.

230 Problems in Newspaper Management 3(3,0)
Survey of major studies in newspaper management; special problem to be worked out on actual newspaper. P, 210 or equivalent.

235 Theories of Communication and Information 3(3,0) SSu
Nature of communication process; factors affecting reader opinions, reader comprehension, reader acceptance, listenership; how ideas are transmitted and received.

236 Problems in Journalism Education 2-3 cr. SSu
Survey of current problems in journalism education on either the college or secondary school level, depending on interest of student; special problems for individual study.

240 Special Editorial Problems 3(3,0)
Current problems facing editors of selected publications. P, 210 or equivalent.

GS 245 General Semantics (See General Studies)

250 Special Problems in Advertising 3(3,0)
P, 210 or equivalent.

299 Thesis in Journalism 7-10 as arranged

Curriculum in Science and Applied Arts, Journalism Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

LOWER DIVISION

Freshman Year	F	W	S
Printing-Journalism Assembly, J 10	R	R	R
English, Engl 1-2-3 or 4-5-6	3	3	3
History Sequence	3-4	3-4	3-4
Biological Science	4	4	
Oral Communications, Sp 10			2
Algebra, Math 10			5

Introduction to Journalism, J 1		2	
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Military, Mil 1-2-3 or 5-6-7	1	1	1
Orientation, Or 1	1		
Elective			

Sophomore Year	**F**	**W**	**S**
Printing-Journalism Assembly, J 10	R	R	R
Newswriting and Reporting, J 24-25	2	2	
Newswriting and Reporting Lab, J 37-38	1	1	
Typography, J 20 or Photography, J 28	2-3	2-3	
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
Inorganic Chemistry, Ch 1-2-3 or Elementary Physics, Phy 10-11-12	4	4	4
Principles of Economics, Econ 21-22		3	3
Oral Communications, Sp 20			2
General Psychology, Psy 25			3
Introduction to Sociology, RS 15			5
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

UPPER DIVISION

Junior Year	**F**	**W**	**S**
Printing-Journalism Assembly, J 10	R	R	R
Biological Science			5
National Government, PS 34	4		
History of Journalism, J 54	3		
Law of the Press, J 148		3	
Newspaper Editing and Makeup, J 40-41		2	2
Editing Laboratory, J 61-62		1	1
Advertising, J 50		3	
*Electives**			

Senior Year	**F**	**W**	**S**
Seniors will be divided into three sections. Section 1 will take the Professional Sequence in the Fall, Section 2 in the Winter, and Section 3 in the Spring term.			
Printing-Journalism Assembly, J 10	R	R	R
Problems and Methods, J 70	3		
Newspaper Publishing Practices, J 71	4		
News Illustration, J 72	2		
Newspaper Management, J 73	3		
Advanced Reporting, J 74	3		
Advertising Salesmanship, J 75	2		
Journalism Seminar, J 141		1	
Statistical Methods, Econ 81			5
*Electives**			

*Students planning to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. All students must complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree. Not more than 51 credits in Journalism may be counted toward the degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type*.

MAJOR: J 1, 20, 24-25, 28, 37-38, 40-41, 50, 54, 61-62, 70-75, 141, 148.

Printing Management (PM)

Excellent opportunities as executives in the printing industry await students who successfully complete the four-year course in Printing Management. Those interested in teaching printing may select the Printing-Education sequence. Those interested in operating their own newspapers may combine the course with journalism by selecting the Printing and Journalism combination, or double major.

Students whose main interest or abilities lie in the direction of printing craftsmanship rather than management may arrange special non-degree programs by consulting the Supervisor of the Printing Curricula.

Non-credit shop courses are available to a limited number of students.

A student whose grade average falls below C will not be permitted to continue his work toward the B.S. degree in Printing Management except by repeating courses in which he earned low grades.

A student in Printing Management must repeat courses in English Composition in which his grade is lower than C.

No student may be graduated in Printing Management with a grade average below C. (See "Divisional Requirements" under Science and Applied Arts.)

Limited Enrollment

Because the amount of equipment and space in the printing laboratory is necessarily limited, the department must place a limit on the number of beginning students who may enroll. At present, the limit is 24 freshmen, and those desiring admission must make advance application to the college Office of Admission and Records.

Standards of Proficiency

In technical printing courses, the department must insist upon certain standards of proficiency. Students who are not capable of meeting these standards or of completing their work in the regular laboratory or class periods will be required to attend additional sessions.

Master of Science Degree in Printing Management

For those who wish advanced work in Printing Management, including research, the department offers a master of science degree in Printing Management. (For further details see the Graduate Catalog.)

Non-Credit Print Shop Course in Summer

Printers who wish to broaden their knowledge of the craft, or who wish to attain skill in a phase of printing in which they have had but little experience may enroll in non-credit printing work in the summer. Work is offered in composing machines, typography, presses, imposition and lock-up, lithography, and bindery. Anyone thus enrolling may work in the printing laboratory under the guidance of instructors for any number of hours a week, up to 44. They may work in one department, or in more than one according to their needs.

LOWER DIVISION

1 Practice in Imposition and Lockup 0(0,4-44) FWSSu
Non-credit shop practice work. P, consent and advance application.
Admission depends on availability of space and equipment.

2 Practice in Composing Machines 0(0,4-44) FWSSu
Non-credit shop practice work. P, consent and advance application.
Admission depends on availability of space and equipment.

3 Practice in Presswork 0(0,4-44) FWSSu
Non-credit shop practice work. P, consent and advance application.
Admission depends on availability of space and equipment.

4 Graphic Arts Survey 1(1,0) S
History and scope of the graphic arts.

8 Platen Presswork 3(1,6) W
Introduction to platen presswork; feeding, makeready, and care of machines. Study of paper, inks, rollers.

9 Platen Presswork 2(0,6) S
Practical experience to gain skill and speed on platen presses; makeready systems. P, 8.

11 Elementary Typography 3(1,6) F
Fundamentals of hand composition; learning the case, setting and distribution of type, spacing, justification; study of type faces; the point system; proofreaders' marks. Safety rules and shop ethics.

12 Display Typography 3(1,5) S
Principles of display, copyfitting, suitability of type faces, legibility, use and making of layouts. 2 hour layout lab, 3 hour typography lab, lecture. P, 11.

14 Composing Machines 3(1,6) W
Introduction to operation of linecasting machines. Touch system and keyboard operation. Operational adjustments and care of machines. Word division, office style. P, 11.

15 Composing Machines 2(0,6) S
Keyboard operation of linecasting machines on straight matter copy. Routine maintenance. P, 14.

21 Newspaper Composition 3(1,6) W
Copy markup, mat casting, Ludlow composition and makeup of ads. Newspaper makeup and lockup. P, 12.

22 Advanced Typography 2(1,3) S
Job composition, theory and practice. P, 12

24 Advanced Composing Machines 2(0,6) F
Keyboard operation of linecasting machines on straight matter copy with emphasis on speed. P, 15.

25 Advanced Composing Machines 2(1,3) W
Keyboard operation of linecasting machines on advertising matter, headlines, job composition and tabular work. P, 12, 24.

28 Advanced Presswork 2(1,3) F
Introduction to cylinder press operation. P, 9.

29 Advanced Presswork 2(1,3) S
Automatic presses. P, 28.

31 Production Problems 1(1,0) S
The time element in printing production. P, 9, 15, 21.

UPPER DIVISION

45 Imposition and Lockup 4(1,9) S
Imposition and lockup for letterpress. Layout and imposition for offset. P, 21, 29.

47 Bindery Problems and Equipment 2(1,3) S
Use and care of bindery equipment. Work routing and time-motion studies in bindery operation. P, junior standing in Printing Management.

51 Composing Machine Mechanism 4(1,9) F
The mechanism of linecasting machines. P, 24.

52 Presswork Production 4(1,9) W
An intensive course on press maintenance and operation, with student completely handling actual jobs. P, 29.

60-61-62 Advanced Printing Operations 1(0,2) FWS
P, consent.

64 Printing Plant Management, Office Procedures 3 (3,0) S
Office problems, methods, records; legal requirements, tax problems. P, junior standing in Printing Management.

65 Printing Plant Management, Labor 3 (3,0) F
Labor costs and production rates; unions. Cost accounting systems and records. Inventories, depreciation. P, 64.

66 Printing Plant Management, Purchasing 3(3,0) W
A study of the purchasing of supplies and equipment. P, 65.

67 Lithography 3(2,2) WS
Principles of lithography and operation of offset equipment. P, J 28, PM 29.

70 Newspaper Shop Practice 4-8 credits FWSSu
Actual work under guidance of instructors in printing a weekly community newspaper. P, 24, 25.

74 Printing Plant Management, Costs and Estimating 3(3,0) S
Methods of pricing printing. P, 66.

90 Printing Equipment 3(3,0) F
A study of modern printing equipment; uses, cost; shop layout for maximum returns from equipment. Field trips. P, junior standing in Printing Management.

140 Design and Equipment of School Printing Laboratories 3(3,0) FSu
Design and arrangement of school printing laboratories; kinds and costs of equipment for various operations; instructional devices; supplies for printing instruction. P, 90.

145 Advanced Typographic Design 3 (3,0) W
Design of classical and modern printed materials, philosophy of typographers. P, J 20.

150 Education in Graphic Arts Industry 3(3,0) SSu
Philosophy and methods of education in Graphic Arts industries.

155 Labor in Typographic Industries 3(3,0) F
Current labor contracts, labor practices, and history and character of labor organizations in typographic industries. P, 90.

160 Plant Design and Layout 3 (3,0) W
Arrangement of equipment, power units, stations, and supplies for efficient work flow; design of printing plants, specialty plants; companion equipment. P, 90.

170 Advanced Lithography 4(2,4) S
Analysis of physical and chemical processes involved in planographic printing; history and theory of graphic reproduction by photo-sensitive materials; research in lithography. P, 65.

GRADUATE DIVISION

J 210 Research Methods in Communication 3(3,0) F
(See Journalism)

210 Plant Appraisal and Finance 3(3,0) (Offered 1960-61) W
Assessing value of printing plants; business potential; production variables; methods of financing common in industry.

220-221 Problems in Printing Plant Management 2 cr WS
Individual problems and class problems dealing with operation of printing production plants; division of labor, tooling, production controls, logistics.

230 Production Controls 3(3,0) (Offered On demand)
Time and motion studies in actual production as well as laboratory conditions; analysis of cost factors; survey of current practices in production controls.

240 Problems and Trends in Graphic Reproduction 3(3,0) (On sufficient demand)
Current problems in industry, including those being studied in laboratory and research centers; innovations and recent introductions in industry. Includes papers, inks, photo-sensitive duplicating materials, electronic equipment, engravers and plate makers. Assigned problems and reports.

250 Web Perfecting Press 1-3 * On demand
History, development, and principles of web fed and perfecting presses; at least one field trip to plant using such equipment; current problems and research dealing with the subject.

Curriculum in Science and Applied Arts, Printing Management Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	**F**	**W**	**S**
English 1-2-3 or 4-5-6	3	3	3
Orientation, Or 1	1		
Military 1-2-3 or 4-5-6	1	1	1
Physical Education 1-2-3	1	1	1
Chemistry or Physics	4	4	4
Algebra, Math 10	5		
Elementary Typography, PM 11	3		
Oral Communications, Sp 10		2	
Platen Presswork, PM 8-9		3	2
Composing Machines, PM 14-15		3	2
Display Typography, PM 12			3
Graphic Arts Survey, PM 4			1

Sophomore Year	**F**	**W**	**S**
Military 20-21-22 or 25-26-27	1	1	1
Biological Science	4	4	5
Introduction to Literature, Engl 20	3		
Elementary Photography, J 28	2		
Advanced Composing Machines, PM 24-25	2	2	
Oral Communications, Sp 20	2		
Advanced Presswork, PM 28-29	2		2
Introduction to Sociology RS 15		5	
Newswriting and Reporting, J 24, 37		3	
General Psychology, Psy 25			3
Newspaper Composition, PM 21		3	
Advanced Typography, PM 22			2
Production Problems, PM 31			1
Elective			

Junior Year	**F**	**W**	**S**
Basic Accounting Essentials, Econ 44	4		
Principles of Economics, Econ 21-22	3	3	
Composing Machine Mechanism, PM 51	4		
History Elective	4		4
National Government, PS 34		4	
Pressroom Production, PM 52		4	
Principles of Printing Plant Management, PM 64			3
Imposition and Lockup, PM 45			4
Bindery Problems and Equipment, PM 47			2
*Electives**			

Senior Year	F	W	S
Printing Equipment, PM 90	3		
Principles of Printing Plant Management, Purchasing, PM 65-66	3	3	
Advanced Typographic Composition, PM 145		3	
Statistical Methods I, Econ 81 or Ed 168	3-5		
Principles of Printing Plant Management, Costs and Estimating, PM 74			3
†Newspaper Shop Practices, PM 70	4 or	4 or	4
*Elective**			

Printing-Journalism

Curriculum in Science and Applied Arts, Printing-Journalism Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	F	W	S
(Same as Printing Management)			
Sophome Year			
Same as Printing Management, but elect:			
Newswriting and Reporting, J 25, 38			3
Press Photography, J 29			2
Junior Year			
Same as Printing Management, but elect:			
Newspaper Editing, J 40, 61		3	
Advertising, J 50			3
Senior Year			
*Same as Printing Management, but elect either Fall or Spring:			
Law of the Press, J 148			3
Newspaper Publishing Practices, J 71	4		
News Illustration, J 72		2	
Advanced Reporting, J 74		3	
Advertising Salesmanship, J 75		2	

Printing-Education

Curriculum in Science and Applied Arts, Printing-Education Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

Freshman Year	F	W	S
(Same as Printing Management)			
Sophomore Year			
(Same as Printing Management)			
Junior Year			
Same as Printing Management, but omit Basic Accounting and elect:			
History and Principles Secondary Education, Ed 40	4		
Educational Psychology, Ed 45		3	
***Senior Year**			
Same as Printing Management, but elect:			
Student Teaching in High School, Ed 74			8
Method of Teaching in High School, Ed 75	4		
Educational Measurements, Ed 164			3
Guidance in High School, Ed 85			3
High School Administration, Ed 87			2

*All students must complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

†Students may not enroll in PM 70 during the same quarter they take J 71-75 series in Printing-Journalism, or the student Teaching series in Printing Education.

Secretarial Science (SecS)

This department offers a minor on the Bachelor of Science Degree.

Students interested in preparing to teach commercial subjects in high school should consult the Education Department head relative to the requirements for certification.

The following curriculum is suggested for students who have had one year of typewriting in high school and who wish to terminate their study at the end of two years. Students who wish to substitute other courses to meet their individual requirements should consult their counselors.

Students planning to attend college less than two years may select courses most useful to them.

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Typewriting, SecS 12-13		2	2
Filing, SecS 14	2		
Duplicating Machines, SecS 15		2	
Calculating Machines, SecS 16	2		
Shorthand, SecS 18-19-20	3	3	3
Physical Education, PE 10-11-12	1	1	1
Orientation, Or 1	1		
Science, Math or Language	3 or 4	3 or 4	3 or 4
Transcribing Machines, SecS 17			2
Electives			
Sophomore Year	F	W	S
Typewriting, Office Practices, SecS 23	3		
Shorthand, SecS 21-22	3	3	
Secretarial Practice, SecS 26			4
General Psychology, Psy 25	3		
Business Law, Econ 41		3	
Accounting, Econ 34	4		
Commercial Correspondence, Sec S 33			3
Minor subjects and *electives*			

11 Beginning Typewriting 2(0,5) FW
Use of typewriter by touch system. Typewriting of term papers, personal letters, notes. Five one-hour class sessions per week. Open only to those who have not had previous typewriting instruction.

12 Intermediate Typewriting 2(0,5) W
Review of typewriting techniques, business letter writing, manuscript writing, tabulation and business documents. Not open to those who have had more than one year of high school instruction in typewriting.

13 Advanced Typewriting 2(0,5) S
Review of typewriting techniques, job production of correspondence, rough draft, billing memos, conference reports, legal documents. P, 11-12 or one year of high school typewriting instruction.

14 Filing 2(1,3) F
Practice in various types of filing, establishment and maintenance of suitable filing systems.

15 Duplicating Machines 2(1,3) W
Mimeograph, ditto and other duplicators. Special units for teachers and office workers.

16 Calculating Machines 2(0,5) F
Comptometer, rotary, ten-key and full-keyboard machines. Acquaintanceship with various types of machines for office and statistical use.

17 Transcribing Machines 2(1,3) S
Ediphone, dictaphone and other types of dictating-transcribing equipment. To supplement or substitute for shorthand.

18 Beginning Shorthand 3(3,0) F
Gregg system taught. Open for credit to those with no previous shorthand instruction.

19-20 Intermediate Shorthand 3(3,0) WS
Review of shorthand theory. Dictation and transcription of easy materials. P, 18 or one year of high school instruction in shorthand.

21-22 Advanced Shorthand 3(3,0) FW
Review of shorthand principles with special emphasis on production of mailable transcripts and development of speed in taking shorthand. P, 20 or two years of high school shorthand instruction or consent of instructor.

23 Typewriting Office Practice 3(2,3) F
Instruction and practice in modern office procedure, production typewriting. P, 13 or two years of high school typewriting.

26 Secretarial Practice 4(3,3) S
Secretarial duties and qualifications, business ethics and etiquette, work experience or specialization in field of interest. P, 20 or consent of instructor.

33 Commercial Correspondence 3(3,0) SSu
Principles and techniques of composing and dictating business letters. Organization, diction, and mechanical correctness stressed. Review of basic grammar and composition. P, English 3 or 6.

Department of Rural Sociology (RS)

Curriculum in Division of Science and Applied Arts, Rural Sociology Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

See Rural Sociology Major in Curriculum in Technical Agriculture

LOWER DIVISION

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science, GS 1-2-3	3	3	3
Biological Science	4	4	5
Oral Communication, Sp 10		2	
College Algebra, Math 10			5
Orientation, Or 1	1		
Military, Mil 1-2-3 or 5-6-7	1	1	1
Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Elective			

Sophomore Year	F	W	S
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3	3	
Introduction to Sociology, RS 15	5		
Social Deviation, RS 35			3
General Psychology, Psy 25	3		
Principles of Economics, Econ 21-22		3	3
National Government, PS 34		4	
Oral Communications, Sp 20			2
Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	4	4	4
Rural Sociology, RS 31			3
Military, Mil 20-21-22 or 25-26-27	1	1	1
Elective			

UPPER DIVISION

Junior Year	F	W	S
Urban Sociology, RS 44	3		
Statistical Methods I, Econ 81 or Ed 168	5	or	3
Required Elective in Psychology	3		
State Government, PS 36		4	
Language in Public Affairs, Engl 52		3	
General Anthropology, RS 50		3	
Required Electives in Agricultural Economics		3	3
Elements of Leadership, RS 32			3
Cultural History of the United States, Hist 155			3
Required History elective	3	3	
*Elective**			

Senior Year	F	W	S
Intermediate Sociology, RS 170	3		
Rural Social Systems, RS 181		3	
Required Electives in Rural Sociology	3	3	
The Family, RS 168		3	
*Elective**			

*Students who wish to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. All students must complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, elective and optional courses are in *Italic type*.

MAJOR: RS 15, 31, 32, 35, 44; Econ 81 or Ed 168, RS 50, 168, 170, 181, and sociology electives to total 36 credits.
MINOR: RS 15, 31, 35, 44, 168, and sociology electives to total 24 credits.

Department of Speech (Sp)

Associate Professors Sikkink, Draegert; Assistant Professors Denton, Seymour, Stine; Miss Clausen, Mr. Litke, Mrs. Milliken, Mr. Parmeter, Mr. Switzer, Mr. Wintersteen

The courses and activities in this department are designed to assist the students in developing their ability in oral communication. A student may choose to: (1) major in speech; (2) minor in speech; (3) select courses for self-improvement; (4) participate in extra-curricular activities sponsored by the department.

Communications Clinic

A qualified clinician is available for assistance in remedial speech and reading. Every new student is given a speech and hearing test; the clinician suggests a corrective program for those who need it. Those students who may be deficient in reading are urged to utilize the facilities of the clinic.

Drama

A program of major productions is presented each year. Any regular college student may be cast in one or more of the plays; furthermore the student may acquire experience in producing and directing. College credit may be earned for these extracurricular activities. A local chapter of Alpha Psi Omega is affiliated with the department.

Forensics

A program of local and regional participation in debate, discussion, extempore speaking, and oratory is sponsored by the department. Any regular college student is eligible. College credit may be earned. A local chapter of Pi Kappa Delta is affiliated with the department.

Graduate Major

A graduate major leading to either the Master of Science in Language Skills, or the Master of Education degree in Communications is available. See Graduate Bulletin for details.

LOWER DIVISION

9 Voice and Articulation 2(1,2) FW
Practice in developing an effective voice, clear articulation, and acceptable pronunciation. Individual attention given to elimination of faulty habits. Open to all students.

10 Oral Communication 2(2,0) FWS
Beginning oral communication.

11-12 Beginning Forensics 1(2,0) FW
Open only to students participating in intercollegiate debate, oratory, or extempore speaking.

14 Stage Craft: Construction and Design 3(3,0) F
Designing, building, and decorating scenery for amateur productions. Theory and practice.

15 Stage Craft: Lighting and Makeup 3(3,0) W
Lighting instruments and lighting control. Principles of makeup. Theory and practice.

16 Stage Craft: Producing and Directing 3(3,0) S
Selecting plays, casting, rehearsing and presenting amateur productions. Theory and practice.

19 Drama Lab I 1(0,3) FW
Credit to be earned through participation in major productions. Course may be repeated until total of four credits is earned. Open to all students.

20 Oral Communication 2(2,0) FWS
Intermediate oral communication. P, 10.

22 Oral Communication 3(3,0) FWS
P, Engl 3 or 6. Not open to those who have taken 10 or 20.

23 Elements of Acting 3(3,0) F
Basic principles of acting and stage deportment. Emphasis on understanding and applying techniques.

26 Phonetics 3(3,0) S
Standards of pronunciation. Utilization of phonetic symbols.

27-28 Forensics 1(2,0) FW
Open only to students participating in intercollegiate debate, oratory, or extempore speaking. P, 11 or 12.

29 Drama Lab II 1(0,3) FWS
Credit to be earned through participation in technical production; stage craft, lighting, make-up or costuming. Course may be repeated until total of four credits is earned. Open to all students.

UPPER DIVISION

40 Argumentation and Debate 2(2,0) S
Nature, kinds, and tests of evidence. Practice in argumentative speaking and debate. P, 20 or 22.

42-43 Intercollegiate Forensics 1(2,0) FW
Open only to students participating in intercollegiate debate, oratory or extempore speaking. P, 27 or 28.

44 Public Speaking 3(3,0) FS
Practice in giving public speeches. P, 20 or 22.

45 Discussion 3(3,0) W
Nature, values, and limitations of types of discussion. Emphasis on participation and leadership. P, 20 or 22 or consent of instructor.

47 Interpretation 3(3,0) S
Oral interpretation of emotional and imaginative literature. P, 9 or consent of instructor.

56 Parliamentary Procedure 2(2,0) FWS
Organizing and conducting meetings; study of motions and precedence. Experience in practical situation. P, 20 or 22.

60-61 Advanced Forensics 1(2,0) FW
Open only to students participating in intercollegiate debate, oratory or extempore speaking. P, 42 or 43

79 Drama Lab III 1(1,*) FWS
Dramatic theory and writing original plays. Selection analysis and arrangement of materials for development of characters, exposition and plot. Experimental theatre production of selected original scripts. P, junior standing or consent of instructor.

80 Development of Theatre 3(3,0)
(Offered 1960-61) S
Periods, theatres, representative dramatic literature and social conditions and movements, with emphasis on development of Western theatre from the Greeks to the present day. P, 9 credits in drama courses. Alternate years.

81-82-83 Seminar 1(1,0) FWS
Analysis and evaluation of speech problems. Sequence required of all majors; open to minors. P, junior standing.

140 Advanced Oral Interpretation 3(3,0)
(Offered 1961-62) S
Analysis and projection of meaning to an audience by use of voice, body and material. Selection, arrangement, and presentation of literary materials for platform reading, radio, and television. P, Sp 47 or equivalent. Alternate years.

142 Speech Science 3(3,0) (Offered 1961-62) S
Physical, physiological, neurological, and psychological aspects of Speech. P, 26; Psy 25. Alternate years.

143 Audiology and Audiometry 3(3,0)
(Offered 1961-62) W
Anatomy and physiology of the ear, history of audiometry, administration and interpretation of pure tone and speech reception tests. P, 142 or consent of instructor. Alternate years.

144 Persuasion 3(3,0) (Offered 1961-62) W
Audience, motivation, principles of attention and suggestion, bases of belief and action applicable in persuasive speaking. Practice in preparation and delivery of oral argument. P, minimum of 12 credits in speech and/or psychology. Alternate years.

145 Group Dynamics 3(3,0) (Offered 1961-62) W
Theory and practice of group interaction process analysis. P, 45 or equivalent.

157 Introduction to Speech Correction 3(3,0)
(Offered 1960-61) W
Appreciation of problems of clinical speech. Opportunity to observe and assist in Communications Clinic. Required for those desiring to teach. P, 26. Alternate years.

160 Directing the Drama Program 3(3,0)
(Offered 1960-61) W
Techniques and principles of organizing and conducting high school or college drama programs. Laboratory included. P, 9 credits in drama plus senior standing. Alternate years.

161 Directing the Forensic Program 3(3,0)
(Offered 1960-61) F
Techniques and principles of organizing and conducting high school or college forensic program. Laboratory included. P, 9 credits in public address plus senior standing. Alternate years.

170-174 Special Problem in Speech 1 to 4½ cr. FWS
Special problems in several areas of Speech. Individual work. P, 24 credits in Speech or graduate standing. May be repeated but limited to total of 6 credits.

170 Clinical Practice

171 Communication Skills

172 Public Address

173 Speech Correction

174 Theatre

180 Speech Pathology 3 (3,0) (Offered 1960-61) S
Nature, symptoms, and causes of defective speech. P, 26, 157. Alternate years.

GRADUATE DIVISION

The Speech Department in cooperation with the English Department offers the degree, Master of Science in Language Skills. In addition to courses numbered 140 and above, see also similarly numbered courses in English and in General Studies. Three majors are available: Speech, Composition-Literature, and Communication. The Master of Education with a major in communication is also available.

J210 Research Methods in Communication
3(3,0) FSu
(See Journalism Department)

299 Thesis in Language Skills 7-10 credits

Curriculum in Science and Applied Arts, Speech Major

Leading to the degree of Bachelor of Science in Science and Applied Arts

LOWER DIVISION

Freshman Year	F	W	S
English, Engl 1-2-3 or 4-5-6	3	3	3
Introduction to Social Science, GS 1-2-3	3	3	3
Oral Communication, Sp 10		2	
Biological Science	4	4	
Algebra, Math			5
Military, Mil 1-2-3 or 5-6-7	1	1	1

Physical Education, PE 1-2-3 or 10-11-12	1	1	1
Orientation, Or 1	1		
Required Speech Option			
Voice and Articulation, Sp 9	2		
Elective			

Sophomore Year	**F**	**W**	**S**
Introduction to Literature, Engl 20 and elective (Engl 21-27)	3		3
Oral Communications, Sp 20		2	
General Psychology, Psy 25	3		
Principles of Economics, Econ 21-22	3	3	
Introduction to Sociology, RS 15			5
National Government, PS 34		4	
Phonetics, Sp 26			3
Inorganic Chemistry, Ch 1-2-3; or Elementary Physics, Phy 10-11-12	4	4	4
Required Speech Option			
Military, Mil 20-21-22 or 25-26-27	1	1	1

UPPER DIVISION

Junior Year	**F**	**W**	**S**
Public Speaking, Sp 44	3		
Interpretation, Sp 47			3
Argumentation, Sp 40			2
Discussion, Sp 45		3	
Speech Composition, Sp 47			3
Radio Speech, Sp 54		2	
Parliamentary Procedure, Sp 56		2	
Biological Science			5
Approved History Sequence (8-9 hrs.)	3–4	3–4	3
Statistical Methods, Econ 81 or Ed 168		5	or 3
Required option in Speech Education, Drama and Radio, Public Discourse, or Speech correction	3	3	
*Elective**			

Senior Year	**F**	**W**	**S**
Speech Science, Sp 142			3
Seminar, Sp 81-82-83	1	1	1
Required Speech Option			
*Elective**			

*Students preparing to teach in high school should consult with the head of the Education Department before registering for the first term of their junior year. All students are required to complete at least 60 quarter credits in courses numbered 40 or above to qualify for the B.S. degree.

Prescribed courses are in Roman type, **elective and optional courses are in** *Italic type.*

MAJOR: 23, 26, 40, 44, 45, 47, 81-82-83, 142 plus credits from courses listed for the option elected. Speech Education: 14, 15, 16, 157, 161; Drama: 14, 15, 16, 80, and two credits each of 19, 29, 79; Public Discourse: 144, 145, 161 and 5 credits in forensics; Correction: 143, 157, 170 (6 credits), 180.

MINOR: Twenty-four credits in Speech as approved by the department.

The Graduate Division

South Dakota State College granted its first Master's degree in 1891. By 1957 the graduate program had grown to the extent that the establishment of the Graduate Division with a Dean as administrator was authorized.

To assist the Dean in the administration of the Division, seven members of the Graduate Faculty are elected from that group to a Graduate Council. The Graduate Council is composed as follows: The Graduate Dean; two members from the field of biological science; two members from the field of physical science; two members from the field of social science or humanities; and one member from the field of education.

The Graduate Faculty is composed of the college president, academic deans, heads of departments in which graduate courses are given, and other faculty members chosen on the basis of their background and experience and in accordance with policies of the division. All matters of policy and standards are acted on by the Graduate Faculty. In addition, Graduate Faculty members are authorized to teach graduate level courses and to serve as advisers to graduate students or on their advisory examining committees.

DEPARTMENTS OFFERING GRADUATE INSTRUCTION

The following departments and areas offer graduate majors or courses as indicated:

Doctor of Philosophy:

Agronomy, Animal Husbandry, Biochemistry, Economics, and the areas of Animal Science, Plant Science, and Social Science.

Master of Science:

Agricultural Education, Agricultural Engineering, Agronomy, Animal Husbandry, Bacteriology, Botany, Chemistry, Child Development and Family Relations, Civil Engineering, Dairy Husbandry, Economics, Education, Electrical Engineering, Entomology, Foods and Nutrition, Home Economics, Home Economics Education, Horticulture, Journalism, Language Skills (English, Speech), Mathematics, Mechanical Engineering, Pharmaceutical Chemistry, Pharmacognosy, Pharmacology, Pharmacy, Physical Education, Physics, Plant Pathology, Poultry Husbandry, Printing Management, Psychology, Rural Sociology, Textiles and Clothing, Wildlife Techniques and Conservation, and Zoology.

Master of Education:

Agricultural Education, Education, Home Economics Education, Physical Education, and the areas of Biological Science, Physical Science, Social Science, and Communication.

The major fields shown above may also be selected as minor fields. In addition, History and Political Science may be chosen as a minor field.

Supporting courses may be taken for graduate credit in any of the above departments or areas, and, in addition, in Agricultural Extension, General Studies, Home Management and Household Equipment, Industrial Arts Education, and Nursing.

ADMISSION TO THE GRADUATE DIVISION

A student may register in the Graduation Division only with the permission of the Dean of the Graduate Division. Before permission to register can be granted, a student must have filed an application for admission to graduate study and two official transcripts of credits at least one month before the opening of the term in which he wishes to matriculate. (Only one official transcript need be supplied by graduates of this institution.)

Admission to the Graduate Division requires first that the applicant be a graduate of or a candidate for a degree from South Dakota State College or other institution of higher learning. Such institution must be one of recognized standing whose requirements are substantially the same as those in departments of this college in which the advanced degree will be taken. The Graduate Bulletin should be consulted for further admission requirements.

GRADUATE CREDIT FOR SENIORS

Seniors at South Dakota State College who are within fifteen hours of completing their undergraduate curriculum, and who have obtained the approval of the Dean of the Graduate Division, may receive credit for graduate courses taken in addition to the courses necessary to complete their undergraduate work provided their total course load does not exceed eighteen credits. Such courses must be designated for graduate credit at the time of registration. Forms for requesting permission to register for these courses are available at the Graduate Office.

THE GRADUATE BULLETIN

Detailed information and instructions relative to graduate work at South Dakota State College are contained in the Graduate Bulletin. To obtain a copy of this or for additional information, write to the Dean of the Graduate Division.

College Staff 1959-1960

Resident on the Campus

Following the Purchasing Agent the names are arranged alphabetically

The number immediately after the title of a member of the staff indicates the year when the person was first employed as a regular member of the college staff, the number following if there is one, the year of appointment to present rank. An asterisk (*) in connection with a name indicates that there has been a break in the member's official connection with the College.

The above notation is not used with names of those whose duties are wholly in the field.

H. M. Briggs, President, 1958; B.S., Iowa State College, 1933; M.S., North Dakota Agricultural College, 1935; Ph.D., Cornell University, 1938.

David B. Doner, Director of Admissions and Records, 1919, 1953; B.S., South Dakota State College, 1928.

Wesley A. Bugg, Director of Finance, 1957, 1958; B.E., Western State (Illinois), 1942; B.S.A., Walton School of Commerce (Chicago), 1949.

Winston W. Wolpert, Purchasing Agent, Office Manager, Business Office, 1954, 1958; B.A., Concordia College (Moorhead, Minnesota), 1943.

Abdul K. Abdul-Shafi, Assistant Professor of Civil Engineering, 1958, 1960; B.S., Utah State College, 1953, M.S., University of Missouri, 1955.

Oscar R. Abel, Superintendent of Printing Production, Associate Professor of Printing and Journalism, 1936, 1956; B.S., South Dakota State College, 1942.

Albert W. Adams, Assistant Professor of Poultry Husbandry, Assistant Poultryman, Experiment Station, 1955; B.S., Kansas State College, 1951, M.S., 1955.

Rajinder P. Aggarwal, Instructor in Electrical Engineering, 1959; B.S., Delhi University (India), 1952; M.S., University of Minnesota, 1958.

George R. Alger, Instructor in Civil Engineering, 1958; B.S., Michigan College of Mining and Technology, 1956.

Glenn H. Allcott, Instructor in Chemistry, 1957, 1959; B.S., Black Hills Teachers College, 1956; M.S., South Dakota State College, 1959.

John David Allie, Publications Illustrator, Photo Laboratory, 1954; Walker Art School, Minneapolis, Minnesota.

Marvin O. Allum, Assistant Professor of Entomology-Zoology, Graduate Faculty, Assistant Zoologist, Experiment Station, 1956, 1957; B.S., South Dakota State College, 1949; M.S., University of Michigan, 1951.

Howard Amen, Instructor in Mathematics, Assistant Freshman Football Coach, 1956; B.S., South Dakota State College, 1951; M.Ed., University of South Dakota, 1957.

Lee L. Amidon, Professor of Mechanical Engineering, Graduate Faculty, 1941, 1957; B.S., (M.E.), University of Minnesota, 1923; M.S. (M.E.), West Virginia University, 1927.

J. R. Andersen, Assistant Professor of Civil Engineering, 1954, 1958; B.S., South Dakota State College, 1954, M.S., 1958.

Arthur W. Anderson, Farm Management Specialist, Extension Service, 1947, 1957; B.S., University of Minnesota, 1938, M.S., 1942.

Marshall Lloyd Anderson, Assistant Professor of Civil Engineering, 1959; B.S., University of Minnesota, 1943, M.S., 1949.

***Richard D. Anderson,** Professor of Engineering Shops, Head of Department, 1946, 1958; B.S., South Dakota State College, 1933; M.A., University of Wyoming, 1953.

Robert J. Antonides, Associate Professor of Economics, Associate Economist, Experiment Station, 1953, 1958; B.S., South Dakota State College, 1947, M.S., 1953.

Glenn Appleton, Instructor in General Engineering, Manager, Scobey Hall, 1949, 1959; B.S., South Dakota State College, 1942.

John S. Arnold, Extension Editor, 1953, 1956; B.A., University of South Dakota, 1951.

Dean C. Austin, College Physician, 1946; B.S., University of South Dakota, 1939; M.D., Washington University, 1942.

Harold S. Bailey, Professor of Pharmaceutical Chemistry, Graduate Faculty, 1951, 1958; B.S., Massachusetts College of Pharmacy, 1944, M.S., 1948; Ph.D., Purdue University, 1951.

Avery D. Baker, Instructor in Mathematics, 1958; B.A., Augustana College, 1956; M.A., Florida State University, 1958.

Roscoe J. Baker, Professor of Dairy Husbandry and Bacteriology, Graduate Faculty, Dairyman, Bacteriologist, Experiment Station, 1950, 1958; B.S., Iowa State College, 1942; M.S., 1947; Ph.D., 1950.

George F. Barlow, S/Sgt, Training NCO, AFROTC, 1957.

Emery Bartle, Associate Professor of Dairy Husbandry, Graduate Faculty, Associate Dairyman, Experiment Station, 1944, 1958; B.S., South Dakota State College, 1926, M.S., 1950.

Herbert Bartling, Director of Tests and Measurements, Student Personnel, 1956, 1960; B.S., South Dakota State College, 1951; M.Ed., University of Texas, 1956.

Dean D. Bekken, Maj., Asst. PMST, AROTC, 1958; Ph.B., University of Wisconsin, 1947.

Robert Daniel Bell, Assistant Professor of Economics, Assistant Economist, Experiment Station, 1958; B.S., Alcorn A. & M. College, 1951; M.S., Cornell University (New York), 1955, Ph.D., 1958.

Virgil A. Bell, Educational Assistant, (Part Time), 1955; B.S., Northern State Teachers College, 1931; M.S., South Dakota State College, 1948.

Helen K. Bender, Instructor in Music, School of Agriculture, 1957; B.S., Iowa State College, 1937. Resigned August 1, 1959.

Lyle M. Bender, Extension Economist, 1945, 1957; B.S., South Dakota State College, 1935, M.S., 1937; D.P.A., Harvard University, 1956. Resigned August 14, 1959.

Leonard R. Benning, Associate Economist in Dairy Marketing, Extension, Graduate Faculty, 1955, 1958; B.S., South Dakota State College, 1954, M.S., 1958.

Charles H. Benrud, Associate Professor of Economics, Associate Economist, Experiment Station, 1955, 1958; B.S., University of Minnesota, 1948, M.S., 1949.

Orville G. Bentley, Dean of Agriculture, Director of Agricultural Experiment Station, Graduate Faculty, 1958; B.S., South Dakota State College, 1942; M.S., University of Wisconsin, 1947, Ph.D., 1950.

Edward C. Berry, Professor of Bacteriology, Head of Department, Graduate Faculty, Bacteriologist, Experiment Station, 1950, 1956; B.S., (Ed), Central Missouri State Teachers College, 1925; M.A., University of Missouri, 1936; Ph.D., Washington University, 1941.

Russell L. Berry, Associate Professor of Economics, Graduate Faculty, Associate Economist, Experiment Station, 1949, 1955; B.S., University of Illinois, 1939; M.S., Michigan State University, 1948.

Carolann Bingham, Instructor in English, 1959; B. A., Carleton College, 1954; M.A., University of Michigan, 1959.

Edward R. Binnewies, Professor Emeritus of Chemistry, Graduate Faculty, Director Emeritus of Student Affairs, 1913, 1953; B.S., South Dakota State College, 1913, M.S., 1915.

Edmund G. Blinn, Associate Professor of Printing and Journalism, Graduate Faculty, 1952, 1957; B.S., Boston University, 1948; M.S., Iowa State College, 1950. On leave 1959-60.

Bertha Boekelheide, Associate Professor of Rural Nursing, 1958, 1960; B.S., Northern State Teachers College, 1924; B.A., University of Minnesota, 1925; M.S., University of Colorado, 1958.

Joseph J. Bonnemann, Agronomist, Experiment Station, 1955, 1958; B.S., South Dakota State College, 1951.

Boyd J. Bonzer, Extension Poultry Specialist, 1948, 1956; B.S., South Dakota State College, 1942, M.S., 1959.

Leslie Bork, Photo Technician, Instructor, Audio-Visual Center, 1952, 1958; B.S., Northern State Teachers College, 1948; M.Ed., South Dakota State College, 1957.

Frances Bradley, Assistant Resident, Dormitory, Sioux Sanitarium (Rapid City), 1958.

Burton L. Brage, Director of Resident Instruction and Assistant to Director of Experiment Station, Professor of Agronomy, Graduate Faculty, Agronomist, Experiment Station, 1950, 1959; B.S., University of Minnesota, 1946, Ph.D., 1950.

Bernard J. Brandwein, Associate Professor of Chemistry, Graduate Faculty, 1955, 1960; B.S., Purdue University, 1948, M.S., 1951, Ph.D., 1955.

Darold Dean Bray, Assistant in Agronomy, 1959; B.S., South Dakota State College, 1959.

Delbert F. Breazeale, Professor of Dairy Husbandry, Head of Department, Graduate Faculty, Dairyman, Experiment Station, 1944, 1951; B.S., Iowa State College, 1928, M.S., 1929, Ph.D., 1938.

Donald J. Brosz, Assistant Extension Agricultural Engineer, 1955, 1957; B.S., South Dakota State College, 1955.

Willard Brosz, Research Assistant, Experiment Station Chemistry, 1956; B.S., South Dakota State College, 1953.

Mary M. Brown, Assistant Professor of English, 1955, 1959; B.A., Briar Cliff College, 1938; M.A., University of South Dakota, 1947.

Cordus Brownson, Bursar, 1957; B.S., South Dakota State College, 1942.

George W. Buchenau, Assistant Professor of Plant Pathology, Assistant Plant Pathologist, Experiment Station, 1959; B.S., New Mexico State University, 1954, M.S., 1955.

Bert H. Buckbee, Instructor in Printing and Journalism, 1957; B.S., South Dakota State College, 1957.

George J. Buntley, Assistant Professor of Agronomy, Assistant Agronomist, Experiment Station, 1950, 1957; B.S., South Dakota State College, 1949, M.S., 1950.

Bessie Burgi, Head Resident of the Women's Dormitories, 1957; A.B., Milwaukee-Downer College (Wisconsin), 1918; A.M., Columbia University, 1936.

***Lida M. Burrill,** Professor of Home Economics, Graduate Faculty, Nutritionist, Experiment Station, 1939, 1952; B.S., University of Minnesota, 1926; M.A., University of Toronto (Canada), 1933; Ph.D., University of Minnesota, 1947.

LeRoy Burris, Assistant Professor of Drawing, Engineering, 1958; B.S., Oklahoma State University, 1929, M.S., 1932.

Leon F. Bush, Associate Professor of Animal Husbandry, Graduate Faculty, Associate Animal Husbandman, Experiment Station, 1954; B.S., University of Kentucky, 1950, M.S., 1951; Ph.D., Cornell University, 1954.

H. E. Calkins, Associate Professor, Bacteriology, Graduate Faculty, 1954; A.B., Transylvania College, 1933; M.S., University of Kentucky, 1937; Ph.D., University of Pennsylvania, 1941.

C. Wendell Carlson, Professor of Poultry Husbandry, Graduate Faculty, Poultryman, Experiment Station, 1949, 1956; B.S., Colorado State University, 1942; M.S.A., Cornell University, 1948, Ph.D., 1949.

Loris Carlson, Home Economics Supervising Teacher, White, South Dakota, 1958; B.S., South Dakota State College, 1955.

Kenneth Carpenter, Assistant Professor of Music, Director of Bands, 1957, 1958; B.M.E., Drake University (Des Moines, Iowa), 1941, M.M.E., 1948.

Paul L. Carson, Associate Professor of Agronomy, Graduate Faculty, Associate Agronomist, Experiment Station, 1948, 1956; B.S., Northwest Missouri State Teachers College, 1941; M.S., Iowa State College, 1947.

Fields Earl Caveness, Associate Plant Pathologist, Graduate Faculty, 1958; B.A., Chico State College (California), 1952; Ph.D., Oregon State College,, 1956. Resigned October 14, 1959.

Raymond Y. Chapman, Dean of Student Personnel, Director of Terminal Courses, 1942, 1949; B.A., Dakota Wesleyan College, 1926; M.A., University of South Dakota, 1931.

J. Norman Cheadle, Professor of Electrical Engineering, Graduate Faculty, 1945, 1956; B.S., South Dakota State College, 1937, M.S., 1949.

Douglas Chittick, Professor of Rural Sociology, Graduate Faculty, 1947, 1958; B.S., Northern State Teachers College, 1938; M.S., University of North Dakota, 1947.

Alphus R. Christensen, Administrative Assistant, Graduate Faculty, 1946, 1958; B.S., South Dakota State College, 1938; M.A., Northwestern University, 1941; Ph.D., University of Minnesota, 1954.

Carl Christensen, Professor Emeritus of Music, 1906, 1951; B.Mus., McPhail, 1929.

Virginia B. Christian, Instructor in Mathematics, 1957; B.S., Eastern Illinois University, 1945, M.S., 1956.

Kenneth D. Christianson, Assistant Professor of Mechanical Engineering, 1955, 1959; B.S., South Dakota State College, 1949, M.S., 1958.

Cleveland A. Christophe, Assistant in Economics, Research Assistant, Experiment Station, 1957, 1958; B.S., A. M. & N. College (Arkansas), 1935; M.S., Atlanta University, 1940; M.S.,(Ed), University of Arkansas, 1957.

Allen R. Clark, Assistant Professor of Economics, Graduate Faculty, Assistant Economist, Experiment Station, 1950; B.S., Kansas State College, 1940; M.S., Montana State College, 1948.

Ralph A. Cline, Associate Extension Agronomist, 1949; B.S., Montana State College, 1930.

J. Duane Colburn, Assistant Agronomist, 1957; B.S., South Dakota State College, 1950.

Zora R. Colburn, Associate Professor of Foods and Nutrition, Home Economics, 1955, 1958; B.S., South Dakota State College, 1942, M.S., 1954.

V. I. Cole, Major, Asst. PAS, AFROTC, 1958; B.S.(Ed), Southern State Teachers College, 1955.

Floyd F. Collins, Operations Assistant, Emeritus (Belle Fourche) 1922, 1956; B.S., Iowa State College, 1910.

Paul E. Collins, Associate Professor of Horticulture, Graduate Faculty, Associate Forester, Experiment Station, 1951, 1956; B.A., Gustavus Adolphus, Minnesota, 1939; B.S., University of Minnesota, 1948, M.S., 1949.

Theodore Condit, Instructor in Printing and Journalism, 1957; B.S., South Dakota State College, 1957.

Grant Cornelius, Assistant Professor of Economics, 1959; B.S., Univeristy of Nebraska, 1950, M.A., 1956.

Geraldine Crabbs, Assistant Professor and Head of Women's Physical Education, Graduate Faculty, 1953, 1957; B.A., Iowa State Teachers, 1933; M.S., University of Colorado, 1958.

Ima R. Crisman, Assistant State Club Leader, 1942, 1946; B.S., South Dakota State College, 1928.

Geneva Croll, Administrative Assistant, Extension Service, 1947, 1957.

Harold M. Crothers, Dean Emeritus, Engineering, Graduate Faculty, 1923, 1958; B.S., South Dakota State College, 1910; E.E., University of Wisconsin, 1913, Ph.D., 1920.

Edward Dailey, Assistant Professor of Economics, Assistant Economist, Experiment Station, 1951, 1957; B.S., South Dakota State College, 1949, M.S., 1957.

Magni Davidson, College Physician, 1938; B.A., University of North Dakota, 1920; M.D., University of Illinois, 1925.

Mrs. Cassie Davis, Manager Food Service, Assistant Director of Pugsley Union, 1947, 1958.

Lloyd Davis, Associate Extension Soils Specialist, 1957, 1959; B.S., South Dakota State College, 1956.

Delwyn Dearborn, Assistant Extension Livestock Specialist, 1956, 1959; B.S., South Dakota State College, 1954.

Henry H. DeLong, Professor of Agricultural Engineering, Graduate Faculty, Agricultural Engineer, Experiment Station, 1930, 1956; B.S., South Dakota State College, 1928, B.S., (A.E.), 1938; M.S., University of Minnesota, 1941.

Clarence Denton, Assistant Professor of Speech, Graduate Faculty, 1956; B.S., University of Nebraska, 1950; M.A., Louisiana State University, 1954.

Dorothy Deethardt, Assistant in Home Economics Research, 1955; B.S., South State College, 1937.

DeLoris Deibert, Assistant in Home Economics Research, 1959; B.S., South Dakota State College, 1956.

Lyle A. Derscheid, Professor of Agronomy, Graduate Faculty, Agronomist, Experiment Station, 1946, 1958; B.S., South Dakota State College, 1943, M.S., 1948; Ph.D., Iowa State College, 1951.

A. Ruth Dickinson, Assistant Professor of Secretarial Science, 1951; B.S., University of Nebraska, 1939, M.A., 1951.

Ruth M. Diez, Assistant Professor of Textiles and Clothing, Home Economics, 1958; B.S., Univesrity of Wisconsin, 1953, M.S., 1958.

C. A. Dinkel, Professor of Animal Husbandry, Graduate Faculty, Animal Husbandman, Experiment Station, 1951, 1960; B.S., Iowa State College, 1948; M.S., South Dakota State College, 1949; Ph.D., Iowa State College, 1953.

I. Delphia Bielmaier Dirks, State Club Agent, 1957; B.S., South Dakota State College, 1956.

Victor A. Dirks, Associate Professor of Agronomy, Graduate Faculty, Associate Agronomist, Experiment Station, 1947, 1957; B.S.A., University of Manitoba, 1943, M.S., 1945.

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Thelma Marie Dodds, Professor of Nursing, 1956; Diploma in Nursing, University of Minnesota, 1929, R.N., 1929, B.S., 1939.

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T. A. Dorsey, Associate Professor of Veterinary Science, Associate Veterinarian, Experiment Station, 1950; D.V.M., Iowa State College, 1943.

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***George H. Duffey,** Professor of Physics, 1945, 1959; A.B., Cornell College, 1942; A.M., Princeton University, 1944, Ph.D., 1945.

George R. Durland, Assistant Extension Agricultural Engineer, 1955; B.S., South Dakota State College, 1953.

William W. Eakins, M/Sgt. AFROTC, Det. Sgt. Major, 1955.

Alfred M. Eberle, Dean Emeritus, Division of Agriculture, Graduate Faculty, 1922, 1958; B.S., Montana State College, 1915; M.S., University of Minnesota, 1939.

Arlington Eddy, Director, School of Agriculture, 1927, 1946; B.S., South Dakota State College, 1927, M.S., 1945.

Richard Edie, Assistant Professor of Art, 1956; B.F.A., Kansas City Art Institute, 1951; M.F.A., University of Kansas, 1956.

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Lawrence B. Embry, Professor of Animal Husbandry, Graduate Faculty, Animal Husbandman, Experiment Station, 1950, 1954; B.S.A., University of Kentucky, 1942; M.S.A., Cornell University, 1948, Ph.D., 1950.

Royce J. Emerick, Associate Professor of Biochemistry, Graduate Faculty, Associate Biochemist, Experiment Station, 1957, 1960; B.S., Oklahoma A. & M., 1952; M.S., University of Wisconsin, 1954, Ph.D., 1957.

***James C. Emmerich,** Associate Professor of Physical Education, Head Track Coach, 1940, 1957; B.S., South Dakota State College, 1940.

Laurel A. Engberg, Professor of Political Science, Graduate Faculty, 1948, 1956; B.A., Colorado State Teachers College, 1934; M.A., University of Colorado, 1940.

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R. Esther Erickson, Professor of Nursing Education, 1935, 1959; Diploma in Nursing, Fairview Hospital, 1928; R.N., 1928; B.A., Baylor University, 1935; M.A., Columbia University, 1948.

***Gerhardt W. Erion,** Assistant Agronomist, 1949; B.S., South Dakota State College, 1948, M.S., 1955.

Warren O. Essler, Assistant Professor of Electrical Engineering, 1955, 1957; B.S., State University of Iowa, 1953, M.S., 1955.

Albert Duane Evenson, Associate Professor of Printing and Journalism and Supervisor of Curriculum, 1930, 1956; B.S., South Dakota State College, 1930.

Paul D. Evenson, Assistant in Agronomy, 1959; B.S., University of Nebraska, 1957, M.S., 1959.

Cleora M. Ewalt, Extension Nutritionist, 1958; B.S., Kansas State College, 1943; M.S., Iowa State College, 1957.

Esther S. Farnham, Associate State Home Demonstration Leader, 1950, 1954; B.S., Iowa State College, 1927.

Ralph O. Felberg, Assistant Professor of Economics, Assistant Economist, Experiment Station, 1955, 1958; B.S., South Dakota State College, 1953, M.S., 1957.

Elvin K. Ferrell, Extension Forester, 1946; B.S., Washington State College, 1930; M.S., South Dakota State College, 1954.

Elva Feuerhelm, Administrative Assistant to Director of Experiment Station, 1948, 1957.

Lawrence O. Fine, Professor of Agronomy, Head of Department, Graduate Faculty, Agronomist, Experiment Station, 1946, 1958; B.S., North Dakota Agricultural College, 1938; Ph.D., University of Wisconsin, 1941.

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Dale P. Ford, S/Sgt. Training NCO, AFROTC, 1957.

Jacob L. Foreman, Assistant Professor of Education, 1957; B.A., Westmar College, (LeMars, Iowa), 1946; M.A., University of Minnesota, 1950; D.Ed., Colorado State College of Education, 1957.

Harry L. Forsyth, Assistant Professor of Physical Education, 1956, 1960; B.S., South Dakota State College, 1951, M.S., 1956.

Gerald M. Fort, Associate Professor of Student Personnel, Graduate Faculty, 1949, 1957; B.A., Grinnell College, (Iowa), 1941; M.A., University of Minnesota, 1949. Resigned September 21, 1959.

Pearl M. Fort, Instructor in Nursing, 1958; R.N., 1940, B.S., South Dakota State College, 1954. Resigned August 5, 1959.

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***Maynard Fox,** Professor of English, Graduate Faculty, 1942, 1957; B.A., Fort Hays Kansas State College, 1937; M.S., 1939.

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H. M. Froslie, Professor of Physics, Head of Department, Graduate Faculty, 1949, 1959; B.A., Augustana College, 1940; M.S., State University of Iowa, 1942; Ph.D., University of Wisconsin, 1947.

R. B. Frost, Professor of Physical Education, Director of Athletics, Head of Department, Graduate Faculty, 1947; B.A., Luther College (Decorah, Iowa), 1928; M.A., University of Iowa, 1938; Ph.D., University of Oregon, 1957.

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Richard Haislet, Jr., Director of Radio, 1953; B.S., Iowa State College, 1949; M.S., University of Wisconsin, 1957.

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Walter Halverson, SFC, Army ROTC, 1958.

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***Edwin B. Harding,** Professor Emeritus of Printing and Journalism, 1921 1954; B.S., South Dakota State College, 1931.

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Carol Ruth Hartman, Assistant Professor of Nursing, Mental Health Consultant, 1959; B.S., Univeristy of California, 1958, M.S., 1959.

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***Kenneth S. Hayter,** Director of Physical Plant, 1933, 1955; B.S., South Dakota State College, 1933.

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John Philip Hendrickson, Associate Professor of Political Science, Graduate Faculty, 1954, 1957; B.A., State University of Iowa, 1947; M.A., University of Minnesota, 1949; Ph.D., State University of Iowa, 1952.

Melvin B. Henrichsen, Director of Student Housing, Director of Bookstore, Resident Manager of Brown Hall, 1945, 1959; B.S., South Dakota State College, 1938.

Robert B. Henry, College Physician, 1947; M.D., Rush Medical College, 1939.

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Ben F. Hins, Chief Accountant, 1959; B.A., Huron College, 1948; M.E., University of South Dakota, 1950.

Inez G. Hinsvark, Professor, Dean of Nursing, 1952, 1957; Diploma in Nursing, Lutheran Hospital (Watertown, South Dakota), 1939; R.N., 1939; A.B., San Francisco State College, 1951; M.A., Stanford University, 1952.

David J. Holden, Associate Professor of Botany, Head of Department, 1956, 1958; B.S., South Dakota State College, 1950, M.S., 1952; Ph.D., University of Chicago, 1956.

Douglas Holden, Maintenance Assistant, 1957; B.Ag.E., University of Minnesota, 1943.

Robert E. Holdridge, Assistant Professor, Director of Audio-Visual Center, 1950, 1960; B.A., Augustana College, 1948; M.Ed., University of South Dakota, 1953.

Evelyn Hollen, Professor of Home Economics, Head Food and Nutrition Department, Graduate Faculty, 1954, 1957; B.S., Iowa State College, 1934; M.S., Pennsylvania State College, 1942.

Ilverine Holter, Assistant Professor of Nursing, 1957; B.S., University of Washington, 1951.

Henry P. Holzman, Associate Animal Husbandman, Extension Service, 1933.

Donald G. Hook, Assistant in Mathematics, 1956; B.S., Huron College, 1954.

Lester D. Horrigan, Assistant in Education (Part Time), 1949, 1951; B.S., South Dakota State College, 1929, M.S., 1941.

Carl G. Horst, Instructor in Secretarial Science, 1958; B.S., Southern State Teachers College, 1949; M.A., University of Wyoming, 1954.

Robert Lloyd Housman, Assistant Professor of Printing and Journalism, 1959; B.A., University of Missouri, 1922, M.A., 1924, Ph.D., 1934.

Dwight Hovland, Assistant Professor of Agronomy, Assistant Agronomist, Experiment Station, 1959; B.A., St. Olaf College, 1952; M.S., University of Minnesota, 1956, Ph.D., 1959.

Kenneth E. Howard, Assistant Professor of Chemistry, 1953, 1955; B.S., Wisconsin State College (Superior Wisconsin), 1940; M.S., Marquette University, 1949.

Phyllis Howard, Assistant in Foods and Nutrition, Home Economics, 1955; B.E., Wisconsin State College, 1940.

Hazel I. Hubbs, Professor of Nursing, Head, Department of Rural Nursing, 1954, 1960; Diploma in Nursing, Methodist Hospital (Mitchell, South Dakota), 1931; R.N., 1931; B.S., Dakota Wesleyan, 1935.

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Harry E. Huls, Associate Professor of Education, Graduate Faculty, 1958; B.S., St. Cloud State College, 1945; M.A., University of Minnesota, 1948, Ph.D., 1958.

Albert Nash Hume, Professor Emeritus of Agronomy, Agronomist, Experiment Station, 1911, 1949; B.S.A., Purdue University, 1900, M.S., 1902; Ph.D., Gottingen (Germany), 1910.

Florence May Hunter, Assistant Resident in charge of Waneta Hall, 1957, 1959.

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James Iverson, Assistant Professor of Physical Education, Head Basketball Coach, 1956; B.S., Kansas State College, 1952, M.S., 1955.

Paul O. Jacobson, Assistant in Welding, Engineering Shops, 1956; Associate Degree, South Dakota State College, 1957.

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Kenneth D. Johnson, Instructor in Engineering Drawing, 1958; B.S., University of Minnesota, 1958.

Eleanor Johnston, Associate Professor of Home Economics, Graduate Faculty, 1956, 1958; B.S., University of Minnesota, 1936, M.S., 1947.

Lloyd Diehl Jones, Associate Professor of Veterinary Science, Associate Veterinarian, Experiment Station, 1957; D.V.M., Iowa State College, 1931, M.S., 1955.

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***Leslie D. Kamstra,** Associate Professor of Animal Husbandry, Graduate Faculty, Associate Animal Husbandman, Experiment Station, 1951, 1955; B.S., South Dakota State College, 1947, B.S., 1948; M.S., 1951, Ph.D., Ohio State University, 1955.

Martin Kasperson, State Club Agent, 1949, 1953; B.S., South Dakota State College, 1948.

James Rodney Kellar, Assistant Professor of History and Political Science, 1957; B.A., University of Minnesota, 1947, M.A., 1948.

Cleo B. Kelly, Reference Librarian, Instructor, 1957, 1958; A.B., Nebraska State Teachers College, 1946; M.A., University of Denver, 1953.

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Raymond Clark Kinch, Professor of Agronomy in charge of Seed Testing Laboratory, Graduate Faculty, 1947, 1958; B.S.A., University of Nebraska, 1935, M.S., 1936.

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Harriet Klock, Assistant Professor of Nursing, 1956; Diploma in Nursing, 1943; B.S., University of Iowa, 1943.

Harlan Lyle Klug, Professor of Chemistry, Graduate Faculty, 1947, 1955; B.S., South Dakota State College, 1930; M.A., University of South Dakota, 1944; Ph.D., University of Wisconsin, 1949.

Wayne Knabach, Instructor in Electrical Engineering, 1957; B.S., South Dakota State College, 1949.

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Paul Koepsell, Associate Professor of Civil Engineering, Graduate Faculty, 1957, 1958; B.S., South Dakota State College, 1952; M.S., University of Washington, 1954.

Paul H. Kohler, Associate Professor of Animal Husbandry, Graduate Faculty, Associate Animal Husbandman, Experiment Station, 1950, 1958; B.S., South Dakota State College, 1949, M.S., 1950; Ph.D., University of Minnesota, 1959.

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LaVerne J. Kortan, Associate Extension Livestock Specialist, 1945, 1952; B.S., South Dakota State College, 1942, M.S., 1955.

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Vernon Malan, Associate Professor of Rural Sociology, Graduate Faculty, Associate Sociologist, Experiment Station, 1953, 1957; B.A., Montana State University, 1947, M.A., 1948; Ph.D., University of Oregon, 1955.

C. J. Mankin, Associate Professor of Plant Pathology, Graduate Faculty, Associate Plant Pathologist, Experiment Station, 1953, 1956; A.B., Highlands (New Mexico), 1938; M.S., New Mexico College of Agriculture and Mechanical Arts, 1950; Ph.D., State College of Washington, 1953. Resigned September 15, 1959.

Melvin L. Manning, Dean of Engineering, Director of Engineering Experiment Station, Professor of Electrical Engineering, Graduate Faculty, 1959; B.S., South Dakota State College, 1927; M.S., University of Pittsburgh, 1932.

***Travis Manning,** Professor of Economics, Economist, Experiment Station, 1953, 1958; B.S., Oklahoma State University, 1949, M.S., 1950; Ph.D., University of Minnesota, 1954. Resigned September 30, 1959.

Gerald E. Marousek, Assistant Professor of Economics, Assistant Economist, Experiment Station, 1955, 1956; B.S., South Dakota State College, 1951, M.S., 1954.

Stanley Marshall, Assistant Professor of Physical Education, Graduate Faculty, Assistant Football Coach, 1957; B.S., South Dakota State College, 1950; M.A., State University of Iowa, 1953.

Grace Marshman, Instructor-Secretary, School of Agriculture, 1934.

Andre A. Martin, Instructor in Foreign Languages, 1959; B.A., Midwestern University, 1954, M.A., 1955; M.A., Laval University, 1956.

Dean Martin, Extension Horticulturist, 1955; B.S., South Dakota State College, 1949.

Sylvester H. Massmann, Assistant Professor of History and Political Science, 1956, 1958; B.A., St. John's (Minnesota), 1951; M.A., Catholic University of America (Washington D.C.), 1955.

***Gale B. Mast,** Survey Entomologist, Entomology-Zoology, 1957, 1958; B.S., South Dakota State College, 1957.

Robert W. Matheny, Assistant in Agronomy, 1959; B.S., South Dakota State College, 1948.

John P. McAdaragh, Assistant Professor of Veterinary Science, Assistant Veterinarian, Experiment Station, 1955, 1958; B.S., South Dakota State College, 1955, M.S., 1957.

Laura J. McArthur, Professor Emeritus of Home Economics, 1920, 1955; B.S., University of Minnesota, 1920, M.S., 1935.

J. Walters McCarty, Associate Professor of Animal Husbandry, Graduate Faculty, Associate Animal Husbandman, Experiment Station, 1948, 1953; B.S., South Dakota State College, 1947; M.S., University of Minnesota, 1948.

William Clark McCone, Associate Professor of Animal Husbandry, Graduate Faculty, Associate Animal Husbandman, Experiment Station, 1947, 1956; B.S., South Dakota State College, 1943, M.S., 1950.

Samuel A. McCrory, Professor of Horticulture, Head of Department, Graduate Faculty, Horticulturist, Experiment Station, 1938, 1947; B.S.,(Ed), State Teachers College, Springfield, Missouri, 1927; B.S.Ag., University of Missouri, 1936, M.A., 1937.

Isabel McGibney, Extension Home Management Specialist, 1948; B.S., South Dakota State College, 1937.

Harvey C. McKenzie, Associate Professor of Mathematics, Graduate Faculty, 1954, 1956; B.A., University of Wisconsin, 1930, M.A., 1947; Ph.D., University of Colorado, 1956.

Nellie A. McLoughlin, State Home Demonstration Leader, Extension Service, 1944, 1953; B.S., South Dakota State College, 1932; M.A., Columbia University, 1955.

Donald McRoberts, Instructor in Chemistry, 1956; B.S., Montana State College, 1943.

Everett W. Metcalf, Agricultural Editor, 1954, 1960; B.S., Wisconsin State College, 1951; M.S., University of Wisconsin, 1954.

Bruce L. Miller, Associate Professor of Physics, Graduate Faculty, 1955, 1959; B.S., South Dakota State College, 1948; M.S., Kansas University, 1951; Ph.D., 1953.

Clyde W. Miller, Instructor in Printing and Journalism, 1954; B.S., South Dakota State College, 1944.

Elinor Miller, Assistant Professor, Clinical Nursing, 1954, 1956; B.S., Western Reserve University, 1949.

Ward L. Miller, Professor of Botany (Two-thirds Time), Graduate Faculty, 1928, 1958; A.B., Southwestern College, 1916; M.S., University of Chicago, 1919, Ph.D., 1928.

Robert L. Milliken, Assistant Professor, Student Personnel, Coordinator of Counseling Services, 1959, 1960; B.A., Yankton College, 1951; M.S., Trinity University, 1953.

Joe A. Minyard, Assistant Animal Husbandman, Experiment Station, 1955; B.S., West Texas State College, 1951.

Dennis L. Moe, Professor of Agricultural Engineering, Head of Department, Graduate Faculty, Agricultural Engineer, Experiment Station, 1946, 1956; B.S., South Dakota State College, 1948, M.S., 1949.

Maurice L. Monahan, Instructor in Mathematics, 1956, 1958; B.S., South Dakota State College, 1956.

Earl A. Monnens, Assistant in Agronomy, 1959; B.S., University of Minnesota, 1959.

Anita F. Moore, Professor of Art, 1946, 1956; B.J., University of Missouri, 1922, B.S., 1924, M.A., 1928.

Raymond Moore, Assistant Professor of Agronomy, Assistant Agronomist, Experiment Station, 1956, 1958; B.S., South Dakota State College, 1951, M.S., 1958.

Laura L. Moorhead, Associate Professor of Nursing, 1957; B.S., New York University, 1946; M.A., Columbia University, 1954.

Morris Morgan, Associate Professor of Religion, Philosophy, Director of Religious Affairs, Associate Philosopher, Experiment Station, 1956, 1958; A.B., DePauw University, 1940; STB, Boston University, 1943, Ph.D., 1945.

Walter C. Morgan, Jr., Professor of Poultry Husbandry, Graduate Faculty, Poultryman, Experiment Station, 1954, 1958; B.S., University of Connecticut, 1946; M.S., George Washington University, 1949; Ph.D., University of Connecticut, 1953.

Mabel I. Mortvedt, Assistant Professor of Clinical Nursing, 1958; R.N., 1927; B.A., Augustana College, 1932, P.H.N. Certificate, Western Reserve University, 1935.

Doris Joan Moulds, Assistant Extension Editor, 1957, 1958; B.S., South Dakota State College, 1957.

Mrs. Florence Moxnes, Associate Professor of Clinical Nursing, Head of Department, 1954, 1959; B.S., South Dakota State College, 1946; M.S., University of California, 1959.

Edward C. Mundy, Captain, Assistant PMST, Army ROTC; B.S., Clarkson College, N.Y., 1950; B.S., Ohio State University, 1956.

Alfred L. Musson, Assistant to Dean of Agriculture, Director in Charge of Farm Operations, Professor of Animal Husbandry, Graduate Faculty, Animal Husbandman, Experiment Station, 1952, 1959; B.S.A., University of Connecticut, 1933; M.S., Iowa State College, 1934, Ph.D., 1951.

Gerald A. Myers, Instructor in Botany, 1958; B.A., Nebraska State Teachers, 1950; A.M., Colorado State, 1957.

Max Myers, Professor of Economics, Graduate Faculty, 1938, 1958; B.S., South Dakota State College, 1938; M.S., Cornell University, 1942, Ph.D., 1950. (On leave.)

C. M. Nagel, Professor of Plant Pathology, Head of Department, Graduate Faculty, Plant Pathologist, Experiment Station, 1944, 1948; B.S., North Dakota State College, 1929; M.S., Iowa State College, 1932, Ph.D., 1938.

Mrs. Kathleen Nagle, Assistant Professor of English, Graduate Faculty, 1952, 1955; B.A., Sioux Falls College, 1936; M.A., University of Wisconsin, 1949.

William Nardini, Assistant Professor of Rural Sociology, Assistant Rural Sociologist, Experiment Station, 1959; B.A., Cornell College, 1951; M.A., State University of Iowa, 1957; Ph.D., 1958.

Alma Nelson, Food Supervisor, 1955, 1958; B.S., South Dakota State College, 1926.

Eva Nelson, Associate Professor of English, Graduate Faculty, 1947, 1949; B.A., University of South Dakota, 1931; M.A., University of Southern California, 1941.

Mrs. Kay S. Nelson, Associate Specialist, Extension, 1951, 1953; B.S. Iowa State College, 1932.

Ralph E. Nelson, Assistant Professor of Economics, Assistant Economist, Experiment Station, 1957; B.S., University of Minnesota, 1949, M.S., 1952.

Thomas E. Nesbitt, Captain, APMST, Army ROTC, 1959, B.S., U.S. Military Academy, 1953.

William E. Nickell, Professor of Physics, Graduate Faculty, 1953, 1956; B.A., Berea College (Berea, Kentucky), 1940; M.S., State University of Iowa, 1943, Ph.D., 1954.

Richard L. Nickeson, Assistant Professor of Horticulture, Assistant Horticulturist, Experiment Station, 1956; B.S., Pennsylvania State University, 1951; Ph.D., University of Minnesota, 1957. Resigned December 31, 1959.

John Noonan, Area Potato Specialist, 1933; B.A., Northern State Teachers College (South Dakota), 1913.

U. J. Norgaard, Extension Agronomist, Emeritus, 1926, 1958; B.S.A., University of Wisconsin, 1921.

Elsie T. Ober, Assistant Professor of Art, 1924, 1935; Graduate, Minneapolis School of Art, 1919; B.S., University of Minnesota, 1923; M.A., Columbia University, 1941.

James J. O'Connell, Extension Animal Husbandman, 1946; B.S., South Dakota State College, 1935.

Donald E. Oehlerts, Instructor and Head of Periodicals Department, Library, 1958; B.S., University of Wisconsin, 1953, M.S., 1958.

Ella Ollenburg, State Club Agent, Extension, 1947, 1956; B.S., Dakota Wesleyan University (Mitchell) South Dakota, 1934.

Charles E. Olson, Grounds Superintendent, Physical Plant, 1959; B.S., South Dakota State College, 1959.

Edward S. Olson, Assistant Professor of Botany, 1952, 1958; B.S., University of Minnesota, 1951; M.S., South Dakota State College, 1953.

Harlan R. Olson, Director, Pugsley Union, 1947, 1958; B.S., South Dakota State College, 1942.

Oscar E. Olson, Experiment Station Chemist, Head of Department, Dean of Graduate Division, Graduate Faculty, 1951, 1958; B.S., South Dakota State College, 1936, M.S., 1937; Ph.D., University of Wisconsin, 1948.

Gary W. Omodt, Assistant Professor of Pharmaceutical Chemistry, 1958; B.S., University of Minnesota, 1953, Ph.D., 1959.

Robert R. Ondrish, M/Sgt., Instructor, Army ROTC, 1959.

Joan E. Orvis, Assistant Professor of Music, 1958; B.Mus., Oberlin Conservatory of Music; M.A., University of Washington, 1954.

Margaret E. Pabst, Circulation Librarian and Coordinator of Nursing Collections, 1958, 1960; A.B., Syracuse University, 1950, M.S., in Library Science, 1955.

Myron D. Paine, Instructor in Agricultural Engineering, Assistant Agricultural Engineer, Experiment Station, 1958; B.S., South Dakota State College, 1956; M.S., University of Illinois, 1957.

James D. Panzer, Assistant Professor of Plant Pathology, Assistant Pathologist, Experiment Station, 1957; A.B., Miami University, 1951; M.S., Ohio State University, 1953, Ph.D., 1955. Resigned August 31, 1959.

Robert I. Papendick, Assistant Extension Soils Specialist, 1957, 1959; B.S., South Dakota State College, 1957. Resigned October 14, 1959.

Francis C. Paradise, Assistant Professor of Mechanical Engineering, 1959; B.S., University of Nebraska, 1940.

Donald D. Parker, Professor of History, Head of Department of History and Political Science, Graduate Faculty, 1943; B.A., Park College, (Parkville, Missouri), 1922; M.A., University of Washington, 1932; Ph.D., University of Chicago, 1936.

John L. Pates, Associate Extension Editor, 1955, 1958; B.S., South Dakota State College, 1953.

Walter H. Patt, College Physician, 1949; M.D., Washington University, 1947.

Joseph Paulson, Watershed Flood Control Specialist, 1954; B.S., South Dakota State College, 1921.

Anthony L. Pavlick, Associate Professor of Economics, Associate Economist, Experiment Station, 1956, 1959; B.S., University of Illinois, 1949, M.Ed., 1956; M.S., University of Minnesota, 1956.

David F. Pearson, Assistant Professor of Economics, Special Assistant to the President, 1957, 1959; B.S., South Dakota State College, 1939; J.D., University of South Dakota, 1950.

James O. Pedersen, Assistant Director of Admissions and Records, 1957, 1959; B.S., South Dakota State College, 1955.

Ray F. Pengra, Professor Emeritus, Economics, 1944, 1958; B.S., University of Minnesota, 1927; M.S., South Dakota State College, 1946.

Robert M. Pengra, Assistant Professor of Bacteriology, 1957; B.S., South Dakota State College, 1951, M.S., 1953; Ph.D., University of Wisconsin, 1959.

Nolan J. Peters, Captain, APMST, Army ROTC, 1958; B.S., University of Nebraska, 1950.

Evelyn T. Peterson, Assistant Professor, Public Health Nursing and Pediatric Nursing, 1954, 1956; B.S., University of Washington, 1951.

Ronald M. Peterson, Associate Professor of Horticulture, Graduate Faculty, Associate Horticulturist, Experiment Station, 1953, 1956; B.S., Colorado State University, 1947; M.S., University of California, 1949; Ph.D., University of Minnesota, 1953.

W. Albert Peterson, Professor Emeritus of Music, 1912, 1954; B.Mus., American Conservatory of Music, 1911.

William Peterson, Extension Farm Electrification Specialist, 1955; B.S., South Dakota State College, 1950.

Beatrice Petrich, Itinerant Teacher Educator, Home Economics, 1959; B.S., University of Minnesota, 1947; M.Ed., Colorado State University, 1958.

Frederick Petrides, Assistant Professor of Education and Psychology, Graduate Faculty, 1956; B.A., Ohio State University, 1949; M.A.(Psychology), Highlands University (Las Vegas, New Mexico), 1955; M.A.Ed., Stanford University, 1956.

George H. Phillips, Professor of Printing and Journalism, Head of Department, Graduate Faculty, 1949; B.S., South Dakota State College, 1929, M.S., 1935.

John D. Photiadis, Assistant Professor of Rural Sociology, Assistant Rural Sociologist, Experiment Station, 1958; B.S., University of Salonica (Greece), 1946; M.S., Cornell University, 1957, Ph.D., 1958.

***Milo A. Potas,** Associate Specialist in Visual-Aids, Extension Service, 1937, 1959.

Joseph F. Powers, Research Assistant, Rural Sociology, 1958; B.S., South Dakota State College, 1958.

Wade R. Pringle, Assistant Agronomist, Experiment Station, Superintendent, Highmore Station, 1950, 1959; B.S., South Dakota State College, 1950.

Donald Progulske, Assistant Professor of Entomology-Zoology, Assistant Zoologist, Experiment Station, 1956, 1957; B.S., University of Massachusetts, 1950; M.S., Virginia Polytechnic Institute, 1952; Ph.D., University of Missouri, 1956.

Leo F. Puhr, Professor of Agronomy (Soils), Graduate Faculty, Agronomist, Experiment Station, 1927, 1948; B.S., South Dakota State College, 1925, M.S., 1927; Ph.D., University of Wisconsin, 1940.

Herbert G. Pulsifer, Associate Professor of Plant Pathology, Graduate Faculty, Associate Plant Pathologist, Experiment Station, 1955, 1959; B.A., University of Maine, 1950, M.S., 1952; Ph.D., Iowa State College, 1955.

Josephine S. Pulsifer, Cataloger and Instructor, Library, 1955, 1958; B.A., Barnard College (New York, New York) 1936; B.S., in LS, Drexel Institute of Technology (Philadelphia, Pennsylvania), 1942.

James Mark Purcell, Instructor in English, 1959; B.A., Duquesne University, 1951; M.A., University of Pennsylvania, 1955.

Wayne Puttmann, Associate Professor of Education, Graduate Faculty, 1956; B.S., Morningside College, 1947; M.S., Iowa State College, 1951; D.Ed., University of North Dakota, 1955.

Duane C. Quail, Instructor, Photographic Technician, Audio-Visual Center, 1956, 1959; B.S., South Dakota State College, 1953, M.Ed., 1959.

James D. Rahn, Assistant Animal Husbandman, Superintendent, Reed Ranch, Experiment Station, 1955, 1957.

William F. Railing, Associate Professor of Economics, Graduate Faculty, Associate Economist, Experiment Station, 1955, 1958; B.S., U. S. Merchant Marine Academy, 1950; B.A., John Hopkins University 1950; Ph.D., Cornell University, 1958.

Jesse M. Rawson, Associate Professor of Horticulture, Graduate Faculty, Associate Horticulturist, Experiment Station, 1954, 1957; B.S., Hillsdale College (Michigan), 1939; B.S., Michigan State University, 1947, M.S., 1948, Ph.D., 1953.

Frederic D. Ray, Colonel, PMST, Army ROTC; 1957; B.S., Cornell University, 1932.

Loretta A. Raymond, Instructor in Nursing, R.N., Swedish Hospitals School of Nursing (Minneapolis), 1947; B.S., South Dakota State College, 1959.

Ruth Hollstein Rea, Assistant Professor of Nursing, 1956; A.B., Jamestown College (North Dakota), 1933; Nursing Certificate, Ann Arbor, Michigan, 1945.

Kenneth Redman, Professor of Pharmacognosy, Head of Department, Graduate Faculty, 1951, 1953; Ph.C., University of Washington, 1929, B.S., 1930; Ph.D., University of Wisconsin, 1941.

***Helen Rezatto,** Instructor in English, 1956; B.A., University of North Dakota, 1941; M.S., South Dakota State College, 1958.

John L. Rezatto, Professor of Music, Head of Department, Graduate Faculty, 1956; B.S., Central State Wisconsin, 1931; B.M., Chicago Conservatory, 1933; M.S., University of North Dakota, 1937; Ed.D., University of Colorado, 1951.

J. Ernest Richards, Associate Professor of Mathematics, Graduate Faculty, 1947, 1959; B.S., South Dakota State College, 1946; M.A., University of South Dakota, 1950.

Gerald A. Richardson, Assistant to College Editor, 1955; B.S., South Dakota State College, 1953.

Marvin P. Riley, Associate Professor of Rural Sociology, Graduate Faculty, Associate Rural Sociologist, Experiment Station, 1950, 1956; B.S., Northwestern University, 1942; M.A., University of Missouri, 1950.

Miriam Risch, Assistant in Home Economics Research, 1959; B.S., South Dakota State College, 1954.

Delores Rishoi, Instructor in Nursing, 1956; B.S., South Dakota State College, 1956.

Frederick Rittershaus, Assistant in Civil Engineering, 1958, 1959; B.S., South Dakota State College, 1958.

Madeline Ritz, Professor of Art, Head of Department, Graduate Faculty, 1945; A.B., Oklahoma College for Women, 1925; M.A., Columbia University, 1928; Ed.D., Pennsylvania State, 1954.

***Rae Deane Roberts,** Student Personnel Counselor, 1956, 1959; B.S., Kansas State Teachers, 1952, M.S., 1956.

Glenn E. Robinson, Associate Professor of Physical Education, 1957; B.A., Monmouth College, 1932; M.A., University of Illinois, 1942; Professional Diploma, Columbia University, 1951.

Joshua Robinson, Associate Farm Management Specialist, Extension, 1954, 1958; B.S., Wisconsin State College, 1952; M.S., South Dakota State College, 1956.

William M. Rogoff, Professor of Entomology-Zoology, Graduate Faculty, Entomologist, Experiment Station, 1947, 1953; B.S., University of Connecticut, 1937; Ph.D., Cornell University, 1943.

Alice Mae Rosenberger, Professor of Home Economics, Acting Head, Textiles and Clothing, Graduate Faculty, 1928, 1957; B.A., University of Iowa, 1916; M.S., Iowa State College, 1928.

James G. Ross, Professor of Agronomy, Graduate Faculty, Agronomist, Experiment Station, 1947, 1955; B.S., University of Alberta, 1941, M.S., 1943; Ph.D., University of Wisconsin, 1947.

Melvin D. Rumbaugh, Assistant Professor of Agronomy, Assistant Agronomist, Experiment Station, 1959; B.S., Central College, 1951; M.S., University of Nebraska, 1953, Ph.D., 1958.

Jack R. Runkles, Associate Professor of Agronomy, Graduate Faculty, Associate Agronomist, Experiment Station, 1955, 1957; B.S., Texas A & M, 1950, M.S., 1952; Ph.D., Iowa State College, 1956.

Robert L. Saffle, Assistant Professor of Animal Husbandry, Assistant Animal Husbandman, Experiment Station, 1958; B.S., Ohio State University, 1954; M.S., University of Tennessee, 1956; Ph.D., Michigan State University, 1958.

***Beverly Salmen,** Assistant in Home Economics Research, 1956; B.S., South Dakota State College, 1954.

Wayne L. Salmen, Instructor in Engineering Shops, Research Assistant, 1958, 1959; B.S., South Dakota State College, 1957, M.S., 1959.

J. Anthony Samenfink, Professor, Child Development and Family Life, Home Economics, 1956, 1960; B.A., Middlebury College (Vermont), 1947; M.Ed., University of Rochester (New York), 1951; Ed.D., Florida State University, 1956.

Mary Sanders, Research Associate, Agronomy, Experiment Station, Graduate Faculty, 1956, 1957; A.B., Mt. Holyoke (Massachusetts), 1938; M.S., Cornell University, 1940; Ph.D., Smith College (Massachusetts), 1947.

Elmer E. Sanderson, Associate Extension Agronomist, 1945, 1947; B.S., South Dakota State College, 1942.

John F. Sandfort, Professor and Head of Department of Mechanical Engineering, Graduate Faculty, 1958; B.M.E., Ohio State University, 1933, B.I.E., 1934; M.S., Iowa State College, 1947.

***Howard M. Sauer,** Professor of Rural Sociology, Head of Department, Graduate Faculty, Rural Sociologist, Experiment Station, 1938, 1958; B.A., Des Moines University, 1929; M.A., University of Iowa, 1931.

Donald F. Scannell, Associate Professor of Journalism, Information Specialist College News Service, 1951, 1960; B.A., University of Iowa, 1948, M.A., 1951.

Thomas V. Schmidt, Instructor in English, 1959; A.B., Aquinas College, 1955; M.A., University of Michigan, 1957.

Marvin Scholten, Assistant Professor of Education, Graduate Faculty, 1956; B.A., University of Minnesota 1949; M.A., University of South Dakota, 1950.

Mrs. Ruth Scholten, Assistant Professor of Mathematics, Graduate Faculty, 1948, 1950; A.B., Park College (Missouri), 1923; M.A., Drake University, 1934.

Joyce Schowalter, Assistant in Nursing, 1958; B.S., University of Minnesota, 1958.

Robert Schubloom, Assistant in Animal Husbandry, Experiment Station, 1957, 1959; B.S., South Dakota State College, 1958.

Cecilia Schuck, Professor of Home Economics, Graduate Faculty, 1957; A.B., Indiana State Teachers College, 1922; M.S., University of Minnesota, 1923; Ph.D., University of Chicago, 1934.

Frank G. Schultz, Dean, Division of Science and Applied Arts, Graduate Faculty, 1942; B.A., Northland College (Wisconsin), 1926; M.A., University of Minnesota, 1935, Ph.D., 1941.

Ernest L. Schusky, Instructor in Rural Sociology, Assistant Rural Sociologist, Experiment Station, 1958; A.B., Miami University, 1952; M.A., University of Chicago, 1957.

Donald Schoonhoven, Aircraft Mechanic, Pilot and Flight Instructor, Air Transportation, 1958; University of Illinois, Institute of Aviation, Commercial Pilot License, Flight Instructor's License, Aircraft and Aircraft Engine License, 1957.

Jeanne Scoville, Instructor in Psychiatric Nursing, 1959; B.S., St. Catherine's College, 1952; M.Ed., University of Minnesota, 1954.

Shirley W. Seas, Instructor and Research Assistant, Dairy Husbandry, 1955, 1956; B.S., South Dakota State College, 1955, M.S., 1959.

Maurice D. Seeman, Assistant to Director, Pugsley Union, Manager of Development Hall, 1956, 1959; B.S., South Dakota State College, 1955.

Alice Semeniuk, Instructor, Clothing and Textiles, Home Economics, 1959; B.S., South Daokta State College, 1955.

George Semeniuk, Professor of Plant Pathology, Graduate Faculty, Plant Pathologist, Experiment Station, 1952, 1953; B.S., University of Alberta, 1932, M.S., 1934; Ph.D. Iowa State College, 1938.

Harry C. Severin, Professor Emeritus of Entomology-Zoology, Graduate Faculty, Entomologist, Experiment Station, 1909, 1955; B.A., University of Wisconsin, 1907; M.A., Ohio State University, 1908.

Moses Seversky, Assistant in Mechanical Engineering, 1959; B.S., Technion, 1950.

Charles L. Sewrey, Associate Professor of History, Graduate Faculty, 1947, 1956; B.S., University of Minnesota, 1941, M.A., 1946, Ph.D., 1955.

Paul J. Seymour, Assistant Professor of Speech, 1959; B.A., University of Minnesota, 1950, M.A., 1956.

Marion L. Shane, Professor of English, Graduate Faculty, 1952, 1959; B.A., Kalamazoo College (Michigan), 1940; M.A., Syracuse University, 1946, Ph.D., 1952.

D. Boyd Shank, Professor of Agronomy, Graduate Faculty, Agronomist, Experiment Station, 1946, 1953; B.S., University of Nebraska, 1935; Ph.D., Iowa State College, 1941.

Clarence Shanley, Operations Assistant Emeritus, Extension, 1931, 1957; B.S., South Dakota State College, 1913.

Kermith E. Sheimo, Instructor in English, 1955, 1956; B.A., Luther College, 1931; M.A., University of South Dakota, 1944.

Richard W. Sheldon, Instructor in Education and Psychology, 1959; B.A., University of Colorado, 1949; M.A., University of Iowa, 1959.

Ethel M. Shimmin, Internal Auditor, Business Office, 1954; B.S., General Beadle Teachers, 1930; M.B.A., University of Denver, 1956.

F. Lloyd Shinnick, Associate Extension Poultryman, 1955, 1957; B.S., South Dakota State College, 1941. Resigned July 31, 1959.

Zaher Shoukry, Assistant Professor of Civil Engineering, Graduate Faculty, 1958; B.S., University of Alexandria (Egypt), 1948, M.S., 1953.

Fred E. Shubeck, Associate Professor of Agronomy, Graduate Faculty, Associate Agronomist, Experiment Station, 1951, 1957; B.S., South Dakota State College, 1940; Ph.D., University of Minnesota, 1951.

Ruth Sickles, Home Economics Supervising Teacher, Miller, South Dakota, 1955; B.S., Dakota Wesleyan University, 1927.

Donald E. Sikkink, Associate Professor of Speech, Head of Department, Graduate Faculty, 1956, 1959; B.A., University of Minnesota, 1949, M.A., 1951, Ph.D., 1954.

Arlene Simek, Home Economics Supervising Teacher, Tulare, South Dakota, 1957; B.S., South Dakota State College, 1953.

Wayne E. Sinning, Assistant Professor of Physical Education, 1957, 1960; B.S., South Dakota State College, 1953, M.S., 1956.

Waldemar G. Sippel, Assistant Professor of Physics, Graduate Faculty, 1953, 1955; B.A., University of South Dakota, 1947, M.A., 1950.

Sylvia Skaalen, Assistant in Nursing, 1957; Diploma in Nursing, Luther Hospital, (Watertown, South Dakota), 1942. R.N., 1942.

Louis G. Skubic, Associate Professor of Engineering Drawing, Administrative Assistant to Dean, Graduate Faculty, 1954, 1959; B.S., University of Minnesota, 1947, M.A., 1953.

Clayton K. Sloat, Assistant Extension Poultryman, 1959; B.S., South Dakota State College, 1950.

Mrs. Lela L. Smith, Assistant in Admissions and Records, 1943.

William H. Smith, Instructor in Printing and Journalism, 1958; B.S., Marion College (Indiana), 1953.

Limen T. Smythe, Professor of Economics, Graduate Faculty, 1941, 1959; B.A., University of Washington, 1934, M.A., 1937.

Donald G. Snyder, Instructor, School of Agriculture and Assistant Manager, East Men's Hall, 1957; B.S., South Dakota State College, 1955.

Gerald B. Spawn, Professor of Entomology-Zoology, Head of Department, Graduate Faculty, Entomologist, Experiment Station, 1931, 1954; B.S., South Dakota State College, 1931, M.S., 1933; Ph.D., Iowa State College, 1941.

Kenneth R. Spurgeon, Associate Professor, Associate Dairy Husbandman, Experiment Station, 1958; B.S., Purdue University, 1942, M.S., 1948; Ph.D., University of Wisconsin, 1951.

Harlan Stensaas, Instructor in Printing and Journalism, 1959; B.S., General Beadle State Teachers College, 1955.

Lawrence Stine, Assistant Professor of Speech, Graduate Faculty, 1952, 1953; A.B., Butler University, 1947; M.A., State University of Iowa, 1951.

William Stoll, Instructor and Research Assistant in Dairy Husbandry, 1957; B.S., Iowa State College, 1955, M.S., 1957.

Arthur C. Stone, Colonel, Professor of Air Science, 1958; B.A., Highland University (New Mexico), 1940.

John T. Stone, Director of Extension, Professor of Agronomy, Graduate Faculty, 1959; B.S., Michigan State University, 1938, M.S., 1940; M.P.A., Harvard University, 1949, D.P.A., 1952.

Mrs. Alice Stoner, Assistant Resident in charge of Wenona Hall, 1948.

Junis O. Storry, Professor of Electrical Engineering, Administrative Assistant to Dean, Graduate Faculty, 1946, 1959; B.S., South Dakota State College, 1942, M.S., 1949.

Windsor A. Straw, Professor, College Editor, 1938, 1954; B.S., South Dakota State College, 1927.

Leland L. Sudlow, Associate Specialist in Visual Aids, Extension, 1952, 1958; B.S., South Dakota State College, 1952.

Ivan Sundal, State Club Agent, 1957; B.S., South Dakota State College, 1956.

Stanley A. Sundet, Professor of Education, Head of Department, Graduate Faculty, Director Summer School, 1946, 1958; B.S., South Dakota State College, 1935; M.S., Iowa State College, 1939; Ph.D., University of Minnesota, 1955.

***Harry R. Svec,** Assistant Professor of Engineering Shops, 1940, 1958.

Ardis R. Swanson, Assistant Professor of General Nursing and Head of Department, 1954, 1958; B.S., Augustana College, 1948; M.Ed., University of Minnesota, 1959.

Mrs. Roy Sykes, College Nurse, 1952; R.N., Luther Hospital (Watertown, South Dakota), 1924.

Margaret I. Talcott, Assistant in Home Economics Research, 1959; B.S., Iowa State College, 1941.

John Tanaka, Associate Professor of Chemistry, Graduate Faculty, 1956, 1959; B.S., University of California, 1951; Ph.D., Iowa State College, 1956.

Mrs. Clarin Tande, Assistant Resident in charge of Wecota Annex, 1959.

Myron C. Tank, College Physician, 1949; B.S., University of South Dakota, 1925; M.D., Washington University, 1927.

Charles Arthur Taylor, Associate Professor of Botany, Graduate Faculty, 1949; B.S., Cornell University, 1935, M.S., 1939.

John B. Taylor, Professor of Veterinary Science, Associate Director, Animal Health Laboratory, 1920, 1957; V.M.D., University of Pennsylvania, 1917.

Karl Theman, Professor of Music, 1938, 1956; Fellow three years, Juliard Graduate School of Music, 1931; Scholarship Ecole Americaine, Fontainebleau, France, 1929; B.S., Teachers College Columbia University, 1936, M.A., 1937.

Florence Thompson, Assistant Professor of Nursing, 1957; B.S., Wayne University (Michigan), 1938.

***John E. Thompson,** Associate Professor of Economics, Associate Economist, Experiment Station, 1953, 1958; B.S., University of South Dakota, 1950; M.S., South Dakota State College, 1953.

Claire C. Totman, Professor Emeritus of Dairy Husbandry, Graduate Faculty, 1923, 1958; B.S., University of Wisconsin, 1912.

Frank Traver, Assistant Director of Housing, 1956, 1958; A.B., Huron College, (South Dakota), 1946; M.Ed., Northern State Teachers College (South Dakota), 1956.

William Trevillyan, Assistant Animal Husbandman, Superintendent of Antelope Range Station, Experiment Station, 1953, 1957; B.S., South Dakota State College, 1953.

Alfred G. Trump, Director of Library, Professor of Library Science, 1948, 1960; Ph.B., University of Chicago, 1929; A.B., University of Michigan, 1933, A.M., 1938.

Norma Tuntland, Assistant in Nursing, 1958; B.S., South Dakota State College, 1958.

Evelyn E. Uhrhan, Professor of Foreign Languages, Head of Department, 1950, 1952; A.B., Florida State College for Women, 1941; M.A., Florida State University, 1947; Ph.D., University of Illinois, 1950.

Winston K. Ullman, Associate Professor of Economics, Associate Economist, Experiment Station, 1954, 1958; B.S., South Dakota State College, 1942, M.S., 1955.

J. William Ulmer, Assistant Professor of Mechanical Engineering, 1947, 1959; B.S., South Dakota State College, 1944, M.S., 1958.

Ursula A. Utley, Assistant Professor of Women's Physical Education, 1954, 1957; B.S., Northern Michigan College, 1948; M.A., University of Michigan, 1951.

Nona VanDenBerg, Circulation Librarian and Instructor, 1957, 1958; B.S., South Dakota State College, 1955.

Frederick E. Van Nostran, Assistant Plant Pathologist, Experiment Station, 1959; B.S., Marshall College (West Virginia), 1950, M.S., 1951; Ph.D., Michigan State University, 1956.

Philip Van Vlack, Associate Professor of Economics, Associate Economist, Experiment Station, Associate Professor, Religion and Philosophy, 1950, 1957; B.S., Iowa State College, 1947, M.S., 1950.

Mrs. Florence Venables, Manager, Professional Personnel and Secretary to the President, 1952, 1957; B.S., South Dakota State College, 1929.

Howard H. Voelker, Associate Professor of Dairy Husbandry, Associate Dairyman, Experiment Station, Graduate Faculty, 1954, 1957; B.S., Iowa State College, 1946; M.S., Kansas State College, 1949; Ph.D., Iowa State College, 1955.

Vivian V. Volstorff, Dean of Women, Professor of History, Graduate Faculty, Associate Director of Student Affairs, 1932, 1948; B.S., Northwestern University, 1928, M.A., 1929, Ph.D., 1932.

Richard C. Wahlstrom, Professor of Animal Husbandry, Head of Department, Graduate Faculty, Animal Husbandman, Experiment Station, 1952, 1960; B.S., University of Nebraska, 1948; M.S., University of Illinois, 1950, Ph.D., 1952.

G. Harvey Wakeman, Assistant Professor of Engineering Shops, 1941, 1958; Associate Degree, South Dakota State College, 1956.

Orlin E. Walder, Dean of Men, Professor of Mathematics, Graduate Faculty, Manager of Men's Dormitories, Director of Student Affairs, 1930, 1959; B.S., Huron College (South Dakota), 1928; A.M., University of Nebraska, 1930; L.H.D., Huron College, 1957.

Anna D. Walker, Extension Clothing Specialist, 1928, 1947; B.S., South Dakota State College, 1924.

Susan B. Walker, Assistant in Nursing, 1958; B.S., South Dakota State College, 1958.

Keith Wallace, Extension Weed Specialist, 1953, 1955; B.S., South Dakota State College, 1949, M.S., 1954.

Volney Wallace, Assistant Biochemist, Experiment Station Chemistry, 1955; B.S., University of Idaho, 1946; M.S., Purdue University, 1949, Ph.D., 1953.

Robert J. Walstrom, Associate Professor of Entomology-Zoology, Graduate Faculty, Associate Entomologist, Experiment Station, 1955, 1957; B.S., University of Nebraska, 1947, M.S., 1949; Ph.D., Iowa State College, 1955.

James R. Waples, Assistant in Horticulture, 1950, 1957; B.S., South Dakota State College, 1949.

Norval E. Webb, Associate Professor of Pharmacy, Graduate Faculty, 1952, 1957; B.S., Purdue University, 1950, M.S., 1952, Ph.D., 1956.

Margaret Weber, Associate Professor of Nursing, 1956; B.Ed., St. Cloud State College (Minnesota), 1934; B.S., College of St. Scholastica (Duluth, Minnesota), 1945; M.Ed., University of Minnesota, 1956.

Jason S. Webster, Associate Professor of Agronomy, Assistant to Dean of Agriculture (Instruction), Graduate Faculty, 1946, 1956; B.S., University of Nebraska, 1933; M.S., South Dakota State College, 1955. Resigned September 30, 1959.

Victor S. Webster, Professor of Chemistry, Head of Department, Graduate Faculty, 1936, 1944; B.A., University of Iowa, 1930, M.S., 1931, Ph.D., 1933.

Burness G. Wenberg, Assistant Professor, Home Economics Research, 1959; B.S., University of North Dakota, 1949; M.S., Ohio State University, 1957.

Irene L. Wente, Professor of Mathematics, Graduate Faculty, 1930, 1956; B.S., Lewis Institute (Chicago), 1927; M.S., University of Chicago, 1929.

Woodrow P. Wentzy, Associate Professor of Audio-Visual Education and Photography, Head of Department, Graduate Faculty, 1946, 1948; B.S., South Dakota State College, 1938; M.A., University of Oklahoma, 1950. Resigned December 1, 1959.

Frederick C. Westin, Professor of Agronomy, Graduate Faculty, Agronomist, Experiment Station, 1947, 1955; B.S., University of Wisconsin, 1941, M.S., 1947, Ph.D., 1952.

Paul M. Wheeldon, Draftsman, Agricultural Engineering Department, 1958; B.S., South Dakota State College, 1956.

Frank Whetzal, Instructor in Animal Husbandry, Assistant Animal Husbandman, Experiment Station, 1957; B.S., South Dakota State College, 1953.

Robert B. Whitcomb, Associate Professor of Music, 1953, 1958; B.M., College of Music of Cincinnati, 1947, M.M., 1950; A.Mus.D., Eastman School of Music, University of Rochester, 1959.

Everett M. White, Associate Professor of Agronomy, Associate Agronomist, Experiment Station, 1954, 1956; B.S., Iowa State College, 1948, M.S., 1950, Ph.D., 1953.

Eugene I. Whitehead, Associate Chemist, Experiment Station Chemistry, Graduate Faculty, 1939, 1946; B.S. South Dakota State College, 1939, M.S., 1941.

E. L. Whitmore, Assistant Professor of Education, 1957; B.S., Kansas State Teachers College, 1939; A.M., Colorado State College, 1953.

***John L. Wiersma,** Professor of Agricultural Engineering, Graduate Faculty, Agricultural Engineer, Experiment Station, 1943, 1958; B.S., South Dakota State College, 1943, M.S., 1950.

***Robert A. Wilcox,** Assistant Poultryman, Experiment Station 1947, 1951; B.S., South Dakota State College, 1945, M.S., 1949.

Perry W. Williams, Associate Professor of Physics, Graduate Faculty, 1945, 1951; B.A., Dakota Wesleyan University, 1936; M.S., South Dakota State College, 1940.

***Edward J. Williamson,** Extension Soils Specialist, 1947, 1957; B.S., South Dakota State College, 1947, M.S., 1953.

Warren Williamson, Assistant Professor of Physical Education, Freshman Football Coach, 1956, 1958; B.S., South Dakota State College, 1951, M.S., 1954.

Rena Wills, Associate Professor, Foods and Nutrition, Home Economics, Graduate Faculty, 1952, 1956; B.S., Iowa State College, 1940, M.S., 1946.

Lloyd R. Wilson, Studies, Training and Program Coordinator, Extension, Graduate Faculty, 1945, 1957; B.E., State Teachers College (River Falls, Wisconsin), 1936; M.S., University of Wisconsin, 1955.

Harold Winterfield, Assistant Agricultural Engineer, Experiment Station, 1957; B.S., South Dakota State College, 1950.

Aural Wipf, English Instructor in School of Agriculture, 1958; B.A., Dakota Wesleyan University, 1926.
Clyde R. Wisch, Classified Personnel Manager, Manager of East Men's Hall, 1956, 1959; B.A., University of Minnesota, 1952, M.A., 1954.
Clinton R. Wiseman, Professor Emeritus of Education and Psychology, Graduate Faculty, 1918, 1957; B.S.A., University of Wisconsin, 1915, M.S., 1923; Ph.D., University of Minnesota, 1928.
Berniece Spiller Wittkopf, Assistant Professor of Medical Nursing, 1954, 1959; B.S., Abilene Christian College, 1944; B.S., Baylor University, School of Nursing, 1951. (On leave 1959-60.)
Chester L. Wood, S/Sgt., Training NCO, AFROTC, 1957.
Donald Woodford, Superintendent, Cottonwood Range Field Station, Assistant Agronomist, Experiment Station, 1957, 1958; B.S., South Dakota State College, 1948.
Turner R. H. Wright, Associate Professor Emeritus of Animal Husbandry, 1923, 1951; B.S., (Agriculture), University of Missouri, 1909.
Wayne G. Wright, Assistant in Agronomy, 1957; B.S., South Dakota State College, 1957.
Gertrude Stickney Young, Professor Emeritus of History, Graduate Faculty, 1907, 1943; A.B., University of Wisconsin, 1906.
Harvey G. Young, Assistant Professor of Agricultural Engineering, Assistant Agricultural Engineer, Experiment Station, 1955, 1960; A.S., North Dakota State College, 1950, B.S., 1953.
Helen A. Young, Professor of Home Economics, Head, Child Development, Graduate Faculty, 1929, 1957; B.S., University of Nebraska, 1922; M.A., Columbia University, 1937.
T. H. Young, District Extension Supervisor, 1936, 1956; Diploma Huron College, 1919.
John F. Younger, State 4-H and YMW Leader, 1945, 1957; B.S., South Dakota State College, 1943, M.S., 1956.
Janis Zarins, Assistant Cataloger, Instructor, Library, 1949, 1958; University of Riga (Latvia).
Gerald Zoerb, Associate Professor of Agricultural Engineering, Associate Agricultural Engineer, Experiment Station, Graduate Faculty, 1950, 1957; B.S., University of Saskatchewan, 1948; M.S., University of Minnesota, 1950; Ph.D., Michigan State University, 1958.

Graduate Assistants

Paul R. Allen, Graduate Assistant, Pharmacy, 1958; B.S., South Dakota State College, 1958. Resigned October 16, 1959.
Robert Anton, Graduate Research Assistant, Agronomy, 1958; B.S., Kansas State College, 1957.
Arnold Aspelin, Graduate Research Assistant, Economics, 1959; B.S., South Dakota State College, 1958.
Douglas Berg, Graduate Assistant, Physical Education, 1959; B.S., Bemidji State College, 1959.
Kenneth James Binkley, Graduate Research Assistant, Economics, 1958; B.S., South Dakota State College, 1958. Resigned July 15, 1959.
Orville M. Brand, Graduate Research Assistant, Bacteriology, 1959; B.S., South Dakota State College, 1958.
Charles E. Brickwedel, Graduate Assistant, English, 1958; A.B., Linfield College (Oregon), 1948.
Lawrence P. Cadman, Graduate Research Assistant, Dairy Husbandry, 1959; B.S., South Dakota State College, 1957.
Richard Campbell, Graduate Assistant, Physical Education, 1959; B.A., Peru State College (Nebraska), 1950, B.S., 1956.
Jack R. Canon, Graduate Assistant, Physics, 1959; B.S., South Dakota State College, 1958.
Robert O. Carlson, Graduate Research Assistant, Agronomy, 1959; B.S., South Dakota State College, 1955, M.S., 1957.
Lawrence Carson, Graduate Research Assistant, Animal Husbandry, 1959; B.S., South Dakota State College, 1956.
Carolyn Claussen, Graduate Assistant, Speech, 1958; B.A., Buena Vista (Iowa), 1958.
Donald Bruce Dahm, Graduate Assistant, Chemistry, 1959; B.S., North Dakota Agricultural College, 1959.
Carl F. Dauman, Graduate Assistant, Entomology-Zoology, 1958; B.S., South Dakota State College, 1958.
James David Davidson, Graduate Assistant, Student Personnel, 1959; B.S., South Dakota State College, 1959.
Donald A. Dickmann, Graduate Assistant, Entomology-Zoology, 1959; B.S., Lakeland College, 1958.
Budd L. Duncan, Graduate Assistant, Chemistry, 1958; B.A., Macalester College (St. Paul), 1958.
Anthony Dylla, Graduate Research Assistant, Agricultural Engineering, 1958; B.S., South Dakota State College, 1952.
Basil R. Eastwood, Graduate Assistant, Dairy Husbandry, 1958; B.S., Wisconsin State College, 1958.
Alvin W. Erichsen, Graduate Research Assistant, Agronomy, 1959; B.S., South Dakota State College, 1959. Resigned August 31, 1959.
Richard John Falk, Graduate Assistant, Chemistry, 1959; B.A., University of Minnesota, 1959.
Mansur Ferdows, Graduate Research Assistant, Dairy Husbandry, 1957; B.S., Oregon State College, 1953; M.S., South Dakota State College, 1957.
Merle Foss, Graduate Assistant, Physical Education, 1959; B.S., Jamestown College, 1958.
Peggy Foss, Graduate Assistant, Physical Education, 1959; B.A., Jamestown College, 1958.
Kenton R. Frohrip, Assistant in Music, 1959.
Paul Fruen, Graduate Teaching Assistant, Agronomy, 1957; B.S., Iowa State College, 1951.
Carl J. Furchner, Graduate Assistant, Electrical Engineering, 1959; B.S., South Dakota State College, 1957.
Hubert Haensel, Graduate Research Assistant, Agronomy, 1958; B.S., South Dakota State College, 1956.

Robert L. Hanten, Graduate Research Assistant, Entomology-Zoology, 1959; B.S., South Dakota State College, 1959.

Lloyd M. Hardy, Graduate Assistant, Animal Husbandry, 1959; B.S., South Dakota State College, 1959.

Clifford Harmelink, Graduate Research Assistant, Economics, 1958; B.S., South Dakota State College, 1958. Resigned September 1, 1959.

Edward H. Haskell, Graduate Research Assistant, Rural Sociology, 1959; B.A., Houghton College, 1959.

Bong Ho, Graduate Assistant, Electrical Engineering, 1958; B.S.,Taiwan Provincial College, 1955.

Vei-Shi Chen Ho, Graduate Assistant, Chemistry, 1959; B.S., Taiwan Provincial College, 1955.

Marcus Hoelscher, Graduate Teaching Assistant, Animal Husbandry, 1957; B.S., Texas A & M College, 1954, M.S., 1955. Resigned January 31, 1960.

Robert L. Hoffbeck, Graduate Research Assistant, Agronomy, 1959; B.S., South Dakota State College, 1959.

Birkett Howarth, Jr., Graduate Assistant, Animal Husbandry, 1958; B.S., National Agricultural College (Pennsylvania), 1958.

Chester Chen-chiu Huang, Graduate Research Assistant, Agronomy, 1959; B.S., National Sun Yat Sen University, 1949; M.Ed., Sam Houston State Teachers College, 1959.

Charles J. Jacobson, Graduate Assistant, Rural Sociology, 1959; B.A., University of Minnesota, 1957. Resigned October 15, 1959.

Charles H. C. Kao, Graduate Research Assistant, Economics, 1959; B.S., Taiwan Provincial College of Agriculture, 1958.

Douglas W. Kennedy, Graduate Teaching Assistant, Bacteriology, 1958; B.S., South Dakota State College, 1957.

Nosratallah Khatibi, Graduate Research Assistant, Economics, 1958; B.S., University of Teheran, 1952; M.S., University of Wisconsin, 1957.

Darlien G. Klug, Graduate Assistant, Rural Sociology, 1959; B.A., Yankton College, 1930.

Henry T. Knudson, Graduate Research Assistant, Agricultural Engineering, 1959; B.S., South Dakota State College, 1958.

Laverne M. Krista, Graduate Research Assistant, Poultry Husbandry, 1958; B.S., South Dakota State College, 1958.

Jyh-Fa Kuo, Graduate Assistant, Chemistry, 1959; B.S., National Taiwan University, 1957.

Charles L. Lamke, Graduate Assistant, Bacteriology, 1959; B.S., South Dakota State College, 1959.

Ronald L. W. Larsen, Photo Laboratory Technician, Audio-Visual Center, 1959; B.S., South Dakota State College, 1959.

Thomas Law, Graduate Teaching Assistant, Bacteriology, 1958; B.S., South Dakota State College, 1958. Resigned September 30, 1959.

Charles C. H. Lee, Graduate Assistant, Electrical Engineering, 1958; B.S., National Taiwan University (Formosa), 1956.

James L. Leibfried, Graduate Research Assistant, Economics, 1958; B.S., South Dakota State College, 1958. Resigned July 15, 1959.

John W. Lightfield, Graduate Assistant, Botany, 1959; B.S., South Dakota State College, 1959.

Robert E. Litke, Graduate Assistant, Speech, 1958; B.A., San Jose State College, 1955.

George D. Marx, Graduate Assistant, Dairy Husbandry, 1958; B.S., Wisconsin State College, 1958.

Ann Marie Matheny, Graduate Teaching Assistant, Rural Sociology, 1959; B.S., South Dakota State College, 1942.

Mary Ann McClellan, Graduate Assistant, English, 1959; B.S., State Normal and Industrial College, 1957.

Wayne B. McGillick, Graduate Assistant, Animal Husbandry, 1959; B.S., South Dakota State College, 1958.

Edward P. Michalewicz, Graduate Assistant, Dairy Husbandry, 1959; B.S., Wisconsin State, 1958.

Eddy Miedema, Graduate Assistant, Chemistry, 1959; B.S., Southern State Teachers College, 1959.

Joyce E. Milliken, Graduate Assistant, Speech, 1959; B.A., University of South Dakota, 1951.

C. L. Moore, Graduate Research Assistant, Dairy Husbandry, 1955; B.S., South Dakota State College, 1953, M.S., 1957. Resigned August 15, 1959.

John J. Mortvedt, Graduate Research Assistant, Agronomy, 1958; B.S., South Dakota State College, 1953. Resigned September 15, 1959.

Gene Murra, Graduate Research Assistant, Economics, 1959; B.S., South Dakota State College, 1959.

Gordon Nelson, Graduate Research Assistant, Plant Pathology, 1957; B.S., University of Alberta (Canada), 1949, M.S., 1951.

Raymond C. Newton, Graduate Assistant, English, 1959; A.B., Fort Hayes Kansas State College, 1957.

Don Novey, Graduate Research Assistant, Economics, 1957; B.S., South Dakota State College, 1954. Resigned September 9, 1959.

Adrian L. Parmeter, Graduate Assistant, Speech, 1958; B.A., Huron College, 1958.

Vernon D. Pepper, Graduate Research Assistant, Agricultural Engineering, 1959; B.S., South Dakota State College, 1959.

Jane-Ru Po, Graduate Research Assistant, Agronomy, 1959; B.S., National Taiwan University, 1958.

Donald H. Reid, Graduate Assistant, Animal Husbandry, 1958; B.S., Cornell University, 1958.

Donald Nelson Rollo, Graduate Assistant, Printing and Journalism, 1959; B.S., Rochester Institute of Technology, 1957.

Gene Ronald, Graduate Research Assistant, Dairy Husbandry, 1957; B.S., South Dakota State College, 1958. Resigned August 31, 1959.

Wayne Schutjer, Graduate Research Assistant, Economics, 1959; B.S., South Dakota State College, 1959.

Donald H. Silva, Graduate Research Assistant, Economics, 1959; B.A., Blackburn, 1959.
Norval Sinclair, Graduate Teaching Assistant, Bacteriology, 1958; B.S., South Dakota State College, 1957. Resigned August 10, 1959.
Cora R. Sivers, Graduate Assistant, Home Economics, 1959; B.S., South Dakota State College, 1940.
Betsy Anne Slagle, Graduate Assistant, Chemistry, 1959; B.A., Austin College, 1958.
Glen R. Smith, Graduate Assistant, Physical Education, 1959; B.A., Huron College, 1959.
James M. Smith, Graduate Assistant, Agricultural Education, 1959; B.S., South Dakota State College, 1954.
Walter B. Splittstoesser, Graduate Research Assistant, Agronomy, 1958; B.S., University of Minnesota, 1958.
Virgil A. Stangeland, Graduate Assistant, Poultry Husbandry, 1959; B.S., South Dakota State College, 1959.
P. Anne Straw, Graduate Assistant, Mathematics, 1957; B.S., South Dakota State College, 1953.
Ted Switzer, Graduate Assistant, Speech, 1958; B.A., College of Pacific (California), 1958.
Sadi A. Tamimi, Graduate Research Assistant, Agronomy, 1959; B.S., Colorado State University, 1956; M.S., University of New Hampshire, 1958.
Marion M. Thurston, Graduate Research Assistant, Animal Husbandry, 1959; B.S., South Dakota State College, 1958.
Robert Travis, Graduate Assistant, Chemistry, 1958; B.S., Black Hills Teachers College, 1957.
Curtis M. Twedt, Graduate Assistant, Entomology-Zoology, 1958; B.S., South Dakota State College, 1958.
Kenneth Urquhart, Graduate Assistant, Pharmacy, 1959; B.S., South Dakota State College, 1959.
Charles Van Tiger, Graduate Assistant in English, 1958; B.A., Iowa State Teachers College, 1958. Resigned September 1, 1959.
Wilford H. Wallace, Graduate Teaching Assistant, Agronomy, 1958; B.S., South Dakota State College, 1952.
James Welton, Graduate Assistant, Physical Education, 1959; B.S., Morningside College, 1956.
Robert A. Wiles, Graduate Research Assistant, Agricultural Engineering, 1959; B.S., South Dakota State College, 1957.
Russell L. Wilson, Graduate Assistant, Physics, 1959; B.S., South Dakota State College, 1958.
Maurice W. Wintersteen, Graduate Assistant, Speech, 1959; B.S., Southern State Teachers College, 1959.

1959 Summer School Staff

H. M. Briggs, Ph.D., President
Stanley Sundet, Ph.D., Professor and Head, Department of Education, Director of Summer School
A. R. Christensen, Ph.D., Administrative Assistant
Wesley A. Bugg, B.S.A., Director of Finance
David B. Doner, B.S., Director, Admissions and Records
R. Y. Chapman, M.A., Dean of Student Personnel
Orville G. Bentley, Ph.D., Dean of Agriculture
Melvin L. Manning, M.S., Dean of Engineering
Frances M. Hettler, Ph.D., Dean, Division of Home Economics
Inez Hinsvark, M.A., Dean, Division of Nursing
Floyd J. LeBlanc, Ph.D., Dean, Division of Pharmacy
Frank G. Schultz, Ph.D., Dean, Division of Science and Applied Arts
Oscar Olson, Ph.D., Dean, Graduate Division
Vivian V. Volstorff, Ph.D., Dean of Women, Professor of History
Orlin E. Walder, L.H.D., Dean of Men
Rudolph A. Larson, Secretary Emeritus (Deceased December 24, 1959)
Albert W. Adams, M.S., Assistant Professor of Poultry Husbandry
George R. Alger, B.S., Instructor in Civil Engineering
Glenn H. Allcott, M.S., Instructor in Chemistry
Marvin O. Allum, M.S., Assistant Professor of Entomology-Zoology
Howard Amen, M.Ed., Instructor in Mathematics, Assistant Freshman Football Coach
Richard D. Anderson, M.A., Professor of Engineering Shops, Head of Department
Clara Brown Arny, M.S., Visiting Lecturer
Harold S. Bailey, Ph.D., Professor of Pharmaceutical Chemistry
R. J. Baker, Ph.D., Professor of Dairy Husbandry and Bacteriology
Robert D. Bell, Ph.D., Assistant Professor of Economics
V. A. Bell, M.S., Educational Assistant, (Part Time)
Edward C. Berry, Ph.D., Professor of Bacteriology, Head of Department
Russell L. Berry, M.S., Associate Professor of Economics
E. G. Blinn, M.S., Associate Professor of Printing and Journalism
Bertha Boekelheide, M.S., Associate Professor of Rural Nursing
Bernard J. Brandwein, Ph.D., Associate Professor of Chemistry
Robert Brasted, Ph.D., Visiting Lecturer
D. F. Breazeale, Ph.D., Professor of Dairy Husbandry, Head of Department
Daryle Busch, Ph.D., Visiting Lecturer
H. E. Calkins, Ph.D., Associate Professor, Bacteriology
Kenneth Carpenter, M.M.E., Assistant Professor of Music, Director of Bands
J. N. Cheadle, M.S., Professor of Electrical Engineering
Douglas Chittick, M.S., Professor of Rural Sociology
Kenneth D. Christianson, M.S., Assistant Professor of Mechanical Engineering
Allen R. Clark, M.S., Assistant Professor of Economics
Geraldine Crabbs, M.S., Assistant Professor and Head of Women's Physical Education
Clarence Denton, M.A., Assistant Professor of Speech
Ruth Dickinson, M.A., Assistant Professor of Secretarial Science
C. A. Dinkel, Ph.D., Professor of Animal Husbandry
A. E. Dracy, Ph.D., Professor of Dairy Husbandry
Gayland Draegert, Ph.D., Associate Professor of Speech
Budd Duncan, B.S., Graduate Assistant in Chemistry
Richard Edie, M.F.A., Assistant Professor of Art
Lawrence B. Embry, Ph.D., Professor of Animal Husbandry
James C. Emmerich, B.S., Associate Professor of Physical Education
Helen Engebretson, M.A., Associate Professor of Mathematics
John M. Erickson, Ph.D., Associate Professor of Chemistry
A. D. Evenson, B.S., Associate Professor of Printing and Journalism and Supervisor of Curriculum
Ralph O. Felberg, M.S., Assistant Professor of Economics
L. O. Fine, Ph.D., Professor of Agronomy, Head of Department
J. L. Foreman, D.Ed., Assistant Professor of Education
H. M. Froslie, Ph.D., Professor of Physics, Head of Department
R. B. Frost, Ph.D., Professor of Physical Education, Director of Athletics, Head of Department
H. W. Gadda, M.S., Assistant Professor of Education
Lilyan Galbraith, D.Ed., Professor and Head of Home Economics Education
William H. Gamble, M.S., Professor of Electrical Engineering, Head of Department
A. B. Garrett, Ph.D., Visiting Lecturer
Joseph A. Giddings, M.A., Professor of English, Head of Department
Ralph Ginn, M.A., Professor of Physical Education, Head Football Coach, Associate Director of Athletics
C. Edgar Goyette, Ph.D., Assistant Professor of Philosophy

Raymond J. Greb, Ph.D., Associate Professor of Entomology-Zoology
R. R. Hamilton, J.D., Visiting Lecturer
James M. Harrison, Ph.D., Professor of English
G. S. Harshfield, D.V.M., Professor of Veterinary Science, Head of Department
Nelle A. Hartwig, M.S., Associate Professor of Entomology-Zoology
John Phillip Hendrickson, Ph.D., Associate Professor of Political Science
R. D. Herold, M.S., Associate Professor of Industrial Arts, Education
Charles Hinkle, Ph.D., Associate Professor of Agricultural Engineering
Bong Ho, B.S.,, Assistant Half-Time in Electrical Engineering
David J. Holden, Ph.D., Associate Professor of Botany, Head of Department
L. D. Horrigan, M.S., Assistant in Education (Part Time)
Carl Horst, M.A., Instructor in Secretarial Science
Kenneth E. Howard, M.S., Assistant Professor of Chemistry
Hazel I. Hubbs, B.S., Professor of Nursing, Head, Department of Rural Nursing
Ervin Huether, M.Ed., Associate Professor of Physical Education
H. E. Huls, Ph.D., Associate Professor of Education
James Iverson, M.S., Assistant Professor of Physical Education, Head Basketball Coach
Paul Jacobson, A.A., Assistant in Welding, Engineering Shops
Canute M. Johnson, M.S., Assistant Professor of Economics, Assistant to Director of Finance
Emory E. Johnson, M.S., Professor of Civil Engineering, Head of Department
Leslie D. Kamstra, Ph.D., Associate Professor of Animal Husbandry
Harlan L. Klug, Ph.D., Professor of Chemistry
Paul H. Kohler, Ph.D., Associate Professor of Animal Husbandry
William Kohlmeyer, M.S., Professor of Poultry Husbandry, Head of Department
Albert W. Kranzler, M.S., Associate Professor of Mathematics
Dennis L. Krzyzaniak, M.S., Assistant Professor of Chemistry
Lorys Larson, B.S., Instructor in Civil Engineering
Marvin Larson, M.S., Assistant Professor of Agricultural Engineering
C. H. Lee, B.S., Assistant Half-Time in Electrical Engineering
J. K. Lewis, M.S., Associate Professor of Animal Husbandry
Helen Ludwig, M.S., Visiting Lecturer
William C. McCone, M.S., Associate Professor of Animal Husbandry
Samuel A. McCrory, M.A., Professor of Horticulture, Head of Department
Donald McRoberts, B.S., Instructor in Chemistry
Herbert B. MacDougal, M.S., Professor of Mathematics, Head of Department
Vernon Malan, Ph.D., Associate Professor of Rural Sociology
Stanley Marshall, M.A., Assistant Professor of Physical Education
Bruce L. Miller, Ph.D., Associate Professor of Physics
Clyde W. Miller, B.S., Instructor in Printing
Dennis L. Moe, M.S., Professor of Agricultural Engineering, Head of Department
Mrs. Florence Moxnes, M.S., Associate Professor of Clinical Nursing. Head of Department
Alfred L. Musson, Ph.D., Professor of Animal Husbandry, Assistant to Dean of Agriculture, Director in Charge of Farm Operations
C. M. Nagel, Ph.D., Professor of Plant Pathology, Head of Department
William E. Nickell, Ph.D., Professor of Physics
Edward S. Olson, M.S., Assistant Professor of Botany
Donald D. Parker, Ph.D., Professor of History, Head of Department of History and Political Science
Robert M. Pengra, Ph.D., Assistant Professor of Bacteriology
George H. Phillips, M.S., Professor of Printing and Journalism, Head of Department
John D. Phoenakis, Ph.D., Assistant Professor of Rural Sociology
Donald R. Progulske, Ph.D., Assistant Professor of Entomology-Zoology
Herbert G. Pulsifer, Ph.D., Associate Professor of Plant Pathology
Wayne Puttmann, D.Ed., Associate Professor of Education
William F. Railing, Ph.D., Associate Professor of Economics
Kenneth Redman, Ph.D., Professor of Pharmacognosy, Head of Department
John L. Rezatto, Ed.D., Professor of Music, Head of Department
J. Ernest Richards, M.A., Associate Professor of Mathematics
Marvin P. Riley, M.A., Associate Professor of Rural Sociology
Fred Rittershaus, B.S., Assistant in Civil Engineering
Madeline Ritz, Ed.D., Professor of Art, Head of Department
Glenn Robinson, M.A., Associate Professor of Physical Education
Robert L. Saffle, Ph.D., Assistant Professor of Animal Husbandry
J. Anthony Samenfink, Ed.D., Professor, Child Development and Family Life, Home Economics
Wanyce Sandve, R.N., Visiting Lecturer
Howard M. Sauer, M.A., Professor of Rural Sociology, Head of Department
Ernest Schusky, M.A., Instructor, Assistant in Rural Sociology
Marion L. Shane, Ph.D., Professor of English
Zaher Shoukry, M.S., Assistant Professor of Civil Engineering

Donald E. Sikkink, Ph.D., Associate Professor of Speech, Head of Department
Gerald B. Spawn, Ph.D., Professor of Entomology-Zoology, Head of Department
Harlan Stensaas, B.S., Instructor in Printing and Journalism
J. O. Storry, M.S., Professor of Electrical Engineering, Administrative Assistant to Dean
Catherine Sundstrom, B.S., Visiting Lecturer
Charles A. Taylor, M.S., Associate Professor of Botany
Robert Travis, B.S., Graduate Assistant in Chemistry
R. C. Wahlstrom, Ph.D., Professor of Animal Husbandry, Head of Department
Jason S. Webster, M.S., Associate Professor of Agronomy, Assistant to Dean of Agriculture (Resigned September 30, 1959)
Victor S. Webster, Ph.D., Professor of Chemistry, Head of Department
Irene L. Wente, M.S., Professor of Mathematics
Eugene Whitehead, M.S., Associate Chemist, Experiment Station Chemistry
E. L. Whitmore, A.M., Assistant Professor of Education
John Wiley, Ph.D., Visiting Lecturer
P. W. Williams, M.S., Associate Professor of Physics
Warren Williamson, M.S., Assistant Professor of Physical Education, Freshman Football Coach
Carl Wilson, D.Ed., Associate Professor of Speech (Resigned May 31, 1959)
Lloyd R. Wilson, M.S., Studies, Training and Program Coordinator, Extension
Wayne Wright, B.S., Assistant in Agronomy
Gerald C. Zoerb, Ph.D., Associate Professor of Agricultural Engineering

Employees of State and Federal Cooperating Agencies Who Are Located on the College Campus

Grant L. Cornelius, Agricultural Economist (U.S.D.A.), 1958; B.S., University of Nebraska, 1950, M.A., 1956.
Rex D. Helfinstine, Agricultural Economist, 1952, 1957; B.S., Iowa State College, 1932, M.S., 1947.
Michael Komanetsky, Plant Inspector, 1955. 1957; A.A., Blackburn College, 1948; B.S., Iowa State College, 1951, M.S., South Dakota State College, 1956.
Philip B. Price, Assistant Professor, Assistant Agronomist, Experiment Station, Agronomist, (U.S.D.A.), 1957; B.S., Mankato State College (Minnesota), 1948; M.S., University of Minnesota, 1951; Ph.D., University of Maryland, 1957.
Charles Swanson, Plant Physiologist (U.S.D.A.), Associate Agronomist, Experiment Station, Graduate Faculty, 1956; B.S., University of North Dakota, 1948; M.S., 1949, Ph.D., Iowa State College, 1953.
C. R. Umback, Agricultural Engineer (USDA-ARS-SWC), 1957; B.S., South Dakota State College, 1957.

County Extension Agents

Name, Address, County

Galen Kelsey, Plankinton, Aurora
Gale Peppers, Huron, Beadle
Jerry Mach, Martin, Bennett
Ray Mueller, Tyndall, Bon Homme
Alvar Aho, Brookings, Brookings
Laurel Howe, Aberdeen, Brown
Melvin Syring, Chamberlain, Brule
Kenneth Leslie, Belle Fourche, Butte
Michael Madden, Mound City, Campbell
Caroll P. Ness, Lake Andes, Charles Mix
George P. Schanck, Clark, Clark
Raymond Venard, Vermillion, Clay
Fred Morris, Watertown, Codington
Dennis Petersen, McIntosh, Corson
R. J. Gibson, Custer, Custer
J. Ervin Boyd, Mitchell, Davison
Al O'Connell, Webster, Day
Robert Pylman, Clear Lake, Deuel
Herbert Lippert, Timber Lake, Dewey
Norman Telkamp, Armour, Douglas
Leonard O. Nelson, Ipswich, Edmunds
Floyd Weidmeier, Hot Springs, Fall River
Douglas Wallace, Faulkton, Faulk
Vern L. Beare, Milbank, Grant
J. Harvey Glover, Burke, Gregory
Chester Peterson, Philip, Haakon
Vane P. Miller, Hayti, Hamlin
Harlan Dirks, Miller, Hand
Kenneth Nelson, Buffalo, Harding
Duane Butts, Alexandria, Hanson
Douglas Pringle, Pierre, Hughes
Denver Parks, Olivet, Hutchinson

Name, Address, County

Wilford Paynter, Highmore, Hyde
Harris Budahl, Wessington Springs, Jerauld
———, Murdo, Jones
Otto F. Sckerl, De Smet, Kingsbury
Elton Budahl, Madison, Lake
Ray Rezek, Spearfish, Lawrence
Bernard Uthe, Canton, Lincoln
Thomas W. Strachan, Kennebec, Lyman
R. B. Kelton, Salem, McCook
Wayne Nesby, Leola, McPherson
Richard Durland, Britton, Marshall
Donald Klebsch, Sturgis, Meade
David Blanchard, Howard, Miner
Glenn Schrader, Sioux Falls, Minnehaha
C. M. Culhane, Flandreau, Moody
Kirk T. Mears, Rapid City, Pennington
Elbert Bentley, Bison, Perkins
Francis Buckley, Gettysburg, Potter,
Cecil Sanderson, Sisseton, Roberts
John N. Maher, Woonsocket, Sanborn
Ralph Sorenson, Redfield, Spink
Delwin Jensen, Ft. Pierre, Stanley
Harold E. Wood, Onida, Sully
Ray Eilers, Winner, Tripp
Darrel Pahl, Parker, Turner
Harmon Boyd, Elk Point, Union
Francis W. Crandall, Selby, Walworth
Myron Barber, Yankton, Yankton
John Powell, Dupree, Ziebach
C. H. Wagner (Emeritus), Clark
F. A. Haley (Emeritus), Hot Springs

Assistant or Associate County Extension Agents

Name, Address, County

Eugene Larson, Associate, Huron, Beadle
Robert Revell, Associate, Brookings, Brookings
Wendell Rea, Associate, Aberdeen, Brown
———, Associate, Belle Fourche, Butte
James Blackketter, Lake Andes, Charles Mix
Joseph Sperl, Watertown, Codington
William Malcom, Mitchell, Davison
Perry Fales, Assistant, Webster, Day
Gordon Kunze, Milbank, Grant
———, Associate, Burke, Gregory
Merle Aamot, Assistant, Hayti, Hamlin

Name, Address, County

John Lienemann, Assistant, Canton, Lincoln
Joe Rovere, Associate, Sturgis, Meade
James Likness, Sioux Falls, Minnehaha
Donald Scherschligt, Rapid City, Pennington
Joe E. Schuch, Assistant, Sisseton, Roberts
Robert Sampson, Associate, Redfield, Spink
Loren Rommann, Associate, Yankton, Yankton
Fay Kerr, Associate, Elk Point, Union
Gerald Langbehn, Assistant, Miller, Hand
William Anderson, Assistant at Large, Sisseton, Roberts

Indian Agents

Name, Title, Address

John P. Mills, Assistant Agent, Pierre
Clarence Allen, Assistant Agent, Oglala
Robert Edwards, County Agent, Porcupine
Donald Hostbjor, Associate Agent, Dupree

Name, Title, Address

Lloyd Smith, Assistant Agent, McIntosh
Louie DeSmet, County Agent, Mission
Eugene Zimmerman, Assistant Agent, White River
Francis Fielder, Associate Agent, Cheyenne Agency

Home Demonstration Agents

Name, Address, County

Theda Nelle Scott, Huron, Beadle
Mrs. Margaret Nelson, Martin, Bennett
Mrs. Hazel Reich, Tyndall, Bon Homme
Mrs. Margaret Laughrey, Brookings, Brookings
Mrs. Elizabeth Easton, Aberdeen, Brown
Mrs. Elsie Wood, Belle Fourche, Butte
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———, Lake Andes, Charles Mix
Mrs. Nancy Fischer, Clark, Clark
Mrs. Louise Welch, Vermillion, Clay
Mrs. Clara W. Johnson, Watertown, Codington
Shirley Tisdale, Custer, Custer
Irene McLoughlin, Mitchell, Davison
Mrs. Jan Ryan, Webster, Day
Doris Jean Cloos, Clear Lake, Deuel
———, Cheyenne Agency, Dewey
Mrs. Eleanore Gruebele, Ipswich, Edmunds
Miss Janet Atkinson, Associate, Hot Springs, Fall River
Mrs. Clare Eslinger, Milbank, Grant
———, Philip, Haakon, Jackson, Washabaugh
———, Hayti, Hamlin
Mrs. Faith M. Callahan, Miller, Hand
Mrs. Alta Harrington, Pierre, Hughes-Stanley
Ora Sloat (Emeritus), Gettysburg, Kingsbury
Ardis Gatons, De Smet, Kingsbury
Mary Jane Stangl, McIntosh, Corson

Name, Address, County

Mrs. Helen Barney, Rapid City, Pennington
Mrs. Iris Leffler, Madison, Lake
Charlotte Bryant, Spearfish, Lawrence
Shirley Kruse, Canton, Lincoln
———, Kennebec, Lyman
Mrs. Grace Simons (Emeritus), Salem, McCook
Mary Fleming, Salem, McCook
———, Britton, Marshall
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Mrs. Ellen Hougland, Howard, Miner
Mrs. Laura Young, Sioux Falls, Minnehaha
Louise Hofstad, Flandreau, Moody
Mrs. Mickey Bovee, Rapid City, Pennington
Delores Linaman, Sisseton, Roberts
Mrs. Marilyn Stone, Woonsocket, Sanborn
Mrs. Bessie T. Cornelius, Associate, Oglala, Shannon
Mrs. Illys Otis, Associate, Porcupine, Shannon
Mrs. Darleen Kurtz, Redfield, Spink
Mildred Tisher, Onida, Sully
Dorothy Shetler, Winner, Tripp
Lois Fulton, Parker, Turner
———, Elk Point, Union
Delores Klaudt, Selby, Walworth
Jessie Bliem, Yankton, Yankton
———, Dupree, Ziebach
Mrs. Evelyn Schmidt, Associate, Mission, Mellette, Todd

Assistant Agents

Name, Address, County

Mrs. Bernice Buntley, Brookings, Brookings
Bernice Kidman, Sioux Falls, Minnehaha
Mrs. Bonnie Glass, Rapid City, Pennington

Name, Address, County

Shirley Tisdale, Aberdeen, Brown
Mrs. Charlotte Clarke, Aberdeen, Brown

Summary of Enrollment 1958-1959

COLLEGIATE

	Men	Women	Total	Totals
Graduates	309	53	362	
Seniors	810	166	976	
Juniors	650	133	783	
Sophomores	658	165	823	
Freshmen	877	260	1137	
Specials	79	106	185	
Total Academic Year	3383	883	4266	
Summer Session 1958	658	174	832	
Total Collegiate Enrollment	4041	1057	5098	5098

SUMMER WORKSHOPS

Totals in all workshops	110	104	214	
in more than one workshop	–24	–11		
duplicate in summer school	–43	–36		
Total in Workshops	43	57	100	100

SCHOOL OF AGRICULTURE

First Year	39			
Second Year	26			
Third Year	8			
Total in School of Agriculture	73		73	73
GRAND TOTAL	4157	1114	5271	5271
Names Repeated	–424	–84	–508	–508
NET TOTAL ENROLLMENT June 1958 to JUNE 1959	3733	1030	4763	4763

NOTE: Section abbreviations used in this index in the order that the sections appear in the catalog: **FW,** Front White Section; **Gr,** Green Section; **G,** Gold Section; **B,** Blue Section; **P,** Pink Section; **I,** Ivory Section; and **BW,** Back White Section.

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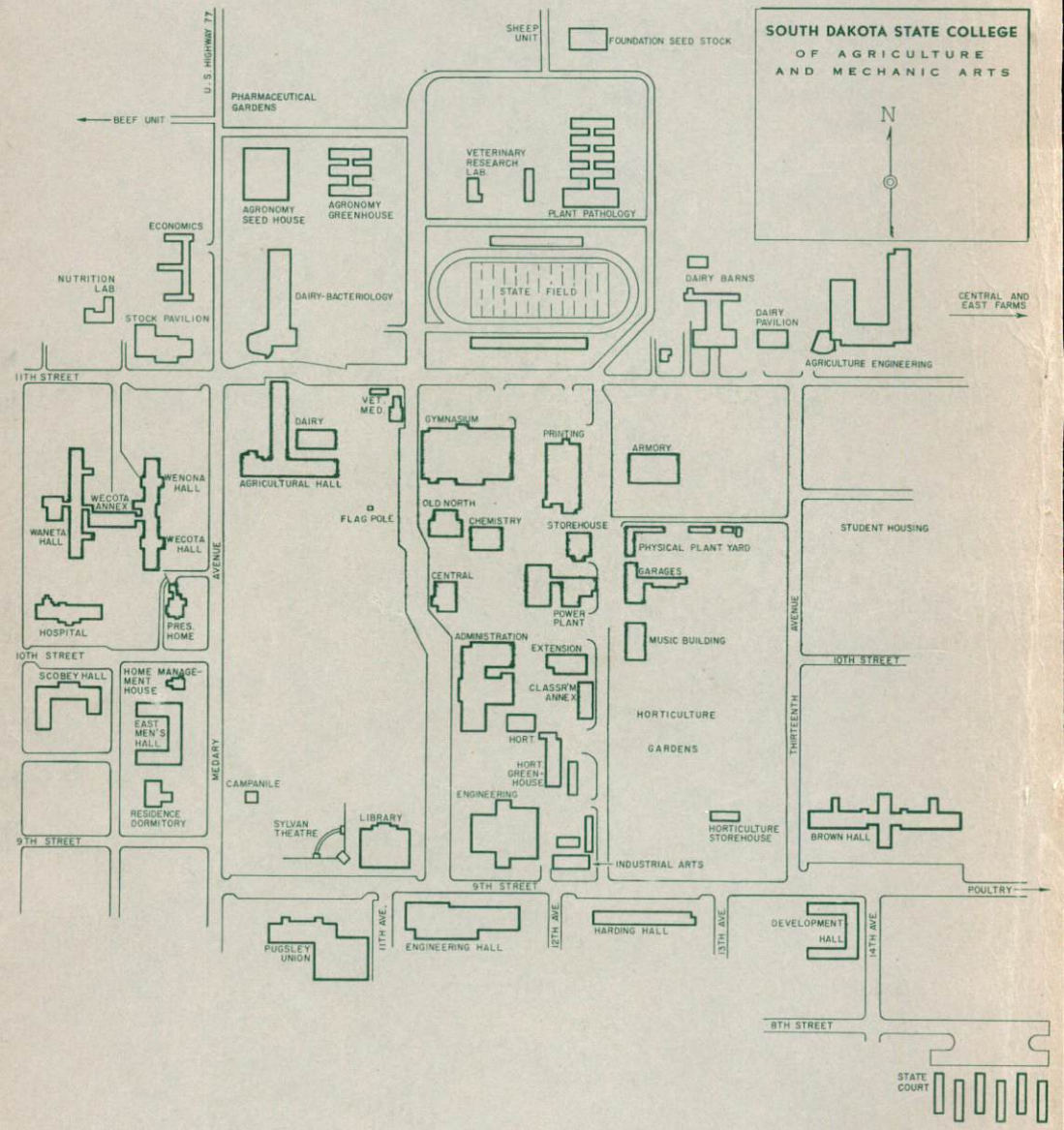
SOUTH DAKOTA STATE COLLEGE
OF AGRICULTURE
AND MECHANIC ARTS
N
U.S. HIGHWAY 77
BEEF UNIT
PHARMACEUTICAL GARDENS
SHEEP UNIT
FOUNDATION SEED STOCK
VETERINARY RESEARCH LAB.
PLANT PATHOLOGY
AGRONOMY SEED HOUSE
AGRONOMY GREENHOUSE
ECONOMICS
NUTRITION LAB
STOCK PAVILION
DAIRY-BACTERIOLOGY
STATE FIELD
DAIRY BARNS
DAIRY PAVILION
AGRICULTURE ENGINEERING
CENTRAL AND EAST FARMS
11TH STREET
VET. MED.
DAIRY
AGRICULTURAL HALL
GYMNASIUM
PRINTING
ARMORY
WENONA HALL
WECOTA ANNEX
WANETA HALL
WECOTA HALL
FLAG POLE
OLD NORTH
CHEMISTRY
STOREHOUSE
PHYSICAL PLANT YARD
STUDENT HOUSING
CENTRAL
GARAGES
POWER PLANT
HOSPITAL
PRES. HOME
MEDARY AVENUE
ADMINISTRATION
EXTENSION
MUSIC BUILDING
THIRTEENTH AVENUE
10TH STREET
SCOBEY HALL
HOME MANAGEMENT HOUSE
CLASSR'M ANNEX
HORTICULTURE
EAST MEN'S HALL
HORT.
GARDENS
HORT. GREENHOUSE
CAMPANILE
ENGINEERING
RESIDENCE DORMITORY
SYLVAN THEATRE
LIBRARY
HORTICULTURE STOREHOUSE
BROWN HALL
9TH STREET
INDUSTRIAL ARTS
POULTRY
PUGSLEY UNION
11TH AVE.
ENGINEERING HALL
12TH AVE.
HARDING HALL
13TH AVE.
DEVELOPMENT HALL
14TH AVE.
8TH STREET
STATE COURT